# Main Catalogue

International Edition

LAPP

# Dear readers, customers and business partners,



Our story began with the pioneering ÖLFLEX®, the world's first industrially manufactured oil-resistant and flexible control cable with colour coding. It stands for our tireless pursuit of innovation and excellence. The same spirit drives us today as we continue to focus on what really matters - you as our customer!

Welcome to the LAPP journey. Here you will encounter technology, innovation and reliability. Since our beginnings in Stuttgart, Germany, back in 1959, we've transformed from a modest family business into a family-owned, global leader. LAPP is not just a brand; we are your trusted partner in connectivity solutions with a presence in over 80 countries worldwide.

At LAPP, we believe that the heart of every solution lies in human connection. Our worldwide team of experts is developing connectivity technologies that meet your demands. With over 50,000 products, we provide not only standard offerings but also customised solutions. Our mission is simple: **We keep your industry alive!**

This catalogue offers a glimpse into the extensive product portfolio and services we provide. For a comprehensive view, please also explore our Online Shop, where you will find detailed technical specifications and further insights. Our commitment to quality, expertise and a personalised service ensures seamless operations for your business.

Thank you for your trust and partnership,

**Matthias Lapp**
CEO, LAPP Group

# Legend

## Industries


Automation


e-Mobility


Food & Beverage


Mechanical and Plant Engineering


Oil & Gas


Rail


Solar Energy


Wind Energy

## Product charateristics


Suitable for outdoor use


Good chemical resistance


Flame-retardant



Wide clamping range


Halogen-free


Heat-resistant


Cold-resistant


Corrosion-resistant


Maximum vibration protection


Mechanical resistance


Assembly time


Low weight


Oil-resistant


Optimum strain relief


Space requirement


Cable chain


Cleanroom


Robust


Acid-resistant


Reliability


Integrated SKINTOP® cable gland


Voltage


Connector with standard housing unit


Interference signals



Temperature-resistant


Torsion-resistant


Torsion load



UV-resistant


Waterproof


Variety of approval certifications

## Please note

The purpose of the icons is to provide you with a quick overview and a rough indication of the product features to which the corresponding information relates. You can find details of product characteristics in the “technical data” sections on the product pages.

# Roots in Stuttgart – at home in the world!




More than
**50,000**
standard products

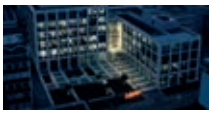
Active in a total of over
**80**
countries worldwide

**8**
strong brands

**1**
innovation after another

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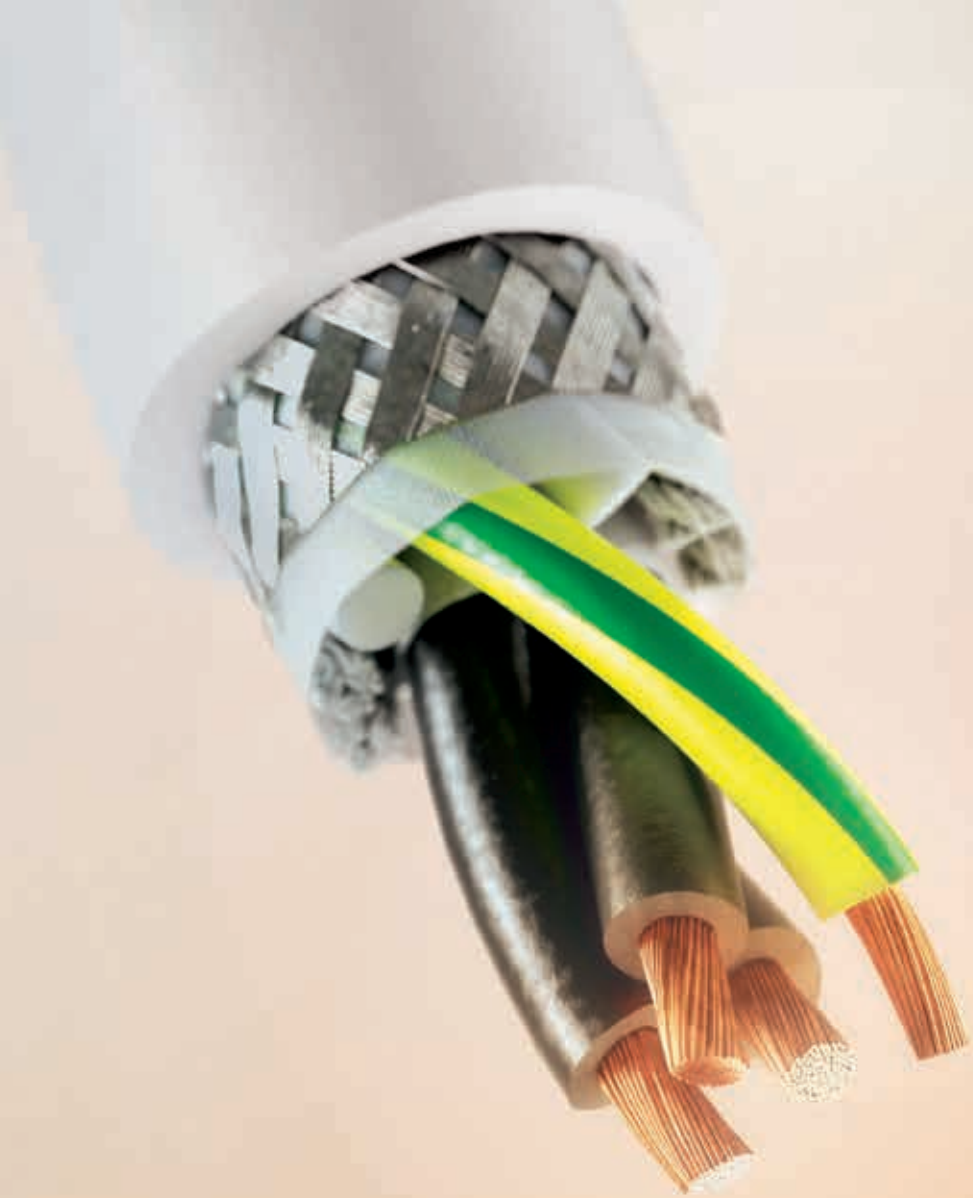
## Tools & accessories



Tools and cable accessories 1097

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# Our mission: keeping your industry alive!

Bringing industries to life – that is our purpose. Ever since Oskar Lapp invented the first industrially manufactured power and control cables, we have been providing individual solutions tailored to the needs of our customers.
**Our goal: to help customers get the best out of their industry.**

# A family company in the third generation – since 1959

Throughout our history, our values have determined who we are: customer-oriented, success-oriented, family-oriented and innovative. These are the values for which the Lapp family stands. **Now in the third generation.**



## **1st** generation

Oskar and Ursula Ida Lapp invented ÖLFLEX®, founded the company and laid the foundation for the company's success today.



## **2nd** generation

Siegbert and Andreas Lapp have driven growth and strengthened international expansion.



## **3rd** generation

Matthias Lapp takes over as CEO,
Katharina Lapp joins the Supervisory Board.



# Industry solutions

At LAPP, everything begins with our customers and their unique challenges. We develop our products and solutions by deeply understanding the industries in which our customers operate – from machinery and plant engineering to intralogistics and beyond. Our focus industries are more than market segments; they are ecosystems we know inside out.

With in-depth knowledge of applications and connectivity requirements, we design solutions that go beyond cables and connectors. We empower our customers with reliable, high-performance products tailored to their needs – helping them increase efficiency, reduce complexity and stay competitive in their markets. The following industry examples showcase how LAPP's connectivity solutions are applied across a wide range of use cases – always with the goal of enabling our customers to succeed.

## Intralogistics

With a global product portfolio, LAPP offers a comprehensive selection of high-quality products that can be used in every intralogistics and automation application. Our solutions are fully compatible and flexible - for example, for stacker cranes or shuttles in ASRS, automatic small parts storage, conveyor systems, AMRs or AGVs.





## Railway Technology

Always on the fast track: millions of people around the world travel by train each day and the demand for public transport is growing. So are the expectations for the accessibility, punctuality, safety and reliability of rail transport. The cables, connectors, patch cords etc. that are used play a major role in determining whether these expectations are met.
That is why LAPP supplies tested and certified system solutions for railway technology from a single source.

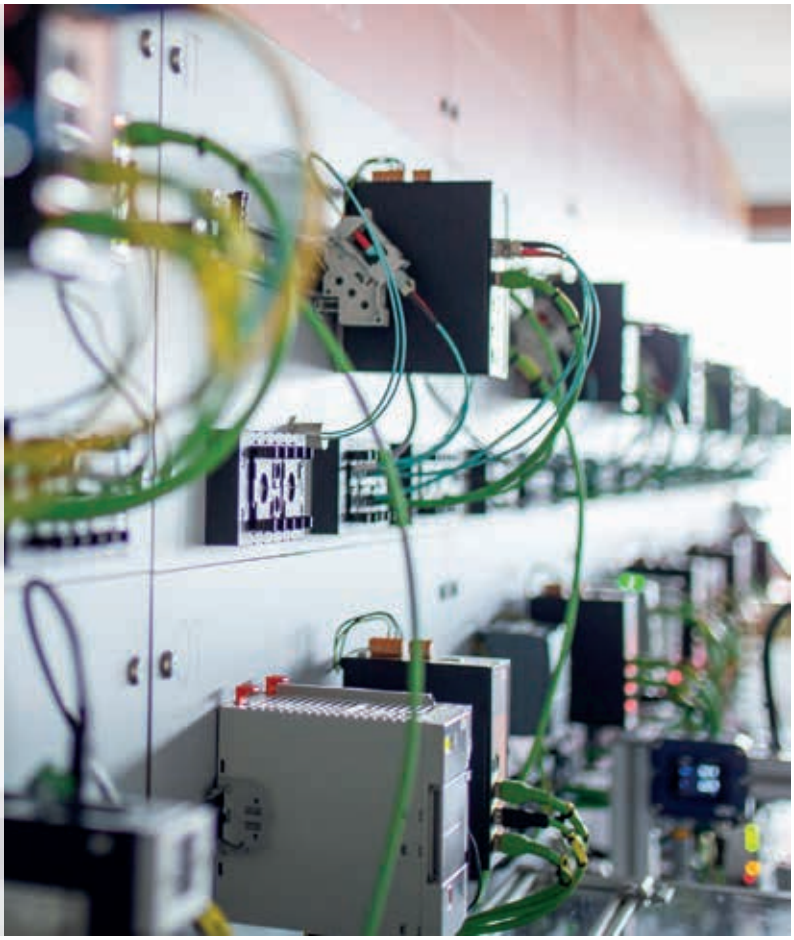


## Automation and Robotics

Industrial machinery is increasingly expected to deliver more power, process more data and operate continuously. LAPP's extensive portfolio has been developed to offer the high performance, robustness and flexibility required in complex industrial environments. Not only do the products withstand the strains of harsh environments, they also comply with the standards and protocols applicable throughout the factory.

## Industrial Communication

Industrial communication is the foundation for successful automation. LAPP's portfolio includes robust and high-quality cables, assemblies, connectors and active components for networking factories, machines or systems. With proven solutions, LAPP ensures the reliable transmission of large amounts of data, paving the way for digital transformation across the entire automation pyramid.





# Renewable Energies

LAPP's connectivity solutions bring solar and wind energy precisely to wherever it's needed. State-of-the-art production processes and a global logistics network ensure rapid delivery. We guarantee the unlimited use of our products through worldwide approvals and certifications. Our services range from selecting the right products and developing customised solutions to providing advice on planning and implementation as well as on handling logistics.



# Food and Beverage Industry

The strict hygiene regulations for handling food place particularly complex demands on electrical components. The cables and connectivity components used must withstand a wide range of chemical, thermal and mechanical stresses and must function flawlessly at all times, even in cold storage facilities and wet rooms. LAPP's portfolio meets the high demands of this industry thanks to our own laboratory and testing facilities.



## Battery Business

With many countries' increasing investments in renewable energy, battery storage is quickly becoming a vital aspect. Also, innovative mechanical and plant engineering is crucial for the production of high-performance batteries. LAPP is an expert in the required comprehensive services - from consulting to the delivery of cables, connectivity components and assembled systems.

## Automotive & E-Mobility

The future of mobility is electric. LAPP is a strong partner in this context and offers infrastructure operators, charging station manufacturers and vehicle manufacturers user-friendly charging cables for charging at public AC charging stations and at domestic or industrial sockets.

Beyond e-mobility, LAPP supports the automotive industry across all major production steps - from press shop and body shop to paint shop and final assembly. With decades of experience and deep application expertise, we are listed by leading OEMs and deliver approved, reliable connectivity solutions that meet the highest standards.





# Harnessing solutions – made by LAPP

Cable assemblies, servo assemblies and fully assembled cable chains from LAPP provide your competitive advantage. High-quality products also include first-class service.

**We are your trusted partner for customised connectivity**

LAPP offers more than just cable assemblies - we provide an “all-round carefree package” that includes a wide range of services and provides comprehensive solutions. The aim is to assist customers from product selection to implementation in their processes. This begins with consulting and choosing appropriate cables and components, ensuring that the products meet customer requirements and function optimally for their intended applications. The package includes testing, establishing stable connections and supplying documentation and technical drawings. LAPP offers customers not just a product, but a ready-to-install solution tailored to their specific needs.



**ÖLFLEX®**
**CONNECT** CABLE

Wire and cable assemblies

**ÖLFLEX®**
**CONNECT** CHAIN

Cable chain solutions

**ÖLFLEX®**
**CONNECT** SERVO

Servo assemblies



# Project business

Every successful project starts with good planning. It is difficult to keep track of all the technical components. Logistical challenges and deadlines are also of crucial importance. You can therefore rely on the consulting competence and service of your LAPP project business team - and benefit from our expertise and in-depth knowledge of local conditions, regulations and standards. LAPP is a reliable partner with a strong global network.


Industry


Data centre


Renewable energy



# Customised cables

**You want, we deliver – customised cables, as you need them**
The LAPP product portfolio covers over 50,000 standard products. However, there are always those challenges for which an individual solution is necessary. We have an answer for these particularly demanding tasks: tailored customised cables and wires.

With over 30 years of experience in the field of customised cables, we fulfil special requests that are unique and tailor-made in terms of their type, design, manufacture and cable print – everything deviating from the standard. There are almost unlimited production possibilities to meet your requirements.

Do you need a customised cable?
Contact our team.

# Thinking innovatively, acting sustainably

**Our understanding of sustainability**

LAPP is a family-owned business. We think in the long term and act responsibly – for our employees, for our customers, for our suppliers, for the environment and for society. Sustainability is an integral part of our global corporate strategy and culture. In this way, we are making an effective contribution to the future of upcoming generations and the preservation of our planet.





# Digital services

**We’re here for you, no matter where you are.**
We offer you sophisticated e-service solutions. Place quick and convenient orders with our digital services. This gives you more time for your core business. It’s entirely up to you to decide how to process your orders digitally.

### LAPP Online Shop

Your solution is just a click away. Our online shop offers you a user-friendly platform where you can quickly order over 20,000 of our standard items.

### OCI Open Catalogue Interface

By using OCI, you can seamlessly transfer your orders from the LAPP Online Shop directly into your procurement system, ensuring data consistency and avoiding double entries for more efficient order processing.

### LAPP eKanban

LAPP offers additional added value that goes far beyond high-quality products. Our eKanban system is the innovative all-round solution for digital cable inventory management.



### Engineering systems and exchange formats

EPLAN, Zuken, Siemens, Cadenas, AmpereSoft, AUCOTEC, WSCADUniverse, BMEcat, ETIM. All at a detailed level.

### EDI Electronic Data Interchange

Fast ordering processes and no more time-consuming manual check of order confirmations, delivery notes or invoices. With EDI, LAPP offers a standardised interface for the secure exchange of business documents between ERP systems.

### E-Procurement

LAPP supports your goals in the digitalisation of your procurement processes and is happy to collaborate as a supplier in the e-Procurement platform of your choice – whether via WebEDI or full integration.

### Product finders and configurators

Product configuration can be so simple. With finders and configurators from LAPP, you can compile a valid configuration for your personal application online at any time and order the products from our online shop.

### MyLAPP

With MyLAPP, everything is designed for self-service: from tracking your orders to downloading documents, accessing service information and discovering special offers – all available 24/7, at any time and anywhere in the world.

### LAPP Partner-Portal

Lapp Partner Portal PP50: it's all about efficiency! Manage the whole order and inventory process digitally and enhance your partner engagement with LAPP. Benefit from real-time stock and price information and digital approval workflows.

Act faster with the digital services from LAPP. Visit **www.lapp.com**

# All quality products at a glance

## ÖLFLEX®



ÖLFLEX® has become synonymous with power and control cables. Our flexible and oil-resistant cables satisfy the highest demands and can withstand even the very toughest conditions.

## UNITRONIC®



Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From the transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

## ETHERLINE®



Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e. g. PROFINET®. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

## HITRONIC®



HITRONIC® fibre optic cables make transmitting large data volumes easy: fault-free, bug-proof and at almost the speed of light. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions and even for use in power chains.

## EPIC®



EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

## SKINTOP®



Simply feed in the cable and twist - that's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

## SILVYN®



The universal range of SILVYN® protection and guidance systems protects cables effectively against dust and moisture, as well as mechanical, thermal and chemical influences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

## FLEXIMARK®



The requirement: permanent markings. The solution: FLEXIMARK®. These sophisticated systems mean that a clear overview inside a control cabinet is no longer just a pipe dream. From simple labels for manual marking through to electronic markings, the FLEXIMARK® range is guaranteed to last.




# 1 ÖLFLEX®

## Power and control cables

ÖLFLEX® has become synonymous with power and control cables. Our flexible and oil-resistant cables satisfy the highest demands and can withstand even the very toughest conditions.

**Application range**

- Industrial machinery, machine tools, plant and equipment engineering
- Measurement, control, heating and air conditioning systems
- Wind power and photovoltaic systems
- Public buildings, airports and stations
- Medical technology, chemical industry, composting plants and sewage works
- Food and beverage industry
- Power drive systems
- Robot applications
- Railway applications

## Various applications

**PVC outer sheath and coloured cores**
ÖLFLEX® CLASSIC 100 300/500 V 27
ÖLFLEX® CLASSIC PN 29
ÖLFLEX® CLASSIC 100 450/750 V 31
ÖLFLEX® CLASSIC 100 YELLOW 32
ÖLFLEX® CLASSIC 100 CY 300/500V 33
ÖLFLEX® CLASSIC 100 CY 450/750V 34
ÖLFLEX® CLASSIC 100 SY 35
ÖLFLEX® CLASSIC 100 BK 0,6/1 kV 36
ÖLFLEX® DC 100 37
ÖLFLEX® DC GRID 100 38

**PVC outer sheath and numbered cores**
ÖLFLEX® SMART 108 39
ÖLFLEX® CLASSIC 110 40
ÖLFLEX® CLASSIC 110 BK 43
ÖLFLEX® CLASSIC 110 LT 44
ÖLFLEX® CLASSIC 110 ORANGE 45
ÖLFLEX® CLASSIC 110 CY 46
ÖLFLEX® CLASSIC 110 SY 47
ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV 48
ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 kV 49
ÖLFLEX® CLASSIC 115 CY 50
ÖLFLEX® CLASSIC 115 CY BK 52

**Intrinsically safe circuits**
ÖLFLEX® EB 54
ÖLFLEX® EB CY 55

**PVC sheath, certified**
H05VV5-F 56
H05VVC4V5-K 57
ÖLFLEX® 150 58
ÖLFLEX® 150 CY 59
ÖLFLEX® 191 60
ÖLFLEX® 195 CY 61
ÖLFLEX® 191 CY 62
ÖLFLEX® 110 FR / 110 FR CY 63
ÖLFLEX® CONTROL TM 64
ÖLFLEX® CONTROL TM CY 65
ÖLFLEX® TRAY II 68
ÖLFLEX® TRAY II CY 69
ÖLFLEX® POWER MULTI 70

**Halogen-free ÖLFLEX®**
ÖLFLEX® CLASSIC 100 H 72
ÖLFLEX® CLASSIC 110 H 73
ÖLFLEX® CLASSIC 115 CH 74
ÖLFLEX® CLASSIC 110 CH 75
ÖLFLEX® 127 HSLH 76
ÖLFLEX® CLASSIC 130 H 77
ÖLFLEX® CLASSIC 135 CH 78
ÖLFLEX® CLASSIC 128 H BK 0,6/1 kV 80
ÖLFLEX® CLASSIC 128 CH BK 0,6/1 kV 81
ÖLFLEX® CLASSIC 128 H BK SC 82
ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV 84
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV 85

## Harsh conditions

High mechanical and chemical resistance

ÖLFLEX® PETRO C HFFR 0,6/1 kV 87
ÖLFLEX® ROBUST 200 88
ÖLFLEX® ROBUST 210 89
ÖLFLEX® ROBUST 215 C 90
ÖLFLEX® CLASSIC 400 P 91
ÖLFLEX® CLASSIC 400 CP 92
ÖLFLEX® CLASSIC 415 CP 93
ÖLFLEX® 408 P 94
ÖLFLEX® 409 P 95
ÖLFLEX® 409 CP 96
ÖLFLEX® 440 P 97
ÖLFLEX® 440 CP 98
ÖLFLEX® 450 P 99
ÖLFLEX® 500 P 100
ÖLFLEX® 540 P 101
ÖLFLEX® 540 CP 102
H05BQ-F / H07BQ-F 103

**Rubber cables**
H05RR-F 104
H05RN-F 105
H07RN-F 106
H07RN-F, enhanced version 107
H07ZZ-F 109
H01N2-D 110
NSSHÖU 111
NSGAFÖU 1,8/3 kV 112
NSHXAFÖ 1,8/3 kV 113
H07RN8-F 114

## Servo applications

**PVC sheath**
ÖLFLEX® DC SERVO 700 117
ÖLFLEX® SERVO 2YSLCY-JB 118

**PVC sheath, certified**
ÖLFLEX® SERVO 2XSLCY-JB 119
ÖLFLEX® SERVO 719 120
ÖLFLEX® SERVO 719 CY 121
ÖLFLEX® SERVO 728 CY 122
ÖLFLEX® SERVO 7DSL 123

**Halogen free**
ÖLFLEX® SERVO 2XSLCH-JB 124

**TPE sheath, certified**
ÖLFLEX® SERVO 7TCE 125
ÖLFLEX® VFD 2XL 126
ÖLFLEX® VFD 2XL with Signal 127

## Cable chain applications

**Servo applications - power drive systems**
ÖLFLEX® SERVO FD 781 CY 130

**Servo applications - power drive systems, certified**
ÖLFLEX® SERVO FD 7TCE 131
ÖLFLEX® SERVO FD zeroCM 132
ÖLFLEX® SERVO FD 796 P 133
ÖLFLEX® SERVO FD 796 CP 134
ÖLFLEX® SERVO FD 798 CP 136
ÖLFLEX® SERVO FD 7DSL 137
ÖLFLEX® SERVO 3D 7DSL 138
ÖLFLEX® SERVO FD 7OCS 139

**Various applications**
ÖLFLEX® CLASSIC FD 810 140
ÖLFLEX® CLASSIC FD 810 CY 141

**Various applications, certified**
ÖLFLEX® CHAIN 809 SC 142
ÖLFLEX® CHAIN 809 SC CY 143
ÖLFLEX® FD 90 144
ÖLFLEX® FD 90 CY 145
ÖLFLEX® CHAIN 809 146
ÖLFLEX® CHAIN 809 CY 147
ÖLFLEX® CHAIN PN 148
ÖLFLEX® FD 891 149
ÖLFLEX® FD 891 CY 150
ÖLFLEX® CHAIN TM 151
ÖLFLEX® CHAIN TM CY 152

**Harsh conditions**
ÖLFLEX® DC CHAIN 800 153
ÖLFLEX® CLASSIC FD 810 P 154
ÖLFLEX® CLASSIC FD 810 CP 155
ÖLFLEX® ROBUST FD 156
ÖLFLEX® ROBUST FD C 157

**Harsh conditions, certified**
ÖLFLEX® CHAIN 90 P 158
ÖLFLEX® CHAIN 90 CP 159
ÖLFLEX® CHAIN 819 P 160
ÖLFLEX® CHAIN 819 CP 161
ÖLFLEX® FD 891 P 162
ÖLFLEX® FD 855 P 163
ÖLFLEX® FD 855 CP 164
ÖLFLEX® PETRO FD 865 CP 165
ÖLFLEX® CHAIN 896 P 166

## Robotics

**Torsion, articulated robot**
ÖLFLEX® ROBOT 900 P 168
ÖLFLEX® ROBOT 900 DP 169

**Torsion, articulated robot, certified**
ÖLFLEX® ROBOT F1 170
ÖLFLEX® ROBOT F1 ( C ) 171

## Special applications

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ESUY Copper Earthing Cable 175
X00V3-D Copper Earthing Cable 176
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ÖLFLEX® TRUCK 470 P FLRYY11Y 178
ÖLFLEX® TRUCK 170 TWIN 179
ÖLFLEX® HV EV T6 FHLR2GCB2G 180
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ÖLFLEX® SOLAR XLWP 183
ÖLFLEX® SOLAR H1 BUR 184
**Wind energy**
ÖLFLEX® TORSION FRNC 186
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ÖLFLEX® CRANE PUR 195
**With support element**
ÖLFLEX® CRANE 196
**For push-button control units**
ÖLFLEX® CRANE 2ST 197
**For lifts**
ÖLFLEX® LIFT N 198
**Flat cables**
ÖLFLEX® CRANE F 199
ÖLFLEX® CRANE CF 200
ÖLFLEX® LIFT F 201

## Expanded ambient temperatures

**PVC cables**
ÖLFLEX® HEAT 105 MC 203
**Cross-linked cables**
ÖLFLEX® HEAT 125 MC 300/500 V 204
ÖLFLEX® HEAT 125 MC 450/750 V 205
ÖLFLEX® HEAT 125 C MC 207
**Silicone cables**
ÖLFLEX® HEAT 180 SiHF 208
ÖLFLEX® HEAT 180 H05SS-F EWKF 209
ÖLFLEX® HEAT 180 MS 210
ÖLFLEX® HEAT 180 C MS 211
ÖLFLEX® HEAT 180 EWKF 212
ÖLFLEX® HEAT 180 EWKF C 213
ÖLFLEX® HEAT 180 GLS 214
**FEP cables**
ÖLFLEX® HEAT 205 MC 215
ÖLFLEX® HEAT 205 C MC PTFE/FEP 215
**PTFE cables**
ÖLFLEX® HEAT 260 MC 216
ÖLFLEX® HEAT 260 C MC 217
ÖLFLEX® HEAT 260 GLS 218
**Glass fibre cables**
ÖLFLEX® HEAT 350 MC 219
ÖLFLEX® HEAT 1565 MC 220
**Cross-linked single cores**
ÖLFLEX® HEAT 125 SC 221
**Silicone single cores**
ÖLFLEX® HEAT 180 SiF 223
ÖLFLEX® HEAT 180 SiF A 224
ÖLFLEX® HEAT 180 SiD 225
ÖLFLEX® HEAT 180 SiF/GL 226
ÖLFLEX® HEAT 180 SiZ 226
ÖLFLEX® HEAT 180 FZLSi 226
**FEP single cores**
ÖLFLEX® HEAT 205 SC 227
**PTFE single cores**
ÖLFLEX® HEAT 260 SC 228
**Glass fibre single cores**
ÖLFLEX® HEAT 350 SC 229
ÖLFLEX® HEAT 1565 SC 230
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## Control Cabinet Single Cores

**Various applications**
LiY 233
LiY with twin colour helix insulation 234
H05V-K <HAR> 235
H05V-K in big one-way cardboard box 236
X05V-K with twin colour helix insulation 237
H07V-K <HAR> 238
H07V-K in big one-way cardboard box 240
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## Servo Drive Connectivity Made Easy

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**Spiralised**
ÖLFLEX® SPIRAL 400 P 277
SPIRAL H07BQ-F BLACK 279
ÖLFLEX® SPIRAL 540 P 280
ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug 282
UNITRONIC® SPIRAL LiF2Y11Y 283
UNITRONIC® SPIRAL 285
**Connection and extension cables**
ÖLFLEX® PLUG H05VV-F Net Connection Cable 287
ÖLFLEX® PLUG Extension Cable 540 P safety yellow 288
ÖLFLEX® PLUG CEE Connection 289



## LAPP HARNESSING SOLUTIONS: GOING BEYOND THE COMPONENT

While our catalogue provides the high-quality components you need, we understand that your project may require a complete solution. Our team has extensive technical expertise in electrical assembly and system integration. We offer customised harnessing solutions, engineered to your specific needs, so you can focus on your core business. From complex wiring harness applications to box-build assemblies, we manage the entire process for you. Our solutions undergo thorough quality control and testing with customised equipment to ensure compliance with industry standards and operational safety. Partner with LAPP to simplify your supply chain and get turnkey solutions for projects of any complexity.

### Why choose harnessing solutions from LAPP?

**Manufacturing expertise:** As a manufacturer, we are experts in components and have access to millions of items in our warehouse. Our ability to develop customised components is unique in the cable and connector industry.

**Innovative solutions:** Innovation is the cornerstone of everything we do – from new components to comprehensive solutions at all our locations.

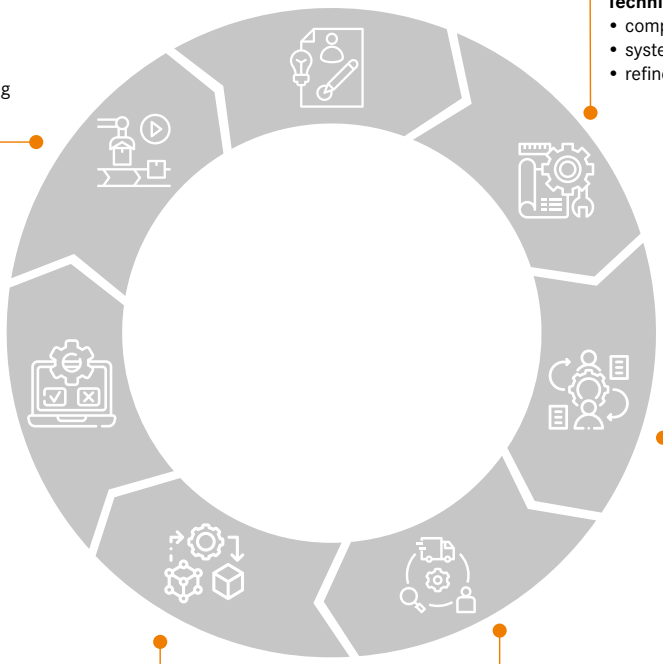
**Industry know-how:** Our company has a history spanning over 60 years and employs more than 5800 people. Based on this know-how, we offer industry-leading solutions to a wide range of customers in a variety of industries.

**Quality promise:** Every single component used in a LAPP system solution has undergone a demanding development and testing process. With us, you are always on the safe side.

**Reliable global support:** With our extensive global presence, we offer our customers reliable support, no matter where you are in the world.

**Strength through LAPP:** As the LAPP Group, we have a solid foundation that we can rely on even in the most turbulent of times.

## PRODUCT JOURNEY: FROM CONCEPT TO PRODUCTION



**Customer documentation**
- bill of material and drawings
- other requirements

**Technical engineering**
- component optimisation
- system integration e.g. 3D models
- refinement of production drawings

**Change Management & Product Revision**
- ensuring production continuity
- maintenance of product lifecycle

**Supply Chain Management**
- deep knowledge of market aspects
- availability of matching products at the right time – everywhere

**Prototype**
- rapid optimisation of product prototype and process
- close collaboration

**Testing**
- 100 % testing
- industry standards & customer requirements
- quality requirements (certificates)

**Serial production**
- delivery planning
- stock level planning

# Standard harnessing

### Customised servo cable assemblies

High-performance custom servo assemblies compatible with leading brands for durable and reliable operation.



### Spiral cable solutions

Durable and fully customisable spiral cables for dynamic applications.



# Customised harnessing

### Wiring harness & cable assembly

Custom wiring harnesses and complex cable solutions engineered to your specific needs.



### Drag chain solutions

Robust, fully customised drag chain systems and cable carriers that protect cables and maximise uptime.



### Industrial box-build solutions

Turnkey industrial box-build solutions, managing the entire process from sourcing to testing for high quality and compliance.



### Fibre optic solutions

High-quality fibre optic assemblies, from standard to custom configurations.



# Charging cables

**For use on public charging stations and wall boxes**

## HELIX CHARGING CABLE



### HELIX
FOR SIMPLE HANDLING

The patented LAPP HELIX is a quick-charge cable that rolls back up to automatically take its original shape after charging is complete. This means that users don't have to spend time rolling it up by hand – the HELIX is quick and safe to store away. The high protection rating of IP55, together with the additional longitudinal waterproofing, ensures excellent moisture protection. The charging cable, which is designed in accordance with the applicable IEC and EN standards, is both robust and durable, but also easy to handle thanks to its low weight.

### THE INNOVATIVE DOUBLE HELIX CHARGING CABLE

is the most flexible solution to date for everyday charging situations. With a cable length starting at 7 metres, it offers the user maximum freedom during the charging process and remains small and compact when rolled up thanks to the HELIX shape.



# Mobile charging devices

**For charging from household or industrial sockets**

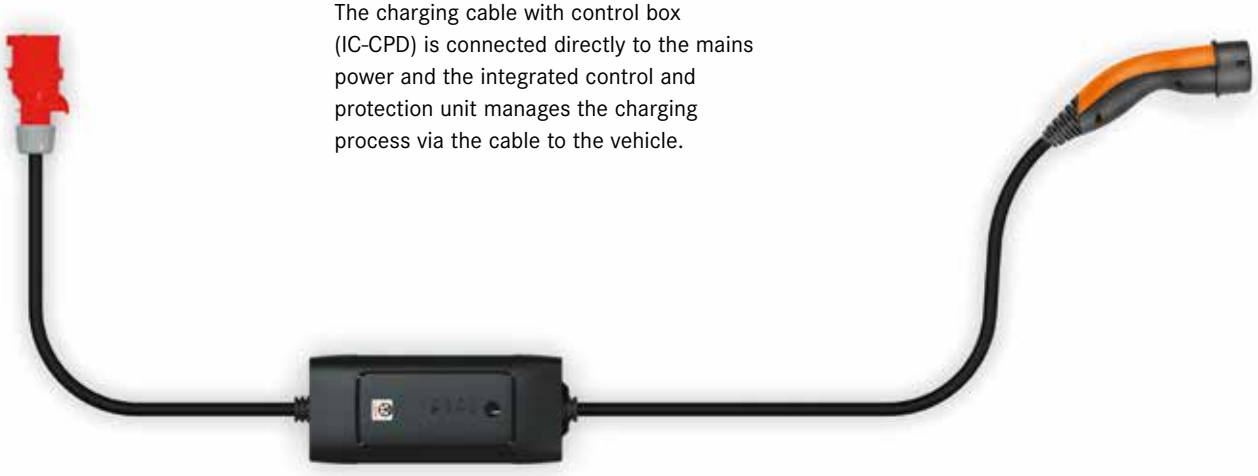
## MOBILITY DOCK

is a mobile charging device specially designed for charging at home or on the road. Connected to a standard household socket, it enables electric and plug-in hybrid cars to be charged easily and safely anywhere. The existing mode 3 charging cable is effortlessly connected between the car and the MOBILITY DOCK, which is then connected to the mains power.




## THE MOBILE CHARGING STATION

is specially designed for mobile use as a home charging station or as an emergency charging cable on the road. Connected to a normal household socket or an industrial socket, electric and plug-in hybrid cars can be charged easily and safely anywhere. The charging cable with control box (IC-CPD) is connected directly to the mains power and the integrated control and protection unit manages the charging process via the cable to the vehicle.



# Various applications









# ÖLFLEX® CLASSIC 100 300/500 V

Colour-coded PVC control cable

**Info**

- CPR: Article number choice under www.lapp.com
- For nominal voltage U0/U: 450/750V or higher conductor cross-sections see ÖLFLEX® CLASSIC 100 450/750V




## Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage
- HIgh flexibility due to short-twisted conductor layers

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- Dry or damp rooms that are subject to medium mechanical loads
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- High-quality alternative to control cable types YSLY or YY

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 300/500 V** | | | | |
| 00100004 | 2 X 0.5 | 4.8 | 9.6 | 35 |
| 00100014 | 3 G 0.5 | 5.1 | 14.4 | 42 |
| 00101224 | 3 X 0.5 | 5.1 | 14.4 | 42 |
| 00100024 | 4 G 0.5 | 5.7 | 19.2 | 54 |
| 00101234 | 4 X 0.5 | 5.7 | 19.2 | 54 |
| 00100034 | 5 G 0.5 | 6.2 | 24 | 63 |
| 00101244 | 5 X 0.5 | 6.2 | 24 | 63 |
| 0010004 | 6 G 0.5 | 6.7 | 28.8 | 73 |
| 0010005 | 7 G 0.5 | 6.7 | 33.6 | 81 |
| 0010006 | 8 G 0.5 | 8.0 | 38.4 | 97 |
| 0010007 | 10 G 0.5 | 8.6 | 48 | 116 |
| 0010008 | 12 G 0.5 | 8.9 | 58 | 133 |
| 0010009 | 14 G 0.5 | 9.5 | 67 | 151 |
| 0010010 | 16 G 0.5 | 10.0 | 76 | 169 |
| 0010011 | 21 G 0.5 | 11.7 | 99 | 223 |
| 0010012 | 24 G 0.5 | 12.4 | 114 | 254 |
| 0010016 | 40 G 0.5 | 15.4 | 192 | 404 |
| 00100214 | 2 X 0.75 | 5.4 | 14.4 | 45 |
| 00100224 | 3 G 0.75 | 5.7 | 21.6 | 55 |
| 00101254 | 3 X 0.75 | 5.7 | 21.6 | 55 |
| 00100234 | 4 G 0.75 | 6.2 | 28.8 | 66 |
| 00101264 | 4 X 0.75 | 6.2 | 28.8 | 66 |
| 00100244 | 5 G 0.75 | 6.7 | 36 | 79 |
| 00101274 | 5 X 0.75 | 6.7 | 36 | 79 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0010025 | 6 G 0.75 | 7.3 | 43.3 | 104 |
| 0010026 | 7 G 0.75 | 7.3 | 50.4 | 109 |
| 0010027 | 8 G 0.75 | 8.8 | 56 | 123 |
| 0010028 | 9 G 0.75 | 9.4 | 63 | 144 |
| 0010029 | 10 G 0.75 | 9.6 | 72 | 153 |
| 0010030 | 12 G 0.75 | 9.9 | 86.4 | 176 |
| 0010031 | 15 G 0.75 | 10.9 | 108 | 211 |
| 0010032 | 18 G 0.75 | 11.7 | 129.6 | 268 |
| 0010033 | 21 G 0.75 | 13.0 | 151 | 293 |
| 0010034 | 25 G 0.75 | 13.8 | 180 | 374 |
| 0010036 | 40 G 0.75 | 17.3 | 288 | 571 |
| 0010037 | 50 G 0.75 | 19.2 | 360 | 698 |
| 00100414 | 2 X 1.0 | 5.7 | 19.2 | 53 |
| 00100424 | 3 G 1.0 | 6.0 | 28.8 | 65 |
| 00102034 | 3 X 1.0 | 6.0 | 28.8 | 65 |
| 00100434 | 4 G 1.0 | 6.5 | 38.4 | 79 |
| 00102044 | 4 X 1.0 | 6.5 | 38.4 | 79 |
| 00100444 | 5 G 1.0 | 7.1 | 48 | 94 |
| 00102054 | 5 X 1.0 | 7.1 | 48 | 94 |
| 0010045 | 6 G 1.0 | 8.0 | 58 | 124 |
| 0010046 | 7 G 1.0 | 8.0 | 67 | 131 |
| 0010047 | 8 G 1.0 | 9.5 | 77 | 146 |
| 0010049 | 10 G 1.0 | 10.2 | 96 | 183 |
| 0010050 | 12 G 1.0 | 10.5 | 115 | 215 |
| 0010052 | 16 G 1.0 | 11.8 | 154 | 282 |

# Power and control cables

LAPP

## Various applications • PVC outer sheath and coloured cores

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0010053 | 18 G 1.0 | 12.7 | 173 | 315 |
| 0010054 | 20 G 1.0 | 13.4 | 192 | 350 |
| 0010056 | 25 G 1.0 | 14.7 | 240 | 449 |
| 00100634 | 2 X 1.5 | 6.3 | 28.8 | 68 |
| 00100644 | 3 G 1.5 | 6.7 | 43.2 | 84 |
| 00101284 | 3 X 1.5 | 6.7 | 43.2 | 84 |
| 00100654 | 4 G 1.5 | 7.2 | 57.6 | 104 |
| 00101294 | 4 X 1.5 | 7.2 | 57.6 | 104 |
| 00100664 | 5 G 1.5 | 8.1 | 72 | 128 |
| 00101304 | 5 X 1.5 | 8.1 | 72 | 128 |
| 0010068 | 7 G 1.5 | 8.9 | 101 | 166 |
| 0010069 | 8 G 1.5 | 10.6 | 115 | 205 |
| 0010071 | 12 G 1.5 | 12.0 | 173 | 307 |
| 0010072 | 14 G 1.5 | 12.7 | 202 | 349 |
| 0010074 | 18 G 1.5 | 14.4 | 259 | 465 |
| 0010076 | 25 G 1.5 | 16.9 | 360 | 655 |
| 1120800 | 2 X 2.5 | 7.5 | 48 | 100 |
| 1120801 | 3 G 2.5 | 8.1 | 72 | 132 |
| 1120802 | 4 G 2.5 | 8.9 | 96 | 163 |
| 1120803 | 5 G 2.5 | 10.0 | 120 | 200 |
| 1120804 | 7 G 2.5 | 11.1 | 168 | 267 |
| 1120805 | 2 X 4.0 | 9.2 | 77 | 160 |
| 1120806 | 3 G 4.0 | 9.9 | 115.2 | 201 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1120807 | 4 G 4.0 | 10.8 | 153.6 | 263 |
| 1120808 | 5 G 4.0 | 12.1 | 192 | 315 |
| 1120809 | 7 G 4.0 | 13.4 | 269 | 407 |
| 1120810 | 3 G 6.0 | 11.7 | 174 | 289 |
| 1120811 | 4 G 6.0 | 13.0 | 230 | 352 |
| 1120812 | 5 G 6.0 | 14.5 | 288 | 470 |
| 1120813 | 7 G 6.0 | 16.0 | 403 | 600 |
| 1120814 | 3 G 10.0 | 14.6 | 288 | 466 |
| 1120815 | 4 G 10.0 | 16.2 | 384 | 590 |
| 1120816 | 5 G 10.0 | 18.1 | 480 | 722 |
| 1120817 | 3 G 16.0 | 17.0 | 460.8 | 720 |
| 1120818 | 4 G 16.0 | 18.8 | 614.4 | 1067 |
| 1120819 | 5 G 16.0 | 21.2 | 768 | 1370 |
| 1120820 | 3 G 25.0 | 21.0 | 720 | 1250 |
| 1120821 | 4 G 25.0 | 23.5 | 960 | 1582 |
| 1120822 | 5 G 25.0 | 26.4 | 1200 | 1998 |
| 1120823 | 3 G 35.0 | 23.7 | 1008 | 1700 |
| 1120824 | 4 G 35.0 | 26.4 | 1344 | 2106 |
| 1120825 | 5 G 35.0 | 29.6 | 1680 | 2635 |
| 1120826 | 3 G 50.0 | 29.1 | 1440 | 2200 |
| 1120827 | 4 G 50.0 | 32.4 | 1920 | 2800 |
| 1120828 | 5 G 50.0 | 36.5 | 2400 | 3600 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 5G50 max. 500 m; ≥ 5G95 max. 400; ≥ 3G120 max. 500 m; ≥ 4G120 max. 300; ≥ 4G185 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

**Info**

- Colour code according to the PROFINET guideline
- Classified fire behaviour according to EU Directive 305/2011

# ÖLFLEX® CLASSIC PN

PVC cable for power supply of PROFINET components
flexible and colour-coded according to PROFINET guideline



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Brown (L1), blue (N1), black(L2), white (N2)

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- Colour code according to PROFINET guideline, PROFINET Cabling and "Interconnection Technology„ for clear identification of the cores
- Space-saving due to reduced wall thicknesses
- High electrical safety due to 4000 V test voltage
- Classified fire behaviour according to EU Directive 305/2011(BauPVO/CPR) with article number selection on LAPP website

## Application range

- For power supply of PROFINET components
- For fixed installation and occasional movement without tensile stress
- Cable design also suitable for torsion applications in wind turbines
- Suitable for medium mechanical stress
- Can be used in dry and damp rooms
- PVC outer sheath is resistant to acids and alkalis and conditionally resistant to oil

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC PN** | | | | |
| 1120831 | 3 X 0.75 | 5.7 | 21.6 | 52 |
| 1120832 | 4 X 0.75 | 6.7 | 36 | 77 |
| 1120833 | 5 X 0.75 | 6.7 | 43.2 | 82 |
| 1120834 | 3 X 1.5 | 8.1 | 72 | 127 |
| 1120835 | 4 X 1.5 | 8.1 | 72 | 124 |
| 1120836 | 5 X 1.5 | 10 | 120 | 197 |
| 1120837 | 3 X 2.5 | 8.9 | 96 | 157 |
| 1120838 | 4 X 2.5 | 6.2 | 28.8 | 66 |
| 1120839 | 5 X 2.5 | 7.2 | 57.6 | 104 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# ÖLFLEX® CLASSIC 100 450/750 V

Colour-coded PVC power and control cable







## Info

- CPR: Article number choice under www.lapp.com
- For nominal voltage U0/U: 300/500V and conductor cross-sections below 2,5mm² see ÖLFLEX® CLASSIC 100 300/500V

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- High electrical performance due to 4 kV test voltage
- HIgh flexibility due to short-twisted conductor layers

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- Dry or damp rooms that are subject to medium mechanical loads
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

## Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 450/750 V** | | | | |
| 0010086 | 2 X 2.5 | 8.9 | 48 | 128 |
| 0010087 | 3 G 2.5 | 9.6 | 72 | 162 |
| 00100933 | 3 X 2.5 | 9.6 | 72 | 162 |
| 00100883 | 4 G 2.5 | 10.7 | 96 | 203 |
| 00100893 | 5 G 2.5 | 11.8 | 120 | 242 |
| 0010091 | 7 G 2.5 | 13.1 | 168 | 321 |
| 0010092 | 8 G 2.5 | 15.8 | 192 | 385 |
| 0010100 | 2 X 4.0 | 10.4 | 76.8 | 187 |
| 0010210 | 3 G 4.0 | 11.2 | 115.2 | 244 |
| 00101013 | 4 G 4.0 | 12.5 | 154 | 297 |
| 00101023 | 5 G 4.0 | 13.7 | 192 | 355 |
| 0010103 | 7 G 4.0 | 15.2 | 269 | 471 |
| 0010105 | 3 G 6.0 | 12.6 | 173 | 318 |
| 00101063 | 4 G 6.0 | 13.8 | 230 | 394 |
| 00101073 | 5 G 6.0 | 15.6 | 288 | 489 |
| 0010108 | 7 G 6.0 | 17.3 | 403 | 651 |
| 0010301 | 3 G 10.0 | 15.9 | 288 | 516 |
| 00101093 | 4 G 10.0 | 17.6 | 384 | 650 |
| 00101103 | 5 G 10.0 | 19.7 | 480 | 792 |
| 0010111 | 7 G 10.0 | 21.7 | 672 | 1058 |
| 0010302 | 3 G 16.0 | 18.3 | 461 | 728 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 00101123 | 4 G 16.0 | 20.4 | 614 | 1087 |
| 00101133 | 5 G 16.0 | 22.8 | 768 | 1118 |
| 0010303 | 3 G 25.0 | 23.0 | 720 | 1388 |
| 00101153 | 4 G 25.0 | 25.4 | 960 | 1582 |
| 00101163 | 5 G 25.0 | 28.5 | 1200 | 1771 |
| 0010304 | 3 G 35.0 | 25.6 | 1008 | 1766 |
| 00101173 | 4 G 35.0 | 28.5 | 1344 | 2106 |
| 00101183 | 5 G 35.0 | 31.9 | 1680 | 2635 |
| 0010305 | 3 G 50.0 | 31.0 | 1440 | 2556 |
| 00101193 | 4 G 50.0 | 34.5 | 1920 | 2943 |
| 00103133 | 5 G 50.0 | 38.6 | 2400 | 3936 |
| 0010306 | 3 G 70.0 | 35.3 | 2016 | 3182 |
| 00101203 | 4 G 70.0 | 39.4 | 2688 | 4092 |
| 00103143 | 5 G 70.0 | 44.1 | 3360 | 4800 |
| 0010307 | 3 G 95.0 | 41.3 | 2736 | 4675 |
| 00101213 | 4 G 95.0 | 45.8 | 3648 | 5290 |
| 00103153 | 5 G 95.0 | 51.6 | 4560 | 5600 |
| 0010308 | 3 G 120.0 | 47.6 | 3456 | 5626 |
| 00103093 | 4 G 120.0 | 53.1 | 4608 | 6994 |
| 00103113 | 4 G 150.0 | 57.4 | 5760 | 7500 |
| 00103123 | 4 G 185.0 | 62.8 | 7104 | 8300 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 5G50 max. 500 m; ≥ 5G95 max. 400; ≥ 3G120 max. 500 m; ≥ 4G120 max. 300; ≥ 4G185 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 100 YELLOW

Yellow outer sheath for special warning purposes




**Info**

- CPR: Article number choice under www.lapp.com
- For warning purposes

## Benefits

- High electrical performance due to 4 kV test voltage

## Application range

- For electrical circuits that remain “live” after the main switch has been disconnected
- Service sockets and illumination circuits in electrical switchboards and cabinets
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

## Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Outer sheath: PVC, yellow (similar to RAL 1016)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 YELLOW; U0/U: 450/750 V** | | | | |
| 0010400 | 3 G 1.5 | 8.1 | 43 | 95 |
| 00104023 | 4 G 1.5 | 8.9 | 58 | 117 |
| 00104033 | 5 G 1.5 | 10.0 | 72 | 144 |
| 0010401 | 3 G 2.5 | 9.6 | 72 | 152 |
| 00104043 | 4 G 2.5 | 10.7 | 96 | 205 |
| 00104053 | 5 G 2.5 | 11.8 | 120 | 225 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 100 CY 300/500V

Colour-coded and screened PVC control cable




**Info**

- CPR: Article number choice under www.lapp.com
- EMC-compliant
- For nominal voltage U0/U: 450/750V or higher conductor cross-sections see ÖLFLEX® CLASSIC 100 CY 450/750V

## Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage
- Shielding against electromagnetic fields

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- Servo drives
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 CY 300/500 V** | | | | |
| 0035001 | 2 X 0.5 | 7.0 | 41 | 75 |
| 0035002 | 3 G 0.5 | 7.3 | 46 | 83 |
| 00350033 | 4 G 0.5 | 7.9 | 55 | 99 |
| 00352013 | 5 G 0.5 | 8.4 | 66 | 112 |
| 0035202 | 7 G 0.5 | 8.9 | 80 | 132 |
| 0035004 | 2 X 0.75 | 7.4 | 46 | 86 |
| 0035005 | 3 G 0.75 | 7.9 | 57 | 100 |
| 00350063 | 4 G 0.75 | 8.4 | 64 | 115 |
| 00350163 | 5 G 0.75 | 8.9 | 77 | 130 |
| 0035203 | 7 G 0.75 | 9.7 | 102 | 161 |
| 0035220 | 2 X 1.0 | 7.9 | 56 | 98 |
| 0035221 | 3 G 1.0 | 8.2 | 65 | 111 |
| 00352223 | 4 G 1.0 | 8.7 | 78 | 130 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 00352233 | 5 G 1.0 | 9.5 | 89 | 153 |
| 0035204 | 7 G 1.0 | 10.2 | 113 | 185 |
| 11356500 | 3 G 1.5 | 8.9 | 77 | 135 |
| 11356501 | 4 G 1.5 | 9.6 | 94 | 165 |
| 11356502 | 3 G 2.5 | 10.3 | 118 | 190 |
| 11356503 | 4 G 2.5 | 11.3 | 149 | 230 |
| 11356504 | 4 G 4.0 | 13.4 | 222 | 345 |
| 11356505 | 4 G 6.0 | 15.8 | 317 | 485 |
| 11356506 | 4 G 10.0 | 19.5 | 497 | 735 |
| 11356507 | 4 G 16.0 | 22.7 | 757 | 1200 |
| 11356508 | 4 G 25.0 | 27.4 | 1150 | 1730 |
| 11356509 | 4 G 35.0 | 31.0 | 1566 | 2210 |
| 11356510 | 4 G 50.0 | 37.2 | 2212 | 2950 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G95 max. 400 m; ≥ 4G120 max. 300 m; ≥ 4G150 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 100 CY 450/750V

Colour-coded and screened PVC power and control cable




**Info**

- CPR: Article number choice under www.lapp.com
- EMC-compliant
- For nominal voltage U0/U: 300/500V and conductor cross-sections below 1,5mm² see ÖLFLEX® CLASSIC 100 CY 300/500V

## Benefits

- High electrical performance due to 4 kV test voltage
- Shielding against electromagnetic fields

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- Servo drives
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 CY 450/750 V** | | | | |
| 0035000 | 2 X 1.5 | 9.9 | 65 | 132 |
| 0035458 | 3 G 1.5 | 10.3 | 79 | 170 |
| 00354593 | 4 G 1.5 | 11.3 | 97 | 204 |
| 00354603 | 5 G 1.5 | 12.6 | 116 | 246 |
| 0035461 | 7 G 1.5 | 13.9 | 149 | 320 |
| 0035011 | 3 G 2.5 | 11.8 | 146 | 211 |
| 00350173 | 4 G 2.5 | 13.5 | 167 | 310 |
| 00350123 | 5 G 2.5 | 14.6 | 200 | 326 |
| 0035289 | 7 G 2.5 | 15.9 | 288 | 444 |
| 00350183 | 4 G 4.0 | 15.1 | 237 | 403 |
| 00350133 | 5 G 4.0 | 16.5 | 328 | 478 |
| 00350193 | 4 G 6.0 | 16.6 | 318 | 521 |
| 00350143 | 5 G 6.0 | 18.2 | 441 | 624 |
| 0034953 | 3 G 10.0 | 18.9 | 414 | 690 |
| 00350213 | 4 G 10.0 | 21.1 | 558 | 843 |
| 00352903 | 5 G 10.0 | 23.1 | 714 | 1004 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0034954 | 3 G 16.0 | 21.7 | 607 | 910 |
| 00350223 | 4 G 16.0 | 23.9 | 804 | 1164 |
| 00350153 | 5 G 16.0 | 26.8 | 1050 | 1812 |
| 0034955 | 3 G 25.0 | 26.6 | 936 | 1330 |
| 00350233 | 4 G 25.0 | 29.4 | 1289 | 1903 |
| 00350243 | 5 G 25.0 | 32.6 | 1446 | 2374 |
| 0034956 | 3 G 35.0 | 29.4 | 1258 | 1370 |
| 00350253 | 4 G 35.0 | 32.4 | 1693 | 2489 |
| 00350263 | 5 G 35.0 | 36.0 | 1975 | 2771 |
| 0034952 | 3 G 50.0 | 35.1 | 1748 | 2590 |
| 00350273 | 4 G 50.0 | 38.8 | 2342 | 3362 |
| 00350283 | 4 G 70.0 | 43.7 | 3035 | 3719 |
| 00350293 | 4 G 95.0 | 50.4 | 4055 | 5849 |
| 00354303 | 4 G 120.0 | 56.8 | 5225 | 7509 |
| 00354313 | 4 G 150.0 | 62.2 | 6300 | 7800 |
| 00354323 | 4 G 185.0 | 67.8 | 7753 | 9866 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G95 max. 400 m; ≥ 4G120 max. 300 m; ≥ 4G150 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 100 SY

Colour-coded PVC control cable with steel wire braiding




**Info**

- CPR: Article number choice under www.lapp.com
- Steel wire braiding for extra mechanical protection

## Benefits

- Extra mechanical protection due to braided steel wire

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Areas with high mechanical stress

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

## Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
Up to 1.5 mm²: U0/U: 300/500 V
From 2.5 mm²: U0/U: 450/750 V
From 2.5 mm², in the case of fixed and protected installations: U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 SY; U0/U: 300/500 V** | | | | |
| 0016022 | 2 X 0.75 | 8.2 | 14.4 | 97 |
| 0016023 | 3 G 0.75 | 8.5 | 21.6 | 108 |
| 00160243 | 4 G 0.75 | 9.2 | 28.8 | 126 |
| 00160253 | 5 G 0.75 | 9.7 | 36 | 146 |
| 0016027 | 7 G 0.75 | 10.3 | 50 | 172 |
| 0016031 | 12 G 0.75 | 12.9 | 86 | 260 |
| 0016042 | 2 X 1.0 | 8.5 | 19.2 | 137 |
| 0016043 | 3 G 1.0 | 8.8 | 29 | 154 |
| 00160443 | 4 G 1.0 | 9.5 | 38.4 | 180 |
| 00160453 | 5 G 1.0 | 10.1 | 48 | 202 |
| 0016047 | 7 G 1.0 | 11.0 | 67 | 242 |
| 0016064 | 2 X 1.5 | 9.3 | 29 | 172 |
| 0016065 | 3 G 1.5 | 9.7 | 43 | 191 |
| 00160663 | 4 G 1.5 | 10.2 | 58 | 217 |
| 00160673 | 5 G 1.5 | 11.1 | 72 | 268 |
| 0016069 | 7 G 1.5 | 11.9 | 101 | 311 |
| 0016072 | 12 G 1.5 | 15.4 | 173 | 499 |
| 0016075 | 18 G 1.5 | 17.6 | 259 | 652 |
| 0016077 | 25 G 1.5 | 20.3 | 360 | 913 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 SY; U0/U: 450/750 V** | | | | |
| 0016087 | 2 X 2.5 | 12.1 | 48 | 245 |
| 0016088 | 3 G 2.5 | 12.6 | 72 | 278 |
| 00160893 | 4 G 2.5 | 13.9 | 96 | 339 |
| 00160903 | 5 G 2.5 | 15.2 | 120 | 397 |
| 0016092 | 7 G 2.5 | 16.3 | 168 | 470 |
| 0016101 | 2 X 4.0 | 13.6 | 76.8 | 329 |
| 00161023 | 4 G 4.0 | 15.7 | 154 | 457 |
| 00161033 | 5 G 4.0 | 17.1 | 192 | 545 |
| 0016106 | 3 G 6.0 | 15.8 | 173 | 544 |
| 00161073 | 4 G 6.0 | 17.2 | 230 | 687 |
| 00161083 | 5 G 6.0 | 18.8 | 288 | 798 |
| 00161103 | 4 G 10.0 | 21.3 | 384 | 1009 |
| 00161113 | 5 G 10.0 | 23.3 | 480 | 1197 |
| 00161133 | 4 G 16.0 | 24.1 | 614 | 1384 |
| 00161143 | 5 G 16.0 | 26.8 | 768 | 1740 |
| 00161163 | 4 G 25.0 | 29.4 | 960 | 2021 |
| 00161173 | 5 G 25.0 | 32.6 | 1200 | 2464 |
| 00161183 | 4 G 35.0 | 32.4 | 1344 | 2570 |
| 00161193 | 5 G 35.0 | 36.0 | 1680 | 3185 |
| 00161203 | 4 G 50.0 | 38.8 | 1920 | 3514 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G35 max. 500 m; ≥ 4G95 max. 400 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 100 BK 0,6/1 kV




**Info**

- Good outdoor performance
- CPR: Article number choice under www.lapp.com

## Benefits

- High electrical performance due to 4 kV test voltage

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
  Stage applications
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for outdoor applications
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

## Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- Flexible down to -30 °C

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, cold-resistant
- PVC outer sheath, cold-resistant, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30 °C to +70 °C
Fixed installation: -40 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 BK 0,6/1 kV** | | | | |
| 1120457 | 3 G 1.0 | 9.0 | 29 | 112 |
| 1120459 | 5 G 1.0 | 10.4 | 48 | 152 |
| 1120462 | 2 X 1.5 | 9.6 | 29 | 123 |
| 1120463 | 3 G 1.5 | 10.1 | 43 | 144 |
| 1120464 | 4 G 1.5 | 10.8 | 58 | 170 |
| 1120465 | 5 G 1.5 | 11.7 | 72 | 199 |
| 1120469 | 3 G 2.5 | 11.3 | 72 | 182 |
| 1120470 | 4 G 2.5 | 12.2 | 96 | 225 |
| 1120474 | 4 G 4.0 | 13.8 | 154 | 324 |
| 1120475 | 4 G 6.0 | 15.1 | 230 | 442 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Other sizes and screened types are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® DC 100

Colour code acc. to EN 60445



**Info**

- Specially constructed for the long term operation with DC voltage up to 0.75/1.5 kV
- Suitable for the construction of energy efficient DC grids in industrial plants

## Benefits

- Specially constructed for the long term operation with DC voltage up to 0.75/1.5 kV
- Suitable for the construction of energy efficient DC grids in industrial plants

## Application range

- Plant engineering
- Industrial machinery
- Heating and air-conditioning systems
- Power stations
- Stage applications
- For plants where power is supplied by a direct current network
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC00057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
According to EN 60445

**Conductor stranding**
Fine wire according to VDE 0295 class 5 / IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 0.75/1.5 kV DC according to IEC

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® DC 100** | | | | |
| 11101106 | 3 G 1.5 | 8.7 | 43 | 117 |
| 11101107 | 3 G 2.5 | 10 | 72 | 161 |
| 11101108 | 3 G 4.0 | 11.4 | 115 | 244 |
| 11101109 | 3 G 6.0 | 12.6 | 173 | 318 |
| 11101111 | 3 G 16.0 | 18.3 | 461 | 728 |
| 11101113 | 3 G 25.0 | 23 | 720 | 1061 |
| 11101114 | 3 G 35.0 | 25.6 | 1008 | 1684 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® DC GRID 100

Colour code acc. to EN 60445





## Info

- Specially constructed for the long term operation with DC voltage up to 0.75/1.5 kV
- Suitable for the construction of energy efficient DC grids in industrial plants

## Benefits

- Suitable for direct underground installation thanks to tough insulation and sheath material as per DIN VDE 0276-603
- Good installation properties thanks to fine-wire, flexible conductor design
- With current colour code according to DIN EN 60445 for direct current systems

## Application range

- For direct current applications in the low voltage range
- For industrial plants in which power is distributed via a direct current grid
- For use in control systems, motors and frequency converters
- Can be used in dry, damp or wet environments
- For open installation on cable trays
- Suitable for direct underground installation
- Withstands high mechanical stress

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
According to DIN EN 60445

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Fixed installation: 12 x outer diameter

**Nominal voltage**
U0/U: 0.75/1.5 kV DC according to IEC

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® DC GRID 100** | | | | |
| 11101500 | 4 G 1.5 | 11.2 | 57.6 | 171 |
| 11101501 | 4 G 2.5 | 12.1 | 96 | 227 |
| 11101502 | 4 G 4 | 14.6 | 154 | 315 |
| 11101503 | 4 G 6 | 16 | 230 | 405 |
| 11101504 | 4 G 10 | 18.5 | 384 | 609 |
| 11101505 | 4 G 16 | 20.9 | 614 | 847 |
| 11101506 | 4 G 25 | 25.4 | 960 | 1228 |
| 11101507 | 4 G 35 | 28 | 1344 | 1652 |
| 11101508 | 4 G 50 | 31.6 | 1920 | 2304 |
| 11101509 | 4 G 70 | 36.2 | 2688 | 3126 |
| 11101510 | 4 G 120 | 45.6 | 4608 | 5120 |
| 11101511 | 4 G 150 | 51.1 | 5760 | 6330 |
| 11101512 | 4 G 185 | 56.3 | 7104 | 7666 |
| 11101513 | 4 G 240 | 63.9 | 9216 | 10084 |
| 11101514 | 4 G 95 | 41.4 | 3648 | 4096 |
| 11101515 | 3 G 1.5 | 10.4 | 43.2 | 146 |
| 11101516 | 3 G 2.5 | 11.2 | 72 | 188 |
| 11101517 | 3 G 4 | 13.5 | 115.2 | 256 |
| 11101518 | 3 G 6 | 14.7 | 172.8 | 322 |
| 11101519 | 3 G 10 | 16.9 | 288 | 478 |
| 11101520 | 3 G 16 | 19.1 | 460.8 | 666 |
| 11101521 | 3 G 25 | 23.2 | 720 | 956 |
| 11101522 | 3 G 35 | 25.4 | 1008 | 1280 |
| 11101523 | 3 G 50 | 28.5 | 1440 | 1771 |
| 11101524 | 3 G 70 | 32.6 | 2016 | 2392 |
| 11101525 | 3 G 95 | 37.3 | 2736 | 3134 |
| 11101526 | 3 G 120 | 41.2 | 3456 | 3900 |
| 11101527 | 3 G 150 | 45.9 | 4320 | 4825 |
| 11101528 | 3 G 185 | 50.8 | 5328 | 5891 |
| 11101529 | 3 G 240 | 57.4 | 6912 | 7707 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SMART 108

Cost-effective VDE-registered PVC control cable

**Info**

- CPR: Article number choice under www.lapp.com
- VDE certificate of conformity with factory surveillance
- Only available in standard lengths and standard packagings






## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- SMART: good price/performance ratio the ÖLFLEX® SMART 108 has everything a flexible control cable needs
- SMART: environmentally friendly internal sheath layer made from recycled PVC with the same high quality of the TM2 model

## Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Main dimensions available, further dimensions see ÖLFLEX® CLASSIC 110
- For extended applications and individual lengths, see ÖLFLEX® CLASSIC 110

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil resistance: see data sheet

## Norm references / Approvals

- VDE reg. no. 8639

## Product Make-up

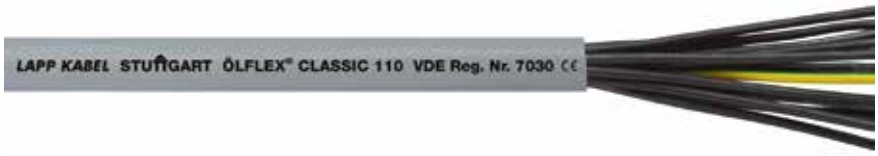
- Fine-wire strand made of bare copper wires
- PVC insulation, TI2
- Two-layer PVC outer sheath, TM2; outside silvergrey

| Article number | Number of cores and mm² per conductor | Standard length (m) and standard packaging | | | | | | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | 100 | 200 | 200 | 500 | 1000 | | | |
| **ÖLFLEX® SMART 108** | | | | | | | | | | |
| 17520099 | 2 X0.5 | | 100 | 200 | | 500 | 1000 | 4.8 | 9.6 | 35 |
| 10030099 | 3 G0.5 | | 100 | 200 | | 500 | 1000 | 5.1 | 14.4 | 42 |
| 17530099 | 3 X0.5 | | 100 | 200 | | 500 | 1000 | 5.1 | 14.4 | 42 |
| 10040099 | 4 G0.5 | | 100 | 200 | | 500 | 1000 | 5.7 | 19.2 | 54 |
| 17540099 | 4 X0.5 | | 100 | 200 | | 500 | 1000 | 5.7 | 19.2 | 54 |
| 10050099 | 5 G0.5 | | 100 | 200 | | 500 | 1000 | 6.2 | 24 | 63 |
| 10070099 | 7 G0.5 | 50 | 100 | 200 | | 500 | 1000 | 6.7 | 33.6 | 81 |
| 18020099 | 2 X0.75 | | 100 | 200 | | 500 | 1000 | 5.4 | 14.4 | 45 |
| 11030099 | 3 G0.75 | | 100 | 200 | | 500 | 1000 | 5.7 | 21.6 | 55 |
| 18030099 | 3 X0.75 | | 100 | 200 | | 500 | 1000 | 5.7 | 21.6 | 55 |
| 11040099 | 4 G0.75 | | 100 | 200 | | 500 | 1000 | 6.2 | 28.8 | 66 |
| 18040099 | 4 X0.75 | | 100 | 200 | | 500 | 1000 | 6.2 | 28.8 | 66 |
| 11050099 | 5 G0.75 | 50 | 100 | 200 | | 500 | 1000 | 6.7 | 36 | 79 |
| 11070099 | 7 G0.75 | 50 | 100 | 200 | | 500 | 1000 | 7.3 | 50 | 101 |
| 18520099 | 2 X1.0 | | 100 | 200 | | 500 | 1000 | 5.7 | 19.2 | 53 |
| 12030099 | 3 G1.0 | | 100 | 200 | | 500 | 1000 | 6.0 | 28.8 | 65 |
| 12040099 | 4 G1.0 | 50 | 100 | 200 | | 500 | 1000 | 6.5 | 38.4 | 79 |
| 12050099 | 5 G1.0 | 50 | 100 | 200 | | 500 | 1000 | 7.1 | 48 | 94 |
| 12070099 | 7 G1.0 | 50 | 100 | 200 | | 500 | 1000 | 8.0 | 67 | 126 |
| 19020099 | 2 X1.5 | | 100 | 200 | | 500 | 1000 | 6.3 | 29 | 68 |
| 13030099 | 3 G1.5 | 50 | 100 | 200 | | 500 | 1000 | 6.7 | 43 | 84 |
| 13040099 | 4 G1.5 | 50 | 100 | 200 | | 500 | 1000 | 7.2 | 58 | 104 |
| 13050099 | 5 G1.5 | 50 | 100 | 200 | | 500 | 1000 | 8.1 | 72 | 128 |
| 13070099 | 7 G1.5 | 50 | 100 | | 200 | 500 | 1000 | 8.9 | 101 | 166 |
| 19520099 | 2 X2.5 | 50 | 100 | 200 | | 500 | 1000 | 7.5 | 48 | 101 |
| 14030099 | 3 G2.5 | 50 | 100 | 200 | | 500 | 1000 | 8.1 | 72 | 132 |
| 14040099 | 4 G2.5 | 50 | 100 | | 200 | 500 | 1000 | 8.9 | 96 | 163 |
| 14050099 | 5 G2.5 | 50 | 100 | | 200 | 500 | 1000 | 10.0 | 120 | 200 |
| 14070099 | 7 G2.5 | 50 | 100 | | 200 | 500 | 1000 | 11.1 | 168 | 267 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Standard packaging: ring = RG, drum = DR
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110

VDE-registered oil-resistant PVC control cable for a wide range of applications






**Info**

- CPR: Article number choice under www.lapp.com
- VDE certificate of conformity with factory surveillance

## Benefits

- Wide choice of standardized lengths and individual cuts
- Very broad range, items with up to 100 conductors

## Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In cable chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

## Norm references / Approvals

- VDE reg. no. 7030 for the following sizes:
  up to 2.5 mm²: 2 - 65 cores
  from 4 mm²: 2 - 7 cores
  from 25 mm²: 2 - 5 cores

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
In cable chains: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -15°C to +70°C
In cable chains: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Standard length (m) and standard packaging | | | | | | | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | | | |
| **ÖLFLEX® CLASSIC 110** | | | | | | | | | | | |
| 1119752 | 2 X0.5 | | | 100 | 200 | 300 | 500 | 1000 | 4.8 | 9.6 | 35 |
| 1119003 | 3 G0.5 | | | 100 | 200 | 300 | 500 | 1000 | 5.1 | 14.4 | 42 |
| 1119753 | 3 X0.5 | | | 100 | 200 | 300 | 500 | 1000 | 5.1 | 14.4 | 42 |
| 1119004 | 4 G0.5 | | | 100 | 200 | 300 | 500 | 1000 | 5.7 | 19.2 | 54 |
| 1119754 | 4 X0.5 | | | 100 | 200 | 300 | 500 | 1000 | 5.7 | 19.2 | 54 |
| 1119005 | 5 G0.5 | | | 100 | 200 | 300 | 500 | 1000 | 6.2 | 24 | 63 |
| 1119755 | 5 X0.5 | | | 100 | 200 | 300 | 500 | 1000 | 6.2 | 24 | 63 |
| 1119007 | 7 G0.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 33.6 | 81 |
| 1119757 | 7 X0.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 33.6 | 81 |
| 1119010 | 10 G0.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.6 | 48 | 116 |
| 1119012 | 12 G0.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.9 | 58 | 131 |
| 1119014 | 14 G0.5 | | 50 | 100 | | | 500 | 1000 | 9.5 | 67 | 153 |
| 1119018 | 18 G0.5 | | 50 | 100 | | | 500 | 1000 | 10.5 | 86.4 | 188 |
| 1119021 | 21 G0.5 | | 50 | 100 | | | 500 | 1000 | 11.7 | 101 | 221 |
| 1119025 | 25 G0.5 | | 50 | 100 | | | 500 | 1000 | 12.4 | 120 | 261 |
| 1119030 | 30 G0.5 | | 50 | 100 | | | 500 | 1000 | 13.3 | 144 | 304 |
| 1119035 | 35 G0.5 | | 50 | 100 | | | 500 | 1000 | 14.5 | 168 | 356 |
| 1119040 | 40 G0.5 | | 50 | 100 | | | 500 | 1000 | 15.4 | 192 | 400 |
| 1119052 | 52 G0.5 | | 50 | 100 | | | 500 | | 17.3 | 250 | 517 |

| Article number | Number of cores and mm² per conductor | Standard length (m) and standard packaging | | | | | | | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | | | |
| 1119061 | 61 G0.5 | | 50 | 100 | | | 500 | | 18.5 | 293 | 603 |
| 1119065 | 65 G0.5 | | 50 | 100 | | | 500 | | 19.6 | 312 | 644 |
| 1119080 | 80 G0.5 | | 50 | 100 | | | 500 | | 21.1 | 384 | 780 |
| 1119100 | 100 G0.5 | | 50 | 100 | | | 500 | | 23.6 | 480 | 975 |
| 1119802 | 2 X0.75 | | | 100 | 200 | 300 | 500 | 1000 | 5.4 | 14.4 | 45 |
| 1119103 | 3 G0.75 | | | 100 | 200 | 300 | 500 | 1000 | 5.7 | 21.6 | 55 |
| 1119803 | 3 X0.75 | | | 100 | 200 | 300 | 500 | 1000 | 5.7 | 21.6 | 55 |
| 1119104 | 4 G0.75 | | | 100 | 200 | 300 | 500 | 1000 | 6.2 | 28.8 | 66 |
| 1119804 | 4 X0.75 | | | 100 | 200 | 300 | 500 | 1000 | 6.2 | 28.8 | 66 |
| 1119105 | 5 G0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 36 | 79 |
| 1119805 | 5 X0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 36 | 79 |
| 1119107 | 7 G0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 7.3 | 50 | 101 |
| 1119807 | 7 X0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 7.3 | 50 | 101 |
| 1119109 | 9 G0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 9.4 | 65 | 137 |
| 1119110 | 10 G0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 9.6 | 72 | 150 |
| 1119112 | 12 G0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 9.9 | 86 | 171 |
| 1119812 | 12 X0.75 | | 50 | 100 | 200 | 300 | 500 | 1000 | 9.9 | 86 | 171 |
| 1119115 | 15 G0.75 | | 50 | 100 | | | 500 | 1000 | 10.9 | 108 | 209 |
| 1119117 | 15 X0.75 | | 50 | 100 | | | 500 | 1000 | 10.9 | 108 | 209 |
| 1119116 | 16 G0.75 | | 50 | 100 | | | 500 | 1000 | 11.1 | 115.2 | 220 |
| 1119118 | 18 G0.75 | | 50 | 100 | | | 500 | 1000 | 11.7 | 130 | 244 |
| 1119121 | 21 G0.75 | | 50 | 100 | | | 500 | 1000 | 13.0 | 151 | 286 |
| 1119125 | 25 G0.75 | | 50 | 100 | | | 500 | 1000 | 13.8 | 180 | 337 |
| 1119126 | 26 G0.75 | | 50 | 100 | | | 500 | 1000 | 14.2 | 187.2 | 350 |
| 1119134 | 34 G0.75 | | 50 | 100 | | | 500 | 1000 | 15.9 | 245 | 448 |
| 1119141 | 41 G0.75 | | 50 | 100 | | | 500 | 1000 | 17.4 | 296 | 538 |
| 1119150 | 50 G0.75 | | 50 | 100 | | | 500 | | 19.2 | 360 | 648 |
| 1119151 | 51 G0.75 | | 50 | 100 | | | 500 | | 19.2 | 367 | 646 |
| 1119161 | 61 G0.75 | | 50 | 100 | | | 500 | | 20.5 | 439 | 779 |
| 1119165 | 65 G0.75 | | 50 | 100 | | | 500 | | 21.8 | 468 | 832 |
| 1119180 | 80 G0.75 | | 50 | 100 | | | 500 | | 23.6 | 576 | 1019 |
| 1119200 | 100 G0.75 | | 50 | 100 | | | 500 | | 26.4 | 718 | 1271 |
| 1119852 | 2 X1.0 | | | 100 | 200 | 300 | 500 | 1000 | 5.7 | 19.2 | 53 |
| 1119203 | 3 G1.0 | | | 100 | 200 | 300 | 500 | 1000 | 6.0 | 28.8 | 65 |
| 1119853 | 3 X1.0 | | | 100 | 200 | 300 | 500 | 1000 | 6.0 | 28.8 | 65 |
| 1119204 | 4 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.5 | 38.4 | 79 |
| 1119854 | 4 X1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.5 | 38.4 | 79 |
| 1119205 | 5 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 7.1 | 48 | 94 |
| 1119855 | 5 X1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 7.1 | 48 | 94 |
| 1119206 | 6 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.0 | 58 | 113 |
| 1119207 | 7 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.0 | 67 | 126 |
| 1119857 | 7 X1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.0 | 67 | 126 |
| 1119208 | 8 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 9.5 | 77 | 149 |
| 1119209 | 9 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 10.0 | 86 | 164 |
| 1119210 | 10 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 10.2 | 96 | 180 |
| 1119212 | 12 G1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 10.5 | 115 | 205 |
| 1119862 | 12 X1.0 | | 50 | 100 | 200 | 300 | 500 | 1000 | 10.5 | 115 | 205 |
| 1119214 | 14 G1.0 | | 50 | 100 | | | 500 | 1000 | 11.2 | 134 | 238 |
| 1119216 | 16 G1.0 | | 50 | 100 | | | 500 | 1000 | 11.8 | 153.6 | 266 |
| 1119218 | 18 G1.0 | | 50 | 100 | | | 500 | 1000 | 12.7 | 173 | 320 |
| 1119868 | 18 X1.0 | | 50 | 100 | | | 500 | 1000 | 12.7 | 173 | 320 |
| 1119220 | 20 G1.0 | | 50 | 100 | | | 500 | 1000 | 13.4 | 192 | 330 |
| 1119870 | 20 X1.0 | | 50 | 100 | | | 500 | 1000 | 13.4 | 192 | 330 |
| 1119225 | 25 G1.0 | | 50 | 100 | | | 500 | 1000 | 14.7 | 240 | 408 |
| 1119226 | 26 G1.0 | | 50 | 100 | | | 500 | 1000 | 15.1 | 249 | 424 |
| 1119234 | 34 G1.0 | | 50 | 100 | | | 500 | 1000 | 17.1 | 326 | 551 |
| 1119236 | 36 G1.0 | | 50 | 100 | | | 500 | 1000 | 17.4 | 346 | 578 |
| 1119241 | 41 G1.0 | | 50 | 100 | | | 500 | 1000 | 18.8 | 394 | 661 |
| 1119250 | 50 G1.0 | | 50 | 100 | | | 500 | | 20.6 | 480 | 797 |
| 1119256 | 56 G1.0 | | 50 | 100 | | | 500 | | 21.4 | 538 | 888 |
| 1119261 | 61 G1.0 | | 50 | 100 | | | 500 | | 22.1 | 586 | 958 |
| 1119265 | 65 G1.0 | | 50 | 100 | | | 500 | | 23.6 | 624 | 1033 |
| 1119280 | 80 G1.0 | | 50 | 100 | | | 500 | | 25.3 | 768 | 1251 |
| 1119300 | 100 G1.0 | | 50 | 100 | | | 500 | | 28.3 | 960 | 1560 |
| 1119902 | 2 X1.5 | | | 100 | 200 | 300 | 500 | 1000 | 6.3 | 29 | 68 |
| 1119303 | 3 G1.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 43 | 84 |
| 1119903 | 3 X1.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 6.7 | 43 | 84 |
| 1119304 | 4 G1.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 7.2 | 58 | 104 |
| 1119904 | 4 X1.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 7.2 | 58 | 104 |
| 1119305 | 5 G1.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 8.1 | 72 | 128 |
| 1119905 | 5 X1.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.1 | 72 | 128 |
| 1119306 | 6 G1.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.4 | 86.4 | 157 |
| 1119307 | 7 G1.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 8.9 | 101 | 166 |
| 1119907 | 7 X1.5 | | 50 | 100 | 200 | 300 | 500 | 1000 | 8.9 | 101 | 166 |
| 1119308 | 8 G1.5 | | 50 | 100 | | | 500 | 1000 | 10.6 | 115 | 210 |
| 1119313 | 8 X1.5 | | 50 | 100 | | | 500 | 1000 | 10.6 | 116 | 210 |
| 1119309 | 9 G1.5 | | 50 | 100 | | | 500 | 1000 | 11.4 | 130 | 221 |
| 1119310 | 10 G1.5 | | 50 | 100 | | | 500 | 1000 | 11.6 | 143 | 243 |
| 1119311 | 11 G1.5 | | 50 | 100 | | | 500 | 1000 | 11.6 | 158 | 258 |
| 1119312 | 12 G1.5 | 25 | 50 | 100 | | | 500 | 1000 | 12.0 | 173 | 279 |
| 1119912 | 12 X1.5 | | 50 | 100 | | | 500 | 1000 | 12.0 | 173 | 279 |
| 1119314 | 14 G1.5 | | 50 | 100 | | | 500 | 1000 | 12.7 | 202 | 323 |
| 1119316 | 16 G1.5 | | 50 | 100 | | | 500 | 1000 | 13.4 | 230.4 | 361 |
| 1119318 | 18 G1.5 | 25 | 50 | 100 | | | 500 | 1000 | 14.4 | 259 | 407 |

# Power and control cables

LAPP

Various applications • PVC outer sheath and numbered cores

| Article number | Number of cores and mm² per conductor | Standard length (m) and standard packaging | | | | | | | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | | | |
| 1119321 | 21 G1.5 | | 50 | 100 | | | 500 | 1000 | 15.7 | 302 | 469 |
| 1119325 | 25 G1.5 | 25 | 50 | 100 | | | 500 | 1000 | 16.9 | 360 | 560 |
| 1119326 | 26 G1.5 | | 50 | 100 | | | 500 | 1000 | 17.3 | 374.4 | 582 |
| 1119332 | 32 G1.5 | | 50 | 100 | | | 500 | 1000 | 18.7 | 461 | 704 |
| 1119334 | 34 G1.5 | | 50 | 100 | | | 500 | 1000 | 19.4 | 490 | 746 |
| 1119341 | 41 G1.5 | | 50 | 100 | | | 500 | 1000 | 21.3 | 591 | 895 |
| 1119350 | 50 G1.5 | | 50 | 100 | | | 500 | | 23.5 | 720 | 1089 |
| 1119361 | 61 G1.5 | | 50 | 100 | | | 500 | | 25.2 | 878 | 1309 |
| 1119365 | 65 G1.5 | | 50 | 100 | | | 500 | | 26.7 | 936 | 1398 |
| 1119952 | 2 X2.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 7.5 | 48 | 101 |
| 1119403 | 3 G2.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 8.1 | 72 | 132 |
| 1119404 | 4 G2.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 8.9 | 96 | 163 |
| 1119405 | 5 G2.5 | 25 | 50 | 100 | 200 | 300 | 500 | 1000 | 10.0 | 120 | 200 |
| 1119407 | 7 G2.5 | 25 | 50 | 100 | | | 500 | 1000 | 11.1 | 168 | 267 |
| 1119412 | 12 G2.5 | 25 | 50 | 100 | | | 500 | 1000 | 14.8 | 288 | 445 |
| 1119414 | 14 G2.5 | | 50 | 100 | | | 500 | 1000 | 15.8 | 336 | 515 |
| 1119418 | 18 G2.5 | 25 | 50 | 100 | | | 500 | 1000 | 17.8 | 432 | 648 |
| 1119425 | 25 G2.5 | 25 | 50 | 100 | | | 500 | 1000 | 20.8 | 600 | 890 |
| 1119434 | 34 G2.5 | | 50 | 100 | | | 500 | 1000 | 24.4 | 816 | 1208 |
| 1119450 | 50 G2.5 | | 50 | 100 | | | 500 | | 29.4 | 1200 | 1754 |
| 1119503 | 3 G4.0 | 25 | 50 | 100 | | | 500 | 1000 | 9.9 | 115 | 201 |
| 1119504 | 4 G4.0 | 25 | 50 | 100 | | | 500 | 1000 | 10.8 | 154 | 249 |
| 1119505 | 5 G4.0 | 25 | 50 | 100 | | | 500 | 1000 | 12.1 | 192 | 294 |
| 1119507 | 7 G4.0 | 25 | 50 | 100 | | | 500 | 1000 | 13.4 | 269 | 407 |
| 1119511 | 11 G4.0 | | 50 | 100 | | | 500 | 1000 | 17.6 | 422 | 634 |
| 1119512 | 12 G4.0 | | 50 | 100 | | | 500 | 1000 | 18.1 | 461 | 660 |
| 1119603 | 3 G6.0 | 25 | 50 | 100 | | | 500 | 1000 | 11.7 | 172.8 | 289 |
| 1119604 | 4 G6.0 | 25 | 50 | 100 | | | 500 | 1000 | 13.0 | 230 | 365 |
| 1119605 | 5 G6.0 | 25 | 50 | 100 | | | 500 | 1000 | 14.5 | 288 | 447 |
| 1119607 | 7 G6.0 | 25 | 50 | 100 | | | 500 | 1000 | 16.0 | 403 | 600 |
| 1119613 | 3 G10.0 | 25 | 50 | 100 | | | 500 | 1000 | 14.6 | 288 | 466 |
| 1119614 | 4 G10.0 | 25 | 50 | 100 | | | 500 | 1000 | 16.2 | 384 | 590 |
| 1119615 | 5 G10.0 | 25 | 50 | 100 | | | 500 | 1000 | 18.1 | 480 | 722 |
| 1119617 | 7 G10.0 | 25 | 50 | 100 | | | 500 | 1000 | 20.0 | 672 | 968 |
| 1119624 | 4 G16.0 | | 50 | 100 | | | 500 | | 18.8 | 614 | 1087 |
| 1119625 | 5 G16.0 | | 50 | 100 | | | 500 | | 21.2 | 768 | 1370 |
| 1119627 | 7 G16.0 | | 50 | 100 | | | 500 | | 23.4 | 1075 | 1779 |
| 1119634 | 4 G25.0 | | 50 | 100 | | | 500 | | 23.5 | 960 | 1582 |
| 1119635 | 5 G25.0 | | 50 | 100 | | | 500 | | 26.4 | 1200 | 1998 |
| 1119636 | 7 G25.0 | | 50 | 100 | | | 500 | | 29.1 | 1680 | 2825 |
| 1119644 | 4 G35.0 | | 50 | 100 | | | 500 | | 26.4 | 1344 | 2106 |
| 1119645 | 5 G35.0 | | 50 | 100 | | | 500 | | 29.6 | 1680 | 2635 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 BK

VDE-registered oil-resistant PVC control cable with black outer sheath for a wide range of applications

## Info

- CPR: Article number choice under www.lapp.com
- With black outer sheath, UV-resistant
- VDE certificate of conformity with factory surveillance




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
In cable chains: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -15°C to +70°C
In cable chains: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- Suitable for outdoor applications
- Wide choice of standardized lengths and individual cuts

## Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In cable chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors
- Suitable for outdoor applications

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- UV and weather-resistant according to ISO 4892-2

## Norm references / Approvals

- VDE reg. no. 7030 for the following sizes:
  up to 2.5 mm²: 2 - 65 cores
  from 4 mm²: 2 - 7 cores
  from 25 mm²: 2 - 5 cores

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, black (RAL 9005)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 BK** | | | | |
| 1119809 | 2 X0.75 | 5.4 | 14.4 | 45 |
| 1119871 | 3 G0.75 | 5.7 | 21.6 | 55 |
| 1119892 | 3 X0.75 | 5.7 | 21.6 | 55 |
| 1119872 | 4 G0.75 | 6.2 | 28.8 | 66 |
| 1119893 | 4 X0.75 | 6.2 | 28.8 | 66 |
| 1119873 | 5 G0.75 | 6.7 | 36 | 79 |
| 1119874 | 7 G0.75 | 7.3 | 50.4 | 101 |
| 1119875 | 12 G0.75 | 9.9 | 86.4 | 171 |
| 1119876 | 18 G0.75 | 11.7 | 130 | 244 |
| 1119877 | 25 G0.75 | 13.8 | 180 | 337 |
| 1119878 | 34 G0.75 | 15.9 | 245 | 448 |
| 1119894 | 2 X1.0 | 5.7 | 19.2 | 53 |
| 1119244 | 3 G1.0 | 6.0 | 28.8 | 65 |
| 1119895 | 3 X1.0 | 6.0 | 28.8 | 65 |
| 1119245 | 4 G1.0 | 6.5 | 38.4 | 79 |
| 1119896 | 4 X1.0 | 6.5 | 38.4 | 79 |
| 1119246 | 5 G1.0 | 7.1 | 48 | 94 |
| 1119897 | 5 X1.0 | 7.1 | 48 | 94 |
| 1119247 | 7 G1.0 | 8.0 | 67.2 | 126 |
| 1119248 | 12 G1.0 | 10.5 | 115 | 205 |
| 1119249 | 18 G1.0 | 12.7 | 173 | 290 |
| 1119251 | 25 G1.0 | 14.7 | 240 | 390 |
| 1119252 | 34 G1.0 | 17.1 | 326 | 551 |
| 1119898 | 2 X1.5 | 6.3 | 28.8 | 68 |
| 1119020 | 3 G1.5 | 6.7 | 43.2 | 84 |
| 1119899 | 3 X1.5 | 6.7 | 43.2 | 84 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1119879 | 4 G1.5 | 7.2 | 57.6 | 104 |
| 1119900 | 4 X1.5 | 7.2 | 57.6 | 104 |
| 1119880 | 5 G1.5 | 8.1 | 72 | 128 |
| 1119911 | 5 X1.5 | 8.1 | 72 | 128 |
| 1119881 | 7 G1.5 | 8.9 | 101 | 166 |
| 1119913 | 7 X1.5 | 8.9 | 101 | 166 |
| 1119882 | 12 G1.5 | 12.0 | 173 | 279 |
| 1119883 | 18 G1.5 | 14.4 | 259 | 407 |
| 1119884 | 25 G1.5 | 16.9 | 360 | 560 |
| 1119914 | 2 X2.5 | 7.5 | 48 | 100 |
| 1119885 | 3 G2.5 | 8.1 | 72 | 132 |
| 1119886 | 4 G2.5 | 8.9 | 96 | 163 |
| 1119887 | 5 G2.5 | 10.0 | 120 | 200 |
| 1119888 | 7 G2.5 | 11.1 | 168 | 267 |
| 1119889 | 12 G2.5 | 14.8 | 288 | 444 |
| 1119890 | 18 G2.5 | 17.8 | 432 | 648 |
| 1119891 | 25 G2.5 | 20.8 | 600 | 890 |
| 1119915 | 3 G4.0 | 9.9 | 115.2 | 201 |
| 1119916 | 4 G4.0 | 10.8 | 154 | 249 |
| 1119917 | 5 G4.0 | 12.1 | 192 | 315 |
| 1119918 | 4 G6.0 | 13.0 | 230 | 365 |
| 1119919 | 5 G6.0 | 14.5 | 288 | 447 |
| 1119920 | 4 G10.0 | 16.2 | 384 | 590 |
| 1119921 | 5 G10.0 | 18.1 | 480 | 722 |
| 1119922 | 4 G16.0 | 18.8 | 614 | 1087 |
| 1119923 | 5 G16.0 | 21.2 | 768 | 1370 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 LT

Cold flexible PVC control cable, suitable for low temperatures as well as outdoor use




**Info**

- CPR: Article number choice under www.lapp.com
- UV and weather-resistant according to ISO 4892-2

## Benefits

- Inexpensive control cable for flexing outdoor use
- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Freezing plants, cold storage
- Suitable for outdoor applications
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2
- Flexible down to -30 °C
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, cold-resistant
- Cores twisted in layers
- Outer sheath: PVC, cold-resistant, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30 °C to +70 °C
Fixed installation: -40 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 LT** | | | | |
| 1120730 | 2 X0.75 | 5.4 | 14.4 | 45 |
| 1120731 | 3 X0.75 | 5.7 | 21.6 | 55 |
| 1120732 | 3 G0.75 | 5.7 | 21.6 | 55 |
| 1120733 | 4 X0.75 | 6.2 | 28.8 | 66 |
| 1120734 | 4 G0.75 | 6.2 | 28.8 | 66 |
| 1120735 | 5 G0.75 | 6.7 | 36 | 79 |
| 1120736 | 7 G0.75 | 7.3 | 50.4 | 101 |
| 1120737 | 12 G0.75 | 9.9 | 86.4 | 171 |
| 1120738 | 18 G0.75 | 11.7 | 130 | 244 |
| 1120739 | 25 G0.75 | 13.8 | 180 | 337 |
| 1120740 | 2 X1.0 | 5.7 | 19.2 | 53 |
| 1120741 | 3 X1.0 | 6.0 | 28.8 | 65 |
| 1120742 | 3 G1.0 | 6.0 | 28.8 | 65 |
| 1120743 | 4 X1.0 | 6.5 | 38.4 | 79 |
| 1120744 | 4 G1.0 | 6.5 | 38.4 | 79 |
| 1120745 | 5 G1.0 | 7.1 | 48 | 94 |
| 1120746 | 7 G1.0 | 8.0 | 67.2 | 126 |
| 1120747 | 12 G1.0 | 10.5 | 115 | 205 |
| 1120748 | 18 G1.0 | 12.7 | 173 | 300 |
| 1120749 | 25 G1.0 | 14.7 | 240 | 408 |
| 1120750 | 2 X1.5 | 6.3 | 29 | 68 |
| 1120751 | 3 X1.5 | 6.7 | 43 | 84 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1120752 | 3 G1.5 | 6.7 | 43 | 84 |
| 1120753 | 4 X1.5 | 7.2 | 58 | 104 |
| 1120754 | 4 G1.5 | 7.2 | 58 | 104 |
| 1120755 | 5 X1.5 | 8.1 | 72 | 128 |
| 1120756 | 5 G1.5 | 8.1 | 72 | 128 |
| 1120757 | 7 X1.5 | 8.9 | 101 | 166 |
| 1120758 | 7 G1.5 | 8.9 | 101 | 166 |
| 1120759 | 12 G1.5 | 12.0 | 173 | 279 |
| 1120760 | 18 G1.5 | 14.4 | 259 | 407 |
| 1120761 | 25 G1.5 | 16.9 | 360 | 560 |
| 1120762 | 2 X2.5 | 7.5 | 48 | 101 |
| 1120763 | 3 G2.5 | 8.1 | 72 | 132 |
| 1120764 | 4 G2.5 | 8.9 | 96 | 163 |
| 1120765 | 5 G2.5 | 10.0 | 120 | 200 |
| 1120766 | 7 G2.5 | 11.1 | 168 | 267 |
| 1120767 | 12 G2.5 | 14.8 | 288 | 445 |
| 1120768 | 18 G2.5 | 17.8 | 432 | 648 |
| 1120769 | 25 G2.5 | 20.8 | 600 | 890 |
| 1120770 | 4 G4.0 | 10.8 | 154 | 249 |
| 1120771 | 5 G4.0 | 12.1 | 192 | 305 |
| 1120772 | 4 G6.0 | 13.0 | 230 | 365 |
| 1120773 | 5 G6.0 | 14.5 | 288 | 447 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 ORANGE




**Info**

- CPR: Article number choice under www.lapp.com
- For warning purposes and for exempted circuits according to EN 60204-1, e.g. circuits for maintenance or interlocking circuits

## Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

## Application range

- According to EN 60204-1 (VDE 0113-1), conductors of control circuits that are supplied by an external power source and/or remain live when the main switch is deactivated must be orange
- Electrical lighting and socket circuits for maintenance or repair purposes
- Undervoltage protection circuits
- Interlocking control circuits
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Orange cores with black numbers
- Outer sheath: PVC, orange (similar to RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Orange cores with black numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 ORANGE** | | | | |
| 0019700 | 2 X1.0 | 5.7 | 19.2 | 53 |
| 0019701 | 3 G1.0 | 6.0 | 28.8 | 65 |
| 0019702 | 3 X1.0 | 6.0 | 28.8 | 65 |
| 0019706 | 4 G1.0 | 6.5 | 38.4 | 80 |
| 0019708 | 4 X1.0 | 6.5 | 38.4 | 80 |
| 0019709 | 5 G1.0 | 7.1 | 50 | 95 |
| 0019710 | 2 X1.5 | 6.3 | 29 | 68 |
| 0019711 | 3 G1.5 | 6.7 | 43 | 85 |
| 0019718 | 4 G1.5 | 7.2 | 58 | 105 |
| 0019720 | 5 G1.5 | 8.1 | 72 | 128 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 CY

Screened PVC control cable with transparent outer sheath




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Info

- CPR: Article number choice under www.lapp.com
- VDE reg. no. 7030
- EMC-compliant

## Norm references / Approvals

- VDE reg. no. 7030

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 CY** | | | | |
| 1135752 | 2 X0.5 | 7.0 | 41 | 75 |
| 1135003 | 3 G0.5 | 7.3 | 45.5 | 83 |
| 1135753 | 3 X0.5 | 7.3 | 45.5 | 83 |
| 1135004 | 4 G0.5 | 7.9 | 55 | 99 |
| 1135754 | 4 X0.5 | 7.9 | 55 | 99 |
| 1135005 | 5 G0.5 | 8.4 | 66 | 112 |
| 1135755 | 5 X0.5 | 8.4 | 66 | 112 |
| 1135007 | 7 G0.5 | 8.9 | 80.5 | 132 |
| 1135757 | 7 X0.5 | 8.9 | 80.5 | 132 |
| 1135012 | 12 G0.5 | 11.3 | 138.5 | 202 |
| 1135762 | 12 X0.5 | 11.3 | 138.5 | 202 |
| 1135018 | 18 G0.5 | 13.3 | 156.4 | 289 |
| 1135025 | 25 G0.5 | 15.2 | 250 | 378 |
| 1135030 | 30 G0.5 | 16.1 | 297 | 429 |
| 1135040 | 40 G0.5 | 18.2 | 343 | 542 |
| 1135802 | 2 X0.75 | 7.4 | 46 | 86 |
| 1135103 | 3 G0.75 | 7.9 | 57.9 | 100 |
| 1135803 | 3 X0.75 | 7.9 | 57.9 | 100 |
| 1135104 | 4 G0.75 | 8.4 | 64 | 115 |
| 1135804 | 4 X0.75 | 8.4 | 64 | 115 |
| 1135105 | 5 G0.75 | 8.9 | 77.4 | 130 |
| 1135805 | 5 X0.75 | 8.9 | 77.4 | 130 |
| 1135107 | 7 G0.75 | 9.7 | 102 | 161 |
| 1135807 | 7 X0.75 | 9.7 | 102 | 161 |
| 1135112 | 12 G0.75 | 12.3 | 177 | 247 |
| 1135812 | 12 X0.75 | 12.3 | 177 | 247 |
| 1135118 | 18 G0.75 | 14.5 | 243 | 356 |
| 1135818 | 18 X0.75 | 14.5 | 243 | 356 |
| 1135125 | 25 G0.75 | 16.6 | 307.3 | 465 |
| 1135134 | 34 G0.75 | 18.9 | 323.2 | 601 |
| 1135840 | 40 X0.75 | 20.5 | 369.4 | 734 |
| 1135141 | 41 G0.75 | 20.6 | 488 | 728 |
| 1135852 | 2 X1.0 | 7.9 | 56 | 98 |
| 1135203 | 3 G1.0 | 8.2 | 65.3 | 111 |
| 1135853 | 3 X1.0 | 8.2 | 65.3 | 111 |
| 1135204 | 4 G1.0 | 8.7 | 78.1 | 130 |
| 1135854 | 4 X1.0 | 8.7 | 78.1 | 130 |
| 1135205 | 5 G1.0 | 9.5 | 89.4 | 153 |
| 1135207 | 7 G1.0 | 10.2 | 113.3 | 185 |
| 1135212 | 12 G1.0 | 13.3 | 188.1 | 307 |
| 1135216 | 16 G1.0 | 14.6 | 216 | 390 |
| 1135218 | 18 G1.0 | 15.5 | 286 | 418 |
| 1135225 | 25 G1.0 | 17.5 | 388.5 | 544 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1135234 | 34 G1.0 | 20.3 | 505 | 738 |
| 1135241 | 41 G1.0 | 22.0 | 578 | 864 |
| 1135250 | 50 G1.0 | 23.8 | 688 | 1011 |
| 1135902 | 2 X1.5 | 8.5 | 65 | 117 |
| 1135303 | 3 G1.5 | 8.9 | 83 | 136 |
| 1135903 | 3 X1.5 | 8.9 | 83 | 136 |
| 1135304 | 4 G1.5 | 9.6 | 100 | 163 |
| 1135904 | 4 X1.5 | 9.6 | 100 | 163 |
| 1135305 | 5 G1.5 | 10.3 | 125 | 188 |
| 1135905 | 5 X1.5 | 10.3 | 125 | 188 |
| 1135307 | 7 G1.5 | 11.3 | 149 | 237 |
| 1135907 | 7 X1.5 | 11.3 | 149 | 237 |
| 1135312 | 12 G1.5 | 14.8 | 280 | 393 |
| 1135318 | 18 G1.5 | 17.2 | 389 | 538 |
| 1135325 | 25 G1.5 | 20.1 | 535 | 745 |
| 1135334 | 34 G1.5 | 22.8 | 702 | 964 |
| 1135341 | 41 G1.5 | 24.7 | 844.6 | 1123 |
| 1135350 | 50 G1.5 | 27.1 | 1006 | 1372 |
| 1135402 | 2 X2.5 | 9.9 | 112 | 165 |
| 1135403 | 3 G2.5 | 10.3 | 146 | 192 |
| 1135404 | 4 G2.5 | 11.3 | 167 | 233 |
| 1135405 | 5 G2.5 | 12.6 | 200 | 283 |
| 1135407 | 7 G2.5 | 13.9 | 288 | 371 |
| 1135412 | 12 G2.5 | 17.6 | 477.3 | 585 |
| 1135502 | 2 X4.0 | 11.4 | 120 | 247 |
| 1135504 | 4 G4.0 | 13.4 | 237 | 347 |
| 1135505 | 5 G4.0 | 14.7 | 280 | 413 |
| 1135602 | 2 X6.0 | 13.6 | 180 | 353 |
| 1135604 | 4 G6.0 | 15.8 | 318 | 485 |
| 1135605 | 5 G6.0 | 17.3 | 441 | 702 |
| 1135607 | 7 G6.0 | 18.8 | 530 | 950 |
| 1135702 | 2 X10.0 | 16.4 | 256 | 492 |
| 1135615 | 3 G10.0 | 17.4 | 362.4 | 507 |
| 1135614 | 4 G10.0 | 19.0 | 518 | 735 |
| 1135616 | 5 G10.0 | 21.3 | 595 | 847 |
| 1135617 | 7 G10.0 | 23.2 | 796 | 1039 |
| 1135622 | 2 X16.0 | 18.6 | 390 | 698 |
| 1135624 | 4 G16.0 | 22.2 | 804 | 1395 |
| 1135623 | 5 G16.0 | 24.4 | 935 | 1440 |
| 1135626 | 4 G25.0 | 26.9 | 1161 | 1730 |
| 1135627 | 5 G25.0 | 30.0 | 1400 | 2090 |
| 1135625 | 4 G35.0 | 30.2 | 1543 | 2210 |
| 1135628 | 5 G35.0 | 33.2 | 1901 | 2710 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# ÖLFLEX® CLASSIC 110 SY

Steel-wire braided PVC control cable with transparent outer sheath




**Info**

- CPR: Article number choice under www.lapp.com
- VDE reg. no. 7030
- Steel wire braiding for extra mechanical protection

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- Extra mechanical protection due to braided steel wire
- High electrical performance due to 4 kV test voltage

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Areas with high mechanical stress
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

## Norm references / Approvals

- VDE reg. no. 7030

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 SY** | | | | |
| 1125752 | 2 X0.5 | 7.8 | 10 | 87 |
| 1125003 | 3 G0.5 | 8.1 | 15 | 95 |
| 1125004 | 4 G0.5 | 8.5 | 19.2 | 107 |
| 1125005 | 5 G0.5 | 9.2 | 24 | 123 |
| 1125007 | 7 G0.5 | 9.7 | 33.6 | 147 |
| 1125010 | 10 G0.5 | 11.6 | 48 | 196 |
| 1125012 | 12 G0.5 | 11.9 | 58 | 213 |
| 1125014 | 14 G0.5 | 12.5 | 67 | 237 |
| 1125018 | 18 G0.5 | 13.9 | 86.4 | 291 |
| 1125021 | 21 G0.5 | 14.9 | 101 | 332 |
| 1125025 | 25 G0.5 | 15.6 | 120 | 375 |
| 1125030 | 30 G0.5 | 16.5 | 144 | 422 |
| 1125040 | 40 G0.5 | 18.8 | 192 | 545 |
| 1125061 | 61 G0.5 | 21.9 | 293 | 773 |
| 1125802 | 2 X0.75 | 8.2 | 14.4 | 97 |
| 1125103 | 3 G0.75 | 8.5 | 21.6 | 108 |
| 1125104 | 4 G0.75 | 9.2 | 28.8 | 126 |
| 1125105 | 5 G0.75 | 9.7 | 36 | 146 |
| 1125107 | 7 G0.75 | 10.3 | 50 | 172 |
| 1125109 | 9 G0.75 | 12.4 | 65 | 224 |
| 1125112 | 12 G0.75 | 12.9 | 86 | 260 |
| 1125115 | 15 G0.75 | 14.1 | 108 | 315 |
| 1125118 | 18 G0.75 | 14.9 | 130 | 355 |
| 1125125 | 25 G0.75 | 17.0 | 180 | 465 |
| 1125134 | 34 G0.75 | 19.3 | 245 | 596 |
| 1125150 | 50 G0.75 | 22.8 | 360 | 832 |
| 1125852 | 2 X1.0 | 8.5 | 19.2 | 106 |
| 1125203 | 3 G1.0 | 8.8 | 28.8 | 119 |
| 1125204 | 4 G1.0 | 9.5 | 38.4 | 141 |
| 1125205 | 5 G1.0 | 10.1 | 48 | 164 |
| 1125207 | 7 G1.0 | 11.0 | 67 | 200 |
| 1125208 | 8 G1.0 | 12.5 | 77 | 234 |
| 1125209 | 9 G1.0 | 13.2 | 86 | 260 |
| 1125212 | 12 G1.0 | 13.9 | 115 | 309 |
| 1125214 | 14 G1.0 | 14.4 | 134 | 345 |
| 1125218 | 18 G1.0 | 15.9 | 173 | 415 |
| 1125220 | 20 G1.0 | 16.8 | 192 | 455 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1125225 | 25 G1.0 | 18.1 | 240 | 548 |
| 1125234 | 34 G1.0 | 20.5 | 326 | 714 |
| 1125241 | 41 G1.0 | 22.2 | 394 | 832 |
| 1125250 | 50 G1.0 | 24.2 | 480 | 987 |
| 1125902 | 2 X1.5 | 9.3 | 29 | 128 |
| 1125303 | 3 G1.5 | 9.7 | 43 | 151 |
| 1125304 | 4 G1.5 | 10.2 | 58 | 173 |
| 1125305 | 5 G1.5 | 11.1 | 72 | 202 |
| 1125307 | 7 G1.5 | 11.9 | 101 | 248 |
| 1125308 | 8 G1.5 | 14.0 | 115 | 301 |
| 1125312 | 12 G1.5 | 15.4 | 173 | 396 |
| 1125314 | 14 G1.5 | 15.9 | 202 | 438 |
| 1125318 | 18 G1.5 | 17.6 | 259 | 580 |
| 1125325 | 25 G1.5 | 20.3 | 360 | 713 |
| 1125332 | 32 G1.5 | 22.1 | 461 | 876 |
| 1125350 | 50 G1.5 | 27.1 | 720 | 1305 |
| 1125403 | 3 G2.5 | 11.1 | 72 | 206 |
| 1125404 | 4 G2.5 | 12.1 | 96 | 249 |
| 1125405 | 5 G2.5 | 13.2 | 120 | 295 |
| 1125407 | 7 G2.5 | 14.3 | 168 | 373 |
| 1125412 | 12 G2.5 | 18.2 | 288 | 586 |
| 1125418 | 18 G2.5 | 21.4 | 432 | 823 |
| 1125425 | 25 G2.5 | 24.4 | 600 | 1093 |
| 1125503 | 3 G4.0 | 12.7 | 115 | 285 |
| 1125504 | 4 G4.0 | 14.0 | 154 | 348 |
| 1125505 | 5 G4.0 | 15.1 | 192 | 410 |
| 1125507 | 7 G4.0 | 16.4 | 269 | 519 |
| 1125604 | 4 G6.0 | 16.2 | 230 | 482 |
| 1125605 | 5 G6.0 | 17.7 | 288 | 579 |
| 1125607 | 7 G6.0 | 19.2 | 403 | 740 |
| 1125614 | 4 G10.0 | 19.4 | 384 | 731 |
| 1125615 | 5 G10.0 | 21.5 | 480 | 889 |
| 1125617 | 7 G10.0 | 23.4 | 672 | 1146 |
| 1125624 | 4 G16.0 | 22.4 | 614 | 1384 |
| 1125625 | 5 G16.0 | 24.6 | 768 | 1740 |
| 1125626 | 4 G25.0 | 26.9 | 960 | 1680 |
| 1125630 | 5 G25.0 | 30.0 | 1200 | 2050 |
| 1125629 | 4 G35.0 | 30.2 | 1344 | 2170 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV




## Info

- Good outdoor performance
- CPR: Article number choice under www.lapp.com

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
  Stage applications
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on VDE 0250-1 and HD 627-1 S1

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- PVC outer sheath, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Static/Occ. moved: 4/15xOD*

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 BLACK** | | | | |
| 1120232 | 2 X0.75 | 8.3 | 14.4 | 81 |
| 1120233 | 3 G0.75 | 8.7 | 21.6 | 93 |
| 1120234 | 3 X0.75 | 8.7 | 21.6 | 93 |
| 1120235 | 4 G0.75 | 9.2 | 29 | 108 |
| 1120237 | 5 G0.75 | 9.9 | 36 | 126 |
| 1120241 | 7 G0.75 | 10.7 | 51 | 162 |
| 1120248 | 12 G0.75 | 13.4 | 86 | 236 |
| 1120251 | 18 G0.75 | 15.4 | 130 | 334 |
| 1120259 | 41 G0.75 | 21.6 | 296 | 713 |
| 1120266 | 2 X1.0 | 8.6 | 19.2 | 98 |
| 1120267 | 3 G1.0 | 9.0 | 29 | 112 |
| 1120268 | 3 X1.0 | 9.0 | 29 | 112 |
| 1120269 | 4 G1.0 | 9.6 | 38.4 | 131 |
| 1120270 | 4 X1.0 | 9.6 | 38.4 | 131 |
| 1120271 | 5 G1.0 | 10.4 | 48 | 152 |
| 1120274 | 7 G1.0 | 11.1 | 67 | 196 |
| 1120280 | 12 G1.0 | 14.0 | 116 | 286 |
| 1120284 | 18 G1.0 | 16.1 | 173 | 419 |
| 1120290 | 25 G1.0 | 18.6 | 240 | 572 |
| 1120294 | 34 G1.0 | 21.3 | 326 | 764 |
| 1120298 | 41 G1.0 | 23.2 | 394 | 891 |
| 1120306 | 2 X1.5 | 9.6 | 29 | 123 |
| 1120307 | 3 G1.5 | 10.1 | 43 | 165 |
| 1120308 | 3 X1.5 | 10.1 | 43 | 144 |
| 1120309 | 4 G1.5 | 10.8 | 58 | 170 |
| 1120311 | 5 G1.5 | 11.7 | 72 | 199 |
| 1120314 | 7 G1.5 | 12.6 | 101 | 261 |
| 1120320 | 12 G1.5 | 16.1 | 173 | 399 |
| 1120322 | 14 G1.5 | 17.0 | 202 | 448 |
| 1120324 | 18 G1.5 | 18.8 | 259 | 547 |
| 1120328 | 25 G1.5 | 21.7 | 360 | 770 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1120330 | 34 G1.5 | 24.9 | 490 | 996 |
| 1120333 | 50 G1.5 | 29.8 | 720 | 1427 |
| 1120339 | 2 X2.5 | 10.8 | 48 | 147 |
| 1120340 | 3 G2.5 | 11.3 | 72 | 182 |
| 1120342 | 4 G2.5 | 12.2 | 96 | 225 |
| 1120343 | 4 X2.5 | 12.2 | 96 | 225 |
| 1120344 | 5 G2.5 | 13.3 | 120 | 266 |
| 1120346 | 7 G2.5 | 14.4 | 168 | 354 |
| 1120349 | 12 G2.5 | 18.7 | 288 | 540 |
| 1120350 | 14 G2.5 | 19.8 | 336 | 613 |
| 1120351 | 18 G2.5 | 22.0 | 432 | 788 |
| 1120353 | 25 G2.5 | 25.8 | 600 | 1094 |
| 1120360 | 4 G4.0 | 13.8 | 154 | 324 |
| 1120361 | 5 G4.0 | 15.1 | 192 | 385 |
| 1120362 | 7 G4.0 | 16.4 | 269 | 513 |
| 1120366 | 4 G6.0 | 15.1 | 230 | 442 |
| 1120367 | 5 G6.0 | 16.8 | 288 | 526 |
| 1120368 | 7 G6.0 | 18.2 | 403 | 705 |
| 1120370 | 4 G10.0 | 18.7 | 384 | 707 |
| 1120371 | 5 G10.0 | 20.7 | 480 | 881 |
| 1120374 | 4 G16.0 | 21.3 | 614 | 1100 |
| 1120375 | 5 G16.0 | 23.6 | 768 | 1350 |
| 1120376 | 7 G16.0 | 26.2 | 1075 | 1800 |
| 1120378 | 4 G25.0 | 26.2 | 960 | 1600 |
| 1120379 | 5 G25.0 | 29.0 | 1200 | 2050 |
| 1120382 | 4 G35.0 | 29.1 | 1344 | 2400 |
| 1120383 | 5 G35.0 | 32.5 | 1680 | 2900 |
| 1120385 | 4 G50.0 | 35.6 | 1920 | 3400 |
| 1120387 | 4 G70.0 | 40.7 | 2688 | 5050 |
| 1120389 | 4 G95.0 | 46.8 | 3648 | 6010 |
| 1120390 | 4 G120.0 | 53.5 | 4608 | 7500 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 kV

**Info**

- Good outdoor performance
- EMC/Screened
- CPR: Article number choice under www.lapp.com




## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- For frequency converter-powered 3-phase AC motors
- In EMC-sensitive environments (electromagnetic compatibility)
- Servo Drive Connection Cable
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

## Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- Based on VDE 0250-1 and HD 627-1 S1

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- PVC inner sheath, black
- Tinned-copper braiding
- PVC outer sheath, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Static/Occ. moved: 6/20xOD*

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 CY BLACK** | | | | |
| 1121232 | 2 X0.75 | 10.5 | 46 | 150 |
| 1121233 | 3 G0.75 | 10.9 | 56 | 180 |
| 1121235 | 4 G0.75 | 11.4 | 67 | 214 |
| 1121236 | 4 X0.75 | 11.4 | 67 | 214 |
| 1121237 | 5 G0.75 | 12.1 | 78 | 272 |
| 1121241 | 7 G0.75 | 12.9 | 97 | 242 |
| 1121247 | 12 G0.75 | 15.8 | 168 | 464 |
| 1121251 | 18 G0.75 | 18.0 | 229 | 616 |
| 1121254 | 25 G0.75 | 20.7 | 296 | 762 |
| 1121266 | 2 X1.0 | 10.8 | 52 | 160 |
| 1121267 | 3 G1.0 | 11.2 | 66 | 182 |
| 1121268 | 3 X1.0 | 11.2 | 66 | 182 |
| 1121269 | 4 G1.0 | 11.8 | 79 | 210 |
| 1121270 | 4 X1.0 | 11.8 | 79 | 210 |
| 1121271 | 5 G1.0 | 12.6 | 93 | 252 |
| 1121274 | 7 G1.0 | 13.3 | 117 | 335 |
| 1121280 | 12 G1.0 | 16.4 | 204 | 522 |
| 1121284 | 18 G1.0 | 18.7 | 280 | 687 |
| 1121290 | 25 G1.0 | 21.6 | 369 | 884 |
| 1121306 | 2 X1.5 | 11.8 | 69 | 243 |
| 1121307 | 3 G1.5 | 12.3 | 87 | 273 |
| 1121308 | 3 X1.5 | 12.3 | 87 | 273 |
| 1121309 | 4 G1.5 | 13.0 | 102 | 290 |
| 1121310 | 4 X1.5 | 13.0 | 102 | 290 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1121311 | 5 G1.5 | 13.9 | 125 | 352 |
| 1121314 | 7 G1.5 | 15.0 | 180 | 448 |
| 1121320 | 12 G1.5 | 18.7 | 281 | 690 |
| 1121324 | 18 G1.5 | 21.8 | 391 | 938 |
| 1121328 | 25 G1.5 | 25.1 | 518 | 1180 |
| 1121340 | 3 G2.5 | 13.5 | 123 | 315 |
| 1121342 | 4 G2.5 | 14.6 | 168 | 349 |
| 1121344 | 5 G2.5 | 15.7 | 204 | 515 |
| 1121346 | 7 G2.5 | 17.0 | 265 | 619 |
| 1121349 | 12 G2.5 | 21.7 | 421 | 936 |
| 1121360 | 4 G4.0 | 16.2 | 238 | 587 |
| 1121361 | 5 G4.0 | 17.7 | 302 | 689 |
| 1121362 | 7 G4.0 | 19.0 | 396 | 828 |
| 1121367 | 4 G6.0 | 17.7 | 318 | 715 |
| 1121368 | 5 G6.0 | 19.2 | 419 | 862 |
| 1121372 | 4 G10.0 | 21.7 | 574 | 875 |
| 1121373 | 5 G10.0 | 23.0 | 612 | 1037 |
| 1121377 | 4 G16.0 | 24.3 | 809 | 1400 |
| 1121378 | 5 G16.0 | 26.7 | 935 | 1600 |
| 1121381 | 4 G25.0 | 29.8 | 1165 | 2179 |
| 1121385 | 4 G35.0 | 32.7 | 1683 | 2893 |
| 1121388 | 4 G50.0 | 39.6 | 2368 | 4094 |
| 1121391 | 4 G70.0 | 44.5 | 3261 | 5467 |
| 1121394 | 4 G95.0 | 51.0 | 4055 | 5849 |
| 1121397 | 4 G120.0 | 58.1 | 5225 | 7509 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 115 CY

Screened PVC control cable with small outer diameter




**Info**

- CPR: Article number choice under www.lapp.com
- Thin and light, without inner sheath
- EMC-compliant

## Benefits

- Space-saving installation due to small cable diameters

## Application range

- Measurement and control technology
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Office machines and systems for data processing
- In EMC-sensitive environments (electromagnetic compatibility)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 115 CY** | | | | |
| 1136752 | 2 X0.5 | 5.8 | 36 | 54 |
| 1136003 | 3 G0.5 | 6.1 | 43 | 63 |
| 1136753 | 3 X0.5 | 6.1 | 43 | 63 |
| 1136004 | 4 G0.5 | 6.5 | 49 | 71 |
| 1136754 | 4 X0.5 | 6.5 | 49 | 71 |
| 1136005 | 5 G0.5 | 7.0 | 57 | 86 |
| 1136755 | 5 X0.5 | 7.0 | 57 | 86 |
| 1136007 | 7 G0.5 | 7.5 | 69 | 105 |
| 1136757 | 7 X0.5 | 7.5 | 69 | 105 |
| 1136012 | 12 G0.5 | 9.9 | 104 | 200 |
| 1136762 | 12 X0.5 | 9.9 | 104 | 200 |
| 1136018 | 18 G0.5 | 11.5 | 141 | 275 |
| 1136768 | 18 X0.5 | 11.5 | 141 | 275 |
| 1136025 | 25 G0.5 | 13.4 | 211 | 350 |
| 1136775 | 25 X0.5 | 13.4 | 211 | 350 |
| 1136802 | 2 X0.75 | 6.2 | 43 | 56 |
| 1136103 | 3 G0.75 | 6.5 | 52 | 70 |
| 1136803 | 3 X0.75 | 6.5 | 52 | 70 |
| 1136104 | 4 G0.75 | 7.0 | 61 | 95 |
| 1136804 | 4 X0.75 | 7.0 | 61 | 95 |
| 1136105 | 5 G0.75 | 7.7 | 72 | 108 |
| 1136805 | 5 X0.75 | 7.7 | 72 | 108 |
| 1136107 | 7 G0.75 | 8.3 | 89 | 127 |
| 1136807 | 7 X0.75 | 8.3 | 89 | 127 |
| 1136112 | 12 G0.75 | 10.9 | 138 | 232 |
| 1136118 | 18 G0.75 | 12.7 | 211 | 315 |
| 1136125 | 25 G0.75 | 14.8 | 280 | 435 |
| 1136825 | 25 X0.75 | 14.8 | 280 | 435 |
| 1136852 | 2 X1.0 | 6.5 | 51 | 71 |
| 1136203 | 3 G1.0 | 6.8 | 62 | 86 |
| 1136853 | 3 X1.0 | 6.8 | 62 | 86 |
| 1136204 | 4 G1.0 | 7.3 | 74 | 98 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1136854 | 4 X1.0 | 7.3 | 74 | 98 |
| 1136205 | 5 G1.0 | 8.1 | 88 | 121 |
| 1136855 | 5 X1.0 | 8.1 | 88 | 121 |
| 1136207 | 7 G1.0 | 8.8 | 112 | 147 |
| 1136857 | 7 X1.0 | 8.8 | 112 | 147 |
| 1136212 | 12 G1.0 | 11.5 | 185 | 285 |
| 1136218 | 18 G1.0 | 13.9 | 268 | 395 |
| 1136225 | 25 G1.0 | 15.9 | 354 | 486 |
| 1136902 | 2 X1.5 | 7.1 | 65 | 86 |
| 1136303 | 3 G1.5 | 7.5 | 82 | 112 |
| 1136903 | 3 X1.5 | 7.5 | 82 | 112 |
| 1136304 | 4 G1.5 | 8.2 | 100 | 135 |
| 1136904 | 4 X1.5 | 8.2 | 100 | 135 |
| 1136305 | 5 G1.5 | 8.9 | 119 | 148 |
| 1136905 | 5 X1.5 | 8.9 | 119 | 148 |
| 1136307 | 7 G1.5 | 9.9 | 154 | 192 |
| 1136907 | 7 X1.5 | 9.9 | 154 | 192 |
| 1136312 | 12 G1.5 | 13.0 | 268 | 365 |
| 1136318 | 18 G1.5 | 15.6 | 373 | 520 |
| 1136325 | 25 G1.5 | 17.9 | 530 | 734 |
| 1136334 | 34 G1.5 | 20.8 | 683 | 944 |
| 1136403 | 3 G2.5 | 8.9 | 118 | 151 |
| 1136404 | 4 G2.5 | 9.9 | 147 | 188 |
| 1136405 | 5 G2.5 | 11.0 | 176 | 270 |
| 1136407 | 7 G2.5 | 11.9 | 253 | 340 |
| 1136412 | 12 G2.5 | 16.0 | 355 | 540 |
| 1136418 | 18 G2.5 | 19.0 | 569 | 782 |
| 1136425 | 25 G2.5 | 22.2 | 827 | 1358 |
| 1136504 | 4 G4.0 | 11.6 | 248 | 305 |
| 1136507 | 7 G4.0 | 14.4 | 355 | 500 |
| 1136604 | 4 G6.0 | 14.2 | 343 | 440 |
| 1136607 | 7 G6.0 | 17.0 | 505 | 672 |
| 1136614 | 4 G10.0 | 17.2 | 495 | 680 |
| 1136615 | 5 G10.0 | 19.5 | 592 | 824 |
| 1136624 | 4 G16.0 | 20.2 | 800 | 1050 |
| 1136625 | 5 G16.0 | 22.6 | 895 | 1285 |
| 1136634 | 4 G25.0 | 25.1 | 1075 | 1413 |
| 1136635 | 5 G25.0 | 28.0 | 1400 | 1976 |
| 1136638 | 4 G35.0 | 28.0 | 1576 | 2070 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 115 CY BK

Screened PVC control cable with small outer diameter and black outer sheath




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

## Info

- With black outer sheath, UV-resistant
- Thin and light, without inner sheath
- EMC-compliant

## Benefits

- Suitable for outdoor applications
- Space-saving installation due to small cable diameters

## Application range

- Measurement and control technology
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for outdoor applications

## Product features

- UV and weather-resistant according to ISO 4892-2
- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, black

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 115 CY BK** | | | | |
| 1136510 | 2 X0.5 | 5.8 | 36 | 54 |
| 1136511 | 3 G0.5 | 6.1 | 43 | 63 |
| 1136512 | 3 X0.5 | 6.1 | 43 | 63 |
| 1136513 | 4 G0.5 | 6.5 | 49 | 71 |
| 1136514 | 4 X0.5 | 6.5 | 49 | 71 |
| 1136515 | 5 G0.5 | 7.0 | 57 | 86 |
| 1136516 | 5 X0.5 | 7.0 | 57 | 86 |
| 1136517 | 7 G0.5 | 7.5 | 69 | 105 |
| 1136518 | 7 X0.5 | 7.5 | 69 | 105 |
| 1136519 | 12 G0.5 | 9.9 | 104 | 163 |
| 1136520 | 12 X0.5 | 9.9 | 104 | 163 |
| 1136521 | 18 G0.5 | 11.5 | 141 | 226 |
| 1136522 | 25 G0.5 | 13.4 | 211 | 350 |
| 1136523 | 2 X0.75 | 6.2 | 43 | 59 |
| 1136110 | 3 G0.75 | 6.5 | 52 | 76 |
| 1136525 | 3 X0.75 | 6.5 | 52 | 76 |
| 1136111 | 4 G0.75 | 7.0 | 61 | 91 |
| 1136527 | 4 X0.75 | 7.0 | 61 | 91 |
| 1136113 | 5 G0.75 | 7.7 | 72 | 100 |
| 1136529 | 5 X0.75 | 7.7 | 72 | 100 |
| 1136114 | 7 G0.75 | 8.3 | 89 | 127 |
| 1136531 | 7 X0.75 | 8.3 | 89 | 127 |
| 1136115 | 12 G0.75 | 10.9 | 138 | 232 |
| 1136533 | 18 G0.75 | 12.7 | 211 | 292 |
| 1136534 | 25 G0.75 | 14.8 | 280 | 435 |
| 1136535 | 2 X1.0 | 6.5 | 51 | 71 |
| 1136536 | 3 G1.0 | 6.8 | 62 | 86 |
| 1136537 | 3 X1.0 | 6.8 | 62 | 86 |
| 1136538 | 4 G1.0 | 7.3 | 74 | 98 |
| 1136539 | 4 X1.0 | 7.3 | 74 | 98 |
| 1136540 | 5 G1.0 | 8.1 | 88 | 121 |
| 1136541 | 5 X1.0 | 8.1 | 88 | 121 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1136542 | 7 G1.0 | 8.8 | 112 | 147 |
| 1136543 | 7 X1.0 | 8.8 | 112 | 147 |
| 1136544 | 12 G1.0 | 11.5 | 185 | 249 |
| 1136545 | 18 G1.0 | 13.9 | 268 | 364 |
| 1136546 | 25 G1.0 | 15.9 | 354 | 486 |
| 1136547 | 2 X1.5 | 7.1 | 65 | 86 |
| 1136548 | 3 G1.5 | 7.5 | 82 | 112 |
| 1136549 | 3 X1.5 | 7.5 | 82 | 112 |
| 1136550 | 4 G1.5 | 8.2 | 100 | 135 |
| 1136551 | 4 X1.5 | 8.2 | 100 | 135 |
| 1136552 | 5 G1.5 | 8.9 | 119 | 148 |
| 1136553 | 5 X1.5 | 8.9 | 119 | 148 |
| 1136554 | 7 G1.5 | 9.9 | 154 | 192 |
| 1136555 | 7 X1.5 | 9.9 | 154 | 192 |
| 1136556 | 12 G1.5 | 13.0 | 268 | 332 |
| 1136557 | 18 G1.5 | 15.6 | 373 | 484 |
| 1136558 | 25 G1.5 | 17.9 | 530 | 734 |
| 1136559 | 34 G1.5 | 20.8 | 683 | 944 |
| 1136560 | 3 G2.5 | 8.9 | 118 | 151 |
| 1136561 | 4 G2.5 | 9.9 | 147 | 188 |
| 1136562 | 5 G2.5 | 11.0 | 176 | 224 |
| 1136563 | 7 G2.5 | 11.9 | 253 | 294 |
| 1136564 | 12 G2.5 | 16.0 | 355 | 521 |
| 1136565 | 18 G2.5 | 19.0 | 569 | 740 |
| 1136566 | 4 G4.0 | 11.6 | 248 | 287 |
| 1136567 | 4 G6.0 | 14.2 | 343 | 424 |
| 1136568 | 4 G10.0 | 17.2 | 495 | 637 |
| 1136569 | 5 G10.0 | 19.5 | 592 | 824 |
| 1136570 | 4 G16.0 | 20.2 | 800 | 1050 |
| 1136571 | 5 G16.0 | 22.6 | 895 | 1285 |
| 1136572 | 4 G25.0 | 25.1 | 1075 | 1413 |
| 1136573 | 4 G35.0 | 28.0 | 1576 | 1867 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.


ÖLFLEX® HEAT 125 C MC
ÖLFLEX®

# ÖLFLEX® EB

Control cable for intrinsically safe circuits according to IEC 60079-14 / EN 60079-14 / VDE 0165-1




**Info**

- CPR: Article number choice under www.lapp.com
- For use within intrinsically safe circuits - type of protection ‚i'
- UV and weather-resistant according to ISO 4892-2

## Benefits

- Space-saving installation due to small cable diameters
- Suitable for outdoor applications

## Application range

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

## Product features

- UV and weather-resistant according to ISO 4892-2
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Outer sheath: PVC, sky blue similar to RAL 5015

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Mutual capacitance**
Core/core approx. 140 nF/km

**Inductivity**
approx. 0.52 mH/km

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 3000 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® EB without protective conductor GN/YE** | | | | |
| 0012420 | 2 X 0.75 | 5.4 | 14.7 | 50 |
| 0012421 | 3 X 0.75 | 5.7 | 22.1 | 60 |
| 0012430 | 4 X 0.75 | 6.2 | 29.4 | 81 |
| 0012422 | 5 X 0.75 | 6.7 | 36.8 | 88 |
| 0012423 | 7 X 0.75 | 7.3 | 51.5 | 115 |
| 0012425 | 12 X 0.75 | 9.9 | 88.2 | 185 |
| 0012427 | 18 X 0.75 | 11.7 | 132.3 | 282 |
| 0012429 | 25 X 0.75 | 13.8 | 183.8 | 393 |
| 0012440 | 2 X 1.0 | 5.7 | 19.7 | 57 |
| 0012441 | 3 X 1.0 | 6.0 | 29.6 | 73 |
| 0012443 | 5 X 1.0 | 7.1 | 49.4 | 105 |
| 0012444 | 7 X 1.0 | 8.0 | 69.1 | 138 |
| 0012446 | 12 X 1.0 | 10.5 | 118.4 | 231 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0012448 | 18 X 1.0 | 12.7 | 177.7 | 331 |
| 0012401 | 2 X 1.5 | 6.3 | 29 | 80 |
| 0012402 | 3 X 1.5 | 6.7 | 43 | 105 |
| 0012403 | 4 X 1.5 | 7.2 | 58 | 125 |
| 0012404 | 5 X 1.5 | 8.1 | 72 | 139 |
| **ÖLFLEX® EB with protective conductor GN/YE** | | | | |
| 0012501 | 3 G 1.5 | 6.7 | 43 | 105 |
| 0012502 | 4 G 1.5 | 7.2 | 58 | 125 |
| 0012503 | 5 G 1.5 | 8.1 | 72 | 139 |
| 0012504 | 7 G 1.5 | 8.9 | 101 | 180 |
| 0012505 | 12 G 1.5 | 12.0 | 173 | 339 |
| 0012506 | 18 G 1.5 | 14.4 | 259 | 513 |
| 0012507 | 25 G 1.5 | 16.9 | 360 | 698 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® EB CY

Control cable for intrinsically safe circuits according to IEC 60079-14 / EN 60079-14 / VDE 0165-1




**Info**

- CPR: Article number choice under www.lapp.com
- For use within intrinsically safe circuits - type of protection ‚i'
- UV and weather-resistant according to ISO 4892-2

## Benefits

- Space-saving installation due to small cable diameters
- Copper wire braid screening of the ÖLFLEX® EB CY protects signal transmission within intrinsically safe circuits against electromagnetic interference
- Suitable for outdoor applications

## Application range

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according IEC 60332-1-2
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)
- UV and weather-resistant according to ISO 4892-2

## Norm references / Approvals

- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Outer sheath: PVC, sky blue similar to RAL 5015

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Mutual capacitance**
Core/core approx. 160 nF/km
Core/screen approx. 250 nF/km

**Inductivity**
approx. 0.52 mH/km

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 3000 V
Core/screen: 2000 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® EB CY screened; without inner sheath** | | | | |
| 0012640 | 2 X 0.75 | 6.2 | 43 | 56 |
| 0012641 | 3 X 0.75 | 6.5 | 52 | 70 |
| 0012642 | 4 X 0.75 | 7.0 | 61 | 95 |
| 0012643 | 5 X 0.75 | 7.7 | 72 | 108 |
| 0012644 | 7 X 0.75 | 8.3 | 89 | 168 |
| 0012645 | 12 X 0.75 | 10.9 | 138 | 216 |
| 0012646 | 18 X 0.75 | 12.7 | 211 | 315 |
| 0012647 | 25 X 0.75 | 14.8 | 280 | 435 |
| 0012650 | 2 X 1.0 | 6.5 | 51 | 84 |
| 0012651 | 3 X 1.0 | 6.8 | 62 | 110 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0012652 | 5 X 1.0 | 8.1 | 88 | 156 |
| 0012653 | 7 X 1.0 | 8.8 | 112 | 192 |
| 0012654 | 12 X 1.0 | 11.5 | 185 | 285 |
| 0012655 | 18 X 1.0 | 13.9 | 268 | 395 |
| 0012656 | 25 X 1.0 | 15.9 | 354 | 656 |
| 0012660 | 2 X 1.5 | 7.1 | 65 | 87 |
| 0012661 | 3 X 1.5 | 7.5 | 82 | 112 |
| 0012662 | 5 X 1.5 | 8.9 | 119 | 148 |
| 0012663 | 7 X 1.5 | 9.9 | 154 | 193 |
| 0012664 | 12 X 1.5 | 13.0 | 268 | 365 |
| 0012666 | 25 X 1.5 | 17.9 | 530 | 734 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05VV5-F

H05VV5-F (EN 50525-2-51)




**Info**

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VV5-F
- CPR: Article number choice under www.lapp.com

## Benefits

- High acceptance in Europe due to Harmonisation

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 50363-4-1: TM5

## Norm references / Approvals

- EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing:
12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H05VV5-F** | | | | |
| 0011000 | 3 G 0.5 | 5.5 - 7.0 | 14.4 | 62.4 |
| 0011104 | 4 G 0.5 | 6.2 - 7.9 | 19.2 | 68.2 |
| 0011001 | 5 G 0.5 | 6.8 - 8.6 | 24 | 87.1 |
| 0011002 | 7 G 0.5 | 8.3 - 10.4 | 33.6 | 118.7 |
| 0011003 | 12 G 0.5 | 10.4 - 12.9 | 58 | 198 |
| 0011004 | 18 G 0.5 | 12.3 - 15.3 | 86.4 | 266.9 |
| 0011005 | 25 G 0.5 | 14.8 - 18.3 | 120 | 380.4 |
| 0011006 | 34 G 0.5 | 17.2 - 21.2 | 163.2 | 509 |
| 0011009 | 3 G 0.75 | 6.0 - 7.6 | 21.6 | 75.6 |
| 0011204 | 4 G 0.75 | 6.6 - 8.3 | 28.8 | 83.9 |
| 0011010 | 5 G 0.75 | 7.4 - 9.3 | 36 | 113.3 |
| 0011011 | 7 G 0.75 | 9.0 - 11.3 | 50 | 145 |
| 0011012 | 12 G 0.75 | 11.0 - 13.7 | 86 | 244.9 |
| 0011013 | 18 G 0.75 | 13.2 - 16.4 | 130 | 327.7 |
| 0011014 | 25 G 0.75 | 15.8 - 19.5 | 180 | 466.4 |
| 0011015 | 34 G 0.75 | 18.4 - 22.6 | 245 | 626.5 |
| 0011241 | 41 G 0.75 | 20.1 - 24.7 | 296 | 748 |
| 0011018 | 3 G 1.0 | 6.3 - 8.0 | 28.8 | 89.3 |
| 0011304 | 4 G 1.0 | 6.9 - 8.7 | 38.4 | 98.6 |
| 0011019 | 5 G 1.0 | 7.8 - 9.8 | 48 | 132.1 |
| 0011020 | 7 G 1.0 | 9.5 - 11.8 | 67 | 169.3 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0011021 | 12 G 1.0 | 11.8 - 14.6 | 115 | 285.9 |
| 0011022 | 18 G 1.0 | 14.0 - 17.2 | 173 | 405.2 |
| 0011023 | 25 G 1.0 | 16.8 - 20.7 | 240 | 569.5 |
| 0011024 | 34 G 1.0 | 19.6 - 24.0 | 326 | 741.7 |
| 0011341 | 41 G 1.0 | 21.4 - 26.2 | 394 | 886 |
| 0011027 | 3 G 1.5 | 7.4 - 9.4 | 43 | 109.8 |
| 0011404 | 4 G 1.5 | 8.2 - 10.2 | 58 | 140.7 |
| 0011028 | 5 G 1.5 | 9.1 - 11.4 | 72 | 175 |
| 0011029 | 7 G 1.5 | 11.3 - 14.1 | 101 | 224.2 |
| 0011030 | 12 G 1.5 | 13.8 - 17.0 | 173 | 361.7 |
| 0011031 | 18 G 1.5 | 16.5 - 20.3 | 259 | 518.3 |
| 0011032 | 25 G 1.5 | 19.8 - 24.3 | 360 | 729.9 |
| 0011033 | 34 G 1.5 | 23.1 - 28.2 | 490 | 946.6 |
| 0011036 | 3 G 2.5 | 9.0 - 11.2 | 72 | 162.4 |
| 0011504 | 4 G 2.5 | 10.1 - 12.5 | 96 | 203.3 |
| 0011037 | 5 G 2.5 | 11.0 - 13.7 | 120 | 251.1 |
| 0011038 | 7 G 2.5 | 13.6 - 16.8 | 168 | 326 |
| 0011039 | 12 G 2.5 | 16.8 - 20.6 | 288 | 553.3 |
| 0011045 | 14 G 2.5 | 18.3 - 22.7 | 336 | 611 |
| 0011040 | 18 G 2.5 | 20.2 - 24.8 | 432 | 795.2 |
| 0011041 | 25 G 2.5 | 24.2 - 29.6 | 600 | 1109.6 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05VVC4V5-K

H05VVC4V5-K (EN 50525-2-51)




## Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VVC4V5-K and EMC compliant
- CPR: Article number choice under www.lapp.com

## Benefits

- High acceptance in Europe due to Harmonisation

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +70°C

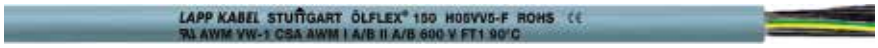
| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H05VVC4V5-K** | | | | |
| 0035700 | 3 G 0.5 | 8.0 - 10.0 | 47 | 111.3 |
| 0035701 | 4 G 0.5 | 8.5 - 10.7 | 58 | 132.7 |
| 0035702 | 5 G 0.5 | 9.3 - 11.6 | 69 | 162.7 |
| 0035703 | 7 G 0.5 | 10.8 - 13.5 | 86 | 207.7 |
| 0035704 | 12 G 0.5 | 13.1 - 16.2 | 142 | 295 |
| 0035710 | 3 G 0.75 | 8.3 - 10.4 | 55 | 129.4 |
| 0035711 | 4 G 0.75 | 9.1 - 11.3 | 67 | 163.6 |
| 0035712 | 5 G 0.75 | 9.7 - 12.1 | 77.4 | 188.6 |
| 0035713 | 7 G 0.75 | 11.5 - 14.3 | 109 | 246.9 |
| 0035714 | 12 G 0.75 | 13.8 - 17.1 | 166 | 354.3 |
| 0035715 | 18 G 0.75 | 16.1 - 19.8 | 257.3 | 517 |
| 0035716 | 25 G 0.75 | 18.7 - 23.0 | 318.6 | 677.8 |
| 0035717 | 34 G 0.75 | 21.4 - 26.2 | 409.4 | 860.6 |
| 0035720 | 3 G 1.0 | 8.8 - 11.0 | 62 | 144.8 |
| 0035721 | 4 G 1.0 | 9.4 - 11.7 | 78.3 | 180.8 |
| 0035722 | 5 G 1.0 | 10.3 - 12.8 | 91 | 209 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0035723 | 7 G 1.0 | 12.2 - 15.1 | 118 | 273 |
| 0035724 | 12 G 1.0 | 14.5 - 17.9 | 198 | 427.6 |
| 0035725 | 18 G 1.0 | 16.9 - 20.8 | 303.6 | 598.6 |
| 0035726 | 25 G 1.0 | 19.8 - 24.2 | 411.9 | 791.8 |
| 0035727 | 34 G 1.0 | 22.6 - 27.7 | 516.3 | 1003.9 |
| 0035730 | 3 G 1.5 | 9.7 - 12.1 | 83 | 189.7 |
| 0035731 | 4 G 1.5 | 10.7 - 13.2 | 97.8 | 221.6 |
| 0035732 | 5 G 1.5 | 11.8 - 14.7 | 118 | 261.8 |
| 0035733 | 7 G 1.5 | 14.1 - 17.4 | 218 | 356.7 |
| 0035734 | 12 G 1.5 | 16.7 - 20.6 | 309.7 | 559.4 |
| 0035735 | 18 G 1.5 | 19.5 - 24.0 | 411.4 | 767.6 |
| 0035736 | 25 G 1.5 | 22.9 - 28.0 | 546.5 | 1049 |
| 0035740 | 3 G 2.5 | 11.3 - 14.0 | 115 | 241.5 |
| 0035741 | 4 G 2.5 | 12.6 - 15.5 | 163 | 298.3 |
| 0035742 | 5 G 2.5 | 13.9 - 17.2 | 191 | 363.7 |
| 0035743 | 7 G 2.5 | 16.5 - 20.3 | 288.9 | 487.2 |
| 0035744 | 12 G 2.5 | 19.8 - 24.3 | 516.6 | 743.6 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 150

Oil resistant multi-standard cable with H05VV5-F and AWM approval




## Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VV5-F and UL recognized

## Benefits

- Wide application range due to multiple certifications

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5

## Norm references / Approvals

- H05VV5-F (EN 50525-2-51)
- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing:
12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
HAR U0/U: 300/500 V
UL/CSA: 600 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing:
HAR: -5°C to +70°C
UL/CSA: +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 150** | | | | |
| 0015002 | 2 X 0.5 | 5.9 | 9.6 | 47 |
| 0015003 | 3 G 0.5 | 6.2 | 14.4 | 62.4 |
| 0015004 | 4 G 0.5 | 6.8 | 19.2 | 68.2 |
| 0015005 | 5 G 0.5 | 7.4 | 24 | 87.1 |
| 0015007 | 7 G 0.5 | 9.0 | 33.6 | 118.7 |
| 0015012 | 12 G 0.5 | 11.1 | 58 | 198 |
| 0015018 | 18 G 0.5 | 13.2 | 86.4 | 328 |
| 0015025 | 25 G 0.5 | 15.7 | 120 | 380.4 |
| 0015034 | 34 G 0.5 | 18.1 | 164 | 509 |
| 0015041 | 41 G 0.5 | 19.7 | 197 | 595 |
| 0015102 | 2 X 0.75 | 6.3 | 14.4 | 61 |
| 0015103 | 3 G 0.75 | 6.7 | 21.6 | 75.6 |
| 0015104 | 4 G 0.75 | 7.2 | 28.8 | 83.9 |
| 0015105 | 5 G 0.75 | 8.1 | 36 | 113.3 |
| 0015107 | 7 G 0.75 | 9.9 | 50 | 145 |
| 0015112 | 12 G 0.75 | 12.0 | 86 | 244.9 |
| 0015118 | 18 G 0.75 | 14.4 | 130 | 327.7 |
| 0015125 | 25 G 0.75 | 17.1 | 180 | 466.4 |
| 0015134 | 34 G 0.75 | 19.7 | 245 | 626.5 |
| 0015141 | 41 G 0.75 | 21.6 | 296 | 748 |
| 0015202 | 2 X 1.0 | 6.6 | 19.2 | 80 |
| 0015203 | 3 G 1.0 | 7.0 | 28.8 | 79 |
| 0015204 | 4 G 1.0 | 7.8 | 38.4 | 98.6 |
| 0015205 | 5 G 1.0 | 8.6 | 48 | 132.1 |
| 0015206 | 6 G 1.0 | 9.5 | 57.6 | 150 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0015207 | 7 G 1.0 | 10.4 | 67 | 169.3 |
| 0015212 | 12 G 1.0 | 12.8 | 115 | 285.9 |
| 0015218 | 18 G 1.0 | 15.1 | 173 | 405.2 |
| 0015225 | 25 G 1.0 | 18.0 | 240 | 569.5 |
| 0015234 | 34 G 1.0 | 20.9 | 326 | 741.7 |
| 0015241 | 41 G 1.0 | 22.8 | 394 | 886 |
| 0015250 | 50 G 1.0 | 25.0 | 480 | 1072.2 |
| 0015302 | 2 X 1.5 | 7.6 | 28.8 | 95 |
| 0015303 | 3 G 1.5 | 8.3 | 43 | 109.8 |
| 0015304 | 4 G 1.5 | 9.0 | 58 | 145 |
| 0015305 | 5 G 1.5 | 10.1 | 72 | 168 |
| 0015307 | 7 G 1.5 | 12.5 | 101 | 224.2 |
| 0015312 | 12 G 1.5 | 15.1 | 173 | 361.7 |
| 0015318 | 18 G 1.5 | 18.0 | 259 | 518.3 |
| 0015325 | 25 G 1.5 | 21.4 | 360 | 729.9 |
| 0015334 | 34 G 1.5 | 25.0 | 490 | 946.6 |
| 0015341 | 41 G 1.5 | 27.2 | 591 | 1136 |
| 0015402 | 2 X 2.5 | 9.2 | 48 | 159 |
| 0015403 | 3 G 2.5 | 9.9 | 72 | 170 |
| 0015404 | 4 G 2.5 | 10.8 | 96 | 210 |
| 0015405 | 5 G 2.5 | 12.1 | 120 | 257 |
| 0015407 | 7 G 2.5 | 14.7 | 168 | 340 |
| 0015412 | 12 G 2.5 | 17.9 | 288 | 580 |
| 0015418 | 18 G 2.5 | 21.6 | 432 | 850 |
| 0015425 | 25 G 2.5 | 25.6 | 600 | 1166 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 150 CY

Screened and oil-resistant multi-standard cable with H05VVC4V5-K and AWM approval




## Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VVC4V5-K and UL recognized
- EMC-compliant

## Benefits

- Wide application range due to multiple certifications

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- In EMC-sensitive environments (electromagnetic compatibility)
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- H05VVC4V5-K (EN 50525-2-51)
- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
HAR U0/U: 300/500 V
UL/CSA: 600 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing:
HAR: -5°C to +70°C
UL/CSA: +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 150 CY** | | | | |
| 0015602 | 2 X 0.75 | 8.5 | 40 | 109 |
| 0015603 | 3 G 0.75 | 8.9 | 51 | 125 |
| 0015604 | 4 G 0.75 | 9.6 | 70 | 157 |
| 0015605 | 5 G 0.75 | 10.3 | 77 | 180 |
| 0015607 | 7 G 0.75 | 12.3 | 93 | 226 |
| 0015612 | 12 G 0.75 | 14.8 | 155 | 325 |
| 0015702 | 2 X 1.0 | 8.8 | 46.4 | 121 |
| 0015703 | 3 G 1.0 | 9.4 | 76 | 145 |
| 0015704 | 4 G 1.0 | 10.0 | 80 | 180 |
| 0015705 | 5 G 1.0 | 11.0 | 95 | 203 |
| 0015707 | 7 G 1.0 | 13.0 | 118 | 273 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0015712 | 12 G 1.0 | 15.6 | 195 | 425 |
| 0015802 | 2 X 1.5 | 10.0 | 59.2 | 151 |
| 0015803 | 3 G 1.5 | 10.5 | 84 | 159 |
| 0015804 | 4 G 1.5 | 11.4 | 94.8 | 211 |
| 0015805 | 5 G 1.5 | 12.7 | 122 | 241 |
| 0015807 | 7 G 1.5 | 15.1 | 143 | 306 |
| 0015812 | 12 G 1.5 | 17.8 | 254 | 480 |
| 0015903 | 3 G 2.5 | 11.9 | 120 | 245 |
| 0015904 | 4 G 2.5 | 13.2 | 170 | 295 |
| 0015905 | 5 G 2.5 | 14.7 | 205 | 365 |
| 0015907 | 7 G 2.5 | 17.5 | 241 | 480 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 191

Oil-resistant multi-standard cable with AWM approval




**Info**

- Conductor cross-section up to 120 mm²
- Further items with 0,5 and 0,75 mm²: see ÖLFLEX® 150
- Oil-resistant according to EN 50363-4-1: TM5

## Benefits

- High electrical performance due to 4 kV test voltage
- For various applications

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5

## Norm references / Approvals

- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
HAR U0/U: 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
UL/CSA: -5°C to +90°C
Fixed installation: -40°C to +70°C
UL/CSA: +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 191** | | | | |
| 0011222 | 7 G 0.75 | 8.3 | 50.4 | 116 |
| 0011223 | 9 G 0.75 | 10.5 | 64.8 | 152 |
| 0011224 | 12 G 0.75 | 11.2 | 86.4 | 194 |
| 0011113 | 3 G 1.0 | 6.7 | 28.8 | 66 |
| 0011114 | 4 G 1.0 | 7.2 | 38.4 | 81 |
| 0011115 | 5 G 1.0 | 8.1 | 48 | 95 |
| 0011116 | 7 G 1.0 | 8.9 | 67.2 | 125 |
| 0011117 | 12 G 1.0 | 12.0 | 115.2 | 211 |
| 0011118 | 18 G 1.0 | 14.4 | 172.8 | 309 |
| 0011119 | 25 G 1.0 | 17.3 | 240 | 413 |
| 0011136 | 2 X 1.5 | 6.9 | 28.8 | 74 |
| 0011137 | 3 G 1.5 | 7.3 | 44 | 91 |
| 0011138 | 4 G 1.5 | 8.2 | 58 | 112 |
| 0011139 | 5 G 1.5 | 9.0 | 72 | 136 |
| 0011140 | 7 G 1.5 | 10.0 | 101 | 179 |
| 0011125 | 9 G 1.5 | 12.6 | 129.6 | 230 |
| 0011142 | 12 G 1.5 | 13.4 | 173 | 313 |
| 0011143 | 18 G 1.5 | 16.1 | 260 | 444 |
| 0011144 | 25 G 1.5 | 19.5 | 360 | 620 |
| 0011150 | 3 G 2.5 | 8.4 | 72 | 138 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0011151 | 4 G 2.5 | 9.1 | 96 | 182 |
| 0011152 | 5 G 2.5 | 10.2 | 120 | 216 |
| 0011153 | 7 G 2.5 | 11.3 | 168 | 286 |
| 0011160 | 3 G 4.0 | 9.9 | 115.2 | 202 |
| 0011161 | 4 G 4.0 | 10.8 | 154 | 245 |
| 0011162 | 5 G 4.0 | 12.1 | 192 | 310 |
| 0011167 | 7 G 4.0 | 13.4 | 268.8 | 470 |
| 0011165 | 4 G 6.0 | 13.0 | 231 | 398 |
| 0011166 | 5 G 6.0 | 14.5 | 288 | 479 |
| 0011169 | 4 G 10.0 | 16.5 | 384 | 559 |
| 0011170 | 5 G 10.0 | 18.4 | 480 | 782 |
| 0011172 | 4 G 16.0 | 22.1 | 615 | 904 |
| 0011173 | 5 G 16.0 | 24.3 | 768 | 1171 |
| 0011175 | 4 G 25.0 | 25.2 | 960 | 1299 |
| 0011176 | 5 G 25.0 | 28.0 | 1200 | 1640 |
| 0011178 | 4 G 35.0 | 28.1 | 1344 | 2119 |
| 0011179 | 5 G 35.0 | 31.5 | 1680 | 2606 |
| 0011205 | 4 G 50.0 | 35.7 | 1920 | 2898 |
| 0011206 | 4 G 70.0 | 43.0 | 2688 | 4052 |
| 0011207 | 4 G 95.0 | 47.2 | 3648 | 5430 |
| 0011208 | 4 G 120.0 | 51.0 | 4608 | 6290 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.coms
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 195 CY

Screened and oil-resistant multi-standard cable with AWM approval




## Info

- Conductor cross-section up to 120 mm²
- Further items with 0,75 mm²: see ÖLFLEX® 150 CY
- Oil-resistant according to EN 50363-4-1: TM5

## Benefits

- High electrical performance due to 4 kV test voltage
- Multifunctional application possibilities

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- In EMC-sensitive environments (electromagnetic compatibility)
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
HAR U0/U: 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
UL/CSA: -5°C to +90°C
Fixed installation: -40°C to +70°C
UL/CSA: +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 195 CY** | | | | |
| 1146100 | 7 G 0.75 | 9 | 72.55 | 131 |
| 1146101 | 2 X 1.0 | 6.9 | 34.06 | 64 |
| 1146102 | 3 G 1.0 | 7.3 | 44.97 | 79 |
| 1146103 | 4 G 1.0 | 7.9 | 56.81 | 96 |
| 1146104 | 5 G 1.0 | 8.6 | 68.81 | 113 |
| 1146105 | 7 G 1.0 | 9.5 | 90.59 | 147 |
| 1146106 | 12 G 1.0 | 12.5 | 155.6 | 249 |
| 1146107 | 18 G 1.0 | 14.9 | 215.33 | 343 |
| 1146108 | 25 G 1.0 | 17.2 | 293.26 | 462 |
| 1146113 | 2 X 1.5 | 7.5 | 46.51 | 80 |
| 1146114 | 3 G 1.5 | 7.9 | 62.58 | 100 |
| 1146115 | 4 G 1.5 | 8.6 | 79.37 | 124 |
| 1146116 | 5 G 1.5 | 9.4 | 96.51 | 147 |
| 1146117 | 7 G 1.5 | 10.4 | 127.97 | 191 |
| 1146118 | 9 G 1.5 | 13.1 | 169.7 | 259 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1146119 | 12 G 1.5 | 14 | 214.14 | 318 |
| 1146120 | 14 G 1.5 | 14.6 | 245.57 | 361 |
| 1146121 | 18 G 1.5 | 16.5 | 309.6 | 462 |
| 1146122 | 25 G 1.5 | 19.4 | 420.89 | 618 |
| 1146127 | 3 G 2.5 | 8.8 | 95.06 | 136 |
| 1146128 | 4 G 2.5 | 9.5 | 128.05 | 177 |
| 1146129 | 5 G 2.5 | 10.5 | 155.99 | 211 |
| 1146130 | 7 G 2.5 | 11.6 | 208.62 | 275 |
| 1146131 | 12 G 2.5 | 16 | 338.24 | 465 |
| 1146132 | 18 G 2.5 | 18.7 | 492.69 | 653 |
| 1146137 | 4 G 4 | 11.1 | 192.56 | 249 |
| 1146138 | 5 G 4 | 12.2 | 235.05 | 296 |
| 1146139 | 7 G 4 | 13.7 | 312.21 | 380 |
| 1146144 | 4 G 6 | 13.1 | 271.43 | 333 |
| 1146145 | 5 G 6 | 15.3 | 333.14 | 436 |
| 1146146 | 7 G 6 | 16.6 | 454.22 | 561 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 191 CY

Screened and oil-resistant multi-standard cable with AWM approval




**Info**

- Conductor cross-section up to 120 mm²
- Further items with 0,75 mm²: see ÖLFLEX® 150 CY
- Oil-resistant according to EN 50363-4-1: TM5

## Benefits

- High electrical performance due to 4 kV test voltage
- Multifunctional application possibilities

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- In EMC-sensitive environments (electromagnetic compatibility)
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1:TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

## Norm references / Approvals

- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

## Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- Aluminum-coated foil
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
HAR U0/U: 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
UL/CSA: -5°C to +90°C
Fixed installation: -40°C to +70°C
UL/CSA: +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 191 CY** | | | | |
| 0011234 | 7 G 0.75 | 10.5 | 85.9 | 187 |
| 0011202 | 2 X 1.0 | 8.4 | 48 | 126 |
| 0011180 | 3 G 1.0 | 8.8 | 55.8 | 122 |
| 0011181 | 4 G 1.0 | 9.6 | 80.8 | 157 |
| 0011182 | 5 G 1.0 | 10.3 | 89.4 | 183 |
| 0011183 | 7 G 1.0 | 11.2 | 99.9 | 207 |
| 0011184 | 12 G 1.0 | 14.6 | 175.7 | 342 |
| 0011185 | 18 G 1.0 | 17.0 | 241.7 | 472 |
| 0011186 | 25 G 1.0 | 20.1 | 341.7 | 648 |
| 0011302 | 2 X 1.5 | 9.0 | 64.7 | 156 |
| 0011187 | 3 G 1.5 | 9.6 | 89.1 | 166 |
| 0011188 | 4 G 1.5 | 10.3 | 96.6 | 191 |
| 0011189 | 5 G 1.5 | 11.3 | 111.2 | 222 |
| 0011190 | 7 G 1.5 | 12.1 | 145.2 | 270 |
| 0011287 | 9 G 1.5 | 15.4 | 224 | 415 |
| 0011191 | 12 G 1.5 | 16.1 | 257 | 464 |
| 0011288 | 14 G 1.5 | 16.7 | 326 | 620 |
| 0011192 | 18 G 1.5 | 18.7 | 382.8 | 679 |
| 0011193 | 25 G 1.5 | 23.0 | 546.2 | 952 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0011194 | 3 G 2.5 | 10.8 | 111.1 | 221 |
| 0011195 | 4 G 2.5 | 11.4 | 140.6 | 269 |
| 0011196 | 5 G 2.5 | 12.9 | 167.3 | 325 |
| 0011197 | 7 G 2.5 | 14.1 | 240 | 421 |
| 30010542 | 12 G 2.5 | 17.9 | 414.9 | 769 |
| 30010543 | 18 G 2.5 | 22.0 | 626.1 | 1102 |
| 30010544 | 4 G 4.0 | 13.6 | 236.7 | 462 |
| 30010545 | 5 G 4.0 | 14.9 | 277.8 | 535 |
| 30010546 | 7 G 4.0 | 16.2 | 393.4 | 735 |
| 30010548 | 4 G 6.0 | 15.8 | 317.1 | 574 |
| 3023130 | 5 G 6.0 | 17.3 | 413.7 | 737 |
| 30010547 | 7 G 6.0 | 18.8 | 563.8 | 950 |
| 3023131 | 4 G 10.0 | 19.5 | 550.4 | 946 |
| 30010639 | 4 G 16.0 | 24.7 | 819.1 | 1189 |
| 3023132 | 4 G 25.0 | 28.7 | 1165 | 1692 |
| 30010928 | 4 G 35.0 | 32.0 | 1683 | 2700 |
| 3026535 | 4 G 50.0 | 39.7 | 2342 | 3362 |
| 3025946 | 4 G 70.0 | 44.8 | 3229 | 4490 |
| 3025947 | 4 G 95.0 | 50.0 | 4010 | 5540 |
| 3026536 | 4 G 120.0 | 55.4 | 5012 | 6960 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 110 FR / 110 FR CY

**Info**

- UL AWM style 2570
- UV rays resistance
- IEC 60332-3-22



## Benefits

- Resistant to direct exposure to UV rays, outdoor use is possible in compliance with the temperature range
- UL Recognized, 80°C and 1.000 V
- Suitable for voltage class 450/750 V
- Small outer diameter thanks to the high quality material
- IEC 60332-3-22, UL VW1, CSA FT1
- UL AWM style 2570 (File No. 533794)
- CSA AWM I A/B II A/B
- UL AWM style 2570 (File No. 533794)
- Oil resistant acc. to CEI 20-34/I and EN 50290-2-22 (TM54)

## Application range

- Power and control cable with numbered cores, oil resistant for fixed installations
- It is especially suitable for industrial applications for plant engineering and industrial machinery in dry, humid or wet areas
- The cable is flame and fire retardant and it is resistant to direct exposure to UV rays, outdoor use is possible in compliance with the temperature range

## Technical data

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
OLFLEX® 110 FR: occasional flexing:
15 x Ø fixed installation: 4 x Ø
OLFLEX® 110 FR CY: occasional flexing:
15 x Ø fixed installation: 6 x Ø

**Nominal voltage**
U0/U: 450/750 V
UL: 1.000 V

**Test voltage**
C/C 3.000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C up to +70°C
Fixed installation: -40°C up to +70°C
During the installation: +5°C up to +70°C
UL: up to 80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 110 FR** | | | | |
| 9100502 | 2 X 0.5 | 5.0 | 9.6 | 35.4 |
| 91005031 | 3 X 0.5 | 5.2 | 14.4 | 42.4 |
| 91005041 | 4 X 0.5 | 5.7 | 19.2 | 50.9 |
| 9101002 | 2 X 1 | 5.7 | 19.2 | 49.3 |
| 9101003 | 3 G 1 | 6.1 | 28.8 | 64.3 |
| 9101004 | 4 G 1 | 6.6 | 38.4 | 78.7 |
| 91010X04 | 4 X 1 | 6.6 | 38.4 | 78.7 |
| 9101005 | 5 G 1 | 7.2 | 48 | 95.3 |
| 9101007 | 7 G 1 | 8.0 | 67.2 | 123.3 |
| 9101010 | 10 G 1 | 10.4 | 96 | 195.8 |
| 9101012 | 12 G 1 | 10.7 | 115.2 | 216.9 |
| 9101018 | 18 G 1 | 12.7 | 173 | 313.1 |
| 9101019 | 19 G 1 | 12.7 | 182.4 | 319.9 |
| 9101025 | 25 G 1 | 14.9 | 240 | 432.5 |
| 9101026 | 26 G 1 | 15.3 | 249.6 | 453.6 |
| 9101036 | 36 G 1 | 17.7 | 345.6 | 619 |
| 9101050 | 50 G 1 | 20.9 | 480 | 862 |
| 9101502 | 2 X 1.5 | 6.4 | 28.8 | 67.7 |
| 9101503 | 3 G 1.5 | 6.9 | 43.2 | 84.3 |
| 9101504 | 4 G 1.5 | 7.5 | 58 | 108.1 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 9101505 | 5 G 1.5 | 8.4 | 72 | 131,5 |
| 9101507 | 7 G 1.5 | 9.1 | 100.8 | 170.8 |
| 9101510 | 10 G 1.5 | 11.8 | 144 | 268.6 |
| 9101512 | 12 G 1.5 | 12.1 | 172.8 | 298 |
| 9101518 | 18 G 1.5 | 14.4 | 259.2 | 432.5 |
| 9101519 | 19 G 1.5 | 14.4 | 273.4 | 443 |
| 9101525 | 25 G 1.5 | 16.8 | 360 | 593.9 |
| 9101565 | 65 G 1.5 | 27.0 | 936 | 1533 |
| 9102503 | 3 G 2.5 | 8.5 | 72 | 131.6 |
| 9102504 | 4 G 2.5 | 9.3 | 96 | 167.5 |
| 9102505 | 5 G 2.5 | 10.4 | 120 | 205.2 |
| 9102507 | 7 G 2.5 | 11.3 | 168 | 267.5 |
| 9102512 | 12 G 2.5 | 15 | 288 | 474.8 |
| 9102518 | 18 G 2.5 | 18.0 | 432 | 692.1 |
| 9104003 | 3 G 4 | 9.7 | 115 | 194.5 |
| 9104004 | 4 G 4 | 10.7 | 154 | 251.5 |
| 9104005 | 5 G 4 | 11.9 | 192 | 311.8 |
| 9106004 | 4 G 6 | 12.6 | 230.4 | 360.3 |
| 9106005 | 5 G 6 | 14.0 | 288 | 450 |
| 9110004 | 4 G 10 | 16.4 | 384 | 591.1 |
| 9116004 | 4 G1 6 | 19.3 | 614.4 | 863.9 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 110 FR CY** | | | | |
| 9000502 | 2 X 0.5 | 5.6 | 24.8 | 48 |
| 90005031 | 3 X 0.5 | 5.8 | 32.8 | 58 |
| 90005041 | 4 X 0.5 | 6.2 | 37.5 | 67 |
| 9001002 | 2 X 1 | 6.3 | 36.6 | 67 |
| 9001504 | 4 G 1.5 | 8.4 | 80.5 | 124.8 |
| 9002504 | 4 G 2.5 | 10.1 | 128.5 | 188.9 |
| 9004004 | 4 G 4 | 11.6 | 190.6 | 281.3 |
| 9006004 | 4 G 6 | 13.6 | 288.4 | 413.3 |
| 9010004 | 4 G 10 | 17.2 | 458.4 | 637 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CONTROL TM

ÖLFLEX® Control Cable PVC 0.6/1kV UL TC-ER WTTC AWM 1000V WET OIL RES I+II CSA AWM




**Info**

- Torsion resistant for drip loops
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- (UL) SUN. RES. + 75C WET

## Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems
- 75°C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA

## Application range

- Industrial machinery, plant engineering in the USA
- Compliant with Tool machines: (UL) MTW
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections for version with at least 3 conductors
- USA Wind Turbine Tray Cable (WTTC) for Wind Turbine Generators
- Outdoor use and Direct Burial in the USA, per UL 1277

## Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Technically resistant to sunlight and ozone

## Norm references / Approvals

- USA: (UL) TC [E171371], -ER > 2 conductors, (UL) MTW [E155920], (UL) WTTC [E323700], (UL) THHN/THWN (> 1.5 mm²/16 AWG) [E172162], UL AWM Style 20886 [E100338]
- Sunlight Resistant (Sun. Res.), Direct Burial (Dir. Bur.), Submersible Pump Cable (> 1.5 mm²/16 AWG, and < 8 conductors), (UL) PLTC (< 6 mm²/10 AWG) [E216027], (UL) ITC (< 6 mm²/10 AWG) [E196134], (UL) DP-1 [E233406]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, NEC/NFPA 70, NFPA 79
- CAN: c(UL) CIC/TC-ER 600V FT4 [E171371], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC with nylon sheath (PA skin)
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Gray

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers

**Conductor stranding**
Fine-wire, bare copper strand

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Static/Occ. moved: 5/15xOD*

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL AWM: 600 V
CSA AWM: 1000 V
IEC: $U_0/U$ = 600/1000 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CONTROL TM** | | | | |
| 281803 | 3 G 1.0 | 7.4 | 28.8 | 82 |
| 281804 | 4 G 1.0 | 8.0 | 38.4 | 95 |
| 281805 | 5 G 1.0 | 8.6 | 48 | 112 |
| 281807 | 7 G 1.0 | 9.3 | 67 | 144 |
| 281812 | 12 G 1.0 | 12.0 | 115 | 247 |
| 281818 | 18 G 1.0 | 14.7 | 173 | 365 |
| 281825 | 25 G 1.0 | 16.7 | 240 | 464 |
| 281602 | 2 X 1.5 | 7.3 | 28.8 | 74 |
| 281603 | 3 G 1.5 | 8.1 | 43 | 100 |
| 281604 | 4 G 1.5 | 8.8 | 58 | 119 |
| 281605 | 5 G 1.5 | 9.5 | 72 | 141 |
| 281607 | 7 G 1.5 | 10.3 | 101 | 183 |
| 281609 | 9 G 1.5 | 11.9 | 129.6 | 247 |
| 281612 | 12 G 1.5 | 14.1 | 172.8 | 328 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 281618 | 18 G 1.5 | 16.4 | 259 | 403 |
| 281625 | 25 G 1.5 | 18.6 | 360 | 596 |
| 281403 | 3 G 2.5 | 8.9 | 72 | 125 |
| 281404 | 4 G 2.5 | 9.8 | 96 | 175 |
| 281405 | 5 G 2.5 | 10.7 | 120 | 185 |
| 281407 | 7 G 2.5 | 11.6 | 168 | 244 |
| 281203 | 3 G 4.0 | 10.6 | 115 | 165 |
| 281204 | 4 G 4.0 | 11.5 | 154 | 220 |
| 281205 | 5 G 4.0 | 12.6 | 192 | 269 |
| 281207 | 7 G 4.0 | 14.6 | 269 | 482 |
| 281004 | 4 G 6.0 | 14.5 | 231 | 382 |
| 281005 | 5 G 6.0 | 15.8 | 288 | 457 |
| 280804 | 4 G 10.0 | 17.7 | 384 | 615 |
| 280805 | 5 G 10.0 | 19.4 | 480 | 771 |
| 280604 | 4 G 16.0 | 22.5 | 615 | 864 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CONTROL TM CY

ÖLFLEX® Control Cable PVC Screened 0.6/1kV UL TC-ER WTTC AWM600V OIL RES CSA AWM




## Info

- Torsion resistant for drip loops
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC/Screened

## Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems
- Electromagnetic field screening
- 75°C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA

## Application range

- Industrial machinery, plant engineering in the USA
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections for version with at least 3 conductors
- Compliant with Tool machines: (UL) MTW
- USA Wind Turbine Tray Cable (WTTC) for Wind Turbine Generators
- Outdoor use and Direct Burial in the USA, per UL 1277

## Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Technically resistant to sunlight and ozone
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Norm references / Approvals

- USA: (UL) TC [E171371], -ER > 2 conductors, (UL) MTW [E155920], (UL) WTTC [E323700], (UL) THHN/THWN (> 1.5 mm²/16 AWG) [E172162], UL AWM Style 20886 [E100338]
- Sunlight Resistant (Sun. Res.), Direct Burial (Dir. Bur.), Submersible Pump Cable (> 1.5 mm²/16 AWG, and < 8 conductors), (UL) PLTC (< 6 mm²/10 AWG) [E216027], (UL) ITC (< 6 mm²/10 AWG) [E196134], (UL) DP-1 [E233406]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, NEC/NFPA 70, NFPA 79
- CAN: c(UL) CIC/TC-ER 600V FT4 [E171371], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC with nylon sheath (PA skin)
- Aluminum-coated foil
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Gray

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers

**Conductor stranding**
Fine-wire, bare copper strand

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Static/Occ. moved: 5/20 x OD*

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL AWM: 600 V
CSA AWM: 1000 V
IEC: $U_0/U$ = 600/1000 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CONTROL TM CY** | | | | |
| 281803CY | 3 G 1.0 | 8.1 | 49.5 | 119 |
| 281804CY | 4 G 1.0 | 8.6 | 60.2 | 137 |
| 281805CY | 5 G 1.0 | 9.3 | 81.4 | 149 |
| 281807CY | 7 G 1.0 | 10.0 | 101.1 | 193 |
| 281812CY | 12 G 1.0 | 12.8 | 161.4 | 281 |
| 281818CY | 18 G 1.0 | 15.5 | 228.2 | 438 |
| 281825CY | 25 G 1.0 | 17.5 | 326.4 | 574 |
| 281603CY | 3 G 1.5 | 8.8 | 65 | 144 |
| 281604CY | 4 G 1.5 | 9.4 | 81.9 | 173 |
| 281605CY | 5 G 1.5 | 10.2 | 99.1 | 189 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 281607CY | 7 G 1.5 | 11.1 | 140.4 | 246 |
| 281612CY | 12 G 1.5 | 15.0 | 225.2 | 426 |
| 281618CY | 18 G 1.5 | 17.2 | 321.7 | 552 |
| 281403CY | 3 G 2.5 | 9.7 | 105.7 | 180 |
| 281404CY | 4 G 2.5 | 10.4 | 135.6 | 223 |
| 281405CY | 5 G 2.5 | 11.5 | 160.3 | 268 |
| 281407CY | 7 G 2.5 | 12.4 | 213 | 327 |
| 281204CY | 4 G 4.0 | 12.3 | 198.5 | 315 |
| 281205CY | 5 G 4.0 | 14.2 | 242.7 | 388 |
| 281004CY | 4 G 6.0 | 15.3 | 284.2 | 552 |
| 280804CY | 4 G 10.0 | 18.5 | 458.4 | 857 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter





# ÖLFLEX® TRAY II

ÖLFLEX® Control Cable 0.6/1 kV, UL TC-ER 600V MTW AWM WET OIL/ SUN RES CSA TRAY




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers

**Conductor stranding**
Fine copper wire strands

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Static/Occ. moved: 5/15 x OD*

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL/CSA: 1000 V (AWM)
IEC: $U_0/U$ = 600/1000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

## Benefits

- Cost-saving, fast installation omitting protection systems
- Many certifications/ use types
- 75°C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA

## Application range

- Industrial machinery, plant engineering in the USA
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections for version with at least 3 conductors
- Compliant with Tool machines: (UL) MTW
- Outdoor use and Direct Burial in the USA, per UL 1277
- USA Wind Turbine Tray Cable (WTTC) for Wind Turbine Generators

## Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II

## Info

- Torsion resistant for drip loops
- Broad application range (NFPA 70/NEC), NFPA 79 compliance
- Outdoor use in USA

- Water-resistant, UL 75°C WET rating
- UV resistant (SUN RES), Ozone resistant
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Norm references / Approvals

- USA: (UL) TC-ER [E171371], (UL) MTW [E155920], (UL) WTTC [E323700], Submersible Pump (14 - 2 AWG), (UL) PLTC-ER (18 - 12 AWG) [E216027], (UL) ITC-ER (18 - 12 AWG) [E196134], (UL) DP-1 [E233406], UL AWM (18 - 2 AWG) [E100338]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, SUN RES, DIR BUR, NEC/NFPA 70, NFPA 79
- CAN: c(UL) CIC/TC-ER 600V FT4 (< 250 kcmil) [E171371], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Black

| Article number | Number of cores and mm² per conductor | AWG per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® Tray II** | | | | | |
| 221803 | 3 G 1.0 | | 7.5 | 28.8 | 85 |
| 221804 | 4 G 1.0 | | 8.1 | 38.4 | 98 |
| 221805 | 5 G 1.0 | | 8.8 | 48 | 115 |
| 221807 | 7 G 1.0 | | 9.5 | 67 | 149 |
| 221812 | 12 G 1.0 | | 12.1 | 115 | 255 |
| 221818 | 18 G 1.0 | | 14.9 | 173 | 365 |
| 221825 | 25 G 1.0 | | 16.9 | 240 | 479 |
| 221603 | 3 G 1.5 | | 8.3 | 43 | 103 |
| 221604 | 4 G 1.5 | | 8.9 | 58 | 124 |
| 221605 | 5 G 1.5 | | 9.7 | 72 | 146 |
| 221607 | 7 G 1.5 | | 10.5 | 101 | 189 |
| 221609 | 9 G 1.5 | | 12.1 | 130 | 255 |
| 221612 | 12 G 1.5 | | 14.4 | 173 | 328 |
| 221618 | 18 G 1.5 | | 16.6 | 259 | 431 |
| 221625 | 25 G 1.5 | | 18.8 | 360 | 592 |
| 221641 | 41 G 1.5 | | 25.0 | 591 | 931 |
| 221403 | 3 G 2.5 | | 9.2 | 72 | 130 |
| 221404 | 4 G 2.5 | | 10.0 | 96 | 159 |
| 221405 | 5 G 2.5 | | 10.8 | 120 | 224 |
| 221407 | 7 G 2.5 | | 11.8 | 168 | 252 |
| 221412 | 12 G 2.5 | | 16.2 | 288 | 459 |
| 221418 | 18 G 2.5 | | 18.7 | 432 | 654 |
| 221425 | 25 G 2.5 | | 22.5 | 600 | 874 |
| 221204 | 4 G 4.0 | | 11.7 | 153 | 226 |
| 221205 | 5 G 4.0 | | 12.8 | 192 | 279 |
| 221004 | 4 G 6.0 | | 14.7 | 231 | 394 |
| 221005 | 5 G 6.0 | | 16.0 | 288 | 472 |
| 221007 | 7 G 6.0 | | 17.4 | 405 | 661 |
| 220804 | 4 G 10.0 | | 17.9 | 384 | 615 |
| 220805 | 5 G 10.0 | | 19.6 | 480.6 | 771 |
| 220604 | 4 G 16.0 | | 22.8 | 615 | 864 |
| 220605 | 5 G 16.0 | | 24.9 | 768 | 1080 |
| 220404 | 4 G | 4 | 27.8 | 960 | 1418 |
| 220204 | 4 G | 2 | 32.3 | 1344 | 2077 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / *OD = Outer diameter

# ÖLFLEX® TRAY II CY

ÖLFLEX® Control Cable 0.6/1 kV, UL TC-ER 600V AWM WET OIL/ SUN RES TRAY Screened




## Info

- Outdoor use in USA
- Broad application range (NFPA 70/NEC), NFPA 79 compliance
- EMC/Screened

## Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems
- 75°C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA
- Electromagnetic field screening

## Application range

- Industrial machinery, plant engineering in the USA
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections for version with at least 3 conductors
- Compliant with Tool machines: (UL) MTW
- Outdoor use and Direct Burial in the USA, per UL 1277
- USA Wind Turbine Tray Cable (WTTC) for Wind Turbine Generators

## Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Water-resistant, UL 75°C WET rating
- UV resistant (SUN RES), Ozone resistant
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Norm references / Approvals

- USA: (UL) TC-ER [E171371], (UL) MTW [E155920], (UL) WTTC [E323700], Submersible Pump (14 - 2 AWG), (UL) PLTC-ER (18 - 12 AWG) [E216027], (UL) ITC-ER (18 - 12 AWG) [E196134], (UL) DP-1 [E233406], UL AWM (18 - 2 AWG) [E100338]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, SUN RES, DIR BUR, NEC/NFPA 70, NFPA 79
- CAN: c(UL) CIC/TC-ER 600V FT4 (< 250 kcmil) [E171371], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Aluminum-coated foil
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers

**Conductor stranding**
Fine copper wire strands

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Static/Occ. moved: 5/20 x OD*

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL/CSA: 1000 V (AWM)
IEC: $U_0/U$ = 600/1000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

| Article number | Number of cores and mm² per conductor | AWG per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® Tray II CY** | | | | | |
| 2218030 | 3 G 1.0 | | 8.2 | 35.1 | 119 |
| 2218040 | 4 G 1.0 | | 8.8 | 55.2 | 137 |
| 2218050 | 5 G 1.0 | | 9.4 | 65.8 | 149 |
| 2218070 | 7 G 1.0 | | 10.1 | 86.9 | 193 |
| 2218120 | 12 G 1.0 | | 12.9 | 149.3 | 330 |
| 2218180 | 18 G 1.0 | | 15.7 | 214.2 | 438 |
| 2218250 | 25 G 1.0 | | 17.7 | 354.2 | 574 |
| 2216030 | 3 G 1.5 | | 8.9 | 59.8 | 144 |
| 2216040 | 4 G 1.5 | | 9.6 | 74.5 | 173 |
| 2216050 | 5 G 1.5 | | 10.3 | 93.5 | 189 |
| 2216070 | 7 G 1.5 | | 11.3 | 130.5 | 246 |
| 2216120 | 12 G 1.5 | | 15.1 | 213.8 | 426 |
| 2216180 | 18 G 1.5 | | 17.3 | 312.4 | 515 |
| 2216250 | 25 G 1.5 | | 19.6 | 415.6 | 708 |
| 2214030 | 3 G 2.5 | | 9.8 | 91.2 | 180 |
| 2214040 | 4 G 2.5 | | 10.7 | 125.7 | 223 |
| 2214050 | 5 G 2.5 | | 11.6 | 150.1 | 268 |
| 2214070 | 7 G 2.5 | | 12.5 | 201.2 | 327 |
| 2214120 | 12 G 2.5 | | 16.9 | 333.6 | 595 |
| 2214180 | 18 G 2.5 | | 19.5 | 487.6 | 784 |
| 2214250 | 25 G 2.5 | | 23.3 | 685.1 | 1048 |
| 2212040 | 4 G 4.0 | | 12.5 | 186.4 | 315 |
| 2212070 | 7 G 4.0 | | 15.5 | 310.2 | 499 |
| 2210040 | 4 G 6.0 | | 15.5 | 271.7 | 552 |
| 2208040 | 4 G 10.0 | | 18.7 | 438.6 | 857 |
| 2206040 | 4 G 16.0 | | 23.3 | 699 | 1208 |
| 2204040 | 4 G | 4 | 28.6 | 1296.8 | 1982 |
| 2202040 | 4 G | 2 | 33.2 | 1899.5 | 2903 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® POWER MULTI

Flexible, oil resistant Power Cord: (UL) listed for Tray + Extra-hard usage per NEC; NFPA 79




**Info**

- Flexible Cord STOOW for NEC Extra-hard usage in the USA
- Broad application range (NFPA 70/NEC), NFPA 79 compliance
- FT4 + OIL RES I/II

## Benefits

- Suitability for different operation types and locations in the USA as per NFPA/ NEC under one LAPP part number, thanks to UL listings (UL) STOOW and (UL) TC, resp. TC-ER, as well as thanks to design and characteristics associated with these listings
- Apart from unprotected laying on tray in the USA thanks to TC(-ER) listing: ...further, normatively specified, unprotected wiring methods in the USA per application related NEC Articles, thanks to (UL) listing STOOW/ Extra-hard usage Flexible Cord

## Application range

- Industrial machinery, plant engineering in the USA
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections for version with at least 3 conductors
- As per Article 400 of NEC/ NFPA 70: General Uses Permitted in the USA and General Uses Not Permitted to the overall group of Flexible Cords and Flexible Cables acc. to UL 62;
  Operating bids and limitations for Flexible Cords in special applications acc. to further NEC Articles, such as 501 (Class I Locations), 422 (Appliances), or 520 (specific locations for play and production of entertainment), etc.
- Further, typical locations in the USA, as specified by respective US installation standardization (e.g., NEC/ NFPA 70): Power cord for equipment, paint booths, appliances, factory installations (branch circuit), any power hook-up in the plant, for harnessed power connecting or extension cord set assemblies
- In hazardous locations in the USA, as per Chapter 5 of NEC/ NFPA 70: Classes I thru III, Divisions 1 and 2 each, plus intrinsically safe circuits, taking account of:
  - Provisions on cable design, cable type, installation, application in NEC Chapter 5 (esp.: Articles 500 thru 504);
  - This cable's design, approvals, component identification

## Product features

- Highly flame retardant FT4
- Highly oil resistant OIL RES I/II
- Tested sunlight resistant per UL 1277, UL 62, UL 2556 in terms of UV resistance
- Tested for unprotected, direct burial in the USA per UL 1277

## Norm references / Approvals

- Certified by UL per UL 1277 for TC 600V use in the USA, subject to individual third-party inspection: Generally UL Type TC (Tray Cable), and for at least 3 or more conductors TC-ER (Tray Cable for Exposed Run) in addition [UL CCN: QPOR; UL File No.: E171371]
- Certified by UL per UL 62 for STOOW use in the USA, subject to individual third-party inspection: UL Type STOOW (Extra-hard usage Flexible Cord) [UL CCN: ZJCZ; UL File No.: E146118]
- Certified by UL per CSA C22.2 No. 239, and CSA C22.2 No. 230 for possible CIC/ TC use in Canada, subject to individual third-party inspection: c(UL) CIC/TC-ER FT4 [UL CCN: QPOR7; UL File No.: E171371]
- Certified by UL per CSA C22.2 No. 49 for STOOW use in Canada, subject to individual third-party inspection: c(UL) STOOW [UL CCN: ZJCZ7; UL File No.: E146118]
- Certified by CSA per CSA C22.2 No. 210 for AWM use in Canada, subject to individual third-party inspection: CSA AWM II A/B FT4

## Product Make-up

- Fine-wire strand made of bare copper wires
- Specially formulated PVC insulation
- Durable, black sheath made of specially formulated thermoplastic polymer for improved service life

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
- Coloured conductors with numbers, plus ground in green/yellow (30 % stripe width);
- For 2-conductor cable only: No green/ yellow ground
- Example 3 conductors: BLACK conductor: "1 - ONE" WHITE conductor: "2 - TWO" GREEN/YELLOW conductor: No Numbers
- Colour code: 2C: Black, White 3C: Black, White, Green-Yellow 4C: Black, White, Red, Green-Yellow 5C: Black, White, Red, Brown, Green-Yellow 6C or more: Black with white numbers, except for the included Green-Yellow ground

**Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

**Minimum bending radius**
Installation: 4 x outer diameter

**Nominal voltage**
UL/CSA TC/STOOW: 600 V
IEC U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
UL/CSA TC: -25°C to +90°C;
Occasional flexing/ North America: -25°C to +105°C;
Fixed installation/ North America: -40°C to 105°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® POWER MULTI** | | | | |
| 611803 | 3 G 1.0 | 9.4 | 29.763 | 92 |
| 611804 | 4 G 1.0 | 10.1 | 38.692 | 106 |
| 611805 | 5 G 1.0 | 12.0 | 49.109 | 122 |
| 611603 | 3 G 1.5 | 10.1 | 43.157 | 110 |
| 611604 | 4 G 1.5 | 10.9 | 58.038 | 128 |
| 611605 | 5 G 1.5 | 12.9 | 72.027 | 153 |
| 611612 | 12 G 1.5 | 18.3 | 172.775 | 330 |
| 611618 | 18 G 1.5 | 20.9 | 259.237 | 440 |
| 611625 | 25 G 1.5 | 24.5 | 360.134 | 598 |
| 611403 | 3 G 2.5 | 13.8 | 72.027 | 137 |
| 611404 | 4 G 2.5 | 14.8 | 96.73 | 167 |
| 611405 | 5 G 2.5 | 16.8 | 120.541 | 198 |
| 611203 | 3 G 4.0 | 16.0 | 115.183 | 188 |
| 611205 | 5 G 4.0 | 18.8 | 191.972 | 286 |
| 611003 | 3 G 6.0 | 17.2 | 172.775 | 342 |
| 611004 | 4 G 6.0 | 18.6 | 230.664 | 402 |
| 610803 | 3 G 10.0 | 21.3 | 288.702 | 641 |
| 610804 | 4 G 10.0 | 24.0 | 383.944 | 844 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter

# ÖLFLEX® CLASSIC 100 H

Halogen-free power and control cable, oil resistant and very flexible




**Info**

- CPR: Article number choice under www.lapp.com

## Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features

## Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5) and UL OIL RES I and UL OIL RES II
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51
- Based on EN 50525-3-11

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 100 H** | | | | |
| 0014150 | 2 X 1.5 | 7.6 | 28.8 | 91 |
| 0014151 | 3 G 1.5 | 8.3 | 43.2 | 114 |
| 0014152 | 4 G 1.5 | 9.0 | 57.6 | 140 |
| 0014153 | 5 G 1.5 | 10.1 | 72 | 176 |
| 0014156 | 2 X 2.5 | 9.0 | 48 | 133 |
| 0014157 | 3 G 2.5 | 9.7 | 72 | 167 |
| 0014158 | 4 G 2.5 | 10.8 | 96 | 207 |
| 0014159 | 5 G 2.5 | 11.9 | 120 | 260 |
| 0014162 | 3 G 4.0 | 11.4 | 115.2 | 240 |
| 0014163 | 4 G 4.0 | 12.7 | 153.6 | 303 |
| 0014164 | 5 G 4.0 | 13.9 | 192 | 372 |
| 0014166 | 3 G 6.0 | 12.7 | 172.8 | 320 |
| 0014167 | 4 G 6.0 | 13.9 | 230.4 | 400 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0014168 | 5 G 6.0 | 15.8 | 288 | 510 |
| 0014170 | 4 G 10.0 | 17.9 | 384 | 662 |
| 0014171 | 5 G 10.0 | 19.9 | 480 | 826 |
| 0014173 | 4 G 16.0 | 20.7 | 614.4 | 957 |
| 0014174 | 5 G 16.0 | 23.0 | 768 | 1193 |
| 0014176 | 4 G 25.0 | 25.4 | 960 | 1480 |
| 0014177 | 5 G 25.0 | 28.5 | 1200 | 1860 |
| 0014179 | 4 G 35.0 | 28.8 | 1344 | 1985 |
| 0014180 | 5 G 35.0 | 32.3 | 1680 | 2490 |
| 0014182 | 4 G 50.0 | 35.0 | 1920 | 2830 |
| 0014184 | 4 G 70.0 | 40.0 | 2688 | 3890 |
| 0014186 | 4 G 95.0 | 46.0 | 3648 | 5110 |
| 0014188 | 4 G 120.0 | 51.0 | 4608 | 6315 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G120 max. 400 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 110 H

Halogen-free control cable, oil resistant and very flexible




## Info

- CPR: Article number choice under www.lapp.com
- High flexibility and oil-resistance
- VDE-certified

## Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features
- Certified for maritime applications

## Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Intended for use under the European Construction Product Regulation (CPR), refer to catalogue appendix T14
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- UL Cable Flame Test
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5) and UL OIL RES I and UL OIL RES II
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- UL AWM style 21089
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 119-14 HH

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 H U0/U: 300/500 V** | | | | |
| 10019900 | 2 X 0.5 | 5.1 | 9.6 | 41 |
| 10019901 | 3 G 0.5 | 5.4 | 14.4 | 49 |
| 10019902 | 3 X 0.5 | 5.4 | 14.4 | 49 |
| 10019903 | 4 G 0.5 | 5.8 | 19.2 | 58 |
| 10019904 | 4 X 0.5 | 5.8 | 19.2 | 58 |
| 10019905 | 5 G 0.5 | 6.3 | 24 | 69 |
| 10019906 | 7 G 0.5 | 6.9 | 33.6 | 87 |
| 10019907 | 12 G 0.5 | 9.1 | 57.6 | 141 |
| 10019910 | 2 X 0.75 | 5.5 | 14.4 | 51 |
| 10019911 | 3 G 0.75 | 5.8 | 21.6 | 61 |
| 10019912 | 3 X 0.75 | 5.8 | 21.6 | 61 |
| 10019913 | 4 G 0.75 | 6.3 | 28.8 | 73 |
| 10019914 | 4 X 0.75 | 6.3 | 28.8 | 73 |
| 10019915 | 5 G 0.75 | 6.9 | 36 | 87 |
| 10019916 | 5 X 0.75 | 6.9 | 36 | 87 |
| 10019917 | 7 G 0.75 | 7.5 | 50.4 | 111 |
| 10019918 | 7 X 0.75 | 7.5 | 50.4 | 111 |
| 10019919 | 9 G 0.75 | 9.6 | 64.8 | 150 |
| 10019920 | 12 G 0.75 | 10.1 | 86.4 | 186 |
| 10019921 | 18 G 0.75 | 12.0 | 129.6 | 265 |
| 10019922 | 25 G 0.75 | 14.1 | 180 | 365 |
| 10019960 | 2 X 1.0 | 5.8 | 19.2 | 59 |
| 10019961 | 3 G 1.0 | 6.1 | 28.8 | 72 |
| 10019962 | 3 X 1.0 | 6.1 | 28.8 | 72 |
| 10019963 | 4 G 1.0 | 6.6 | 38.4 | 87 |
| 10019964 | 4 X 1.0 | 6.6 | 38.4 | 87 |
| 10019965 | 5 G 1.0 | 7.3 | 48 | 104 |
| 10019967 | 7 G 1.0 | 8.1 | 67.2 | 138 |
| 10019968 | 8 G 1.0 | 9.7 | 76.8 | 164 |
| 10019969 | 12 G 1.0 | 10.7 | 115.2 | 225 |
| 10019970 | 14 G 1.0 | 11.4 | 134.4 | 261 |
| 10019971 | 18 G 1.0 | 12.9 | 172.8 | 328 |
| 10019972 | 25 G 1.0 | 15.0 | 240 | 445 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 10019973 | 41 G 1.0 | 19.2 | 393.6 | 719 |
| 10019930 | 2 X 1.5 | 6.4 | 28.8 | 76 |
| 10019931 | 3 G 1.5 | 6.8 | 43.2 | 94 |
| 10019980 | 3 X 1.5 | 6.8 | 43.2 | 94 |
| 10019932 | 4 G 1.5 | 7.4 | 57.6 | 115 |
| 10019933 | 5 G 1.5 | 8.3 | 72 | 142 |
| 10019934 | 7 G 1.5 | 9.0 | 100.8 | 184 |
| 10019981 | 8 G 1.5 | 10.8 | 115.2 | 218 |
| 10019982 | 9 G 1.5 | 11.6 | 129.6 | 245 |
| 10019935 | 12 G 1.5 | 12.2 | 172.8 | 308 |
| 10019936 | 14 G 1.5 | 13.0 | 201.6 | 357 |
| 10019937 | 18 G 1.5 | 14.6 | 259.2 | 449 |
| 10019938 | 25 G 1.5 | 17.2 | 360 | 617 |
| 10019927 | 34 G 1.5 | 19.8 | 489.6 | 821 |
| 10019944 | 2 X 2.5 | 7.6 | 48 | 113 |
| 10019945 | 3 G 2.5 | 8.3 | 72 | 146 |
| 10019946 | 4 G 2.5 | 9.0 | 96 | 180 |
| 10019947 | 5 G 2.5 | 10.1 | 120 | 221 |
| 10019948 | 7 G 2.5 | 11.2 | 168 | 295 |
| 10019949 | 12 G 2.5 | 15.1 | 288 | 491 |
| 10019950 | 4 G 4.0 | 10.8 | 153.6 | 268 |
| 10019951 | 5 G 4.0 | 12.1 | 192 | 328 |
| 10019952 | 7 G 4.0 | 13.4 | 268.8 | 438 |
| 10019953 | 4 G 6.0 | 13.0 | 230.4 | 391 |
| 10019954 | 5 G 6.0 | 14.5 | 288 | 478 |
| 10019975 | 7 G 6.0 | 16.0 | 403.2 | 638 |
| 10019851 | 4 G 10.0 | 16.2 | 384 | 635 |
| 10019852 | 5 G 10.0 | 18.1 | 480 | 775 |
| 10019849 | 4 G 16.0 | 18.8 | 614.4 | 930 |
| 10019853 | 5 G 16.0 | 21.2 | 768 | 1147 |
| 10019854 | 4 G 25.0 | 23.5 | 960 | 1442 |
| 10019855 | 5 G 25.0 | 26.4 | 1200 | 1773 |
| 10019856 | 4 G 35.0 | 26.6 | 1344 | 1917 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 115 CH

Screened halogen-free control cable, oil resistant



## Info

- CPR: Article number choice under www.lapp.com
- High flexibility and oil-resistance
- Items with higher cross-sections on request

## Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features

## Application range

- Public buildings like airports or railway stations
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Intended for use under the European Construction Product Regulation (CPR), refer to catalogue appendix T14
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- UL Cable Flame Test
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5)
  and UL OIL RES I and UL OIL RES II
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- UL AWM style 21089
- Based on EN 50525-3-11
- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Wrapping: Halogen-free plastic foil
- Tinned-copper braiding
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 115 CH** | | | | |
| 10036001 | 2 X 0.5 | 5.9 | 36 | 56 |
| 10036002 | 3 G 0.5 | 6.2 | 43 | 67 |
| 10036003 | 3 X 0.5 | 6.2 | 43 | 67 |
| 10036004 | 4 G 0.5 | 6.6 | 49 | 78 |
| 10036005 | 4 X 0.5 | 6.6 | 49 | 78 |
| 10036006 | 5 G 0.5 | 7.1 | 57 | 91 |
| 10036007 | 7 G 0.5 | 7.7 | 69 | 110 |
| 10036008 | 12 G 0.5 | 10.1 | 104 | 177 |
| 10036009 | 2 X 0.75 | 6.3 | 43 | 65 |
| 10036010 | 3 G 0.75 | 6.6 | 52 | 77 |
| 10036011 | 3 X 0.75 | 6.6 | 52 | 77 |
| 10036012 | 4 G 0.75 | 7.1 | 61 | 92 |
| 10036013 | 4 X 0.75 | 7.1 | 61 | 92 |
| 10036014 | 5 G 0.75 | 7.9 | 72 | 111 |
| 10036015 | 5 X 0.75 | 7.9 | 72 | 111 |
| 10036016 | 7 G 0.75 | 8.5 | 89 | 138 |
| 10036017 | 7 X 0.75 | 8.5 | 89 | 138 |
| 10036018 | 12 G 0.75 | 11.1 | 138 | 220 |
| 10036019 | 18 G 0.75 | 13.0 | 211 | 312 |
| 10036020 | 25 G 0.75 | 15.1 | 280 | 417 |
| 10036021 | 2 X 1.0 | 6.6 | 51 | 73 |
| 10036022 | 3 G 1.0 | 6.9 | 62 | 89 |
| 10036023 | 3 X 1.0 | 6.9 | 62 | 89 |
| 10036024 | 4 G 1.0 | 7.4 | 74 | 107 |
| 10036025 | 4 X 1.0 | 7.4 | 74 | 107 |
| 10036026 | 5 G 1.0 | 8.3 | 88 | 131 |
| 10036027 | 7 G 1.0 | 8.9 | 112 | 159 |
| 10036028 | 12 G 1.0 | 11.7 | 185 | 263 |
| 10036029 | 18 G 1.0 | 14.1 | 268 | 378 |
| 10036030 | 25 G 1.0 | 16.2 | 354 | 508 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 10036031 | 41 G 1.0 | 16.2 | 547 | 834 |
| 10036032 | 2 X 1.5 | 20.6 | 65 | 87 |
| 10036033 | 3 G 1.5 | 7.2 | 82 | 108 |
| 10036034 | 3 X 1.5 | 7.6 | 82 | 108 |
| 10036035 | 4 G 1.5 | 7.6 | 100 | 136 |
| 10036036 | 5 G 1.5 | 9.1 | 119 | 162 |
| 10036037 | 7 G 1.5 | 10.0 | 154 | 204 |
| 10036038 | 12 G 1.5 | 13.4 | 268 | 340 |
| 10036039 | 18 G 1.5 | 15.8 | 373 | 492 |
| 10036040 | 25 G 1.5 | 18.2 | 530 | 654 |
| 10036041 | 3 G 2.5 | 9.1 | 118 | 157 |
| 10036042 | 4 G 2.5 | 10.0 | 147 | 198 |
| 10036043 | 5 G 2.5 | 11.1 | 176 | 245 |
| 10036044 | 7 G 2.5 | 12.0 | 253 | 307 |
| 10036045 | 12 G 2.5 | 16.3 | 385 | 524 |
| 10036046 | 4 G 4.0 | 11.8 | 248 | 284 |
| 10036047 | 5 G 4.0 | 13.3 | 269 | 368 |
| 10036048 | 7 G 4.0 | 14.6 | 371 | 448 |
| 10036049 | 4 G 6.0 | 14.2 | 343 | 406 |
| 10036050 | 5 G 6.0 | 15.5 | 441 | 522 |
| 10036051 | 7 G 6.0 | 17.0 | 510 | 637 |
| 10036052 | 4 G 10.0 | 17.2 | 495 | 656 |
| 10036053 | 5 G 10.0 | 19.5 | 592 | 865 |
| 10036054 | 4 G 16.0 | 20.2 | 736 | 972 |
| 10036055 | 5 G 16.0 | 22.6 | 895 | 1249 |
| 10036056 | 4 G 25.0 | 25.1 | 1129 | 1482 |
| 10036057 | 5 G 25.0 | 28.0 | 1400 | 1906 |
| 10036058 | 4 G 35.0 | 28.2 | 1546 | 1971 |
| 10036059 | 5 G 35.0 | 31.4 | 1912 | 2529 |
| 10036060 | 4 G 50.0 | 34.0 | 2186 | 2713 |
| 10036061 | 4 G 70.0 | 39.0 | 3011 | 3709 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Info**

- CPR: Article number choice under www.lapp.com
- High flexibility and oil-resistance
- Items with higher cross-sections on request

# ÖLFLEX® CLASSIC 110 CH

Screened halogen-free control cable, oil resistant and very flexible




## Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features
- Certified for maritime applications

## Application range

- Public buildings like airports or railway stations
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Intended for use under the European Construction Product Regulation (CPR), refer to catalogue appendix T14
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- UL Cable Flame Test
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5)
  and UL OIL RES I and UL OIL RES II
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- UL AWM style 21089
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 119-14 HH

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Halogen-free inner sheath, grey
- Tinned-copper braiding
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -30°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 110 CH U0/U: 300/500 V** | | | | |
| 10035030 | 2 X 0.5 | 7.1 | 29.1 | 85 |
| 10035031 | 3 G 0.5 | 7.4 | 35.1 | 95 |
| 10035032 | 3 X 0.5 | 7.4 | 35.1 | 95 |
| 10035033 | 4 G 0.5 | 8.0 | 41.4 | 111 |
| 10035034 | 4 X 0.5 | 8.0 | 41.4 | 111 |
| 10035035 | 5 G 0.5 | 8.6 | 48 | 126 |
| 10035036 | 7 G 0.5 | 9.1 | 59.9 | 148 |
| 10035037 | 12 G 0.5 | 11.5 | 91.4 | 226 |
| 10035040 | 2 X 0.75 | 7.7 | 35.4 | 101 |
| 10035041 | 3 G 0.75 | 8.0 | 43.8 | 114 |
| 10035042 | 3 X 0.75 | 8.0 | 43.8 | 114 |
| 10035043 | 4 G 0.75 | 8.5 | 52.8 | 130 |
| 10035044 | 4 X 0.75 | 8.5 | 52.8 | 130 |
| 10035045 | 5 G 0.75 | 9.3 | 62.3 | 153 |
| 10035046 | 5 X 0.75 | 9.3 | 62.3 | 153 |
| 10035047 | 7 G 0.75 | 9.9 | 79.5 | 183 |
| 10035048 | 7 X 0.75 | 9.9 | 79.5 | 183 |
| 10035050 | 12 G 0.75 | 12.5 | 123.2 | 280 |
| 10035051 | 18 G 0.75 | 14.8 | 188.6 | 399 |
| 10035052 | 25 G 0.75 | 16.9 | 247.5 | 522 |
| 10035055 | 2 X 1.0 | 8.0 | 41.4 | 112 |
| 10035056 | 3 G 1.0 | 8.4 | 52.1 | 127 |
| 10035057 | 3 X 1.0 | 8.4 | 52.1 | 127 |
| 10035058 | 4 G 1.0 | 8.9 | 73.5 | 157 |
| 10035059 | 4 X 1.0 | 8.9 | 73.5 | 157 |
| 10035060 | 5 G 1.0 | 9.7 | 83.2 | 171 |
| 10035061 | 7 G 1.0 | 10.3 | 97.2 | 210 |
| 10035062 | 12 G 1.0 | 13.6 | 168.7 | 347 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 10035063 | 18 G 1.0 | 15.7 | 235.4 | 474 |
| 10035064 | 25 G 1.0 | 17.8 | 312 | 611 |
| 10035065 | 41 G 1.0 | 22.4 | 508 | 969 |
| 10035067 | 2 X 1.5 | 8.6 | 53.2 | 134 |
| 10035068 | 3 G 1.5 | 9.0 | 69.1 | 155 |
| 10035069 | 3 X 1.5 | 9.0 | 69.1 | 155 |
| 10035070 | 4 G 1.5 | 9.8 | 85.8 | 186 |
| 10035071 | 5 G 1.5 | 10.5 | 102.8 | 215 |
| 10035072 | 7 G 1.5 | 11.4 | 134.2 | 269 |
| 10035073 | 12 G 1.5 | 15.0 | 232.8 | 445 |
| 10035074 | 18 G 1.5 | 17.4 | 327.8 | 610 |
| 10035075 | 25 G 1.5 | 20.4 | 463.2 | 843 |
| 10035089 | 3 G 2.5 | 10.5 | 102.8 | 220 |
| 10035090 | 4 G 2.5 | 11.4 | 129.4 | 265 |
| 10035091 | 5 G 2.5 | 12.7 | 157.5 | 322 |
| 10035092 | 7 G 2.5 | 14.0 | 223 | 422 |
| 10035093 | 12 G 2.5 | 17.9 | 360.5 | 659 |
| 10035094 | 4 G 4.0 | 13.6 | 207.6 | 390 |
| 10035095 | 5 G 4.0 | 14.9 | 251.5 | 463 |
| 10035096 | 7 G 4.0 | 16.2 | 333.9 | 588 |
| 10035097 | 4 G 6.0 | 15.8 | 294.8 | 516 |
| 10035098 | 5 G 6.0 | 17.3 | 356.1 | 616 |
| 10035099 | 7 G 6.0 | 18.8 | 479.3 | 792 |
| 10035380 | 4 G 10.0 | 19.1 | 461.1 | 789 |
| 10035381 | 5 G 10.0 | 21.4 | 586.6 | 998 |
| 10035382 | 4 G 16.0 | 22.3 | 727.6 | 1154 |
| 10035383 | 5 G 16.0 | 24.5 | 888.7 | 1389 |
| 10035384 | 4 G 25.0 | 27.0 | 1123.9 | 1807 |
| 10035386 | 4 G 35.0 | 30.4 | 1529.2 | 2321 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / Single lengths for sizes: ≥ 4G50 max. 500 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 127 HSLH

Halogen-free control cable with improved fire characteristics




**Info**

- CPR: Article number choice under www.lapp.com
- For use within public buildings and industrial plants

## Benefits

- Easy installation due to flexible design

## Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Classified fire behavior according to EU Directive 305/2011 (CPR) with article number selection under www.lapp.com

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on EN 50525-3-11
- Based on EN 50525-2-51

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 127 HSLH** | | | | |
| 1127408 | 2 X 0.75 | 5.5 | 14.4 | 43 |
| 1127409 | 3 G 0.75 | 5.8 | 21.6 | 53 |
| 1127413 | 5 G 0.75 | 6.9 | 36 | 80 |
| 1127415 | 7 G 0.75 | 7.5 | 50.4 | 101 |
| 1127417 | 12 G 0.75 | 10.1 | 86.4 | 181 |
| 1127418 | 18 G 0.75 | 12.0 | 129.6 | 263 |
| 1127420 | 2 X 1.0 | 5.8 | 19.2 | 51 |
| 1127421 | 3 G 1.0 | 6.1 | 28.8 | 63 |
| 1127423 | 4 G 1.0 | 6.6 | 38.4 | 78 |
| 1127425 | 5 G 1.0 | 7.3 | 48 | 96 |
| 1127426 | 7 G 1.0 | 8.1 | 67.2 | 126 |
| 1127427 | 12 G 1.0 | 10.7 | 115.2 | 220 |
| 1127428 | 18 G 1.0 | 12.9 | 172.8 | 325 |
| 1127429 | 2 X 1.5 | 6.4 | 28.8 | 67 |
| 1127430 | 3 G 1.5 | 6.8 | 43.2 | 85 |
| 1127432 | 4 G 1.5 | 7.4 | 57.6 | 106 |
| 1127433 | 5 G 1.5 | 8.3 | 72 | 134 |
| 1127434 | 7 G 1.5 | 9.0 | 100.8 | 172 |
| 1127435 | 12 G 1.5 | 12.2 | 172.8 | 307 |
| 1127436 | 3 G 2.5 | 8.3 | 72 | 133 |
| 1127437 | 4 G 2.5 | 9.0 | 96 | 167 |
| 1127438 | 5 G 2.5 | 10.1 | 120 | 210 |
| 1127440 | 4 G 4.0 | 10.8 | 153.6 | 254 |
| 1127441 | 5 G 4.0 | 12.1 | 192 | 318 |
| 1127442 | 4 G 6.0 | 13.0 | 230.4 | 375 |
| 1127443 | 5 G 6.0 | 14.5 | 288 | 468 |
| 1127445 | 5 G 10.0 | 18.1 | 480 | 757 |
| 1127447 | 5 G 16.0 | 21.2 | 768 | 1112 |
| 1127449 | 5 G 25.0 | 26.4 | 1200 | 1711 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 130 H

Halogen-free control cable with improved fire characteristics




**Info**

- CPR: Article number choice under www.lapp.com
- For use within public buildings and industrial plants

## Benefits

- Easy installation due to flexible design
- Certified for maritime applications

## Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- UL AWM style 21217
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. TAE00002RJ

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -25°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 130 H** | | | | |
| 1123000 | 2 X 0.5 | 5.1 | 9.6 | 36 |
| 1123001 | 3 G 0.5 | 5.4 | 14.4 | 42 |
| 1123002 | 3 X 0.5 | 5.4 | 14.4 | 42 |
| 1123003 | 4 G 0.5 | 5.8 | 19.2 | 55 |
| 1123004 | 4 X 0.5 | 5.8 | 19.2 | 55 |
| 1123005 | 5 G 0.5 | 6.3 | 24 | 65 |
| 1123006 | 5 X 0.5 | 6.3 | 24 | 65 |
| 1123008 | 7 G 0.5 | 6.9 | 33.6 | 80 |
| 1123009 | 7 X 0.5 | 6.9 | 33.6 | 80 |
| 1123010 | 8 G 0.5 | 8.2 | 38.4 | 103 |
| 1123012 | 10 G 0.5 | 8.8 | 48 | 112 |
| 1123013 | 12 G 0.5 | 9.1 | 57.6 | 128 |
| 1123017 | 18 G 0.5 | 10.8 | 86.4 | 189 |
| 1123020 | 25 G 0.5 | 12.7 | 120 | 260 |
| 1123021 | 30 G 0.5 | 13.6 | 144 | 294 |
| 1123032 | 2 X 0.75 | 5.5 | 14.4 | 47 |
| 1123033 | 3 G 0.75 | 5.8 | 21.6 | 56 |
| 1123034 | 3 X 0.75 | 5.8 | 21.6 | 56 |
| 1123035 | 4 G 0.75 | 6.3 | 28.8 | 69 |
| 1123036 | 4 X 0.75 | 6.3 | 28.8 | 69 |
| 1123037 | 5 G 0.75 | 6.9 | 36 | 83 |
| 1123038 | 5 X 0.75 | 6.9 | 36 | 83 |
| 1123041 | 7 G 0.75 | 7.5 | 50.4 | 104 |
| 1123042 | 7 X 0.75 | 7.5 | 50.4 | 104 |
| 1123046 | 10 G 0.75 | 9.8 | 72 | 149 |
| 1123047 | 12 G 0.75 | 10.1 | 86.4 | 172 |
| 1123048 | 12 X 0.75 | 10.1 | 86.4 | 172 |
| 1123051 | 18 G 0.75 | 12.0 | 129.6 | 252 |
| 1123054 | 25 G 0.75 | 14.1 | 180 | 352 |
| 1123056 | 34 G 0.75 | 16.3 | 244.8 | 466 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123066 | 2 X 1.0 | 5.8 | 19.2 | 55 |
| 1123067 | 3 G 1.0 | 6.1 | 28.8 | 67 |
| 1123068 | 3 X 1.0 | 6.1 | 28.8 | 67 |
| 1123069 | 4 G 1.0 | 6.6 | 38.4 | 83 |
| 1123070 | 4 X 1.0 | 6.6 | 38.4 | 83 |
| 1123071 | 5 G 1.0 | 7.3 | 48 | 100 |
| 1123072 | 5 X 1.0 | 7.3 | 48 | 100 |
| 1123074 | 7 G 1.0 | 8.1 | 67.2 | 130 |
| 1123075 | 7 X 1.0 | 8.1 | 67.2 | 130 |
| 1123076 | 8 G 1.0 | 9.7 | 76.8 | 164 |
| 1123078 | 10 G 1.0 | 10.4 | 96 | 183 |
| 1123080 | 12 G 1.0 | 10.7 | 115.2 | 212 |
| 1123081 | 12 X 1.0 | 10.7 | 115.2 | 212 |
| 1123083 | 16 G 1.0 | 12.1 | 153.6 | 275 |
| 1123084 | 18 G 1.0 | 12.9 | 172.8 | 314 |
| 1123090 | 25 G 1.0 | 15.0 | 240 | 429 |
| 1123094 | 34 G 1.0 | 17.5 | 326.4 | 570 |
| 1123106 | 2 X 1.5 | 6.4 | 28.8 | 72 |
| 1123107 | 3 G 1.5 | 6.8 | 43.2 | 88 |
| 1123108 | 3 X 1.5 | 6.8 | 43.2 | 88 |
| 1123109 | 4 G 1.5 | 7.4 | 57.6 | 110 |
| 1123110 | 4 X 1.5 | 7.4 | 57.6 | 110 |
| 1123111 | 5 G 1.5 | 8.3 | 72 | 135 |
| 1123112 | 5 X 1.5 | 8.3 | 72 | 135 |
| 1123114 | 7 G 1.5 | 9.0 | 100.8 | 174 |
| 1123115 | 7 X 1.5 | 9.0 | 100.8 | 174 |
| 1123116 | 8 G 1.5 | 10.8 | 115.2 | 223 |
| 1123118 | 10 G 1.5 | 11.8 | 144 | 250 |
| 1123120 | 12 G 1.5 | 12.2 | 172.8 | 289 |
| 1123124 | 18 G 1.5 | 14.6 | 259.2 | 433 |
| 1123128 | 25 G 1.5 | 17.2 | 360 | 596 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123130 | 34 G 1.5 | 19.8 | 489.6 | 786 |
| 1123139 | 2 X 2.5 | 7.6 | 48 | 110 |
| 1123140 | 3 G 2.5 | 8.3 | 72 | 137 |
| 1123142 | 4 G 2.5 | 9.0 | 96 | 174 |
| 1123144 | 5 G 2.5 | 10.1 | 120 | 217 |
| 1123146 | 7 G 2.5 | 11.2 | 168 | 283 |
| 1123149 | 12 G 2.5 | 15.1 | 288 | 467 |
| 1123151 | 18 G 2.5 | 18.0 | 432 | 696 |
| 1123153 | 25 G 2.5 | 21.1 | 600 | 969 |
| 1123159 | 3 G 4.0 | 9.8 | 115.2 | 213 |
| 1123160 | 4 G 4.0 | 10.8 | 153.6 | 267 |
| 1123161 | 5 G 4.0 | 12.1 | 192 | 331 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123162 | 7 G 4.0 | 13.4 | 268.8 | 432 |
| 1123166 | 3 G 6.0 | 11.7 | 172.8 | 303 |
| 1123167 | 4 G 6.0 | 13.0 | 230.4 | 388 |
| 1123168 | 5 G 6.0 | 14.5 | 288 | 480 |
| 1123169 | 7 G 6.0 | 16.0 | 403.2 | 626 |
| 1123172 | 4 G 10.0 | 16.2 | 384 | 601 |
| 1123173 | 5 G 10.0 | 18.1 | 480 | 735 |
| 1123177 | 4 G 16.0 | 18.8 | 614.4 | 917 |
| 1123178 | 5 G 16.0 | 21.2 | 768 | 1148 |
| 1123181 | 4 G 25.0 | 23.5 | 960 | 1418 |
| 1123182 | 5 G 25.0 | 26.4 | 1200 | 1769 |
| 1123185 | 4 G 35.0 | 26.6 | 1344 | 1905 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 135 CH

Screened halogen-free control cable with improved fire characteristics




**Info**

- CPR: Article number choice under www.lapp.com
- For use within public buildings and industrial plants

## Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters
- Certified for maritime applications

## Application range

- Public buildings like airports or railway stations
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- In EMC-sensitive environments (electromagnetic compatibility)
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79: please see the catalogue appendix table T29

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- UL AWM style 21217
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. TAE00002RK

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL: 600 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -25°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 135 CH** | | | | |
| 1123200 | 2 X 0.5 | 5.9 | 36 | 51 |
| 1123201 | 3 G 0.5 | 6.2 | 43 | 61 |
| 1123202 | 3 X 0.5 | 6.2 | 43 | 61 |
| 1123203 | 4 G 0.5 | 6.6 | 49 | 72 |
| 1123204 | 4 X 0.5 | 6.6 | 49 | 72 |
| 1123205 | 5 G 0.5 | 7.1 | 57 | 85 |
| 1123206 | 5 X 0.5 | 7.1 | 57 | 85 |
| 1123208 | 7 G 0.5 | 7.7 | 69 | 103 |
| 1123209 | 7 X 0.5 | 7.7 | 69 | 103 |
| 1123213 | 12 G 0.5 | 10.1 | 104 | 165 |
| 1123217 | 18 G 0.5 | 11.8 | 141 | 236 |
| 1123220 | 25 G 0.5 | 13.7 | 224 | 324 |
| 1123232 | 2 X 0.75 | 6.3 | 43 | 60 |
| 1123233 | 3 G 0.75 | 6.6 | 52 | 77 |
| 1123234 | 3 X 0.75 | 6.6 | 52 | 77 |
| 1123235 | 4 G 0.75 | 7.1 | 61 | 87 |
| 1123236 | 4 X 0.75 | 7.1 | 61 | 87 |
| 1123237 | 5 G 0.75 | 7.9 | 72 | 106 |
| 1123238 | 5 X 0.75 | 7.9 | 72 | 106 |
| 1123241 | 7 G 0.75 | 8.5 | 89 | 129 |
| 1123242 | 7 X 0.75 | 8.5 | 89 | 129 |
| 1123247 | 12 G 0.75 | 11.1 | 138 | 211 |
| 1123248 | 12 X 0.75 | 11.1 | 138 | 211 |
| 1123251 | 18 G 0.75 | 13.0 | 211 | 307 |
| 1123254 | 25 G 0.75 | 15.1 | 280 | 413 |
| 1123266 | 2 X 1.0 | 6.6 | 51 | 79 |
| 1123267 | 3 G 1.0 | 6.9 | 62 | 88 |
| 1123268 | 3 X 1.0 | 6.9 | 62 | 88 |
| 1123269 | 4 G 1.0 | 7.4 | 74 | 106 |
| 1123270 | 4 X 1.0 | 7.4 | 74 | 106 |
| 1123271 | 5 G 1.0 | 8.3 | 88 | 124 |
| 1123272 | 5 X 1.0 | 8.3 | 88 | 124 |
| 1123274 | 7 G 1.0 | 8.9 | 112 | 155 |
| 1123275 | 7 X 1.0 | 8.9 | 112 | 155 |
| 1123280 | 12 G 1.0 | 11.7 | 185 | 250 |
| 1123281 | 12 X 1.0 | 11.7 | 185 | 250 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123284 | 18 G 1.0 | 14.1 | 268 | 368 |
| 1123290 | 25 G 1.0 | 16.2 | 354 | 493 |
| 1123291 | 25 X 1.0 | 16.2 | 354 | 493 |
| 1123306 | 2 X 1.5 | 7.2 | 65 | 91 |
| 1123307 | 3 G 1.5 | 7.6 | 82 | 112 |
| 1123308 | 3 X 1.5 | 7.6 | 82 | 112 |
| 1123309 | 4 G 1.5 | 8.4 | 100 | 141 |
| 1123310 | 4 X 1.5 | 8.4 | 100 | 141 |
| 1123311 | 5 G 1.5 | 9.1 | 119 | 161 |
| 1123312 | 5 X 1.5 | 9.1 | 119 | 161 |
| 1123314 | 7 G 1.5 | 10.0 | 154 | 206 |
| 1123315 | 7 X 1.5 | 10.0 | 154 | 206 |
| 1123320 | 12 G 1.5 | 13.4 | 268 | 355 |
| 1123324 | 18 G 1.5 | 15.8 | 373 | 517 |
| 1123328 | 25 G 1.5 | 18.2 | 530 | 705 |
| 1123339 | 2 X 2.5 | 8.6 | 96 | 128 |
| 1123340 | 3 G 2.5 | 9.1 | 118 | 157 |
| 1123342 | 4 G 2.5 | 10.0 | 147 | 201 |
| 1123344 | 5 G 2.5 | 11.1 | 176 | 248 |
| 1123346 | 7 G 2.5 | 12.0 | 253 | 313 |
| 1123349 | 12 G 2.5 | 16.3 | 385 | 524 |
| 1123359 | 3 G 4.0 | 10.6 | 178 | 231 |
| 1123360 | 4 G 4.0 | 11.8 | 248 | 291 |
| 1123361 | 5 G 4.0 | 13.3 | 269 | 361 |
| 1123362 | 7 G 4.0 | 14.6 | 371 | 468 |
| 1123366 | 3 G 6.0 | 12.7 | 240 | 318 |
| 1123367 | 4 G 6.0 | 14.2 | 343 | 437 |
| 1123368 | 5 G 6.0 | 15.5 | 441 | 510 |
| 1123369 | 7 G 6.0 | 17.0 | 510 | 662 |
| 1123372 | 4 G 10.0 | 17.2 | 495 | 685 |
| 1123373 | 5 G 10.0 | 19.5 | 592 | 824 |
| 1123374 | 7 G 10.0 | 21.4 | 820 | 1067 |
| 1123377 | 4 G 16.0 | 20.2 | 736 | 1036 |
| 1123378 | 5 G 16.0 | 22.6 | 895 | 1285 |
| 1123381 | 4 G 25.0 | 25.1 | 1129 | 1663 |
| 1123382 | 5 G 25.0 | 28.0 | 1400 | 1976 |
| 1123385 | 4 G 35.0 | 28.2 | 1546 | 2052 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 128 H BK 0,6/1 kV

Cost-effective halogen-free control cable with improved fire characteristics, 0,6/1kV




**Info**

- For space-saving and cost-effective installation
- For use within public buildings and industrial plants
- UV and weather-resistant according to ISO 4892-2

## Benefits

- Space-saving installation due to small cable diameters
- Easy installation due to flexible design

## Application range

- Public buildings
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for outdoor applications

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on EN 50525-3-11

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free coumpound, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 128 H BK 0,6/1 kV** | | | | |
| 1123520 | 2 X 1.0 | 7.4 | 19.2 | 76 |
| 1123521 | 3 G 1.0 | 7.8 | 28.8 | 101 |
| 1123522 | 4 G 1.0 | 8.4 | 38.4 | 120 |
| 1123523 | 5 G 1.0 | 9.2 | 48 | 143 |
| 1123524 | 7 G 1.0 | 9.9 | 67.2 | 179 |
| 1123525 | 12 G 1.0 | 12.8 | 115.2 | 283 |
| 1123528 | 2 X 1.5 | 8.4 | 28.8 | 112 |
| 1123529 | 3 G 1.5 | 8.9 | 43.2 | 135 |
| 1123530 | 4 G 1.5 | 9.6 | 57.6 | 163 |
| 1123531 | 5 G 1.5 | 10.5 | 72 | 196 |
| 1123532 | 7 G 1.5 | 11.4 | 100.8 | 253 |
| 1123533 | 12 G 1.5 | 15.1 | 172.8 | 396 |
| 1123534 | 18 G 1.5 | 18.0 | 259.2 | 589 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123535 | 25 G 1.5 | 21.1 | 360 | 801 |
| 1123537 | 3 G 2.5 | 10.1 | 72 | 189 |
| 1123538 | 4 G 2.5 | 11.0 | 96 | 232 |
| 1123539 | 5 G 2.5 | 12.1 | 120 | 279 |
| 1123541 | 12 G 2.5 | 17.9 | 288 | 603 |
| 1123544 | 3 G 4.0 | 11.4 | 115.2 | 260 |
| 1123545 | 4 G 4.0 | 12.5 | 153.6 | 322 |
| 1123546 | 5 G 4.0 | 13.7 | 192 | 387 |
| 1123548 | 4 G 6.0 | 13.9 | 230.4 | 431 |
| 1123549 | 5 G 6.0 | 15.8 | 288 | 533 |
| 1123550 | 4 G 10.0 | 17.9 | 384 | 734 |
| 1123551 | 4 G 16.0 | 20.7 | 614.4 | 1080 |
| 1123552 | 5 G 16.0 | 23.0 | 768 | 1303 |
| 1123553 | 4 G 25.0 | 25.2 | 960 | 1617 |

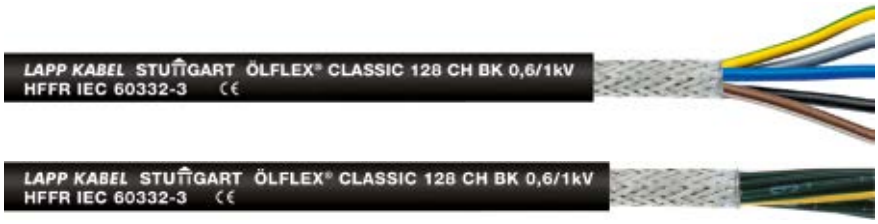
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 128 CH BK 0,6/1 kV

Cost-effective halogen-free control cable with improved fire characteristics, 0,6/1kV, with screen

**Info**

- For space-saving and cost-effective installation
- For use within public buildings and industrial plants
- EMC/Screened




## Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters

## Application range

- Public buildings
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for outdoor applications
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on EN 50525-3-11

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath made of special halogen-free coumpound, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 128 CH BK 0,6/1 kV** | | | | |
| 1123557 | 2 X 1.0 | 8.2 | 39.5 | 107 |
| 1123558 | 3 G 1.0 | 8.6 | 51 | 129 |
| 1123559 | 4 G 1.0 | 9.2 | 62.8 | 153 |
| 1123560 | 5 G 1.0 | 10.0 | 76 | 181 |
| 1123561 | 7 G 1.0 | 10.7 | 97.2 | 220 |
| 1123562 | 12 G 1.0 | 14.0 | 169.1 | 343 |
| 1123564 | 25 G 1.0 | 19.0 | 315.5 | 667 |
| 1123565 | 2 X 1.5 | 9.2 | 53.2 | 135 |
| 1123566 | 3 G 1.5 | 9.7 | 69.5 | 164 |
| 1123567 | 4 G 1.5 | 10.4 | 86.5 | 199 |
| 1123568 | 5 G 1.5 | 11.3 | 104.3 | 236 |
| 1123569 | 7 G 1.5 | 12.2 | 136.5 | 292 |
| 1123570 | 12 G 1.5 | 16.3 | 238.3 | 498 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123571 | 18 G 1.5 | 19.4 | 355.4 | 700 |
| 1123573 | 2 X 2.5 | 10.4 | 79.4 | 176 |
| 1123574 | 3 G 2.5 | 10.9 | 106.1 | 218 |
| 1123575 | 4 G 2.5 | 11.8 | 134.3 | 268 |
| 1123576 | 5 G 2.5 | 12.9 | 158.3 | 322 |
| 1123577 | 7 G 2.5 | 14.4 | 225 | 411 |
| 1123578 | 12 G 2.5 | 19.3 | 383.6 | 704 |
| 1123579 | 18 G 2.5 | 23.0 | 548.9 | 1058 |
| 1123580 | 25 G 2.5 | 26.8 | 761.7 | 1449 |
| 1123582 | 4 G 4.0 | 13.5 | 211.9 | 357 |
| 1123583 | 5 G 4.0 | 14.9 | 250.3 | 434 |
| 1123584 | 3 G 6.0 | 13.7 | 232.1 | 372 |
| 1123585 | 4 G 6.0 | 15.1 | 298.5 | 472 |
| 1123586 | 5 G 6.0 | 16.8 | 356.1 | 611 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 128 H BK SC

Cost-effective halogen-free control cable with improved fire characteristics, 0,6/1kV




**Info**

- For space-saving and cost-effective installation
- For use within public buildings and industrial plants
- UV and weather-resistant according to ISO 4892-2

## Benefits

- Space-saving installation due to small cable diameters
- Easy installation due to flexible design
- Variants for DC systems available

## Application range

- Public buildings
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for outdoor applications
- For direct current applications in the low voltage range

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- EN 50525-3-11
- EN 60445

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free coumpound, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Core identification according to EN

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 0,6/1 kV AC rms according IEC
U0/U: 0,75/1,5 kV DC according IEC

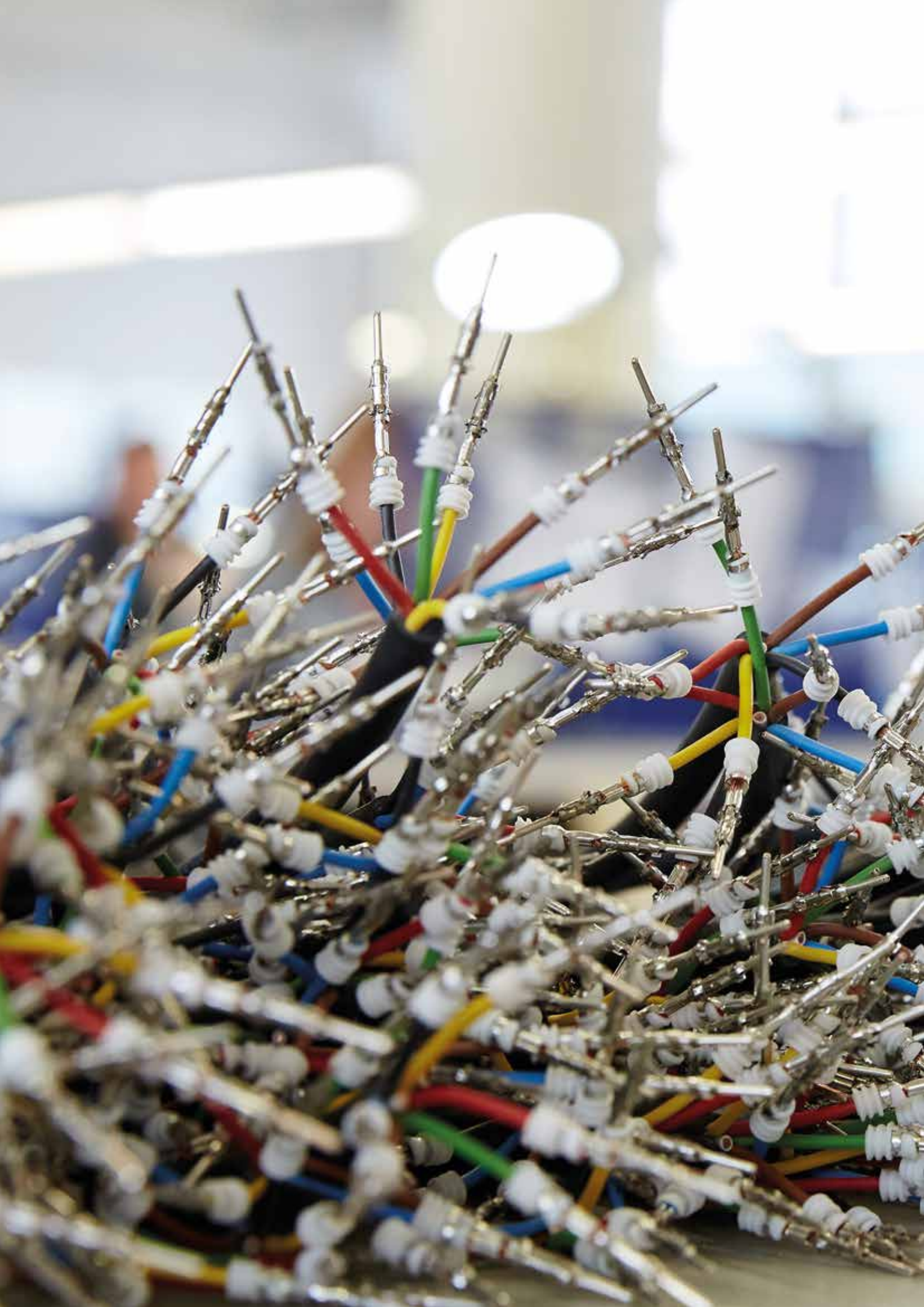
**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Color | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 128 H BK SC** | | | | | |
| 1123800 | 1 X 16.0 | 9.6 | black | 153.6 | 219 |
| 1123811 | 1 G 16.0 | 9.6 | green/yellow | 153.6 | 219 |
| 1123801 | 1 X 25.0 | 11.3 | black | 240 | 327 |
| 1123812 | 1 G 25.0 | 11.3 | green/yellow | 240 | 327 |
| 1123802 | 1 X 35.0 | 12.5 | black | 336 | 436 |
| 1123813 | 1 G 35.0 | 12.5 | green/yellow | 336 | 436 |
| 1123803 | 1 X 50.0 | 15.1 | black | 480 | 587 |
| 1123814 | 1 G 50.0 | 15.1 | green/yellow | 480 | 587 |
| 1123804 | 1 X 70.0 | 17.0 | black | 672 | 798 |
| 1123815 | 1 G 70.0 | 17.0 | green/yellow | 672 | 798 |
| 1123805 | 1 X 95.0 | 19.6 | black | 912 | 1044 |
| 1123816 | 1 G 95.0 | 19.6 | green/yellow | 912 | 1044 |
| 1123806 | 1 X 120.0 | 22.4 | black | 1152 | 1339 |
| 1123817 | 1 G 120.0 | 22.4 | green/yellow | 1152 | 1339 |
| 1123807 | 1 X 150.0 | 24.2 | black | 1440 | 1633 |
| 1123818 | 1 G 150.0 | 24.2 | green/yellow | 1440 | 1633 |
| 1123808 | 1 X 185.0 | 26.3 | black | 1776 | 1943 |
| 1123819 | 1 G 185.0 | 26.3 | green/yellow | 1776 | 1943 |
| 1123809 | 1 X 240.0 | 30.8 | black | 2304 | 2597 |
| 1123820 | 1 G 240.0 | 30.8 | green/yellow | 2304 | 2597 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV

0.6/1kVAC, Halogen-free, Flexible, IEC 60332-3, IEC 61034-2, UV/ ozone resistance, UL AWM 1000V




**Info**

- CPR: Article number choice under www.lapp.com
- Public buildings
- UL AWM recognized

## Benefits

- Easy installation due to flexible design

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- For outdoor applications
- According to NFPA 79, subchapter 12.9.2: Use for industrial machinery operated in the USA on the basis of UL AWM (recognized) certification
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on EN 50525-3-11
- UL AWM approval: refer to data sheet

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free coumpound, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V
UL: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -25°C to +70°C
Fixed installation: -40°C to +80°C
UL: -25°C to +75°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV** | | | | |
| 1123410 | 2 X 1.0 | 8.6 | 19.2 | 107 |
| 1123411 | 3 G 1.0 | 9.0 | 28.8 | 123 |
| 1123412 | 4 G 1.0 | 9.6 | 38.4 | 144 |
| 1123413 | 5 G 1.0 | 10.4 | 48 | 167 |
| 1123414 | 7 G 1.0 | 11.1 | 67.2 | 206 |
| 1123415 | 12 G 1.0 | 14.0 | 115.2 | 314 |
| 1123418 | 2 X 1.5 | 9.6 | 28.8 | 137 |
| 1123419 | 3 G 1.5 | 10.1 | 43.2 | 161 |
| 1123420 | 4 G 1.5 | 10.8 | 57.6 | 190 |
| 1123421 | 5 G 1.5 | 11.7 | 72 | 221 |
| 1123422 | 7 G 1.5 | 12.6 | 100.8 | 276 |
| 1123423 | 12 G 1.5 | 16.1 | 172.8 | 427 |
| 1123424 | 18 G 1.5 | 18.8 | 259.2 | 596 |
| 1123425 | 25 G 1.5 | 21.7 | 360 | 799 |
| 1123427 | 3 G 2.5 | 11.3 | 72 | 219 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123428 | 4 G 2.5 | 12.2 | 96 | 262 |
| 1123429 | 5 G 2.5 | 13.3 | 120 | 307 |
| 1123430 | 7 G 2.5 | 14.4 | 168 | 390 |
| 1123431 | 12 G 2.5 | 18.7 | 288 | 624 |
| 1123432 | 18 G 2.5 | 22.0 | 432 | 879 |
| 1123433 | 25 G 2.5 | 25.8 | 600 | 1212 |
| 1123434 | 3 G 4.0 | 12.6 | 115.2 | 290 |
| 1123435 | 4 G 4.0 | 13.7 | 153.6 | 351 |
| 1123436 | 5 G 4.0 | 14.9 | 192 | 416 |
| 1123438 | 4 G 6.0 | 15.1 | 230.4 | 463 |
| 1123439 | 5 G 6.0 | 16.8 | 288 | 559 |
| 1123440 | 4 G 10.0 | 18.7 | 384 | 662 |
| 1123441 | 5 G 10.0 | 20.7 | 480 | 915 |
| 1123443 | 5 G 16.0 | 23.6 | 768 | 1296 |
| 1123444 | 4 G 25.0 | 26.2 | 960 | 1631 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV

0.6/1kVAC, Halogen-free, Flexible, IEC 60332-3, IEC 61034-2, UV/ ozone resistance, UL AWM 1000V

**Info**

- CPR: Article number choice under www.lapp.com
- Public buildings
- EMC/Screened




## Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters

## Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- For outdoor applications
- According to NFPA 79, subchapter 12.9.2: Use for industrial machinery operated in the USA on the basis of UL AWM (recognized) certification
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

## Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- Based on EN 50525-3-11
- UL AWM approval: refer to data sheet

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath made of special halogen-free coumpound, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V
UL: 1000 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -25°C to +70°C
Fixed installation: -40°C to +80°C
UL: -25°C to +75°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV** | | | | |
| 1123460 | 2 X 1.0 | 9.4 | 39.5 | 120 |
| 1123461 | 3 G 1.0 | 9.8 | 51 | 140 |
| 1123462 | 4 G 1.0 | 10.4 | 62.8 | 165 |
| 1123463 | 5 G 1.0 | 11.2 | 76 | 191 |
| 1123464 | 7 G 1.0 | 11.9 | 97.2 | 231 |
| 1123465 | 12 G 1.0 | 15.0 | 169.1 | 360 |
| 1123466 | 18 G 1.0 | 17.3 | 238.2 | 494 |
| 1123467 | 25 G 1.0 | 19.8 | 315.5 | 643 |
| 1123468 | 2 X 1.5 | 10.4 | 53.2 | 149 |
| 1123469 | 3 G 1.5 | 10.9 | 69.5 | 177 |
| 1123470 | 4 G 1.5 | 11.6 | 86.5 | 209 |
| 1123471 | 5 G 1.5 | 12.5 | 104.3 | 243 |
| 1123472 | 7 G 1.5 | 13.4 | 136.5 | 300 |
| 1123473 | 12 G 1.5 | 17.3 | 238.3 | 486 |
| 1123474 | 18 G 1.5 | 20.2 | 355.4 | 691 |
| 1123475 | 25 G 1.5 | 23.1 | 475.1 | 914 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1123476 | 2 X 2.5 | 11.6 | 79.4 | 197 |
| 1123477 | 3 G 2.5 | 12.1 | 106.1 | 243 |
| 1123478 | 4 G 2.5 | 13.0 | 134.3 | 293 |
| 1123479 | 5 G 2.5 | 14.1 | 158.3 | 342 |
| 1123480 | 7 G 2.5 | 15.4 | 225 | 462 |
| 1123481 | 12 G 2.5 | 20.1 | 383.6 | 718 |
| 1123482 | 18 G 2.5 | 23.4 | 548.9 | 1011 |
| 1123483 | 25 G 2.5 | 27.4 | 761.7 | 1370 |
| 1123485 | 4 G 4.0 | 14.7 | 211.9 | 399 |
| 1123486 | 5 G 4.0 | 15.9 | 250.3 | 471 |
| 1123487 | 3 G 6.0 | 14.9 | 232.1 | 414 |
| 1123488 | 4 G 6.0 | 16.1 | 298.5 | 519 |
| 1123489 | 5 G 6.0 | 17.8 | 356.1 | 607 |
| 1123490 | 4 G 10.0 | 20.1 | 490.6 | 837 |
| 1123492 | 4 G 16.0 | 22.5 | 735.1 | 1157 |
| 1123493 | 5 G 16.0 | 25.0 | 888.7 | 1407 |
| 1123494 | 4 G 25.0 | 27.8 | 1126.6 | 1683 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Harsh conditions









# ÖLFLEX® PETRO C HFFR 0,6/1 kV

Chemically and mechanically robust cable for harsh environmental conditions - UL/cUL certified

**Info**

- Resistant to oil and drilling fluids according to NEK TS 606:2016 (Oil & Mud)
- Highly flame retardant
- UL/cUL certified for North America




## Benefits

- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference
- Can be used in many applications from different industries due to its mechanical, thermal and chemical properties

## Application range

- Onshore and offshore applications
- For electrical connection of drilling units, pumping stations, compressors or generators in harsh environmental conditions
- Particularly in wet areas of machine tools and transfer lines
- Chemical and petrochemical industry
- For indoor and outdoor use

## Product features

- Resistant to oil and drilling fluids according to NEK TS 606:2016 and IEC 61892-4
- Fire behaviour:
  - Halogen-free according to VDE 0472-815
  - Flame-retardant according to IEC 60332-1-2
  - No flame propagation according to IEC 60332-3-22 cat. A
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- Salt water-resistant according to UL 1309

## Norm references / Approvals

- Single-core versions:
  USA: UL AWM Style 11624
  Canada: cUL AWM II A/B
- Multi-core versions:
  USA: UL AWM Style 20234
  Canada: cUL AWM II A/B

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: polyolefin compound
- Cores twisted in layers
- Inner sheath: halogen-free compound
- Tinned copper screen braiding
- Outer sheath made of robust special polymer, colour black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Fire test**
Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1
No flame-propagation according to IEC 60332-3-22 category A

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
IEC U0/U: 600/1000 V
UL/CSA: 1000 V

**Test voltage**
4000 V

**Temperature range**
Occasional flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® PETRO C HFFR black - single core** | | | | |
| 0023249 | 1 X 70.0 | 19.3 | 737 | 948 |
| 0023250 | 1 X 95.0 | 21.6 | 1002 | 1155 |
| 0023251 | 1 X 120.0 | 24.5 | 1254 | 1463 |
| 0023248 | 1 X 150.0 | 26.1 | 1553 | 1767 |
| 0023233 | 1 X 185.0 | 28.4 | 1912 | 2349 |
| 0023234 | 1 X 240.0 | 32.6 | 2475 | 2869 |
| 0023279 | 1 X 300.0 | 34.7 | 3075 | 3817 |
| **ÖLFLEX® PETRO C HFFR black - multi-core** | | | | |
| 0023252 | 2 X 1.5 | 11.5 | 57 | 183 |
| 0023253 | 3 G 1.5 | 12.0 | 72 | 212 |
| 0023254 | 4 G 1.5 | 12.8 | 90 | 249 |
| 0023255 | 5 G 1.5 | 14.0 | 115 | 307 |
| 0023256 | 7 G 1.5 | 15.9 | 151 | 401 |
| 0023239 | 12 G 1.5 | 18.8 | 238 | 573 |
| 0023257 | 18 G 1.5 | 22.3 | 350 | 846 |
| 0023240 | 25 G 1.5 | 26.6 | 490 | 1183 |
| 0023278 | 3 G 2.5 | 13.5 | 105 | 276 |
| 0023242 | 4 G 2.5 | 14.6 | 147 | 347 |
| 0023244 | 5 G 2.5 | 15.7 | 171 | 401 |
| 0023245 | 7 G 2.5 | 18.3 | 233 | 547 |
| 0023258 | 12 G 2.5 | 22.3 | 378 | 840 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0023260 | 4 G 4.0 | 16.2 | 212 | 457 |
| 0023266 | 5 G 4.0 | 17.6 | 250 | 540 |
| 0023261 | 4 G 6.0 | 17.7 | 288 | 558 |
| 0023268 | 5 G 6.0 | 19.9 | 367 | 710 |
| 0023280 | 4 G 10.0 | 22.3 | 474 | 882 |
| 0023272 | 5 G 10.0 | 24.3 | 582 | 1069 |
| 0023281 | 4 G 16.0 | 24.9 | 716 | 1208 |
| 0023269 | 5 G 16.0 | 27.6 | 881 | 1483 |
| 0023267 | 4 G 25.0 | 30.2 | 1096 | 1785 |
| 0023270 | 5 G 25.0 | 33.4 | 1371 | 2206 |
| 0023262 | 4 G 35.0 | 33.6 | 1515 | 2314 |
| 0023282 | 5 G 35.0 | 37.1 | 1875 | 2847 |
| 0023246 | 4 G 50.0 | 39.3 | 2140 | 3264 |
| 0023271 | 5 G 50.0 | 43.4 | 2620 | 4002 |
| **ÖLFLEX® PETRO C HFFR blue - multi-core** | | | | |
| 0023263 | 2 X 1.5 | 11.5 | 57 | 183 |
| 0023283 | 3 G 1.5 | 12.0 | 72 | 212 |
| 0023237 | 4 G 1.5 | 12.8 | 90 | 249 |
| 0023284 | 5 G 1.5 | 14.0 | 115 | 307 |
| 0023238 | 7 G 1.5 | 15.9 | 151 | 401 |
| 0023264 | 12 G 1.5 | 18.8 | 238 | 573 |
| 0023265 | 25 G 1.5 | 26.6 | 490 | 1183 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBUST 200

Proven all-weather connection cable - resistant against a variety of chemical media




**Info**

- Good weather resistance
- Good chemical resistance
- Voltage class 450/750 V

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40 °C
- Low-capacitance design
- Colour-coded up to 5 cores

## Norm references / Approvals

- Based on EN 50525-2-51
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40 °C to +80 °C
Fixed installation: -50 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBUST 200** | | | | |
| 0021800 | 2 X 1.0 | 8.0 | 19.2 | 65 |
| 0021801 | 3 G 1.0 | 8.4 | 29 | 79 |
| 0021802 | 4 G 1.0 | 9.2 | 38.4 | 96 |
| 0021803 | 5 G 1.0 | 10.0 | 48 | 113 |
| 0021805 | 2 X 1.5 | 8.6 | 29 | 78 |
| 0021806 | 3 G 1.5 | 9.1 | 43 | 97 |
| 0021807 | 4 G 1.5 | 9.9 | 58 | 122 |
| 0021808 | 5 G 1.5 | 10.8 | 72 | 146 |
| 0021809 | 7 G 1.5 | 13.5 | 101 | 208 |
| 0021810 | 2 X 2.5 | 9.8 | 48 | 114 |
| 0021811 | 3 G 2.5 | 10.4 | 72 | 144 |
| 0021812 | 4 G 2.5 | 11.5 | 96 | 181 |
| 0021813 | 5 G 2.5 | 13.1 | 120 | 222 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0021814 | 7 G 2.5 | 15.9 | 168 | 312 |
| 0021816 | 3 G 4.0 | 12.4 | 115.2 | 215 |
| 0021817 | 4 G 4.0 | 14.0 | 154 | 273 |
| 0021818 | 5 G 4.0 | 15.8 | 192 | 333 |
| 0021822 | 4 G 6.0 | 15.7 | 230 | 378 |
| 0021823 | 5 G 6.0 | 17.2 | 288 | 463 |
| 0021825 | 4 G 10.0 | 19.4 | 384 | 570 |
| 0021826 | 5 G 10.0 | 21.4 | 480 | 770 |
| 0021828 | 4 G 16.0 | 22.4 | 614 | 885 |
| 0021829 | 5 G 16.0 | 24.6 | 768 | 1100 |
| 0021831 | 4 G 25.0 | 27.0 | 960 | 1365 |
| 0021833 | 4 G 35.0 | 29.7 | 1344 | 1773 |
| 0021836 | 4 G 50.0 | 36.2 | 1920 | 3454 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBUST 210

Proven all-weather control cable resistant to a wide range of chemical media

**Info**

- Good weather resistance
- Good chemical resistance
- Reduced outer diameter




## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40°C
- Low-capacitance design
- Number-coded cores

## Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBUST 210** | | | | |
| 0021880 | 2 X 0.5 | 4.9 | 10 | 27 |
| 0021881 | 3 G 0.5 | 5.2 | 15 | 33 |
| 0021882 | 3 X 0.5 | 5.2 | 15 | 33 |
| 0021883 | 4 G 0.5 | 5.8 | 19.2 | 41 |
| 0021884 | 4 X 0.5 | 5.8 | 19.2 | 41 |
| 0021885 | 5 G 0.5 | 6.3 | 24 | 49 |
| 0021886 | 5 X 0.5 | 6.3 | 24 | 49 |
| 0021888 | 7 G 0.5 | 6.9 | 33.6 | 64 |
| 0021889 | 7 X 0.5 | 6.9 | 33.6 | 64 |
| 0021890 | 10 G 0.5 | 8.8 | 48 | 92 |
| 0021891 | 12 G 0.5 | 9.1 | 58 | 106 |
| 0021892 | 18 G 0.5 | 10.8 | 86.4 | 151 |
| 0021893 | 25 G 0.5 | 12.7 | 120 | 210 |
| 0021897 | 2 X 0.75 | 5.5 | 14.4 | 35 |
| 0021898 | 3 G 0.75 | 5.8 | 21.6 | 43 |
| 0021899 | 3 X 0.75 | 5.8 | 21.6 | 43 |
| 0021900 | 4 G 0.75 | 6.3 | 28.8 | 49 |
| 0021901 | 4 X 0.75 | 6.3 | 28.8 | 49 |
| 0021902 | 5 G 0.75 | 6.9 | 36 | 66 |
| 0021903 | 5 X 0.75 | 6.9 | 36 | 66 |
| 0021904 | 7 G 0.75 | 7.5 | 50 | 85 |
| 0021905 | 7 X 0.75 | 7.5 | 50 | 85 |
| 0021907 | 12 G 0.75 | 10.1 | 86 | 144 |
| 0021908 | 18 G 0.75 | 12.0 | 130 | 208 |
| 0021909 | 25 G 0.75 | 14.1 | 180 | 288 |
| 0021910 | 34 G 0.75 | 16.3 | 245 | 386 |
| 0021911 | 41 G 0.75 | 17.8 | 296 | 464 |
| 0021912 | 50 G 0.75 | 19.6 | 360 | 560 |
| 0021913 | 2 X 1.0 | 5.8 | 19.2 | 42 |
| 0021914 | 3 G 1.0 | 6.1 | 28.8 | 49 |
| 0021915 | 3 X 1.0 | 6.1 | 28.8 | 49 |
| 0021916 | 4 G 1.0 | 6.6 | 38.4 | 63 |
| 0021917 | 4 X 1.0 | 6.6 | 38.4 | 63 |
| 0021918 | 5 G 1.0 | 7.3 | 48 | 78 |
| 0021919 | 5 X 1.0 | 7.3 | 48 | 78 |
| 0021920 | 7 G 1.0 | 8.1 | 67 | 107 |
| 0021921 | 10 G 1.0 | 10.4 | 96 | 154 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0021922 | 12 G 1.0 | 10.7 | 115 | 178 |
| 0021923 | 18 G 1.0 | 12.9 | 173 | 262 |
| 0021924 | 25 G 1.0 | 15.0 | 240 | 357 |
| 0021925 | 34 G 1.0 | 17.5 | 326 | 484 |
| 0021926 | 41 G 1.0 | 19.2 | 394 | 582 |
| 0021927 | 50 G 1.0 | 21.0 | 480 | 703 |
| 0021928 | 2 X 1.5 | 6.4 | 29 | 56 |
| 0021929 | 3 G 1.5 | 6.8 | 43 | 72 |
| 0021930 | 3 X 1.5 | 6.8 | 43 | 72 |
| 0021931 | 4 G 1.5 | 7.4 | 58 | 91 |
| 0021932 | 4 X 1.5 | 7.4 | 58 | 91 |
| 0021933 | 5 G 1.5 | 8.3 | 72 | 108 |
| 0021934 | 5 X 1.5 | 8.3 | 72 | 108 |
| 0021936 | 7 G 1.5 | 9.0 | 101 | 149 |
| 0021937 | 7 X 1.5 | 9.0 | 101 | 149 |
| 0021938 | 10 G 1.5 | 11.8 | 143 | 215 |
| 0021940 | 12 G 1.5 | 12.2 | 173 | 234 |
| 0021941 | 18 G 1.5 | 14.6 | 259 | 369 |
| 0021942 | 25 G 1.5 | 17.2 | 360 | 510 |
| 0021943 | 34 G 1.5 | 19.8 | 490 | 683 |
| 0021945 | 50 G 1.5 | 24.0 | 720 | 999 |
| 0021946 | 2 X 2.5 | 7.6 | 48 | 86 |
| 0021947 | 3 G 2.5 | 8.3 | 72 | 115 |
| 0021949 | 4 G 2.5 | 9.0 | 96 | 131 |
| 0021951 | 5 G 2.5 | 10.1 | 120 | 178 |
| 0021953 | 7 G 2.5 | 11.2 | 168 | 241 |
| 0021954 | 12 G 2.5 | 15.1 | 288 | 405 |
| 0021963 | 3 G 4.0 | 10.1 | 115 | 180 |
| 0021964 | 4 G 4.0 | 11.1 | 157 | 228 |
| 0021965 | 5 G 4.0 | 12.4 | 192 | 280 |
| 0021966 | 7 G 4.0 | 13.6 | 269 | 377 |
| 0021967 | 4 G 6.0 | 13.3 | 230 | 332 |
| 0021968 | 5 G 6.0 | 14.8 | 288 | 407 |
| 0021969 | 4 G 10.0 | 16.5 | 384 | 541 |
| 0021970 | 5 G 10.0 | 18.4 | 480 | 620 |
| 0021971 | 4 G 16.0 | 18.8 | 614.4 | 806 |
| 0021972 | 4 G 25.0 | 23.5 | 960 | 1218 |
| 0021973 | 4 G 35.0 | 26.4 | 1344 | 1658 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBUST 215 C

Proven all-weather control cable - screened and resistant to a wide range of chemical media




## Info

- Good weather resistance
- Good chemical resistance
- EMC compliant copper screening

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40 °C
- Low-capacitance design
- Number-coded cores

## Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Halogen-free plastic foil wrapping
- Tinned copper screen braiding
- Outer sheath made of special TPE
- Sheath colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40 °C to +80 °C
Fixed installation: -50 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBUST 215 C** | | | | |
| 0022700 | 2 X 0.5 | 5.9 | 36 | 42 |
| 0022701 | 3 G 0.5 | 6.2 | 43 | 52 |
| 0022702 | 3 X 0.5 | 6.2 | 43 | 52 |
| 0022703 | 4 G 0.5 | 6.6 | 49 | 59 |
| 0022704 | 4 X 0.5 | 6.6 | 49 | 59 |
| 0022705 | 5 G 0.5 | 7.1 | 57 | 68 |
| 0022706 | 5 X 0.5 | 7.1 | 57 | 68 |
| 0022708 | 7 G 0.5 | 7.7 | 69 | 85 |
| 0022709 | 7 X 0.5 | 7.7 | 69 | 85 |
| 0022711 | 12 G 0.5 | 10.1 | 104 | 136 |
| 0022712 | 18 G 0.5 | 11.8 | 141 | 189 |
| 0022713 | 25 G 0.5 | 13.7 | 211 | 265 |
| 0022717 | 2 X 0.75 | 6.3 | 43 | 50 |
| 0022718 | 3 G 0.75 | 6.6 | 52 | 60 |
| 0022719 | 3 X 0.75 | 6.6 | 52 | 60 |
| 0022720 | 4 G 0.75 | 7.1 | 61 | 72 |
| 0022721 | 4 X 0.75 | 7.1 | 61 | 72 |
| 0022722 | 5 G 0.75 | 7.9 | 72 | 88 |
| 0022723 | 5 X 0.75 | 7.9 | 72 | 88 |
| 0022724 | 7 G 0.75 | 8.5 | 89 | 110 |
| 0022725 | 7 X 0.75 | 8.5 | 89 | 110 |
| 0022727 | 12 G 0.75 | 11.1 | 138 | 177 |
| 0022728 | 18 G 0.75 | 13.0 | 211 | 247 |
| 0022729 | 25 G 0.75 | 15.1 | 280 | 347 |
| 0022730 | 34 G 0.75 | 17.5 | 380 | 460 |
| 0022733 | 2 X 1.0 | 6.6 | 51 | 60 |
| 0022734 | 3 G 1.0 | 6.9 | 62 | 70 |
| 0022735 | 3 X 1.0 | 6.9 | 62 | 70 |
| 0022736 | 4 G 1.0 | 7.4 | 74 | 85 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0022737 | 4 X 1.0 | 7.4 | 74 | 85 |
| 0022738 | 5 G 1.0 | 8.3 | 88 | 103 |
| 0022739 | 5 X 1.0 | 8.3 | 88 | 103 |
| 0022740 | 7 G 1.0 | 8.9 | 112 | 131 |
| 0022742 | 12 G 1.0 | 11.7 | 185 | 213 |
| 0022743 | 18 G 1.0 | 14.1 | 268 | 321 |
| 0022744 | 25 G 1.0 | 16.2 | 354 | 425 |
| 0022748 | 2 X 1.5 | 7.2 | 65 | 71 |
| 0022749 | 3 G 1.5 | 7.6 | 82 | 90 |
| 0022750 | 3 X 1.5 | 7.6 | 82 | 90 |
| 0022751 | 4 G 1.5 | 8.4 | 100 | 114 |
| 0022752 | 4 X 1.5 | 8.4 | 100 | 114 |
| 0022753 | 5 G 1.5 | 9.1 | 119 | 136 |
| 0022754 | 5 X 1.5 | 9.1 | 119 | 136 |
| 0022756 | 7 G 1.5 | 10.0 | 154 | 177 |
| 0022757 | 7 X 1.5 | 10.0 | 154 | 177 |
| 0022760 | 12 G 1.5 | 13.4 | 268 | 290 |
| 0022761 | 18 G 1.5 | 15.8 | 373 | 435 |
| 0022762 | 25 G 1.5 | 18.2 | 530 | 579 |
| 0022763 | 34 G 1.5 | 21.2 | 683 | 797 |
| 0022767 | 3 G 2.5 | 9.1 | 118 | 134 |
| 0022768 | 4 G 2.5 | 10.0 | 147 | 169 |
| 0022769 | 5 G 2.5 | 11.1 | 176 | 207 |
| 0022770 | 7 G 2.5 | 12.0 | 253 | 270 |
| 0022774 | 4 G 4.0 | 11.9 | 190 | 258 |
| 0022776 | 4 G 6.0 | 14.5 | 290 | 392 |
| 0022777 | 4 G 10.0 | 17.5 | 458 | 602 |
| 0022778 | 4 G 16.0 | 20.2 | 736.6 | 928 |
| 0022771 | 4 G 25.0 | 25.1 | 1126.7 | 1411 |
| 0022780 | 4 G 35.0 | 28.0 | 1540 | 1883 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 400 P

Abrasion- and oil-resistant control cable with PUR sheath for increased application requirements

**Info**

- High mechanical strength
- Good oil resistance
- The classic for multi-functional use




## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Compatible with a multitude of acidic cleaning and disinfection solutions
- Also available as DESINA compliant power cable with black outer sheath colour

## Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Food production and packaging machinery
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- Based on VDE 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)
- DESINA: black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Flexible use: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 400 P - sheath colour: grey** | | | | |
| 1312802 | 2 X 0.5 | 4.8 | 10 | 32 |
| 1312003 | 3 G 0.5 | 5.1 | 15 | 43 |
| 1312803 | 3 X 0.5 | 5.1 | 15 | 43 |
| 1312004 | 4 G 0.5 | 5.7 | 19.2 | 50 |
| 1312804 | 4 X 0.5 | 5.7 | 19.2 | 50 |
| 1312005 | 5 G 0.5 | 6.2 | 24 | 59 |
| 1312805 | 5 X 0.5 | 6.2 | 24 | 59 |
| 1312007 | 7 G 0.5 | 6.7 | 34 | 73 |
| 1312807 | 7 X 0.5 | 6.7 | 34 | 73 |
| 1312010 | 10 G 0.5 | 8.6 | 48 | 109 |
| 1312012 | 12 G 0.5 | 8.9 | 57.6 | 125 |
| 1312018 | 18 G 0.5 | 10.5 | 87 | 180 |
| 1312025 | 25 G 0.5 | 12.4 | 120 | 250 |
| 1312034 | 34 G 0.5 | 14.3 | 164 | 333 |
| 1312041 | 41 G 0.5 | 15.7 | 197 | 400 |
| 1312852 | 2 X 0.75 | 5.4 | 14.4 | 41 |
| 1312103 | 3 G 0.75 | 5.7 | 21.6 | 51 |
| 1312853 | 3 X 0.75 | 5.7 | 21.6 | 51 |
| 1312104 | 4 G 0.75 | 6.2 | 28.8 | 62 |
| 1312854 | 4 X 0.75 | 6.2 | 28.8 | 62 |
| 1312105 | 5 G 0.75 | 6.7 | 36 | 74 |
| 1312855 | 5 X 0.75 | 6.7 | 36 | 74 |
| 1312107 | 7 G 0.75 | 7.3 | 50 | 97 |
| 1312857 | 7 X 0.75 | 7.3 | 50 | 97 |
| 1312110 | 10 G 0.75 | 9.6 | 72 | 142 |
| 1312112 | 12 G 0.75 | 9.9 | 86.4 | 163 |
| 1312118 | 18 G 0.75 | 11.7 | 129.6 | 234 |
| 1312125 | 25 G 0.75 | 13.8 | 180 | 324 |
| 1312134 | 34 G 0.75 | 15.9 | 244.8 | 431 |
| 1312141 | 41 G 0.75 | 17.4 | 295.2 | 529 |
| 1312902 | 2 X 1.0 | 5.7 | 19.2 | 48 |
| 1312203 | 3 G 1.0 | 6.0 | 28.8 | 61 |
| 1312903 | 3 X 1.0 | 6.0 | 28.8 | 61 |
| 1312204 | 4 G 1.0 | 6.5 | 38.4 | 74 |
| 1312904 | 4 X 1.0 | 6.5 | 38.4 | 74 |
| 1312205 | 5 G 1.0 | 7.1 | 48 | 89 |
| 1312905 | 5 X 1.0 | 7.1 | 48 | 89 |
| 1312207 | 7 G 1.0 | 8.0 | 67 | 116 |
| 1312210 | 10 G 1.0 | 10.2 | 96 | 171 |
| 1312212 | 12 G 1.0 | 10.5 | 115 | 197 |
| 1312218 | 18 G 1.0 | 12.7 | 173 | 289 |
| 1312225 | 25 G 1.0 | 14.7 | 240 | 412 |
| 1312234 | 34 G 1.0 | 17.1 | 326.4 | 532 |
| 1312241 | 41 G 1.0 | 18.8 | 393.6 | 638 |
| 1312952 | 2 X 1.5 | 6.3 | 29 | 63 |
| 1312303 | 3 G 1.5 | 6.7 | 43 | 79 |
| 1312953 | 3 X 1.5 | 6.7 | 43 | 79 |
| 1312304 | 4 G 1.5 | 7.2 | 58 | 98 |
| 1312954 | 4 X 1.5 | 7.2 | 58 | 98 |
| 1312305 | 5 G 1.5 | 8.1 | 72 | 121 |
| 1312955 | 5 X 1.5 | 8.1 | 72 | 121 |
| 1312307 | 7 G 1.5 | 8.9 | 101 | 159 |
| 1312957 | 7 X 1.5 | 8.9 | 101 | 159 |
| 1312312 | 12 G 1.5 | 12.0 | 173 | 268 |
| 1312318 | 18 G 1.5 | 13.4 | 259.5 | 392 |
| 1312325 | 25 G 1.5 | 16.9 | 360 | 531 |
| 1312334 | 34 G 1.5 | 19.4 | 489.6 | 722 |
| 1312341 | 41 G 1.5 | 21.3 | 590.4 | 867 |
| 1312403 | 3 G 2.5 | 8.1 | 72 | 132 |
| 1312404 | 4 G 2.5 | 8.9 | 96 | 163 |
| 1312405 | 5 G 2.5 | 10.0 | 120 | 186 |
| 1312407 | 7 G 2.5 | 11.1 | 168 | 267 |
| 1312412 | 12 G 2.5 | 14.8 | 288 | 445 |
| 1312504 | 4 G 4.0 | 10.8 | 154 | 237 |
| 1312505 | 5 G 4.0 | 12.1 | 192 | 291 |
| 1312507 | 7 G 4.0 | 13.4 | 269 | 391 |
| 1312604 | 4 G 6.0 | 13.0 | 230.4 | 327 |
| 1312605 | 5 G 6.0 | 14.5 | 288 | 424 |
| 1312607 | 7 G 6.0 | 16.0 | 403 | 580 |
| 1312614 | 4 G 10.0 | 16.2 | 384 | 567 |
| 1312615 | 5 G 10.0 | 18.1 | 480 | 695 |
| 1312617 | 7 G 10.0 | 20.0 | 672 | 937 |
| 1312624 | 4 G 16.0 | 18.8 | 614.4 | 1064 |
| **ÖLFLEX® CLASSIC 400 P DESINA - sheath colour: black** | | | | |
| 1312970 | 4 G 1.5 | 7.2 | 58 | 98 |
| 1312981 | 7 G 1.5 | 8.8 | 101 | 159 |
| 1312983 | 11 G 1.5 | 11.6 | 158 | 228 |
| 1312973 | 4 G 2.5 | 8.9 | 96 | 163 |
| 1312974 | 4 G 4.0 | 10.8 | 154 | 237 |
| 1312975 | 4 G 6.0 | 13.0 | 230.4 | 350 |
| 1312976 | 4 G 10.0 | 16.2 | 384 | 567 |
| 1312978 | 4 G 25.0 | 23.5 | 960 | 1582 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / DESINA - Decentralized and standardized installation technology for machine tools and manufacturing systems / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 400 CP

Screened, abrasion- and oil-resistant control cable with PUR sheath for increased application requirements




**Info**

- High mechanical strength
- Good oil resistance
- EMC compliant copper screening

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Compatible with a multitude of acidic cleaning and disinfection solutions
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Food production and packaging machinery
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for flexible outdoor use

## Product features

- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- Based on VDE 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 400 CP** | | | | |
| 1313852 | 2 X 0.75 | 7.4 | 45 | 85 |
| 1313103 | 3 G 0.75 | 7.9 | 52 | 99 |
| 1313853 | 3 X 0.75 | 7.9 | 52 | 99 |
| 1313104 | 4 G 0.75 | 8.4 | 77 | 114 |
| 1313854 | 4 X 0.75 | 8.4 | 77 | 114 |
| 1313105 | 5 G 0.75 | 8.9 | 84 | 130 |
| 1313855 | 5 X 0.75 | 8.9 | 84 | 130 |
| 1313107 | 7 G 0.75 | 9.7 | 92 | 161 |
| 1313857 | 7 X 0.75 | 9.7 | 92 | 161 |
| 1313112 | 12 G 0.75 | 12.3 | 138 | 245 |
| 1313118 | 18 G 0.75 | 14.5 | 219 | 354 |
| 1313125 | 25 G 0.75 | 16.6 | 277 | 463 |
| 1313134 | 34 G 0.75 | 18.9 | 420 | 598 |
| 1313141 | 41 G 0.75 | 20.6 | 500 | 725 |
| 1313902 | 2 X 1.0 | 7.9 | 50 | 97 |
| 1313203 | 3 G 1.0 | 8.2 | 77 | 111 |
| 1313903 | 3 X 1.0 | 8.2 | 77 | 111 |
| 1313204 | 4 G 1.0 | 8.7 | 87 | 129 |
| 1313904 | 4 X 1.0 | 8.7 | 87 | 129 |
| 1313205 | 5 G 1.0 | 9.5 | 90 | 152 |
| 1313207 | 7 G 1.0 | 10.2 | 110 | 184 |
| 1313212 | 12 G 1.0 | 13.3 | 194 | 306 |
| 1313218 | 18 G 1.0 | 15.5 | 267 | 417 |
| 1313225 | 25 G 1.0 | 17.5 | 379 | 541 |
| 1313234 | 34 G 1.0 | 20.3 | 516 | 735 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1313241 | 41 G 1.0 | 22.0 | 610 | 860 |
| 1313952 | 2 X 1.5 | 8.5 | 77 | 116 |
| 1313303 | 3 G 1.5 | 8.9 | 85 | 135 |
| 1313953 | 3 X 1.5 | 8.9 | 85 | 135 |
| 1313304 | 4 G 1.5 | 9.6 | 100 | 162 |
| 1313954 | 4 X 1.5 | 9.6 | 100 | 162 |
| 1313305 | 5 G 1.5 | 10.3 | 120 | 187 |
| 1313955 | 5 X 1.5 | 10.3 | 120 | 187 |
| 1313307 | 7 G 1.5 | 11.3 | 152 | 236 |
| 1313957 | 7 X 1.5 | 11.3 | 152 | 236 |
| 1313312 | 12 G 1.5 | 14.8 | 267 | 392 |
| 1313318 | 18 G 1.5 | 17.2 | 400 | 536 |
| 1313325 | 25 G 1.5 | 20.1 | 572 | 742 |
| 1313334 | 34 G 1.5 | 21.9 | 754 | 960 |
| 1313341 | 41 G 1.5 | 24.7 | 874 | 1118 |
| 1313403 | 3 G 2.5 | 10.3 | 121 | 191 |
| 1313404 | 4 G 2.5 | 11.3 | 163 | 232 |
| 1313405 | 5 G 2.5 | 12.6 | 199 | 282 |
| 1313407 | 7 G 2.5 | 13.9 | 261 | 370 |
| 1313412 | 12 G 2.5 | 17.2 | 470 | 580 |
| 1313504 | 4 G 4.0 | 13.4 | 238 | 345 |
| 1313505 | 5 G 4.0 | 14.7 | 279 | 412 |
| 1313604 | 4 G 6.0 | 15.8 | 318 | 483 |
| 1313605 | 5 G 6.0 | 17.3 | 370 | 576 |
| 1313614 | 4 G 10.0 | 19.0 | 558 | 733 |
| 1313624 | 4 G 16.0 | 22.2 | 804 | 1340 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC 415 CP

Screened, abrasion- and oil-resistante PUR control cable with reduced outer diameter




**Info**

- Thin and light, without inner sheath
- EMC compliant copper screening

## Benefits

- Space and weight-saving installations due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

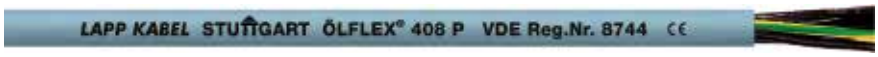
| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC 415 CP** | | | | |
| 1314000 | 2 X 0.5 | 5.8 | 36 | 45 |
| 1314001 | 3 G 0.5 | 6.1 | 43 | 59 |
| 1314002 | 3 X 0.5 | 6.1 | 43 | 59 |
| 1314003 | 4 G 0.5 | 6.5 | 49 | 83 |
| 1314004 | 4 X 0.5 | 6.5 | 49 | 83 |
| 1314005 | 5 G 0.5 | 7.0 | 57 | 96 |
| 1314006 | 5 X 0.5 | 7.0 | 57 | 96 |
| 1314007 | 7 G 0.5 | 7.5 | 69 | 136 |
| 1314008 | 7 X 0.5 | 7.5 | 69 | 136 |
| 1314010 | 12 G 0.5 | 9.9 | 104 | 200 |
| 1314011 | 12 X 0.5 | 9.9 | 104 | 200 |
| 1314012 | 18 G 0.5 | 11.5 | 141 | 275 |
| 1314013 | 18 X 0.5 | 11.5 | 141 | 275 |
| 1314014 | 25 G 0.5 | 13.4 | 211 | 350 |
| 1314015 | 25 X 0.5 | 13.4 | 211 | 350 |
| 1314017 | 2 X 0.75 | 6.2 | 43 | 56 |
| 1314018 | 3 G 0.75 | 6.5 | 52 | 70 |
| 1314019 | 3 X 0.75 | 6.5 | 52 | 70 |
| 1314020 | 4 G 0.75 | 7.0 | 61 | 95 |
| 1314021 | 4 X 0.75 | 7.0 | 61 | 95 |
| 1314022 | 5 G 0.75 | 7.7 | 72 | 130 |
| 1314023 | 5 X 0.75 | 7.7 | 72 | 130 |
| 1314024 | 7 G 0.75 | 8.3 | 89 | 168 |
| 1314025 | 7 X 0.75 | 8.3 | 89 | 168 |
| 1314026 | 12 G 0.75 | 10.9 | 138 | 232 |
| 1314027 | 18 G 0.75 | 12.7 | 211 | 315 |
| 1314028 | 25 G 0.75 | 14.8 | 280 | 435 |
| 1314029 | 25 X 0.75 | 14.8 | 280 | 435 |
| 1314032 | 2 X 1.0 | 6.5 | 51 | 84 |
| 1314033 | 3 G 1.0 | 6.8 | 62 | 110 |
| 1314034 | 3 X 1.0 | 6.8 | 62 | 110 |
| 1314035 | 4 G 1.0 | 7.3 | 74 | 130 |
| 1314036 | 4 X 1.0 | 7.3 | 74 | 130 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1314037 | 5 G 1.0 | 8.1 | 88 | 156 |
| 1314038 | 5 X 1.0 | 8.1 | 88 | 156 |
| 1314039 | 7 G 1.0 | 8.8 | 112 | 192 |
| 1314040 | 7 X 1.0 | 8.8 | 112 | 192 |
| 1314041 | 12 G 1.0 | 11.5 | 185 | 285 |
| 1314042 | 18 G 1.0 | 13.9 | 268 | 395 |
| 1314043 | 25 G 1.0 | 15.9 | 354 | 656 |
| 1314046 | 2 X 1.5 | 7.1 | 65 | 97 |
| 1314047 | 3 G 1.5 | 7.5 | 82 | 125 |
| 1314048 | 3 X 1.5 | 7.5 | 82 | 125 |
| 1314049 | 4 G 1.5 | 8.2 | 100 | 165 |
| 1314050 | 4 X 1.5 | 8.2 | 100 | 165 |
| 1314051 | 5 G 1.5 | 8.9 | 119 | 193 |
| 1314052 | 5 X 1.5 | 8.9 | 119 | 193 |
| 1314053 | 7 G 1.5 | 9.9 | 154 | 245 |
| 1314054 | 7 X 1.5 | 9.9 | 154 | 245 |
| 1314055 | 12 G 1.5 | 13.0 | 268 | 365 |
| 1314056 | 18 G 1.5 | 15.6 | 373 | 553 |
| 1314057 | 25 G 1.5 | 17.9 | 530 | 734 |
| 1314058 | 34 G 1.5 | 20.8 | 683 | 944 |
| 1314061 | 3 G 2.5 | 8.9 | 118 | 188 |
| 1314062 | 4 G 2.5 | 9.9 | 147 | 236 |
| 1314063 | 5 G 2.5 | 11.0 | 176 | 270 |
| 1314064 | 7 G 2.5 | 11.9 | 253 | 340 |
| 1314065 | 12 G 2.5 | 16.0 | 355 | 589 |
| 1314066 | 18 G 2.5 | 19.0 | 569 | 978 |
| 1314067 | 25 G 2.5 | 22.2 | 827 | 1358 |
| 1314068 | 4 G 4.0 | 11.6 | 248 | 305 |
| 1314070 | 7 G 4.0 | 14.4 | 355 | 500 |
| 1314071 | 4 G 6.0 | 14.2 | 343 | 440 |
| 1314073 | 7 G 6.0 | 17.0 | 505 | 672 |
| 1314074 | 4 G 10.0 | 17.2 | 535 | 710 |
| 1314075 | 4 G 16.0 | 20.2 | 800 | 1050 |
| 1314076 | 4 G 25.0 | 25.1 | 1075 | 1570 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 408 P

Abrasion- and oil-resistant control cable with PUR sheath for increased application requirements - VDE certified




**Info**

- Oil resistant and abrasion-proof
- Proved and certified quality
- Easy jacket stripping thanks to interstice-filling functional layer

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Interstice-filling functional layer ensures more saftey and efficiency during industrial and manual jacket stripping
- VDE-tested characteristics
- Good combination of quality and price

## Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- VDE Reg.No. 8744

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special outer sheath of polyurethane with interstice-filling functional layer
- Sheath colour: Grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Flexible use: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -15°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 408 P** | | | | |
| 1308802 | 2 X 0.5 | 4.8 | 9.6 | 32 |
| 1308003 | 3 G 0.5 | 5.1 | 14.4 | 39 |
| 1308803 | 3 X 0.5 | 5.1 | 14.4 | 39 |
| 1308004 | 4 G 0.5 | 5.7 | 19.2 | 49 |
| 1308804 | 4 X 0.5 | 5.7 | 19.2 | 49 |
| 1308005 | 5 G 0.5 | 6.2 | 24 | 59 |
| 1308805 | 5 X 0.5 | 6.2 | 24 | 59 |
| 1308007 | 7 G 0.5 | 6.7 | 33.6 | 73 |
| 1308807 | 7 X 0.5 | 6.7 | 33.6 | 73 |
| 1308010 | 10 G 0.5 | 8.6 | 48 | 116 |
| 1308012 | 12 G 0.5 | 8.9 | 57.6 | 129 |
| 1308018 | 18 G 0.5 | 10.5 | 86.4 | 184 |
| 1308025 | 25 G 0.5 | 12.4 | 120 | 256 |
| 1308852 | 2 X 0.75 | 5.4 | 14.4 | 42 |
| 1308103 | 3 G 0.75 | 5.7 | 21.6 | 51 |
| 1308853 | 3 X 0.75 | 5.7 | 21.6 | 51 |
| 1308104 | 4 G 0.75 | 6.2 | 28.8 | 62 |
| 1308854 | 4 X 0.75 | 6.2 | 28.8 | 62 |
| 1308105 | 5 G 0.75 | 6.7 | 36 | 75 |
| 1308855 | 5 X 0.75 | 6.7 | 36 | 75 |
| 1308107 | 7 G 0.75 | 7.3 | 50.4 | 95 |
| 1308857 | 7 X 0.75 | 7.3 | 50.4 | 95 |
| 1308110 | 10 G 0.75 | 9.6 | 72 | 153 |
| 1308112 | 12 G 0.75 | 9.9 | 86.4 | 170 |
| 1308118 | 18 G 0.75 | 11.7 | 129.6 | 245 |
| 1308125 | 25 G 0.75 | 13.8 | 180 | 340 |
| 1308902 | 2 X 1.0 | 5.7 | 19.2 | 49 |
| 1308203 | 3 G 1.0 | 6.0 | 28.8 | 60 |
| 1308903 | 3 X 1.0 | 6.0 | 28.8 | 60 |
| 1308204 | 4 G 1.0 | 6.5 | 38.4 | 74 |
| 1308904 | 4 X 1.0 | 6.5 | 38.4 | 74 |
| 1308205 | 5 G 1.0 | 7.1 | 48 | 90 |
| 1308905 | 5 X 1.0 | 7.1 | 48 | 90 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1308207 | 7 G 1.0 | 8.0 | 67.2 | 118 |
| 1308907 | 7 X 1.0 | 8.0 | 67.2 | 118 |
| 1308210 | 10 G 1.0 | 10.2 | 86 | 184 |
| 1308212 | 12 G 1.0 | 10.5 | 115.2 | 204 |
| 1308218 | 18 G 1.0 | 12.7 | 172.8 | 303 |
| 1308225 | 25 G 1.0 | 14.7 | 240 | 412 |
| 1308952 | 2 X 1.5 | 6.3 | 28.8 | 64 |
| 1308303 | 3 G 1.5 | 6.7 | 43.2 | 81 |
| 1308953 | 3 X 1.5 | 6.7 | 43.2 | 81 |
| 1308304 | 4 G 1.5 | 7.2 | 57.6 | 99 |
| 1308954 | 4 X 1.5 | 7.2 | 57.6 | 99 |
| 1308305 | 5 G 1.5 | 8.1 | 72 | 125 |
| 1308955 | 5 X 1.5 | 8.1 | 72 | 125 |
| 1308307 | 7 G 1.5 | 8.9 | 100.8 | 161 |
| 1308957 | 7 X 1.5 | 8.9 | 100.8 | 161 |
| 1308312 | 12 G 1.5 | 12.0 | 172.8 | 286 |
| 1308318 | 18 G 1.5 | 14.4 | 259.2 | 419 |
| 1308325 | 25 G 1.5 | 16.9 | 360 | 580 |
| 1308403 | 3 G 2.5 | 8.1 | 72 | 125 |
| 1308404 | 4 G 2.5 | 8.9 | 96 | 158 |
| 1308405 | 5 G 2.5 | 10.0 | 120 | 198 |
| 1308407 | 7 G 2.5 | 11.1 | 168 | 259 |
| 1308412 | 12 G 2.5 | 14.8 | 288 | 454 |
| 1308504 | 4 G 4.0 | 10.8 | 153.6 | 241 |
| 1308505 | 5 G 4.0 | 12.1 | 192 | 302 |
| 1308507 | 7 G 4.0 | 13.4 | 268.8 | 394 |
| 1308604 | 4 G 6.0 | 13.0 | 230.4 | 356 |
| 1308605 | 5 G 6.0 | 14.5 | 288 | 443 |
| 1308607 | 7 G 6.0 | 16.0 | 403.2 | 579 |
| 1308514 | 4 G 10.0 | 16.2 | 384 | 571 |
| 1308615 | 5 G 10.0 | 18.1 | 480 | 714 |
| 1308617 | 7 G 10.0 | 20.0 | 672 | 935 |
| 1308624 | 4 G 16.0 | 18.8 | 614.4 | 843 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 409 P

Abrasion- and oil-resistant PUR control cable for increased application requirements - certified for North America

**Info**

- Oil resistant and abrasion-proof
- UL/cUL certified for North America
- Easy jacket stripping thanks to interstice-filling functional layer




## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Interstice-filling functional layer ensures more saftey and efficiency during industrial and manual jacket stripping
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Good combination of quality and price

## Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- High oil-resistance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- UL File No. E63634
- UL AWM Style 20234
- CUL AWM I/II A/B FT1

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special outer sheath of polyurethane with interstice-filling functional layer
- Sheath colour: black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Flexible use: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL/CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 409 P** | | | | |
| 1311852 | 2 X 0.75 | 6.9 | 14.4 | 61 |
| 1311103 | 3 G 0.75 | 7.2 | 21.6 | 71 |
| 1311104 | 4 G 0.75 | 7.7 | 28.8 | 84 |
| 1311105 | 5 G 0.75 | 8.3 | 36 | 100 |
| 1311107 | 7 G 0.75 | 8.9 | 50.4 | 122 |
| 1311110 | 10 G 0.75 | 10.8 | 72 | 180 |
| 1311112 | 12 G 0.75 | 11.1 | 86.4 | 198 |
| 1311118 | 18 G 0.75 | 12.8 | 129.6 | 275 |
| 1311125 | 25 G 0.75 | 14.5 | 180 | 364 |
| 1311902 | 2 X 1.0 | 7.2 | 19.2 | 69 |
| 1311203 | 3 G 1.0 | 7.5 | 28.8 | 81 |
| 1311204 | 4 G 1.0 | 8.0 | 38.4 | 97 |
| 1311205 | 5 G 1.0 | 8.7 | 48 | 117 |
| 1311207 | 7 G 1.0 | 9.3 | 67.2 | 142 |
| 1311210 | 10 G 1.0 | 11.4 | 96 | 212 |
| 1311212 | 12 G 1.0 | 11.7 | 115.2 | 234 |
| 1311218 | 18 G 1.0 | 13.5 | 172.8 | 327 |
| 1311225 | 25 G 1.0 | 15.4 | 240 | 437 |
| 1311952 | 2 X 1.5 | 7.8 | 28.8 | 87 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1311303 | 3 G 1.5 | 8.2 | 43.2 | 104 |
| 1311304 | 4 G 1.5 | 8.8 | 57.6 | 126 |
| 1311305 | 5 G 1.5 | 9.5 | 72 | 151 |
| 1311307 | 7 G 1.5 | 10.2 | 100.8 | 188 |
| 1311312 | 12 G 1.5 | 13.0 | 172.8 | 314 |
| 1311318 | 18 G 1.5 | 15.0 | 259.2 | 441 |
| 1311325 | 25 G 1.5 | 17.2 | 360 | 596 |
| 1311403 | 3 G 2.5 | 9.5 | 72 | 151 |
| 1311404 | 4 G 2.5 | 10.2 | 96 | 184 |
| 1311405 | 5 G 2.5 | 11.1 | 120 | 224 |
| 1311407 | 7 G 2.5 | 12.0 | 168 | 282 |
| 1311412 | 12 G 2.5 | 15.5 | 288 | 480 |
| 1311504 | 4 G 4.0 | 11.8 | 153.6 | 266 |
| 1311505 | 5 G 4.0 | 12.9 | 192 | 325 |
| 1311604 | 4 G 6.0 | 13.1 | 230.4 | 359 |
| 1311605 | 5 G 6.0 | 14.3 | 288 | 438 |
| 1311704 | 4 G 10.0 | 16.5 | 384 | 585 |
| 1311705 | 5 G 10.0 | 18.2 | 480 | 722 |
| 1311804 | 4 G 16.0 | 19.1 | 614.4 | 861 |
| 1311805 | 5 G 16.0 | 22.1 | 768 | 1107 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 409 CP

Screened, abrasion- and oil-resistant PUR control cable for increased application requirements - certified




**Info**

- Oil resistant and abrasion-proof
- UL/cUL certified for North America
- EMC compliant copper screening

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- High oil-resistance
- Flame-retardant
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- UL AWM Style 20234
- CUL AWM I/II A/B
- UL File No. E63634

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
UL/CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 409 CP** | | | | |
| 1321852 | 2 X 0.75 | 7.0 | 29 | 75 |
| 1321103 | 3 G 0.75 | 7.3 | 37 | 89 |
| 1321104 | 4 G 0.75 | 7.8 | 44 | 104 |
| 1321105 | 5 G 0.75 | 8.4 | 53 | 120 |
| 1321107 | 7 G 0.75 | 9.0 | 67 | 146 |
| 1321110 | 10 G 0.75 | 10.9 | 94 | 196 |
| 1321112 | 12 G 0.75 | 11.2 | 107 | 219 |
| 1321118 | 18 G 0.75 | 12.9 | 152 | 298 |
| 1321125 | 25 G 0.75 | 14.8 | 200 | 387 |
| 1321902 | 2 X 1.0 | 7.3 | 34 | 84 |
| 1321203 | 3 G 1.0 | 7.6 | 43 | 99 |
| 1321204 | 4 G 1.0 | 8.1 | 53 | 116 |
| 1321205 | 5 G 1.0 | 8.8 | 64 | 137 |
| 1321207 | 7 G 1.0 | 9.4 | 83 | 167 |
| 1321210 | 10 G 1.0 | 11.5 | 116 | 228 |
| 1321212 | 12 G 1.0 | 11.8 | 133 | 255 |
| 1321218 | 18 G 1.0 | 13.8 | 191 | 355 |
| 1321225 | 25 G 1.0 | 15.7 | 272 | 474 |
| 1321952 | 2 X 1.5 | 7.9 | 43 | 99 |
| 1321303 | 3 G 1.5 | 8.3 | 57 | 119 |
| 1321304 | 4 G 1.5 | 8.9 | 71 | 143 |
| 1321305 | 5 G 1.5 | 9.6 | 85 | 167 |
| 1321307 | 7 G 1.5 | 10.3 | 112 | 207 |
| 1321312 | 12 G 1.5 | 13.3 | 182 | 326 |
| 1321318 | 18 G 1.5 | 15.3 | 277 | 464 |
| 1321325 | 25 G 1.5 | 17.5 | 375 | 609 |
| 1321403 | 3 G 2.5 | 9.6 | 86 | 166 |
| 1321404 | 4 G 2.5 | 10.3 | 110 | 203 |
| 1321405 | 5 G 2.5 | 11.2 | 134 | 243 |
| 1321407 | 7 G 2.5 | 12.1 | 178 | 305 |
| 1321412 | 12 G 2.5 | 15.8 | 311 | 503 |
| 1321504 | 4 G 4.0 | 11.9 | 163 | 276 |
| 1321505 | 5 G 4.0 | 13.2 | 199 | 340 |
| 1321604 | 4 G 6.0 | 13.4 | 232 | 368 |
| 1321605 | 5 G 6.0 | 14.7 | 284 | 450 |
| 1321704 | 4 G 10.0 | 16.8 | 397 | 644 |
| 1321705 | 5 G 10.0 | 18.7 | 486 | 785 |
| 1321804 | 4 G 16.0 | 19.6 | 639 | 931 |
| 1321805 | 5 G 16.0 | 22.4 | 786 | 1142 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 440 P

Abrasion- and oil-resistant all-weather control cable with TPE core insulation and PUR sheath - VDE certified

**Info**

- The robust multi-purpose control cable
- Halogen-free and flame-retardant
- VDE-tested and registered




## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- VDE-tested characteristics

## Application range

- Industrial machinery and machine tools
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes
- Flexible down to -40°C

## Norm references / Approvals

- VDE reg. no. 6582
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 440 P** | | | | |
| 0012800 | 2 X 0.5 | 5.8 | 10 | 39 |
| 0012801 | 3 G 0.5 | 6.1 | 14 | 46 |
| 0012802 | 4 G 0.5 | 6.6 | 19 | 53 |
| 0012803 | 5 G 0.5 | 7.3 | 24 | 65 |
| 0012804 | 7 G 0.5 | 8.8 | 34 | 92 |
| 0012805 | 12 G 0.5 | 10.9 | 58 | 149 |
| 0012806 | 18 G 0.5 | 12.9 | 86 | 207 |
| 0012807 | 25 G 0.5 | 15.7 | 120 | 274 |
| 0012813 | 2 X 0.75 | 6.2 | 14 | 48 |
| 0012814 | 3 G 0.75 | 6.5 | 22 | 53 |
| 0012815 | 4 G 0.75 | 7.1 | 29 | 67 |
| 0012816 | 5 G 0.75 | 8.0 | 36 | 81 |
| 0012817 | 7 G 0.75 | 9.7 | 50 | 119 |
| 0012818 | 12 G 0.75 | 11.7 | 86 | 193 |
| 0012819 | 18 G 0.75 | 14.1 | 130 | 269 |
| 0012820 | 25 G 0.75 | 17.1 | 180 | 378 |
| 0012825 | 2 X 1.0 | 6.5 | 19 | 57 |
| 0012826 | 3 G 1.0 | 6.9 | 29 | 61 |
| 0012827 | 4 G 1.0 | 7.7 | 38 | 82 |
| 0012828 | 5 G 1.0 | 8.4 | 48 | 107 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0012829 | 7 G 1.0 | 10.2 | 67 | 138 |
| 0012830 | 12 G 1.0 | 12.6 | 115 | 215 |
| 0012831 | 18 G 1.0 | 14.9 | 173 | 328 |
| 0012832 | 25 G 1.0 | 18.1 | 240 | 479 |
| 0012833 | 34 G 1.0 | 20.6 | 326 | 616 |
| 0012834 | 41 G 1.0 | 22.4 | 394 | 727 |
| 0012837 | 2 X 1.5 | 7.1 | 29 | 73 |
| 0012838 | 3 G 1.5 | 7.5 | 43 | 96 |
| 0012839 | 4 G 1.5 | 8.4 | 58 | 105 |
| 0012840 | 5 G 1.5 | 9.4 | 72 | 133 |
| 0012841 | 7 G 1.5 | 11.4 | 101 | 175 |
| 0012842 | 12 G 1.5 | 14.0 | 173 | 309 |
| 0012843 | 18 G 1.5 | 16.6 | 259 | 458 |
| 0012844 | 25 G 1.5 | 20.1 | 360 | 635 |
| 0012846 | 41 G 1.5 | 25.1 | 590 | 1003 |
| 0012850 | 3 G 2.5 | 9.2 | 72 | 142 |
| 0012851 | 4 G 2.5 | 10.0 | 96 | 184 |
| 0012852 | 5 G 2.5 | 11.2 | 120 | 220 |
| 0012853 | 7 G 2.5 | 13.8 | 168 | 294 |
| 0012854 | 12 G 2.5 | 16.9 | 288 | 489 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 440 CP

Screened, abrasion- and oil-resistant all-weather control cable with TPE insulation and PUR sheath - VDE certified




**Info**

- The robust multi-purpose control cable
- Halogen-free and flame-retardant
- VDE-tested and registered

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Industrial machinery and machine tools
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- EMC-compliant
- Flexible at low temperatures

## Norm references / Approvals

- VDE reg. no. 6582
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Inner sheath made of TPE
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x cable diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 440 CP** | | | | |
| 0012901 | 3 G 0.5 | 8.3 | 44 | 100 |
| 0012902 | 4 G 0.5 | 8.8 | 52 | 120 |
| 0012903 | 5 G 0.5 | 9.7 | 61 | 139 |
| 0012904 | 7 G 0.5 | 11.2 | 75 | 175 |
| 0012906 | 12 G 0.5 | 13.7 | 131 | 276 |
| 0012907 | 18 G 0.5 | 15.7 | 168 | 376 |
| 0012908 | 25 G 0.5 | 18.5 | 212 | 485 |
| 0012911 | 2 X 0.75 | 8.4 | 45 | 104 |
| 0012912 | 3 G 0.75 | 8.7 | 52 | 119 |
| 0012913 | 4 G 0.75 | 9.5 | 67 | 126 |
| 0012914 | 5 G 0.75 | 10.2 | 75 | 165 |
| 0012915 | 7 G 0.75 | 11.9 | 96 | 210 |
| 0012917 | 12 G 0.75 | 14.5 | 160 | 331 |
| 0012919 | 25 G 0.75 | 20.3 | 283 | 596 |
| 0012925 | 2 X 1.0 | 8.7 | 49 | 117 |
| 0012926 | 3 G 1.0 | 9.3 | 60 | 132 |
| 0012927 | 4 G 1.0 | 9.9 | 78 | 163 |
| 0012928 | 5 G 1.0 | 10.8 | 88 | 187 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0012929 | 7 G 1.0 | 12.8 | 115 | 255 |
| 0012931 | 12 G 1.0 | 15.4 | 201 | 419 |
| 0012932 | 18 G 1.0 | 17.7 | 267 | 546 |
| 0012933 | 25 G 1.0 | 21.5 | 351 | 738 |
| 0012934 | 34 G 1.0 | 23.8 | 498 | 972 |
| 0012940 | 2 X 1.5 | 9.5 | 68 | 122 |
| 0012941 | 3 G 1.5 | 9.9 | 83 | 140 |
| 0012942 | 4 G 1.5 | 10.8 | 102 | 170 |
| 0012943 | 5 G 1.5 | 11.6 | 119 | 200 |
| 0012944 | 7 G 1.5 | 14.2 | 186 | 290 |
| 0012945 | 12 G 1.5 | 16.8 | 264 | 423 |
| 0012946 | 18 G 1.5 | 20.0 | 379 | 616 |
| 0012947 | 25 G 1.5 | 23.5 | 534 | 804 |
| 0012949 | 41 G 1.5 | 28.9 | 803 | 1360 |
| 0012950 | 3 G 2.5 | 11.4 | 121 | 194 |
| 0012951 | 4 G 2.5 | 12.6 | 145 | 307 |
| 0012952 | 5 G 2.5 | 14.0 | 205 | 413 |
| 0012953 | 7 G 2.5 | 16.4 | 259 | 533 |
| 0012954 | 12 G 2.5 | 20.1 | 407 | 795 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 450 P

Abrasion- and oil-resistant cable for handheld equipment with wear indicator

**Info**

- Cost-effective PVC/PUR dual sheath
- Integrated wear indicator




## Benefits

- Good cost-benefit ratio
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- The signal colour of the outer sheath increases safety and visual perception
- Serious mechanical damages of the yellow outer jacket become visible due to the red inner sheath

## Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Power or extension cord
- Portable devices for the home and garden
- Under consideration of the temperature range also suitable for outdoor use

## Product features

- Good oil resistance
- Abrasion and notch-resistant
- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- Based on VDE 0250 / 0285

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: Based on PVC
- Cores twisted together
- Inner sheath: PVC - colour red
- Outer sheath: PUR colour yellow

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 450 P** | | | | |
| 0012101 | 2 X 1.0 | 8.0 | 19.2 | 82 |
| 0012102 | 3 G 1.0 | 8.4 | 29 | 89 |
| 0012202 | 3 G 1.5 | 9.3 | 43 | 120 |
| 00122033 | 4 G 1.5 | 10.1 | 58 | 160 |
| 00122043 | 5 G 1.5 | 10.9 | 72 | 179 |
| 0012302 | 3 G 2.5 | 10.8 | 72 | 186 |
| 00123043 | 5 G 2.5 | 13.6 | 120 | 283 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 500 P

Flexible, abrasion-, oil- and cold-resistant workshop cable with PUR outer sheath




**Info**

- High mechanical strength
- Good oil resistance
- Extra flexible conductor design

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- High flexibility simplifies installation when space is at a premium and use with electrical handheld devices
- The signal colour of the outer sheath increases safety and visual perception

## Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Portable devices for the home and garden
- Connection and extension cables

## Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Flexible down to -40 °C
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- Based on VDE 0285
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: TPE compound
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40 °C to +80 °C
Fixed installation: -50 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 500 P** | | | | |
| 0012345 | 2 X 1.0 | 6.8 | 19.5 | 64 |
| 0012346 | 3 G 1.0 | 7.2 | 29 | 77 |
| 00123473 | 4 G 1.0 | 8.1 | 38.4 | 96 |
| 00123483 | 5 G 1.0 | 8.9 | 48 | 120 |
| 0012351 | 2 X 1.5 | 7.6 | 29 | 81 |
| 0012352 | 3 G 1.5 | 8.3 | 43 | 105.3 |
| 00123543 | 4 G 1.5 | 9.3 | 58 | 135 |
| 00123533 | 5 G 1.5 | 10.4 | 72 | 158.9 |
| 0012365 | 3 G 2.5 | 10.4 | 72 | 173.2 |
| 00123553 | 4 G 2.5 | 11.4 | 96 | 204 |
| 00123663 | 5 G 2.5 | 12.8 | 120 | 254 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 540 P

Cold-flexible, abrasion- and oil-resistant TPE/PUR connection cable for harsh conditions - VDE-registered

**Info**

- The proven building site cable
- Voltage class from 1.5 mm² 450/750 V
- VDE-tested and registered




## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception
- VDE-tested characteristics

## Application range

- Connection and extension cables
- Construction machinery
- Building sites, camp sites, stage applications
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Flexible down to -40°C
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- VDE reg. no. 6583 up to 1.0 mm²
- VDE reg. no. 6584 from 1.5 mm²
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted together
- Outer sheath: PUR colour yellow
- DESIGN: Other sheath colours on request
- PRINT: Other sheath marking on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
(7-cored version number-coded)

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 540 P U0/U: 300/500 V** | | | | |
| 0012452 | 2 X 0.75 | 6.2 | 14.4 | 52 |
| 0012453 | 3 G 0.75 | 6.7 | 21.6 | 63 |
| 00124543 | 4 G 0.75 | 7.3 | 28.8 | 80 |
| 00124553 | 5 G 0.75 | 8.2 | 36 | 98 |
| 0012456 | 7 G 0.75 | 9.9 | 51 | 126 |
| 0012457 | 2 X 1.0 | 6.7 | 19.2 | 53 |
| 0012458 | 3 G 1.0 | 7.1 | 29 | 72 |
| 00124593 | 4 G 1.0 | 7.7 | 38.4 | 96 |
| 00124603 | 5 G 1.0 | 8.6 | 48 | 117 |
| 0012461 | 7 G 1.0 | 10.4 | 68 | 147 |
| **ÖLFLEX® 540 P U0/U: 450/750 V** | | | | |
| 0012462 | 2 X 1.5 | 8.3 | 29 | 82 |
| 0012463 | 3 G 1.5 | 8.8 | 43 | 108 |
| 00124643 | 4 G 1.5 | 9.8 | 58 | 147 |
| 00124653 | 5 G 1.5 | 10.7 | 72 | 164 |
| 0012466 | 7 G 1.5 | 13.4 | 101 | 267 |
| 0012467 | 2 X 2.5 | 9.7 | 48 | 142 |
| 0012468 | 3 G 2.5 | 10.3 | 72 | 161 |
| 00124693 | 4 G 2.5 | 11.4 | 96 | 220 |
| 00124703 | 5 G 2.5 | 12.7 | 120 | 245 |
| 0012471 | 7 G 2.5 | 15.8 | 168 | 321 |
| 0012474 | 3 G 4.0 | 12.3 | 115.2 | 262 |
| 00124753 | 4 G 4.0 | 13.6 | 154 | 284 |
| 00124763 | 5 G 4.0 | 15.2 | 192 | 355 |
| 00124783 | 4 G 6.0 | 15.4 | 230 | 440 |
| 00124793 | 5 G 6.0 | 17.1 | 288 | 530 |
| 00124813 | 4 G 10.0 | 20.1 | 384 | 615 |
| 00124823 | 5 G 10.0 | 22.3 | 480 | 735 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® 540 CP

Screened, cold-flexible, abrasion- and oil-resistant PUR connection cable for harsh conditions - VDE-registered




**Info**

- The proven building site cable
- Voltage class from 1.5 mm² 450/750 V
- VDE-tested and registered

## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception
- VDE-tested characteristics

## Application range

- Connection and extension cables
- Construction machinery
- Building sites, camp sites, stage applications
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Flexible down to -40 °C
- EMC-compliant

## Norm references / Approvals

- VDE reg. no. 6583 up to 1.0 mm²
- VDE reg. no. 6584 from 1.5 mm²
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted together
- Inner sheath made of TPE
- Tinned copper screen braiding
- Outer sheath: PUR colour yellow

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
(7-cored version number-coded)

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing:
12.5 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40 °C to +90 °C
Fixed installation: -50 °C to +90 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® 540 CP U0/U: 300/500 V** | | | | |
| 0012752 | 2 X 0.75 | 8.2 | 43.9 | 103 |
| 0012753 | 3 G 0.75 | 8.5 | 67.6 | 140 |
| 00127553 | 5 G 0.75 | 10.2 | 75 | 164 |
| 0012757 | 2 X 1.0 | 8.5 | 65.2 | 138 |
| 0012758 | 3 G 1.0 | 9.3 | 74.9 | 153 |
| 00127603 | 5 G 1.0 | 10.8 | 87.2 | 184 |
| 0012761 | 7 G 1.0 | 12.6 | 138.5 | 281 |
| **ÖLFLEX® 540 CP U0/U: 450/750 V** | | | | |
| 0012762 | 2 X 1.5 | 10.5 | 67.7 | 159 |
| 0012763 | 3 G 1.5 | 11.0 | 82.3 | 181 |
| 00127643 | 4 G 1.5 | 12.0 | 101.8 | 218 |
| 00127653 | 5 G 1.5 | 13.7 | 143.3 | 287 |
| 0012766 | 7 G 1.5 | 16.6 | 195.7 | 394 |
| 0012767 | 2 X 2.5 | 11.9 | 92.4 | 213 |
| 0012768 | 3 G 2.5 | 12.5 | 119 | 263 |
| 00127693 | 4 G 2.5 | 14.2 | 168.2 | 334 |
| 00127703 | 5 G 2.5 | 15.7 | 204.7 | 416 |
| 00127753 | 4 G 4.0 | 17.0 | 240.1 | 476 |
| 00127783 | 4 G 6.0 | 18.4 | 355.5 | 634 |
| 00127793 | 5 G 6.0 | 20.5 | 452.9 | 770 |
| 00127813 | 4 G 10.0 | 22.3 | 577.8 | 993 |
| 00127823 | 5 G 10.0 | 25.3 | 681.2 | 1151 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05BQ-F / H07BQ-F

Power cord with PUR outer sheath and European harmonisation (HAR)

**Info**

- High mechanical strength
- Good oil resistance
- H05BQ-F/H07BQ-F design standard




## Benefits

- Harmonised use in Europe
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception

## Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Building sites, camp sites, stage applications
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

## Product features

- Oil-resistant
- Abrasion and notch-resistant
- Flexible down to -40°C
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- EN 50525-2-21
- H05BQ-F/H07BQ-F design standard

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: rubber compound
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
For flexible use:
12.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H05BQ-F** | | | | |
| 0013600 | 2 X 0.75 | 5.7 - 7.4 | 14.4 | 50 |
| 0013601 | 3 G 0.75 | 6.2 - 8.1 | 21.6 | 64 |
| 00136023 | 4 G 0.75 | 6.8 - 8.8 | 28.8 | 78 |
| 00136033 | 5 G 0.75 | 7.6 - 9.9 | 36 | 98 |
| 0013610 | 2 X 1.0 | 6.1 - 8.0 | 19.2 | 60 |
| 0013611 | 3 G 1.0 | 6.5 - 8.5 | 29 | 74 |
| 00136123 | 4 G 1.0 | 7.1 - 9.3 | 38.4 | 92 |
| 00136133 | 5 G 1.0 | 8.0 - 10.3 | 48 | 114 |
| **H07BQ-F** | | | | |
| 0013620 | 2 X 1.5 | 7.6 - 9.8 | 29 | 87 |
| 0013621 | 3 G 1.5 | 8.0 - 10.4 | 43 | 108 |
| 00136223 | 4 G 1.5 | 9.0 - 11.6 | 58 | 137 |
| 00136233 | 5 G 1.5 | 9.8 - 12.7 | 72 | 165 |
| 0013630 | 2 X 2.5 | 9.0 - 11.6 | 48 | 90 |
| 0013631 | 3 G 2.5 | 9.6 - 12.4 | 72 | 161 |
| 00136323 | 4 G 2.5 | 10.7 - 13.8 | 96 | 206 |
| 00136333 | 5 G 2.5 | 11.9 - 16.3 | 120 | 254 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05RR-F

Rubber cable for light mechanical stress and handheld devices used in households, kitchens, offices




**Info**

- Light mechanical stress

## Benefits

- Type-compliant versions <HAR>-certified with "<HAR>" testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

## Application range

- Handheld and power supply devices according to EN 50565-2
- For lightweight workshop tools that are subject to light loads
- According to EN 50565-2: dry and damp rooms; only temporary use outdoors; not for industrial/commercial or agricultural facilities, except tailors/ cutting workshops; not suitable for supplying industrial power tools
- Light & sound technology

## Product features

- Ozone-resistant

## Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

## Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Coloured according to HD 308

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 to 8 x outer diameter (EN 50565-1)

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Flexible use: -25°C to +60°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H05RR-F** | | | | |
| 1600203 | 2 X 0.75 | 5.7 - 6.7 | 14.4 | 61 |
| 1600207 | 3 G 0.75 | 6.2 - 7.4 | 21.6 | 75 |
| 1600204 | 2 X 1.0 | 6.1 - 7.3 | 19.2 | 73 |
| 1600208 | 3 G 1.0 | 6.5 - 7.7 | 28.8 | 86 |
| 16002113 | 4 G 1.0 | 7.1 - 8.5 | 38.4 | 105 |
| 1600205 | 2 X 1.5 | 7.6 - 8.8 | 28.8 | 115 |
| 1600200 | 3 G 1.5 | 8.0 - 9.4 | 43.2 | 135 |
| 16002013 | 4 G 1.5 | 9.0 - 10.4 | 57.6 | 165 |
| 16002023 | 5 G 1.5 | 9.8 - 11.4 | 72 | 190 |
| 1600206 | 2 X 2.5 | 9.0 - 10.4 | 48 | 160 |
| 1600209 | 3 G 2.5 | 9.6 - 11.2 | 72 | 190 |
| 16002123 | 4 G 2.5 | 10.7 - 12.3 | 96 | 235 |
| 16002133 | 5 G 2.5 | 11.9 - 13.7 | 120 | 285 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05RN-F

Rubber cable for handheld devices and chains of decorative lights

**Info**

- Oil-resistant




## Benefits

- Type-compliant versions <HAR>-certified with “<HAR>” testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

## Application range

- According to EN 50565-2: for supplying devices in households, kitchens or offices under light mechanical stress; handheld inspection lamps
- According to EN 50565-2: provided the maximum conductor temperature of +60 °C, the maximum outer sheath surface temperature of +50 °C and the lack of ozone resistance are taken into account, suitable for permanent use outdoors with conventional mechanical stress

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404

## Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

## Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Coloured according to HD 308

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 to 8 x outer diameter (EN 50565-1)

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Flexible use: -25°C to +60°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H05RN-F** | | | | |
| 1600250 | 2 X 0.75 | 5.7 - 6.7 | 14.4 | 55 |
| 1600252 | 3 G 0.75 | 6.2 - 7.4 | 21.6 | 68 |
| 16002583 | 4 G 0.75 | 6.8 - 7.9 | 28.8 | 81 |
| 1600251 | 2 X 1.0 | 6.1 - 7.3 | 19.2 | 63 |
| 1600253 | 3 G 1.0 | 6.5 - 7.7 | 28.8 | 78 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07RN-F

Heavy standard construction




## Benefits

- For mechanically more demanding applications
- 1000 V AC at protected + static laying
- Arrangements made of single-core, rubber-sheathed cables H07RN-F can be used for short circuit-proof and short-to-ground-proof installations in accordance with IEC 60364-5-52/ HD 60364-5-52/ VDE 0100 Part 520

## Application range

- Handheld and power supply devices according to EN 50565-2
- Medium, mechanical stress
- Industrial, agricultural use
- According to EN 50565-2: In dry, damp and wet rooms as well as for fixed installation e.g. on the plaster

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404

## Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

## Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

## Info

- Medium mechanical stress
- Oil-resistant

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 to 8 x outer diameter (EN 50565-1)

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
-25 °C to +60 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H07RN-F** | | | | |
| 1600096 | 1 X 1.5 | 5.7 - 6.5 | 14.4 | 59 |
| 1600099 | 1 X 2.5 | 6.3 - 7.2 | 24 | 72 |
| 1600097 | 1 X 4.0 | 7.2 - 8.1 | 38.4 | 99 |
| 1600098 | 1 X 6.0 | 7.9 - 8.8 | 57.6 | 130 |
| 1600194 | 1 X 10.0 | 9.5 - 10.7 | 96 | 230 |
| 1600195 | 1 X 16.0 | 10.8 - 12.0 | 153.6 | 320 |
| 1600196 | 1 X 25.0 | 12.7 - 14.0 | 240 | 450 |
| 1600193 | 1 X 35.0 | 14.3 - 15.9 | 336 | 605 |
| 1600197 | 1 X 50.0 | 16.5 - 18.2 | 480 | 825 |
| 1600189 | 1 X 70.0 | 18.6 - 20.5 | 672 | 1090 |
| 1600190 | 1 X 95.0 | 20.8 - 22.9 | 912 | 1405 |
| 1600198 | 1 X 120.0 | 22.8 - 25.1 | 1152 | 1745 |
| 1600191 | 1 X 150.0 | 25.2 - 27.6 | 1440 | 1887 |
| 1600175 | 1 X 185.0 | 27.6 - 30.2 | 1776 | 2274 |
| 1600177 | 1 X 240.0 | 30.6 - 33.5 | 2304 | 2955 |
| 30015435 | 1 X 300.0 | 33.5 - 36.7 | 2880 | 3479 |
| 1600117 | 3 G 1.0 | 8.3 - 9.6 | 28.8 | 130 |
| 1600199 | 2 X 1.5 | 8.5 - 9.9 | 28.8 | 135 |
| 1600103 | 3 G 1.5 | 9.2 - 10.7 | 43.2 | 165 |
| 16001233 | 4 G 1.5 | 10.2 - 11.7 | 57.6 | 200 |
| 16001043 | 5 G 1.5 | 11.2 - 12.8 | 72 | 240 |
| 1600151 | 7 G 1.5 | 14.7 - 16.5 | 100.8 | 385 |
| 1600148 | 12 G 1.5 | 17.6 - 19.8 | 172.8 | 516 |
| 1600259 | 19 G 1.5 | 20.7 - 26.3 | 273.6 | 800 |
| 1600166 | 24 G 1.5 | 24.3 - 27.0 | 345.6 | 882 |
| 1600263 | 25 G 1.5 | 25.1 - 25.9 | 360 | 920 |
| 1600187 | 2 X 2.5 | 10.2 - 11.7 | 48 | 195 |
| 1600118 | 3 G 2.5 | 10.9 - 12.5 | 72 | 235 |
| 16001053 | 4 G 2.5 | 12.1 - 13.8 | 96 | 290 |
| 16001293 | 5 G 2.5 | 13.3 - 15.1 | 120 | 294 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1600152 | 7 G 2.5 | 17.1 - 19.3 | 168 | 520 |
| 1600154 | 12 G 2.5 | 20.6 - 23.1 | 288 | 810 |
| 1600156 | 19 G 2.5 | 25.5 - 31.0 | 456 | 1200 |
| 1600157 | 24 G 2.5 | 28.8 - 31.9 | 576 | 1298 |
| 1600186 | 2 X 4.0 | 11.8 - 13.4 | 76.8 | 270 |
| 1600119 | 3 G 4.0 | 12.7 - 14.4 | 115.2 | 320 |
| 16001063 | 4 G 4.0 | 14.0 - 15.9 | 153.6 | 395 |
| 16001303 | 5 G 4.0 | 15.6 - 17.6 | 192 | 485 |
| 1600161 | 7 G 4.0 | 20.1 - 22.4 | 268.8 | 681 |
| 1600120 | 3 G 6.0 | 14.1 - 15.9 | 172.8 | 360 |
| 16001073 | 4 G 6.0 | 15.7 - 17.7 | 230.4 | 475 |
| 16001313 | 5 G 6.0 | 17.5 - 19.6 | 288 | 760 |
| 1600121 | 3 G 10.0 | 19.1 - 21.3 | 288 | 880 |
| 16001083 | 4 G 10.0 | 20.9 - 23.3 | 384 | 1060 |
| 16001093 | 5 G 10.0 | 22.9 - 25.6 | 480 | 1300 |
| 1600122 | 3 G 16.0 | 21.8 - 24.3 | 460.8 | 1090 |
| 16001103 | 4 G 16.0 | 23.8 - 26.4 | 614.4 | 1345 |
| 16001113 | 5 G 16.0 | 26.4 - 29.2 | 768 | 1680 |
| 16001123 | 4 G 25.0 | 28.9 - 32.1 | 960 | 1995 |
| 16001133 | 5 G 25.0 | 32.0 - 35.4 | 1200 | 2470 |
| 1600124 | 3 G 35.0 | 29.3 - 32.5 | 1008 | 1910 |
| 16001143 | 4 G 35.0 | 32.5 - 36.0 | 1344 | 2645 |
| 16001363 | 5 G 35.0 | 35.7 - 39.5 | 1680 | 2810 |
| 16001153 | 4 G 50.0 | 37.7 - 41.5 | 1920 | 3635 |
| 1600126 | 5 G 50.0 | 41.8 - 46.6 | 2400 | 4050 |
| 16001163 | 4 G 70.0 | 42.7 - 47.1 | 2688 | 4830 |
| 16001283 | 4 G 95.0 | 48.4 - 53.2 | 3648 | 6320 |
| 16001323 | 4 G 120.0 | 53.0 - 57.5 | 4608 | 6830 |
| 16000883 | 4 G 150.0 | 58.0 - 63.6 | 5760 | 8320 |
| 1600141 | 4 G 185.0 | 64.0 - 69.7 | 7104 | 9800 |
| 1600183 | 4 G 240.0 | 72.0 - 79.2 | 9216 | 12800 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07RN-F, enhanced version

Halogen-free; Long-run submersion; Bending/Loop Torsion (WTG): -40°C to +90°C; UV/Ozone resistant




## Info

- Halogen-free & Low Smoke density
- Loop Torsion/Flexible: -40°C to +90°C
- 100m long-run submersion

## Benefits

- Arrangements made of single-core, rubber-sheathed cables H07RN-F can be used for short circuit-proof and short-to-ground-proof installations in accordance with IEC 60364-5-52/ HD 60364-5-52/ VDE 0100 Part 520
- More water-resistant than H07RN-F and H07RN8-F
- Conductor temperature range more suitable for outdoor installation and wider than H07RN-F, H07ZZ-F, H07BN4-F and NSSHÖU

## Application range

- Medium, mechanical stress and industrial and agricultural use as well as for handheld and power supply devices (H07RN-F according to EN 50565-2)
- Drip loop torsion between the nacelle and the tower of wind turbine generators/ windmills
- Outdoors acc. EN 50565-2
- For buildings or industrial plants with a high density of people or valuable assets

## Product features

- Oil resistant according to EN 60811-404; Good resistance to abrasion, atmospheric agents, grease and mineral oils
- UV-, Ozone- (acc. EN 60811), Cold- (-40 °C flexible at the conductor) and Heat-resistant (+90 °C at the conductor)
- Drip loop torsion resistant (wind turbine) ==>TW-0, TW-1 and TW-2: -40 °C to +90 °C/ 2,000 cycles (5,000 cycles from +5 °C)/ torsion angle of +/-150 ° per metre at one revolution per minute
- Long-time water submersion (AD8) down to 500m without interruption (no drinking water, minimum water temperature of +5 °C, standing water only, no areas with boat/ ship/ submarine traffic)
- Halogen-free according to EN 60754 (sub-parts -1 and -2), flame-retardant according to IEC 60332-1-2 and low smoke density (LS) according to EN 61034-2

## Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: special rubber
- Outer sheath: special rubber compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Moved: 6 x Outer diameter
Fixed installation: 4 x Outer diameter

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V AC

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Moved: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H07RN-F, enhanced version** | | | | |
| 4533027 | 3 G 1.0 | 8.3 - 10.7 | 28.8 | 140 |
| 4533061 | 4 G 1.0 | 9.2 - 11.9 | 38.4 | 160 |
| 4533062 | 4 X 1.0 | 9.2 - 11.9 | 38.4 | 160 |
| 4533091 | 5 G 1.0 | 10.2 - 13.1 | 48 | 200 |
| 4533000 | 1 X 1.5 | 5.7 - 7.1 | 14.4 | 55 |
| 4533020 | 2 X 1.5 | 8.5 - 11.0 | 28.8 | 125 |
| 4533029 | 3 G 1.5 | 9.2 - 11.9 | 43.2 | 172 |
| 4533063 | 4 G 1.5 | 10.2 - 13.1 | 57.6 | 200 |
| 4533064 | 4 X 1.5 | 10.2 - 13.1 | 57.6 | 200 |
| 4533093 | 5 G 1.5 | 11.2 - 14.4 | 72 | 250 |
| 4533111 | 7 G 1.5 | 14,7 - 18,7 | 100.8 | 430 |
| 4533113 | 12 G 1.5 | 17.6 - 22.4 | 172.8 | 620 |
| 4533001 | 1 X 2.5 | 6.3 - 7.9 | 24 | 72 |
| 4533021 | 2 X 2.5 | 10.2 - 13.1 | 48 | 173 |
| 4533031 | 3 G 2.5 | 10.9 - 14.0 | 72 | 225 |
| 4533065 | 4 G 2.5 | 12.1 - 15.5 | 96 | 285 |
| 4533066 | 4 X 2.5 | 12.1 - 15.5 | 96 | 285 |
| 4533095 | 5 G 2.5 | 13.3 - 17.0 | 120 | 345 |
| 4533115 | 12 G 2.5 | 20.6 - 26.2 | 288 | 850 |
| 4533002 | 1 X 4.0 | 7.2 - 9.0 | 38.4 | 98 |
| 4533022 | 2 X 4.0 | 11.8 - 15.1 | 76.8 | 239 |
| 4533033 | 3 G 4.0 | 12.7 - 16.2 | 115.2 | 325 |
| 4533067 | 4 G 4.0 | 14.0 - 17.9 | 153.6 | 395 |
| 4533097 | 5 G 4.0 | 15.6 - 19.9 | 192 | 485 |
| 4533003 | 1 X 6.0 | 7.9 - 9.8 | 57.6 | 127 |
| 4533023 | 2 X 6.0 | 13.1 - 16.8 | 115.2 | 330 |
| 4533035 | 3 G 6.0 | 14.1 - 18.0 | 172.8 | 415 |
| 4533069 | 4 G 6.0 | 15.7 - 20.0 | 230.4 | 535 |
| 4533099 | 5 G 6.0 | 17.5 - 22.2 | 288 | 648 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 4533004 | 1 X 10.0 | 9.5 - 11.9 | 96 | 192 |
| 4533024 | 2 X 10.0 | 17,7 - 22,6 | 192 | 590 |
| 4533037 | 3 G 10.0 | 19.1 - 24.2 | 288 | 712 |
| 4533071 | 4 G 10.0 | 20.9 - 26.5 | 384 | 920 |
| 4533005 | 1 X 16.0 | 10.8 - 13.4 | 153.6 | 262 |
| 4533039 | 3 G 16.0 | 21.8 - 27.6 | 460.8 | 990 |
| 4533073 | 4 G 16.0 | 23.8 - 30.1 | 614.4 | 1290 |
| 4533006 | 1 X 25.0 | 12.7 - 15.8 | 240 | 375 |
| 4533041 | 3 G 25.0 | 26.1 - 33.0 | 720 | 1395 |
| 4533075 | 4 G 25.0 | 28.9 - 36.6 | 960 | 1930 |
| 4533101 | 5 G 25.0 | 32.0 - 40.4 | 1200 | 2500 |
| 4533007 | 1 X 35.0 | 14.3 - 17.9 | 336 | 493 |
| 4533043 | 3 G 35.0 | 29.3 - 37.1 | 1008 | 1815 |
| 4533077 | 4 G 35.0 | 32.5 - 41.4 | 1344 | 2470 |
| 4533103 | 5 G 35.0 | 35.7 - 45.1 | 1680 | 3250 |
| 4533008 | 1 X 50.0 | 16.5 - 20.6 | 480 | 675 |
| 4533045 | 3 G 50.0 | 34.1 - 42.9 | 1440 | 2470 |
| 4533079 | 4 G 50.0 | 37.7 - 47.5 | 1920 | 3320 |
| 4533105 | 5 G 50.0 | 41.8 - 53.0 | 2400 | 4408 |
| 4533009 | 1 X 70.0 | 18.6 - 23.3 | 672 | 914 |
| 4533081 | 4 G 70.0 | 42.7 - 54.0 | 2688 | 4420 |
| 4533107 | 5 G 70.0 | 47.5 - 60.0 | 3360 | 5863 |
| 4533010 | 1 X 95.0 | 20.8 - 26.0 | 912 | 1200 |
| 4533083 | 4 G 95.0 | 48.4 - 61.0 | 3648 | 5750 |
| 4533109 | 5 G 95.0 | 54.0 - 67.0 | 4560 | 7537 |
| 4533011 | 1 X 120.0 | 22.8 - 28.6 | 1152 | 1481 |
| 4533085 | 4 G 120.0 | 53.0 - 66.0 | 4608 | 6990 |
| 4533012 | 1 X 150.0 | 25.2 - 31.4 | 1440 | 1833 |
| 4533087 | 4 G 150.0 | 58.0 - 73.0 | 5760 | 8650 |
| 4533013 | 1 X 185.0 | 27.6 - 34.4 | 1776 | 2190 |
| 4533089 | 4 G 185.0 | 64.0 - 80.0 | 7104 | 9785 |
| 4533014 | 1 X 240.0 | 30.6 - 38.3 | 2304 | 2780 |
| 4533015 | 1 X 300.0 | 33.5 - 41.9 | 2880 | 3310 |
| 4533016 | 1 X 400.0 | 37.4 - 46.8 | 3840 | 4320 |
| 4533017 | 1 X 500.0 | 41.3 - 52.0 | 4800 | 5342 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07ZZ-F

Machines, devices; halogen-free: events, locations with a high density of people and valuable assets




**Info**

- Halogen-free

## Benefits

- Broad usages due to halogen-free materials
- According to VDE 0100-711, cables with low smoke emission are required in buildings for exhibitions, shows and stands without a fire alarm system
- Type-compliant versions <HAR>-certified with “<HAR>” testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

## Application range

- Stage technology
- For mobile equipment and machines
- According to EN 50565-2: In dry, damp and wet rooms as well as for fixed installation e.g. on the plaster
- For buildings or industrial plants with a high density of people or valuable assets

## Product features

- Low amount of corrosive gases in the event of fire
- Flame-retardant according to IEC 60332-1-2 and bundle flame test according to IEC 60332-3-24
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Ozone-resistant acc. to EN 50363-6, EN 60811-403, EN 50396-8.1.3

## Norm references / Approvals

- <HAR> H07ZZ-F cable type approval according to EN 50525-3-21

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound, halogen-free
- Outer sheath: rubber compound, halogen-free

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 to 8 x outer diameter (EN 50565-1)

**Nominal voltage**
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

**Test voltage**
2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Static/Moved: -40°C/-5°C ...to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H07ZZ-F** | | | | |
| 1600810 | 3 G 1.5 | 9.2 - 10.8 | 43.2 | 125 |
| 1600811 | 4 G 1.5 | 10.2 - 11.8 | 57.6 | 155 |
| 1600812 | 5 G 1.5 | 11.2 - 12.8 | 72 | 190 |
| 1600815 | 14 G 1.5 | 18.8 - 21.3 | 201.6 | 570 |
| 1600816 | 18 G 1.5 | 20.7 - 23.3 | 259.2 | 750 |
| 1600820 | 3 G 2.5 | 10.9 - 12.5 | 72 | 185 |
| 1600821 | 4 G 2.5 | 12.1 - 13.9 | 96 | 235 |
| 1600822 | 5 G 2.5 | 13.3 - 15.1 | 120 | 290 |
| 1600823 | 7 G 2.5 | 17.1 - 19.3 | 168 | 520 |
| 1600825 | 14 G 2.5 | 22.2 - 25.0 | 336 | 860 |
| 1600836 | 4 G 4.0 | 14.0 - 16.0 | 153.6 | 325 |
| 1600837 | 5 G 4.0 | 15.6 - 17.6 | 192 | 410 |
| 1600841 | 4 G 6.0 | 15.7 - 17.7 | 230.4 | 440 |
| 1600842 | 5 G 6.0 | 17.5 - 19.5 | 288 | 550 |
| 1600844 | 4 G 10.0 | 20.9 - 23.3 | 384 | 770 |
| 1600845 | 5 G 10.0 | 22.9 - 25.7 | 480 | 950 |
| 1600847 | 4 G 16.0 | 23.8 - 26.4 | 614.4 | 1070 |
| 1600849 | 4 G 25.0 | 28.9 - 32.1 | 960 | 1570 |
| 1600851 | 4 G 35.0 | 32.5 - 36.1 | 1344 | 2040 |
| 1600852 | 4 G 50.0 | 37.7 - 41.5 | 1920 | 2810 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H01N2-D

Normative arc-welding cable




## Info

- Arc welding cable according to EN 50525-2-81
- Formerly, VDE type NSLFFÖU

## Benefits

- Type-compliant versions <HAR>-certified with "<HAR>" testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

## Application range

- Use the welding cable only under consideration of EN 50565-2
- For use on handheld electrode holder up to 100 V
- Can be used in dry or damp rooms
- For transmitting high currents from the electric welding device to the welding tool

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> H01N2-D cable type approval according to EN 50525-2-81

## Product Make-up

- Bare copper wire according to HAR
- Stranding approximately corresponds to class 6 up to 95 mm², and from 120 mm² approximately to class 5 acc. to VDE 0295
- Separator made of synthetic film or paper
- Outer sheath: rubber compound, type EM5

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000824
ETIM 5.0/6.0 Class-Description: Welding cable

**Conductor stranding**
H01N2-D according to EN 50525-2-81

**Minimum bending radius**
Flexible use: 12 x outer diameter

**Nominal voltage**
U0/U: 100/100 V

**Test voltage**
1000 V

**Current rating**
According to VDE 0298 Part 4, table 16
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Flexible use: -25°C to +85°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H01N2-D** | | | | |
| 2310026 | 10 | 7.7 - 8.7 | 96 | 171 |
| 2210700 | 16 | 8.8 - 9.8 | 153.6 | 198 |
| 2210701 | 25 | 10.1 - 11.3 | 240 | 305 |
| 2210702 | 35 | 11.4 - 12.6 | 336 | 415 |
| 2210703 | 50 | 13.2 - 14.6 | 480 | 555 |
| 2210704 | 70 | 15.3 - 16.9 | 672 | 765 |
| 2210705 | 95 | 17.1 - 18.8 | 912 | 1010 |
| 2210706 | 120 | 19.2 - 21.1 | 1152 | 1262 |
| 2210707 | 150 | 21.1 - 23.2 | 1440 | 1610 |
| 2210708 | 240 | 25.8 - 27.7 | 2304 | 2520 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NSSHÖU

Mechanically robust rubber cable for mining and surface mining




## Info

- Mining
- Outdoors
- Oil-resistant

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexible use: 10 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
According to VDE 0298 Part 4, Table 15

**Temperature range**
Flexible use: -25 °C to +90 °C
Fixed installation: -40 °C to +90 °C

## Benefits

- For use at very high mechanical stress
- Single-core design suitable for robust connection cables for welding equipment
- Not antistatic

## Application range

- For mining as well as surface mining
- Connection for moving equipment and machinery
- Under extreme environmental conditions
- Suitable for outdoor use, as well as in dry and damp interiors

## Product features

- Flame retardant acc. to IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- High notch resistance
- Abrasion-resistant

## Norm references / Approvals

- <VDE> NSSHÖU cable type approval according to VDE 0250-812

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Inner sheath: rubber-compound, type GM1b or 5GM5
- Outer sheath: rubber compound, type 5GM5

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NSSHÖU-O** | | | | |
| 1600500 | 1 X 16.0 | 10.9 | 153.6 | 260 |
| 1600501 | 1 X 25.0 | 13.3 | 240 | 390 |
| 1600502 | 1 X 35.0 | 14.4 | 336 | 500 |
| 1600503 | 1 X 50.0 | 16.7 | 480 | 680 |
| 1600504 | 1 X 70.0 | 18.9 | 672 | 900 |
| 1600505 | 1 X 95.0 | 21.0 | 912 | 1150 |
| 1600506 | 1 X 120.0 | 23.3 | 1152 | 1440 |
| 1600507 | 1 X 150.0 | 25.2 | 1440 | 1750 |
| 1600508 | 1 X 185.0 | 28.4 | 1776 | 2180 |
| 1600509 | 1 X 240.0 | 31.4 | 2304 | 2790 |
| **NSSHÖU-J** | | | | |
| 1600516 | 3 G 1.5 | 11.8 | 43.2 | 200 |
| 16005243 | 4 G 1.5 | 12.7 | 57.6 | 230 |
| 16005333 | 5 G 1.5 | 13.6 | 72 | 280 |
| 1600517 | 3 G 2.5 | 13.2 | 72 | 260 |
| 16005253 | 4 G 2.5 | 15.4 | 96 | 360 |
| 16005343 | 5 G 2.5 | 16.5 | 120 | 420 |
| 1600541 | 7 G 2.5 | 20.0 | 168 | 600 |
| 1600544 | 12 G 2.5 | 26.0 | 288 | 860 |
| 16005263 | 4 G 4.0 | 16.9 | 153.6 | 470 |
| 16005353 | 5 G 4.0 | 18.2 | 192 | 550 |
| 16005273 | 4 G 6.0 | 18.3 | 230.4 | 580 |
| 16005363 | 5 G 6.0 | 20.6 | 288 | 740 |
| 16005283 | 4 G 10.0 | 22.3 | 384 | 950 |
| 16005373 | 5 G 10.0 | 24.1 | 480 | 1100 |
| 16005293 | 4 G 16.0 | 26.1 | 614 | 1400 |
| 16005383 | 5 G 16.0 | 28.3 | 768 | 1720 |
| 16005303 | 4 G 25.0 | 31.2 | 960 | 2000 |
| 16005313 | 4 G 35.0 | 34.1 | 1344 | 2700 |
| 16005323 | 4 G 50.0 | 41.0 | 1920 | 3700 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NSGAFÖU 1,8/3 kV

Flexible single-conductor rubber cable with 1.8/3 kV rated voltage




**Info**

- Public transport
- Control panel internal wiring

## Benefits

- Arrangements made of single-conductor cables NSGAFÖU in accordance with VDE 0250 Part 602 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

## Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Normative rated voltage classes U0/U 0.6/1 kVac and 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

## Norm references / Approvals

- <VDE> NSGAFÖU 1,8/3 kV cable type approval according to VDE 0250-602

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Outer coating: rubber compound, type 5GM3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 1.8/3 kV

**Test voltage**
6000 V

**Current rating**
According to VDE 0298 Part 4, Table 15

**Temperature range**
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NSGAFÖU 1,8/3 kV** | | | | |
| 1600300 | 1.5 | 7.0 | 14.4 | 60 |
| 1600301 | 2.5 | 7.5 | 24 | 70 |
| 1600302 | 4 | 9.0 | 38.4 | 90 |
| 1600303 | 6 | 9.5 | 57.6 | 120 |
| 1600304 | 10 | 11.0 | 96 | 180 |
| 1600305 | 16 | 13.0 | 153.6 | 250 |
| 1600306 | 25 | 15.0 | 240 | 390 |
| 1600307 | 35 | 16.5 | 336 | 470 |
| 1600308 | 50 | 18.0 | 480 | 625 |
| 1600309 | 70 | 20.5 | 672 | 880 |
| 1600310 | 95 | 24.0 | 912 | 1190 |
| 1600311 | 120 | 26.0 | 1152 | 1430 |
| 1600312 | 150 | 28.0 | 1440 | 1750 |
| 1600313 | 185 | 31.0 | 1776 | 2160 |
| 1600314 | 240 | 34.5 | 2304 | 2640 |
| 3026826 | 300 | 38.0 | 2880 | 3545 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NSHXAFÖ 1,8/3 kV

Halogen-free, flexible single-core rubber cable for public transport and wiring




**Info**

- Public transport
- Control panel internal wiring
- Halogen-free

## Benefits

- Arrangements made of single-conductor cables NSHXAFö in accordance with VDE 0250 Part 606 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

## Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

## Product features

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Flame-retardant according IEC 60332-1-2
- Normative rated voltage class 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

## Norm references / Approvals

- <VDE> NSHXAFÖ 1,8/3 kV cable type approval according to VDE 0250-606

## Product Make-up

- Fine copper wire strands
- Core insulation: halogen-free rubber compound, type 3GI3
- Outer coating: halogen-free polymer compound, type HM3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 1.8/3 kV

**Test voltage**
6000 V

**Temperature range**
Flexing: -5°C to +90°C
Fixed installation: -25°C to +90°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NSHXAFÖ 1,8/3 kV** | | | | |
| 3022673 | 1.5 | 7.0 | 14.4 | 60 |
| 3022674 | 2.5 | 7.5 | 24 | 70 |
| 3022675 | 4 | 9.0 | 38.4 | 90 |
| 3022676 | 6 | 9.5 | 57.6 | 120 |
| 3022677 | 10 | 11.0 | 96 | 180 |
| 3022678 | 16 | 13.0 | 153.6 | 250 |
| 3022679 | 25 | 15.0 | 240 | 390 |
| 3022680 | 35 | 16.5 | 336 | 470 |
| 3022681 | 50 | 18.0 | 480 | 625 |
| 3022682 | 70 | 20.5 | 672 | 880 |
| 3022683 | 95 | 24.0 | 912 | 1190 |
| 3022684 | 120 | 26.0 | 1152 | 1430 |
| 3022685 | 150 | 28.0 | 1440 | 1750 |
| 3022686 | 185 | 31.0 | 1776 | 2160 |
| 3022687 | 240 | 34.5 | 2304 | 2718 |
| 3022688 | 300 | 38.0 | 2880 | 3470 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07RN8-F

Submersible pump cable; Formerly: “ÖLFLEX® AQUA RN8”




## Info

- Use down to 10 m depth
- Submersible pump cable
- Oil-resistant

## Benefits

- Submersion, considering application standards, e.g. EN 50565-2
- According to EN 50565-2, underwater use prohibited in areas with shipping traffic, moving water or where there is a risk of dangerous, mechanical damage
- High stresses
- Type-compliant versions <HAR>-certified with “<HAR>” testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

## Application range

- According to EN 50565-2: Dry or damp rooms, as well as outdoors and in industrial water
- For connecting mobile, electrical equipment in industrial water
- For use with submersible pumps
- Submersion acc. AD8 standard down to 10 m depth

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Flexible

## Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 to 8 x outer diameter (EN 50565-1)

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Conductor:
Fix/Moved: -40/-25°C to+60°C
Max. water temperature: +40°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **H07RN8-F** | | | | |
| 1600600 | 1 X 4.0 | 7.2 - 7.8 | 38.4 | 100 |
| 1600601 | 1 X 6.0 | 7.9 - 8.5 | 57.6 | 120 |
| 1600602 | 1 X 10.0 | 9.5 - 10.5 | 96 | 180 |
| 1600604 | 1 X 25.0 | 12.7 - 13.7 | 240 | 400 |
| 1600606 | 3 G 1.5 | 9.2 - 10.8 | 43.2 | 141 |
| 1600609 | 4 G 1.5 | 10.2 - 11.8 | 57.6 | 205 |
| 1600620 | 7 G 1.5 | 14.0 - 17.5 | 100.8 | 385 |
| 1600607 | 3 G 2.5 | 10.9 - 12.5 | 72 | 210 |
| 1600610 | 4 G 2.5 | 12.1 - 13.9 | 96 | 260 |
| 1600621 | 7 G 2.5 | 16.5 - 20.0 | 168 | 520 |
| 1600611 | 4 G 4.0 | 14.0 - 16.0 | 153.6 | 356 |
| 1600612 | 4 G 6.0 | 15.7 - 17.7 | 230.4 | 475 |
| 1600613 | 4 G 10.0 | 20.9 - 23.3 | 384 | 837 |
| 1600614 | 4 G 16.0 | 23.8 - 26.4 | 614.4 | 1220 |
| 1600615 | 4 G 25.0 | 28.9 - 32.1 | 960 | 1770 |
| 1600616 | 4 G 35.0 | 32.5 - 36.1 | 1344 | 2304 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# Servo applications












LAPP KABEL STUTTGART
ÖLFLEX® SERVO FD
4 m

# ÖLFLEX® DC SERVO 700

DC power cable




**Info**

- Specially constructed for the long term operation with DC voltage up to 0.75/1.5 kV
- Suitable for the construction of energy efficient DC grids in industrial plants

## Benefits

- Compatible with servo drives from leading manufacturers
- Hybrid cable combines supply cores, control core pairs and high-frequency signal cores
- Integrated, double-shielded Cat.$6_A$ conductor bunch enables data transmission without a separate data cable
- Colour code according to DIN EN 60445 for direct current systems

## Application range

- For direct current applications in the low voltage range
- For connecting a frequency converter to the direct current grid
- For fixed installation and occasional flexing without tensile strain
- Can be used in dry and damp environments
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power core a: red, white, green-yellow
Control core pairs: refer to data sheet
According to DIN EN 60445

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 0.75/1.5 kV DC according to IEC

**Test voltage**
Core/Core: 4 kV
Core /Screen: 2 kV

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Cable sheath colour | Outer diameter [mm] |
|---|---|---|---|
| **ÖLFLEX® DC SERVO 700** | | | |
| 11101200 | 3 G 2.5 + Cat $6_A$ | black | 13.3 |
| 11101201 | 3 G 2.5 + 2X2.5 + Cat $6_A$ | black | 17 |
| 11101202 | 3 G 2.5 + 2x2.5 + (2x1) + Cat $6_A$ | black | 17.5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 2YSLCY-JB

EMC-optimised motor cable, low-capacitance, double screened




## Info

- EMC-optimised design
- 3+3 symmetry reduces common-mode interference effects and bearing currents
- CPR: Article number choice under www.lapp.com

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Colours according to HD 308 S2
VDE 0293-308

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor
Protective conductor of 3+3 version is gusset-filling divided between power cores

**Temperature range**
Flexing: -5°C to +70°C
3+3 core version: -15°C to +70°C
Fixed installation: -40°C to +70°C

## Benefits

- EMC-compliant installation of power drive systems conforming to EN 61800-3
- High power transmission for large drives
- Low capacitance design enables longer cable connection between frequency converter and motor
- Symmetrical 3+3 Version supports the reduction of damaging bearing currents
- Versions with black outer sheath are suitable for outdoor use

## Application range

- Connecting cable between frequency converter and motor
- In dry, damp or wet interiors
- Paper industry
- Chemical industry
- Heavy industry

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0207 / 0250 / 0295

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PE
- Cores twisted concentrically (symmetrically splitted protective conductor of 3+3 version is gusset-filling divided between the power cores)
- Screening: wrapping of laminated aluminium foil in combination with tinned copper braiding
- 4-core version: optional transparent or black PVC outer sheath
- 3+3 core version: PVC outer sheath, black - cold flexible

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 2YSLCY-JB / 4-core version - transparent outer sheath** | | | | |
| 0036425 | 4 G 1.5 | 11.4 | 95 | 230 |
| 0036426 | 4 G 2.5 | 12.4 | 150 | 300 |
| 0036427 | 4 G 4.0 | 15.6 | 235 | 485 |
| 0036428 | 4 G 6.0 | 17.0 | 320 | 630 |
| 0036429 | 4 G 10.0 | 19.6 | 533 | 860 |
| 0036430 | 4 G 16.0 | 22.1 | 789 | 1290 |
| 0036431 | 4 G 25.0 | 26.3 | 1236 | 1860 |
| 0036432 | 4 G 35.0 | 29.5 | 1662 | 2610 |
| 0036433 | 4 G 50.0 | 35.8 | 2345 | 2950 |
| 0036434 | 4 G 70.0 | 40.3 | 3196 | 3950 |
| 0036435 | 4 G 95.0 | 46.5 | 4316 | 5300 |
| 0036436 | 4 G 120.0 | 53.2 | 5435 | 6600 |
| 0036437 | 4 G 150.0 | 57.3 | 6394 | 7043 |
| 0036438 | 4 G 185.0 | 62.3 | 7639 | 8384 |
| **ÖLFLEX® SERVO 2YSLCY-JB BK / 4-core version - black outer sheath** | | | | |
| 1136450 | 4 G 1.5 | 11.4 | 95 | 230 |
| 1136451 | 4 G 2.5 | 12.4 | 150 | 300 |
| 1136452 | 4 G 4.0 | 15.6 | 235 | 485 |
| 1136453 | 4 G 6.0 | 17.0 | 320 | 630 |
| 1136454 | 4 G 10.0 | 19.6 | 533 | 860 |
| 1136455 | 4 G 16.0 | 22.1 | 789 | 1290 |
| 1136456 | 4 G 25.0 | 26.3 | 1236 | 1860 |
| 1136457 | 4 G 35.0 | 29.5 | 1662 | 2610 |
| 1136458 | 4 G 50.0 | 35.8 | 2345 | 2950 |
| 1136459 | 4 G 70.0 | 40.3 | 3196 | 3950 |
| 1136460 | 4 G 95.0 | 46.5 | 4316 | 5300 |
| 1136461 | 4 G 120.0 | 53.2 | 5435 | 6600 |
| 1136462 | 4 G 150.0 | 57.3 | 6394 | 7043 |
| 1136463 | 4 G 185.0 | 62.3 | 7639 | 8384 |
| **ÖLFLEX® SERVO 2YSLCYK-JB / 3+3 core version - black outer sheath, cold flexible** | | | | |
| 0036439 | 3 X 1,5 + 3 G 0,25 | 11.4 | 88 | 140 |
| 0036440 | 3 X 2,5 + 3 G 0,5 | 12.2 | 144 | 220 |
| 0036441 | 3 X 4 + 3 G 0,75 | 14.4 | 224 | 323 |
| 0036442 | 3 X 6 + 3 G 1,0 | 15.7 | 276 | 420 |
| 0036443 | 3 X 10 + 3 G 1,5 | 18.0 | 491 | 615 |
| 0036444 | 3 X 16 + 3 G 2,5 | 20.2 | 723 | 819 |
| 0036445 | 3 X 25 + 3 G 4 | 23.8 | 1136 | 1325 |
| 0036446 | 3 X 35 + 3 G 6 | 26.9 | 1535 | 1718 |
| 0036447 | 3 X 50 + 3 G 10 | 32.6 | 2156 | 2399 |
| 0036448 | 3 X 70 + 3 G 10 | 36.4 | 2871 | 3056 |
| 0036449 | 3 X 95 + 3 G 16 | 42.0 | 3953 | 4162 |
| 0036450 | 3 X 120 + 3 G 16 | 47.8 | 4836 | 5074 |
| 0036451 | 3 X 150 + 3 G 25 | 51.6 | 5412 | 6128 |
| 0036479 | 3 X 185 + 3 G 35 | 56.5 | 7041 | 7500 |
| 0036453 | 3 X 240 + 3 G 50 | 65.1 | 8986 | 9770 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 2XSLCY-JB

EMC-optimised motor cable, low-capacitance, double-screened, certified

**Info**

- EMC-optimised design
- 3+3 symmetry reduces common-mode interference effects and bearing currents




## Benefits

- Power supply for large drives possible.
- Ideal protection against electromagnetic interference thanks to double shielding made of aluminium-laminated foil and copper braiding with a high degree of coverage
- Low-capacitance XLPE core insulation with outstanding electrical properties enables long transmission paths
- Classified fire behaviour according to EU Directive305/2011 (BauPVO/CPR) with article number selection on LAPP website
- UL/CSA certification according to technical data enables the product to be used on the North American market
- Product with multiple certifications enables universal use and reduces the variety of parts, thus guaranteeing logistics savings
- Operating voltage of 1000 V according to UL, permitted for North America
- Available as a 4-core version and 3+3 balanced version
- Versions with symmetrical cable design and splitted protective conductor largely prevent the generation of damaging bearing currents inside the motor. A reduction in motor bearing damage contributes to the durability of motors
- Improved core insulation allows conductor temperatures of up to +90°C and therefore a wide range of applications

## Application range

- For connecting frequency converters and motors
- For fixed installation and occasional flexing
- Can be used in dry, damp or wet environments
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis, and to oil to a limited degree
- Suitable for outdoor use

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: XLPE
- Cores twisted concentrically (symmetrically splitted protective conductor of 3+3 version is gusset-filling divided between the power cores)
- Screening: wrapping of laminated aluminium foil in combination with tinned copper braiding
- Outer sheath: PVC special compound, colour black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Colours according to HD 308 S2
VDE 0293-308

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
Protective conductor of 3+3 version is gusset-filling divided between power cores

**Temperature range**
Flexing:
-15°C to + 90°C (UL/CSA + 80°C)
Fixed installation:
-40°C to + 90°C (UL/CSA + 80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 2XSLCY-JB** | | | | |
| 1133600 | 4 G 1.5 | 10.9 | 95 | 160 |
| 1133601 | 4 G 2.5 | 12.1 | 150 | 221 |
| 1133602 | 4 G 4 | 14.1 | 235 | 315 |
| 1133603 | 4 G 6 | 15.6 | 320 | 418 |
| 1133604 | 4 G 10 | 18 | 533 | 1000 |
| 1133605 | 4 G 16 | 20.9 | 789 | 1290 |
| 1133606 | 4 G 25 | 26 | 1.236 | 1860 |
| 1133607 | 4 G 35 | 29.6 | 1.662 | 2610 |
| 1133608 | 4 G 50 | 32.8 | 2.345 | 2950 |
| 1133609 | 4 G 70 | 38 | 3.196 | 3950 |
| 1133610 | 4 G 95 | 42.5 | 4.316 | 5300 |
| 1133611 | 4 G 120 | 47 | 5.435 | 6600 |
| 1133612 | 4 G 150 | 52.9 | 6.394 | 7590 |
| 1133613 | 4 G 185 | 57.6 | 7.639 | 9420 |
| 1133614 | 4 G 240 | 65.6 | 10.013 | 12150 |
| 1133615 | 3 X 1.5 + 3 G 0.25 | 10.9 | 88 | 177 |
| 1133616 | 3 X 2,5 + 3 G 0.5 | 12 | 144 | 230 |
| 1133617 | 3 X 4 + 3 G 0.75 | 13.5 | 224 | 323 |
| 1133618 | 3 X 6 + 3 G 1 | 14.7 | 276 | 420 |
| 1133619 | 3 X 10 + 3 G 1.5 | 16.7 | 491 | 635 |
| 1133620 | 3 X1 6 + 3 G 2.5 | 20.2 | 723 | 930 |
| 1133621 | 3 X 25 + 3 G 4 | 23.4 | 1.136 | 1350 |
| 1133622 | 3 X 35 + 3 G 6 | 26.7 | 1.535 | 1780 |
| 1133623 | 3 X 50 + 3 G 10 | 30.9 | 2.156 | 2530 |
| 1133624 | 3 X 70 + 3 G 10 | 34.4 | 2.871 | 3225 |
| 1133625 | 3 X 95 + 3 G 16 | 38.3 | 3.953 | 4511 |
| 1133626 | 3 X 120 + 3 G 16 | 42.3 | 4.836 | 5663 |
| 1133627 | 3 X 150 + 3 G 25 | 47.5 | 5.412 | 6720 |
| 1133628 | 3 X 185 + 3 G 35 | 51.9 | 7.041 | 7855 |
| 1133629 | 3 X 240 + 3 G 50 | 59 | 8.986 | 12850 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 719

Low capacitance servo cable with PVC outer sheath for static use - certified for North America




**Info**

- Low-capacitance design
- Without overall screening

## Benefits

- One common cable for multiple circuits
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installations due to small cable diameters

## Application range

- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Plant engineering
- Industrial machinery and machine tools
- Printing machines

## Product features

- Low capacitance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant

## Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one or two individually screened control core pairs twisted together in short lay lengths
- PVC outer sheath, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: black; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0,34mm² pairs: WH/BN/GN/YE

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) approx. | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 719** | | | | |
| 1020060 | 4 G 1,5 + (2 x 0,75) | 9.7 | 83.3 | 177 |
| 1020065 | 4 G 1,5 + (2 x 1,5) | 10.8 | 108.3 | 214 |
| 1020061 | 5 G 1,5 + (2 x 0,75) | 10.6 | 97.7 | 203 |
| 1020062 | 7 G 1,5 + (2 x 0,75) | 11.5 | 126.5 | 241 |
| 1020063 | 4 G 2,5 + (2 x 0,75) | 11.1 | 121.7 | 238 |
| 1020066 | 4 G 2,5 + (2 x 1,5) | 12.2 | 146.7 | 276 |
| 1020064 | 7 G 2,5 + (2 x 0,75) | 12.7 | 193.7 | 325 |
| 1020067 | 4 G 4 + (2 x 1,5) | 13.9 | 204.3 | 360 |
| 1020068 | 4 G 6 + (2 x 1,5) | 16.1 | 281.1 | 478 |
| 1020069 | 4 G 10 + (2 x 1,5) | 18.2 | 434.7 | 654 |
| 1020071 | 4 G 0,75 + 2 x (2 x 0,34) | 9.0 | 62.1 | 121 |
| 1020072 | 4 G 1,5 + 2 x (2 x 0,75) | 11.6 | 111.6 | 203 |
| 1020073 | 4 G 2,5 + 2 x (2 x 1,0) | 13.6 | 159.7 | 286 |
| 1020074 | 4 G 4 + 2 x (2 x 1,0) | 15.3 | 217.3 | 377 |
| 1020075 | 4 G 4 + (2 x 1,0) + (2 x 1,5) | 15.5 | 237.6 | 396 |
| 1020076 | 4 G 6 + (2 x 1,0) + (2 x 1,5) | 17.4 | 314.4 | 512 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 719 CY

Screened, low capacitive servo cable with PVC outer sheath for static use - certified for North America

**Info**

- Low-capacitance design
- Product range extension




## Benefits

- Suitable for use with servomotor product lines from leading drive manufacturers
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installations due to small cable diameters
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Plant engineering
- Industrial machinery and machine tools
- Printing machines

## Product features

- Low capacitance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant
- EMC-compliant

## Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: polypropylene (PP)
- Individual design depending on the item:
  Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths;
  Power cores with control core triplet twisted together in short lay lengths
- Tinned copper screen braiding
- PVC outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: individual design depending on the item black; white or brown; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE
Triplet: black with white numbers 1; 2; 3

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) approx. | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 719 CY** | | | | |
| 1020010 | 4G1,5 | 8.4 | 83 | 130 |
| 1020011 | 4G2,5 | 9.9 | 125 | 190 |
| 1020012 | 4G4 | 11.7 | 191 | 273 |
| 1020013 | 4G6 | 13.7 | 290 | 394 |
| 1020014 | 4G10 | 16.7 | 452 | 581 |
| 1020015 | 4G16 | 20.1 | 721 | 884 |
| 1020016 | 4G25 | 24.3 | 1,100 | 1348 |
| 1020017 | 4G35 | 27.7 | 1,548 | 1840 |
| 1020018 | 4G50 | 33.7 | 2,151 | 2645 |
| 1020019 | 4G1,5+(2x1,5) | 11.5 | 146 | 242 |
| 1020020 | 4G2,5+(2x1,5) | 12.9 | 189 | 306 |
| 1020021 | 4G4+(2x1,5) | 15 | 271 | 420 |
| 1020022 | 4G6+(2x1,5) | 17 | 351 | 529 |
| 1020023 | 4G10+(2x1,5) | 19.5 | 540 | 752 |
| 1020024 | 4G0,75+2x(2x0,34) | 9.7 | 99 | 163 |
| 1020025 | 4G1,5+2x(2x0,75) | 12.3 | 150 | 245 |
| 1020026 | 4G2,5+2x(2x1) | 14.7 | 223 | 357 |
| 1020027 | 4G4+2x(2x1) | 16.4 | 288 | 452 |
| 1020028 | 4G4+(2x1)+(2x1,5) | 16.6 | 307 | 469 |
| 1020029 | 4G6+(2x1)+(2x1,5) | 18.5 | 421 | 617 |
| 1020030 | 4G10+(2x1)+(2x1,5) | 22.1 | 588 | 852 |
| 1020031 | 4G16+2x(2x1,5) | 25 | 876 | 1162 |
| 1020032 | 4G25+2x(2x1,5) | 28.7 | 1,227 | 1590 |

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) approx. | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1020033 | 4G35+2x(2x1,5) | 30.6 | 1,652 | 2023 |
| 1020034 | 4G50+2x(2x2,5) | 37 | 2,264 | 2876 |
| 1020035 | 4G1+2x(2x0,75) | 11.6 | 126.4 | 207 |
| 1020040 | 4G0,75+(2x0,5) | 8.9 | 78 | 159 |
| 1020041 | 4G1+(2x0,5) | 9.3 | 88 | 147 |
| 1020042 | 4G1,5+(2x0,5) | 10.3 | 111 | 180 |
| 1020043 | 4G2,5+(2x0,5) | 11.7 | 158 | 247 |
| 1020044 | 4G1+(2x1,0) | 10.2 | 107 | 204 |
| 1020045 | 4G1,5+(2x1,0) | 10.8 | 130 | 230 |
| 1020046 | 4G2,5+(2x1,0) | 12.1 | 173 | 293 |
| 1020047 | 4G4+(2x1,0) | 14.3 | 250 | 373 |
| 1020048 | 4G6+(2x1,0) | 16 | 334 | 485 |
| 1020049 | 4G10+(2x1,0) | 18.8 | 526 | 712 |
| 1020050 | 4G16+(2x1,0) | 22.3 | 772 | 991 |
| 1020051 | 4G16+(2x1,5) | 22.5 | 785.2 | 999 |
| 1020052 | 4G25+(2x1,5) | 26.1 | 1,184.9 | 1459 |
| 1020053 | 4G1,5+(3x1,0) | 11.5 | 145 | 225 |
| 1020054 | 4G2,5+(3x1,0) | 12.9 | 188 | 290 |
| 1020055 | 4G4+(3x1,0) | 14.8 | 270 | 402 |
| 1020056 | 4G6+(3x1,5) | 17 | 370 | 537 |
| 1020057 | 4G10+(3x1,5) | 19.5 | 559 | 758 |
| 1020058 | 4G16+(3x1,5) | 23 | 805 | 1151 |
| 1020059 | 4G35+(2x1,5) | 30.4 | 1,598.1 | 1971 |
| 1020085 | 4G50+(2x1,5) | 34 | 2,205.2 | 2713 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 728 CY

Screened encoder cable with PVC outer sheath for static use - certified




**Info**

- Fits to various encoder systems
- Low-capacitance design

## Benefits

- Suitable for use with encoders & resolvers from leading manufacturers
- Thin, optimised for weight and volume
- Multi-standard certification reduces part varieties and saves costs
- Easy to install

## Application range

- Analogue and incremental encoders in servo drives
- For static and occasionally flexible use
- Measurement, control and electrical applications
- Industrial machinery and plant engineering
- Only for outdoor use within the indicated operating temperature range, with UV-protection

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Low attenuation ensures a longer transmission distance
- Oil-resistant

## Norm references / Approvals

- UL AWM Style 2464
- CUL AWM I/II A/B FT1
- UL File No. E63634

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: polypropylene (PP)
- Cores (or core pairs) twisted in layers or bundles
- Refer to data sheet for more details
- Non-woven wrapping
- PVC jacket, green (RAL 6018)

## Technical data

**Core identification code**
Details see datasheet
ÖLFLEX® SERVO 728 CY

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
IEC: 30 V
UL & CSA: 300 V

**Test voltage**
C/C: 2000 V
C/S: 1000 V

**Temperature range**
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 728 CY** | | | | |
| 1020100 | (10x0,14+2x0,5) | 7 | 41 | 84 |
| 1020101 | (10x0,14+4x0,5) | 7.6 | 53 | 101 |
| 1020102 | (15x0,14+4x0,5) | 7.6 | 68 | 115 |
| 1020110 | (4x2x0,34+4x0,5) | 8.3 | 79 | 129 |
| 1020111 | (3x(2x0,14)+4x0,14+2x0,5) | 8.2 | 68 | 120 |
| 1020120 | (4x2x0,25+2x0,5) | 7.9 | 59 | 103 |
| 1020121 | (4x2x0,25+2x1,0) | 7.6 | 63 | 112 |
| 1020122 | (4x2x0,14+4x1+(4x0,14)) | 9 | 110 | 155 |
| 1020130 | (3x(2x0,14)+2x(0,5)) | 9 | 87 | 140 |
| 1020131 | 3x(2x0,14)+(3x0,14) | 9.2 | 41 | 115 |
| 1020132 | 4x(2x0,14)+(2x1,0) | 10.4 | 84 | 145 |
| 1020133 | (4x2x0,14+4x0,5) | 7.9 | 58 | 97 |
| 1020134 | (7x2x0,14+2x0,5) | 8.5 | 60 | 115 |
| 1020135 | (3x(2x0,14)+4x0,14+2x0,5+4x0,22)) | 9.7 | 80 | 160 |
| 1020136 | (3x2x0,14)+(2x0,5) | 9.3 | 87 | 140 |
| 1020140 | (5x2x0,25) | 7.4 | 50 | 96 |
| 1020141 | (6x2x0,25) | 8 | 60 | 114 |
| 1020142 | (5x2x22AWG) | 7.9 | 71 | 115 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 7DSL

Low capacitive hybrid servo cable with PVC outer sheath for static use - certified for North America

**Info**

- One cable solution for servo drives
- Suitable for Hiperface DSL® and SCS open link interfaces
- EMC-compliant




## Benefits

- Only one connection line between drive and motor-feedback system. Instead of the encoder cable a specific integrated data pair takes over the signalling.
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Multi-standard certification reduces part varieties and saves costs
- Easy to install

## Application range

- For fixed installation or applications with occasional movements
- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

## Product features

- Maximum DSL transmission length: 100m
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant
- Low-capacitance design
- EMC-optimised design

## Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

## Product Make-up

- Fine-wire, bare copper conductor (power cores and control pair) and 7-wire, tinned copper conductor (signal pair)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one screened control pair and one DSL data pair twisted together
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Signal pair: white, blue
Control pair (optional): black with white numbers 5 + 6

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
DSL pair: 7-wired

**Minimum bending radius**
For flexible use:
15 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
Power and control:
IEC: U0/U: 600/1000 V
UL: 1000 V
Signal pair: 300 V

**Test voltage**
Power and control: 4 kV
Data pair: 1kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Hybrid cables for fixed installation** | | | | |
| 1023290 | 4 G 1,5 + (2 x 22AWG) | 11.2 | 110 | 194 |
| 1023291 | 4 G 2,5 + (2 x 22AWG) | 12.6 | 148 | 253 |
| 1023292 | 4 G 4 + (2 x 22AWG) | 14.0 | 208 | 332 |
| 1023293 | 4 G 1,5 + (2 x 1,0) + (2 x 22AWG) | 13.2 | 140 | 250 |
| 1023294 | 4 G 2,5 + (2 x 1,0) + (2 x 22AWG) | 14.0 | 185 | 285 |
| 1023295 | 4 G 4 + (2 x 1,0) + (2 x 22AWG) | 15.8 | 248 | 390 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
HIPERFACE DSL® is a registered trademark of SICK AG, ACURO®link and SCS open link are registered trademarks of Hengstler GmbH
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 2XSLCH-JB

EMC-optimised motor cable, low-capacitance, double screened and halogen-free with improved fire behaviour






**Info**

- Halogen-free and highly flame-retardant
- 3+3 symmetry reduces common-mode interference effects and bearing currents
- CPR: Article number choice under www.lapp.com

## Benefits

- EMC-compliant installation of power drive systems conforming to EN 61800-3
- High power transmission for large drives
- Low capacitance design enables longer cable connection between frequency converter and motor
- Symmetrical 3+3 Version supports the reduction of damaging bearing currents
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire

## Application range

- Connecting cable between frequency converter and motor
- In dry, damp or wet interiors
- Paper industry, automotive industry
- Food production and packaging machinery
- Machine tools

## Product features

- Low-capacitance design
- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

## Norm references / Approvals

- Based on VDE 0276, 0250, 0207

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: XLPE
- Cores twisted concentrically (symmetrically splitted protective conductor of 3+3 version is gusset-filling divided between the power cores)
- Screening: wrapping of laminated aluminium foil in combination with tinned copper braiding
- Outer sheath: Halogen-free special compound, colour black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Colours according to HD 308 S2
VDE 0293-308

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor
Protective conductor of 3+3 version is gusset-filling divided between power cores

**Temperature range**
Flexing: -15°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 2XSLCH-JB / 4-core version** | | | | |
| 1133500 | 4G1,5 | 10.9 | 95 | 230 |
| 1133501 | 4G2,5 | 12.1 | 150 | 300 |
| 1133502 | 4G4 | 14.1 | 235 | 485 |
| 1133503 | 4G6 | 15.6 | 320 | 630 |
| 1133504 | 4G10 | 18.0 | 533 | 860 |
| 1133505 | 4G16 | 20.9 | 789 | 1290 |
| 1133506 | 4G25 | 26.0 | 1236 | 1860 |
| 1133507 | 4G35 | 29.6 | 1662 | 2610 |
| 1133508 | 4G50 | 32.8 | 2345 | 2950 |
| 1133509 | 4G70 | 38.0 | 3196 | 3950 |
| 1133510 | 4G95 | 42.5 | 4316 | 5300 |
| 1133511 | 4G120 | 47.0 | 5435 | 6600 |
| 1133512 | 4G150 | 52.9 | 6394 | 7043 |
| 1133513 | 4G185 | 57.6 | 7639 | 8384 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 2XSLCH-JB / 3 + 3 core version** | | | | |
| 1133514 | 3 X 1,5 + 3G0,25 | 10.9 | 88 | 140 |
| 1133515 | 3 X 2,5 + 3G0,5 | 12.0 | 144 | 220 |
| 1133516 | 3 X 4 + 3G0,75 | 13.5 | 224 | 323 |
| 1133517 | 3 X 6 + 3G1,0 | 14.7 | 276 | 420 |
| 1133518 | 3 X 10 + 3G1,5 | 16.7 | 491 | 615 |
| 1133519 | 3 X 16 + 3G2,5 | 20.2 | 723 | 819 |
| 1133520 | 3 X 25 + 3G4 | 23.4 | 1136 | 1325 |
| 1133521 | 3 X 35 + 3G6 | 26.7 | 1535 | 1718 |
| 1133522 | 3 X 50 + 3G10 | 30.9 | 2156 | 2399 |
| 1133523 | 3 X 70 + 3G10 | 34.4 | 2871 | 3056 |
| 1133524 | 3 X 95 + 3G16 | 38.3 | 3953 | 4162 |
| 1133525 | 3 X 120 + 3G16 | 42.3 | 4836 | 5074 |
| 1133526 | 3 X 150 + 3G25 | 47.5 | 5412 | 6128 |
| 1133527 | 3 X 185 + 3G35 | 51.9 | 7041 | 7500 |
| 1133528 | 3 X 240 + 3G50 | 59.0 | 8986 | 9770 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO 7TCE

Multi-listed, flexible servo cable with optional pairs for brake and temperature sensor




## Info

- Servo motor and drive connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

## Benefits

- One common cable for multiple circuits
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Low capacitance design enables longer cable connection between frequency converter and motor
- UL TC-ER and c(UL) CIC/TC approved

## Application range

- Connecting cable between servo controller and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

## Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- -40°C Cold Bend; -25°C Cold Impact; 90°C Wet or Dry
- Sunlight Resistant; Direct Burial

## Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL 2277
- C(UL) CIC FT4 (18AWG - 14AWG); cRU AWM I/II A/B FT4

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: XLPE
- Individual design depending on the item: power cores without or with one or two individually screened control core pairs twisted together in short lay lengths
- Tinned-copper braiding
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), orange

## Technical data

**Classification ETIM 5/6**
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**
Power cores: black with marking U/ L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Optional designs with
one pair of control cores: black; white
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

**Certifications**
USA: UL TC-ER, Flexible Motor SupplyCanada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

**Conductor stranding**
Fine wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
UL TC: 600V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 7TCE** | | | | |
| 700730 | 4 G 1,5 | 9.8 | 88 | 143 |
| 700731 | 4 G 2,5 | 11.0 | 132 | 199 |
| 700732 | 4 G 4 | 12.8 | 199 | 286 |
| 700733 | 4 G 6 | 14.1 | 281 | 373 |
| 700734 | 4 G 1,5 + (2 x 1,5) | 12.6 | 147 | 240 |
| 700735 | 4 G 2,5 + (2 x 1,5) | 13.3 | 191 | 301 |
| 700736 | 4 G 4 + (2 x 1,5) | 15.8 | 259 | 432 |
| 700737 | 4 G 6 + (2 x 1,5) | 17.0 | 354 | 496 |
| 700738 | 4 G 1,0 + 2 x (2 x 1,0) | 13.2 | 167 | 277 |
| 700739 | 4 G 1,5 + 2 x (2 x 1,0) | 13.9 | 188 | 314 |
| 700740 | 4 G 2,5 + 2 x (2 x 1,0) | 15.5 | 229 | 387 |
| 700741 | 4 G 4 + (2 x 1,0) + (2 x 1,5) | 17.0 | 326 | 487 |
| 700742 | 4 G 6 + (2 x 1,0) + (2 x 1,5) | 18.1 | 409 | 574 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® VFD 2XL

Multi-listed, flexible VFD cable




## Info

- VFD drive and motor connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

## Benefits

- Reduced insulation wall thickness, thus space-saving installation
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Low capacitance design enables longer cable connection between frequency converter and motor
- UL TC-ER and c(UL) CIC/TC approved

## Application range

- Connecting cable between Frequency converter and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

## Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend;-25°C Cold Impact
- Sunlight Resistant; Direct Burial

## Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL 2277
- C(UL) CIC/TC-ER FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: XLPE
- Aluminum-coated foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black with white numbers

**Certifications**
USA: UL TC-ER, WTTC, Flexible Motor Supply
Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

**Conductor stranding**
Fine wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

**Nominal voltage**
UL TC: 600V/2000V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

**Test voltage**
6000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm²/AWG sizes per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® VFD 2XL** | | | | |
| 700700 | 4 G 1,5 | 12.9 | 104.2 | 238 |
| 700701 | 4 G 2,5 | 14.8 | 148.8 | 292 |
| 700702 | 4 G 4 | 16.7 | 214.3 | 384 |
| 700703 | 4 G 6 | 18.0 | 296.1 | 476 |
| 700704 | 4 G 10 | 22.5 | 443.4 | 856 |
| 700705 | 4 G 16 | 25.9 | 770.8 | 1317 |
| 700706 | 4 G 4AWG | 29.4 | 955.3 | 1570 |
| 700707 | 4 G 2AWG | 33.8 | 1458.2 | 2173 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® VFD 2XL with Signal

Multi-listed, flexible VFD cable with a pair for brake or temperature sensor

**Info**

- VFD drive and motor connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant




## Benefits

- One common cable for multiple circuits
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Low capacitance design enables longer cable connection between frequency converter and motor
- UL TC-ER and c(UL) CIC/TC approved

## Application range

- Connecting cable between Frequency converter and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

## Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend;-25°C Cold Impact
- Sunlight Resistant; Direct Burial

## Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL 2277
- C(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: XLPE
- Control pair with laminated aluminium film and tin-plated drain wire
- Barrier tape
- Aluminum-coated foil
- Tinned-copper braiding with drain wire
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black with white numbers

**Certifications**
USA: UL TC-ER, WTTC, Flexible Motor Supply
Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

**Conductor stranding**
Fine wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

**Nominal voltage**
UL TC: 600V/2000V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

**Test voltage**
6000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm²/AWG sizes per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® VFD 2XL with Signal** | | | | |
| 700710 | 4 G 1,5 + (2 x 1,0) | 16.6 | 135.4 | 298 |
| 700711 | 4 G 2,5 + (2 x 1,0) | 17.4 | 196.4 | 375 |
| 700712 | 4 G 4 + (2 x 1,0) | 19.1 | 238.1 | 438 |
| 700713 | 4 G 6 + (2 x 1,0) | 20.3 | 319.9 | 527 |
| 700714 | 4 G 10 + (2 x 2,5) | 25.0 | 497 | 1027 |
| 700715 | 4 G 16 + (2 x 2,5) | 28.2 | 750 | 1347 |
| 700716 | 4 G 4AWG + (2 x 2,5) | 32.0 | 992.5 | 1674 |
| 700717 | 4 G 2AWG + (2 x 2,5) | 35.6 | 1528.2 | 2351 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Cable chain
## applications











# ÖLFLEX® SERVO FD 781 CY

Screened, low capacitive servo cable with PVC outer sheath for flexible cable chain application




**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- EMC-compliant

## Benefits

- Well-proven and reliable
- Low capacitance design enables longer cable connection between frequency converter and motor
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- Connecting cable between Frequency converter and motor
- In cable chains or moving machine parts
- For power circuits in machine cabling
- In dry, damp or wet interiors with normal mechanical stress conditions
- Only for outdoor use within the indicated operating temperature range, with UV-protection

## Product features

- Oil-resistant
- Flame retardant acc. to IEC 60332-1-2
- Low-adhesive surface

## Norm references / Approvals

- Based on VDE 0250 / 0285
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Cores twisted in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with gn-ye protective conductor

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 781 CY** | | | | |
| 0036320 | 4 G 1.5 | 9.8 | 89 | 157 |
| 0036321 | 4 G 2.5 | 11.9 | 133.8 | 233 |
| 0036322 | 4 G 4.0 | 13.5 | 210.9 | 335 |
| 0036324 | 4 G 10.0 | 19.7 | 488.2 | 747 |
| 0036325 | 4 G 16.0 | 23.9 | 744.8 | 1109 |
| 0036327 | 4 G 35.0 | 33.3 | 1565.4 | 2264 |
| 0036328 | 4 G 50.0 | 38.3 | 2174.9 | 3090 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD 7TCE

Highly flexible, low capacitive servo motor cable with TC-ER (UL) or c(UL)-Listing for North America




## Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- Low-capacitance design

## Benefits

- Multi-standard certification offers universal application range, reduces part varieties and saves costs
- TC-ER and Flexible Motor Supply Cable listings enable open wiring on cable trays as well as the static or highly flexible usage for industrial machines with the same cable
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Low capacitance design enables longer cable connection between frequency converter and motor
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Ideal for export-oriented machinery and equipment manufacturers thanks to high normative acceptance by the North American NEC (National Electrical Code)

## Application range

- Connecting cable between servo controller and motor
- In cable chains or moving machine parts
- Static open wiring on and between cable tray an industrial machine acc. NEC
- Industrial machinery and machine tools
- Linear robots, automated handling equipment
- Assembly lines, production lines, in all kinds of machines

## Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- -40°C Cold Bend; -25°C Cold Impact; 90°C Wet or Dry
- Sunlight Resistant
- Direct Burial (according US standard)
- Low capacitance

## Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Flexible Motor Supply Cable per UL 2277
- Class 1 Division 2 per NEC Article 501
- C(UL) CIC FT4 (18AWG - 14AWG); cRU AWM I/II A/B FT4
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: EPR compound
- Individual design depending on the item: power cores without or with one or two individually screened control core pairs twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), orange

## Technical data

**Classification ETIM 5/6**
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**
Power cores: black with marking U/ L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Optional designs with
one pair of control cores: black; white
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

**Certifications**
USA: UL TC-ER, Flexible Motor SupplyCanada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
UL TC: 600V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 2 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -5°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 7TCE** | | | | |
| 700750 | 4 G 1.5 | 10.2 | 91 | 174 |
| 700751 | 4 G 2.5 | 11.4 | 141 | 230 |
| 700752 | 4 G 4.0 | 13.1 | 201 | 319 |
| 700753 | 4 G 6.0 | 15.0 | 283 | 431 |
| 700754 | 4 G 1,5 + (2 x 1,5) | 12.7 | 144 | 259 |
| 700755 | 4 G 2,5 + (2 x 1,5) | 13.8 | 199 | 356 |
| 700756 | 4 G 4 + (2 x 1,5) | 16.1 | 274 | 447 |
| 700757 | 4 G 6 + (2 x 1,5) | 17.1 | 345 | 537 |
| 700758 | 4 G 1 + 2 x (2 x 1,0) | 13.3 | 152 | 280 |
| 700759 | 4 G 1,5 + 2 x (2 x 1,0) | 14.8 | 190 | 355 |
| 700760 | 4 G 2,5 + 2 x (2 x 1,0) | 15.9 | 278 | 410 |
| 700761 | 4 G 4 + (2 x 1,0) + (2 x 1,5) | 17.9 | 318 | 525 |
| 700762 | 4 G 6 + (2 x 1,0) + (2 x 1,5) | 18.8 | 390 | 613 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD zeroCM

Motor connection cable; PUR jacketed; Shielded; UL recognised; Cable chain




**Info**

- Extended Line Performance - Long distance
- New design reduces common-mode interference effects and bearing currents

## Benefits

- Low-capacitance bundle design with counterrotating protective conductor (zeroCM® technology) enables completely electrically symmetrical cable construction and improves electromagnetic compatibility
- zeroCM® technology has been proven to reduce leakage currents in protective earth or equipotential bonding cables, thus reducing harmful currents at the motor bearing, electromagnetic interference on data transmission and corrosion on building structures
- zeroCM® technology reduces transfer currents in frequency converter applications and thus enables almost double cable lengths
- zeroCM® technology prevents potential voltages at earth connections on the consumer side
- Long-life cable chain use for medium travel distances or increased accelerations (LAPP performance class “Core Line”)
- Extremely weather-resistant with the possibility of use in a wide temperature range
- Particularly resistant to oil and drilling fluids, making it ideal for harsh environments
- UL/CSA certification according to technical data allows use of the product in the North American market
- Halogen-free and flame-retardant materials reduce the potential hazards in case of fire
- Faster and error-free connection with just one instead of three protective conductors

## Application range

- For connecting frequency inverter and motor
- Especially for environments where electromagnetic compatibility (EMC) is required
- Cable design allows highly flexible, continuously moving use in moving machine parts and in the cable chain
- Can be used in dry, damp and especially in rough and oily environments
- PUR outer jacket withstands high mechanical loads
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals
- Suitable for outdoor use
- Flexible use possible at up to –40 °C

## Technical data

**Classification ETIM 5/6**
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD zeroCM** | | | | |
| 1023470 | 3 X 1.5 + 1G 1 | 13 | 93.4 | 190 |
| 1023471 | 3 X 2.5 + 1G 1.5 | 14.8 | 149.2 | 266 |
| 1023472 | 3 X 4 + 1 G 2.5 | 18 | 220 | 405 |
| 1023473 | 3 X 6 + 1 G 4 | 20.5 | 322.2 | 543 |
| 1023474 | 3 X 10 + 1 G 6 | 23.7 | 469.9 | 787 |
| 1023475 | 3 X 16 + 1 G 10 | 28.2 | 735.6 | 1188 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD 796 P

Servo cable with PUR outer sheath for highly dynamic cable chain application - certified for North America

**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- AWM certification for USA and Canada
- VDE-tested characteristics




## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Low capacitance design enables longer cable connection between frequency converter and motor
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Multi-standard certification reduces part varieties and saves costs

## Application range

- Connecting cable between servo controller and motor
- In cable chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- For indoor and outdoor use

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Abrasion and notch-resistant
- Oil-resistant

## Norm references / Approvals

- VDE - reg - no. 8591 (≥ 4G1,5)
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- According to P/N individual design: Power cores with one or with two control pair(s), twisted together in short lay length
- Non-woven wrapping
- PUR outer sheath, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: black; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0,34mm² pairs: WH/BN/GN/YE

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 2 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 796 P** | | | | |
| 0025319 | 4 G 1,5 + (2 x 1,5) | 11.7 | 99 | 217 |
| 0025320 | 4 G 2,5 + (2 x 1,5) | 13.1 | 134 | 270 |
| 0025321 | 4 G 4 + (2 x 1,5) | 14.2 | 195 | 333 |
| 0025322 | 4 G 6 +(2 x 1,5) | 16.0 | 272 | 403 |
| 0025323 | 4 G 10 + (2 x 1,5) | 18.4 | 425 | 581 |
| 0025324 | 4 G 16 + (2 x 1,5) | 22.1 | 656 | 887 |
| 0025326 | 4 G 0,75 + 2 x (2 x 0,34) | 10.9 | 54 | 143 |
| 0025327 | 4 G 1,5 + 2 x ( 2 x 0,75) | 12.3 | 103 | 209 |
| 0025328 | 4 G 2,5 + 2 x (2 x 1,0) | 14.3 | 152 | 306 |
| 0025312 | 4 G 4 + 2 x (2 x 1,0) | 15.4 | 218 | 381 |
| 0025329 | 4 G 4 + (2 x 1,0) + (2 x 1,5) | 15.6 | 231 | 388 |
| 0025330 | 4 G 6 + (2 x 1,0) + (2 x 1,5) | 17.1 | 308 | 460 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD 796 CP

Screened servo cable with PUR outer sheath for highly dynamic cable chain application - certified




**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- Product range extension

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Suitable for use with servomotor product lines from leading drive manufacturers
- Low capacitance design enables longer cable connection between frequency converter and motor
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Connecting cable between servo controller and motor
- In cable chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Abrasion and notch-resistant
- Oil-resistant

## Norm references / Approvals

- VDE - Reg. - No. 8591
  (0027925,..926,..927,..930 pending)
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Individual design depending on the item:
  Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths;
  Power cores with control core triplet twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: individual design depending on the item black; white or brown; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE
Triplet: black with white numbers 1; 2; 3

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing:
up from 7.5 x outer diameter (up to 16mm²)
up from 10 x outer diameter (from 25mm²)
Fixed installation: 4 x outer diameter

**Nominal voltage**
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
Core/Core: 4 kV
Core/Screen: 2 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) approx. | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 796 CP** | | | | |
| 0027925 | 4G1 + (2 x 0,5) | 11.5 | 97.4 | 164 |
| 0027926 | 4G1,5 + (2 x 0,5) | 12 | 117.2 | 187 |
| 0027927 | 4G2,5 + (2 x 0,5) | 12.6 | 161.2 | 243 |
| 0027930 | 4G0,75 + (2 x 0,5) | 11 | 85.5 | 155 |
| 0027931 | 4G1 + (2 x 1,0) | 11.7 | 106.7 | 174 |
| 0027932 | 4G1,5 + (3 x 1,0) | 12 | 143.8 | 220 |
| 0027933 | 4G2,5 + (3 x 1,0) | 13.5 | 204.3 | 294 |
| 0027934 | 4G4 + (3 x 1,0) | 14.7 | 250 | 361 |
| 0027935 | 4G6 + (3 x 1,5) | 16.5 | 381.4 | 505 |
| 0027936 | 4G10 + (3 x 1,5) | 19.7 | 568.9 | 722 |
| 0027937 | 4G16 + (3 x 1,5) | 23.3 | 824.6 | 1030 |
| 0027948 | 4G1,5 + (2 x 1,0) | 12.2 | 129.9 | 202 |
| 0027950 | 4G1,5 | 9.1 | 79 | 139 |
| 0027951 | 4G2,5 | 10.6 | 129 | 197 |
| 0027952 | 4G4 | 11.9 | 186 | 268 |
| 0027953 | 4G6 | 14.5 | 296 | 396 |
| 0027954 | 4G10 | 17.5 | 449 | 589 |
| 0027955 | 4G16 | 21.6 | 716 | 948 |
| 0027956 | 4G25 | 25.2 | 1,073 | 1337 |

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) approx. | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0027957 | 4G35 | 28.6 | 1.480 | 1769 |
| 0027958 | 4G50 | 33.4 | 2.115 | 2468 |
| 0027959 | 4G1,5 + (2 x 1,5) | 11.6 | 135 | 261 |
| 0027960 | 4G2,5 + (2 x 1,5) | 13.4 | 188 | 322 |
| 0027961 | 4G4 + (2 x 1,5) | 14.8 | 235 | 385 |
| 0027962 | 4G6 + (2 x 1,5) | 16.8 | 329 | 486 |
| 0027963 | 4G10 + (2 x 1,5) | 19.4 | 515 | 721 |
| 0027964 | 4G16 + (2 x 1,5) | 23.1 | 757 | 1048 |
| 0027965 | 4G25 + (2 x 1,5) | 26.6 | 1.147 | 1532 |
| 0027966 | 4G35 + (2 x 1,5) | 30.9 | 1.538 | 2097 |
| 0027967 | 4G50 + (2 x 1,5) | 34 | 2.181 | 2721 |
| 0027968 | 4G1 + 2 x (2 x 0,75) | 11.6 | 138.4 | 208 |
| 0027969 | 4G1,5 + 2 x (2 x 0,75) | 12.2 | 159 | 313 |
| 0027970 | 4G2,5 + 2 x (2 x 1) | 14.6 | 207 | 362 |
| 0027971 | 4G4 + (2 x 1) + (2 x 1,5) | 16.3 | 344 | 485 |
| 0027972 | 4G6 + (2 x 1) + (2 x 1,5) | 18.1 | 436 | 588 |
| 0027973 | 4G10 + (2 x 1) + (2 x 1,5) | 21.8 | 610 | 819 |
| 0027974 | 4G16 + 2 x (2 x 1,5) | 25.5 | 801 | 1135 |
| 0027975 | 4G25 + 2 x (2 x 1,5) | 28.8 | 1.187 | 1559 |
| 0027976 | 4G35 + 2 x (2 x 1,5) | 30.9 | 1.588 | 2093 |
| 0027977 | 4G50 + 2 x (2 x 2,5) | 36.3 | 2.557 | 2920 |
| 0027978 | 4G2,5 + (2 x 1,0) | 13.5 | 169.2 | 253 |
| 0027980 | 4G4 + 2 x (2 x 1,0) | 16.1 | 274 | 466 |
| 0027981 | 4G4 + (2 x 1,0) | 14.8 | 238.9 | 359 |
| 0027982 | 4G6 + (2 x 1,0) | 16.8 | 339.5 | 469 |
| 0027983 | 4G10 + (2 x 1,0) | 18.8 | 530.1 | 689 |
| 0027984 | 4G16 + (2 x 1,0) | 22.8 | 786.7 | 985 |
| 0027985 | 4G1,5 + (3 x 1) + (2 x 0,75) | 12.9 | 178.6 | 262 |
| 0027986 | 4G2,5 + (3 x 1) + (2 x 0,75) | 14.7 | 242.8 | 340 |
| 0027987 | 4G4 + (3 x 1,5) + (2 x 0,75) | 16.3 | 334.7 | 462 |
| 0027988 | 4G6 + (3 x 1,5) + (2 x 0,75) | 18.2 | 441.2 | 561 |
| 0027989 | 4G10 + (3 x 1,5) + (2 x 0,75) | 21.9 | 612.4 | 824 |
| 0027990 | 4G1,5 + (4 x 0,5) | 12.2 | 132 | 217 |
| 0027991 | 4G2,5 + (4 x 0,5) | 13.5 | 192.2 | 278 |
| 0027992 | 4G4 + (4 x 0,5) | 14.9 | 238.2 | 345 |
| 0027993 | 4G6 + (4 x 0,5) | 16.9 | 344.9 | 460 |
| 0027994 | 4G10 + (4 x 0,5) | 18.9 | 528.5 | 687 |
| 0027995 | 4G16 + (4 x 0,5) | 22.9 | 786.3 | 1008 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD 798 CP

Screened encoder cable with PUR outer sheath for highly dynamic cable chain application - certified




## Info

- Extended Line Performance - Long travel lengths or high acceleration
- Fits to various encoder systems
- AWM certification for USA and Canada

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Suitable for use with encoders & resolvers from leading manufacturers
- Thin, optimised for weight and volume
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

## Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and speed generators
- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Low-capacitance design
- Abrasion and notch-resistant
- Oil-resistant

## Norm references / Approvals

- Bending cycles and usage parameters: please refer to the A2-1 selection table
- UL AWM Style 20236
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire or extra-fine wire, tinned-copper conductor
- Core insulation: polypropylene (PP)
- Cores (or core pairs) twisted in layers or bundles
- Refer to data sheet for more details
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Details see datasheet ÖLFLEX® SERVO FD 798 CP

**Conductor stranding**
Fine wire or extra-fine wire

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: 30 V
UL & CSA: 30 V

**Test voltage**
Core/core: 1500 V rms
Core/screen: 750 V rms

**Temperature range**
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 798 CP** | | | | |
| 0036910 | (4 x 2 x 0,34 + 4 x 0,5) | 8.9 | 79 | 125 |
| 0036911 | (3 x (2 x 0,14) + 2 x (0,5)) | 9.6 | 70 | 120 |
| 0036912 | (3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5) | 8.8 | 68 | 110 |
| 0036913 | (3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5 + 4 x 0,22) | 9.4 | 80 | 130 |
| 0036914 | (9 x 0,5) | 8.8 | 71 | 110 |
| 0036915 | (4 x 2 x 0,25 + 2 x 1) | 8.8 | 63 | 109 |
| 0036916 | (6 x 2 x 0,25 + 2 x 0,5) | 10.3 | 67 | 121 |
| 0036917 | (10 x 0,14 + 2 x 0,5) | 7.7 | 41 | 80 |
| 0036918 | (10 x 0,14 + 4 x 0,5) | 8.1 | 54 | 98 |
| 0036920 | (4 x 2 x 0,14 + 4 x 0,5) | 8.2 | 51 | 95 |
| 0036921 | (4 x 2 x 0,25) | 7.6 | 38 | 75 |
| 0036923 | (8 x 2 x 0,18) | 7.8 | 51 | 85 |
| 0036924 | (4 x 2 x 0,18) | 6.4 | 30 | 57 |
| 0036926 | (12 x 0,22) | 6.9 | 44 | 73 |
| 0036927 | (4 x 2 x 0,25 + 2 x 0,5) | 8.5 | 62 | 98 |
| 0036928 | (2 x 2 x 0,14 + 2 x (2 x 0,14) + 4 x 0,5 + (4 x 0,14)) | 9.1 | 79 | 135 |
| 0036929 | (2 x (2 x 0,25) + 2 x 0,5) | 8.7 | 46 | 98 |
| 0036930 | (2 x 2 x 0,25 + 2 x 0,5) | 7.3 | 38 | 72 |
| 0036931 | (3 x (2 x 0,14) + 2 x (1)) | 9.1 | 74 | 137 |
| 0036932 | (4 x 2 x 0,14 + 4 x 0,5 + (4 x 0,14)) | 8.3 | 88 | 134 |
| 0036933 | (3 x 2 x 0,25 + 2 x 0,5) | 8.4 | 50 | 86 |
| 0036934 | (5 x 2 x 0,25 + 2 x 0,5) | 9.5 | 69 | 113 |
| 0036935 | (3 x 2 x 24AWG) | 6.5 | 36 | 70 |
| 0036936 | (5 x 2 x 0,14 + 2 x 0,5) | 7.8 | 51 | 101 |
| 0036937 | (2 x 2 x 0,18 + 5 x 0,5) | 7.6 | 62 | 110 |
| 0036938 | (5 x 2 x 0,18 + 6 x 0,5) | 8.7 | 79.2 | 113 |
| 0036939 | (10 x 2 x 28AWG) | 6.2 | 41 | 70 |
| 0036940 | (6 x 2 x 0,25) | 9.3 | 71 | 143 |
| 0036941 | 3 x (2 x 0,14) + (3 x 0,14) | 9.2 | 57 | 125 |
| 0036942 | (2 x 2 x 0,18) | 5 | 24 | 47 |
| 0036943 | (4 x 1 + 4 x 2 x 0,14 + (4 x 0,14)) | 9.7 | 103 | 175 |
| 0036944 | (3 x (2 x 0,25) + 3 x 0,25 + 2 x 1) | 9.3 | 96 | 162 |
| 0036945 | 4 x (2 x 0,14) + 2 x (1) | 11.4 | 92 | 115 |
| 0036946 | 3 x (2 x 0,14) + (2 x 0,5) | 10 | 68 | 142 |
| 0036947 | (5 x 2 x 0,25) | 9 | 50 | 126 |
| 0036948 | (5 x 2 x 22AWG) | 8.7 | 75 | 109 |
| 0036949 | (3 x (2 x 0,14) + 2 x (0,5)) | 9.6 | 70 | 120 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SERVO FD 7DSL

Low capacitive hybrid servo cable with PUR outer sheath for highly dynamic cable chain application - certified

**Info**

- One cable solution for servo drives
- Suitable for Hiperface DSL® and SCS open link interfaces
- Extended Line Performance - Long travel lengths or high acceleration




## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Only one connection line between drive and motor-feedback system. Instead of the encoder cable a specific integrated data pair takes over the signalling
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- In cable chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

## Product features

- Maximum DSL transmission length: 100m
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Low-capacitance design
- Oil-resistant

## Norm references / Approvals

- UL AWM Style 21223
  cRU AWM I/II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine-wire, bare copper conductor (power cores and control pair) and 19-wire, tinned copper conductor (data pair)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one screened control pair and one DSL data pair twisted together
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Signal pair: white, blue
Control pair (optional): black with white numbers 5 + 6

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
DSL data pair: 19-wired

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
Power and control:
IEC: U0/U: 600/1000 V
UL: 1000 V
Signal pair: 300 V

**Test voltage**
Power and control: 4 kV
Data pair: 1kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +90°C
(UL: +80°C)
Fixed installation: -50°C to +90°C
(UL: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Hybrid cables for cable chain applications** | | | | |
| 1023273 | 4G0,75+(2x0,34)+(2x26AWG) | 10.6 | 97 | 170 |
| 1023274 | 4G1+(2x0,75)+(2x22AWG) | 11.8 | 133 | 202 |
| 1023275 | 4G1,5+(2x22AWG) | 11.2 | 115 | 198 |
| 1023276 | 4G2,5+(2x22AWG) | 12.6 | 160 | 269 |
| 1023277 | 4G4+(2x22AWG) | 14 | 218 | 343 |
| 1023278 | 4G1,5+(2x1)+(2x22AWG) | 13.2 | 152 | 256 |
| 1023279 | 4G2,5+(2x1)+(2x22AWG) | 14 | 195 | 313 |
| 1023280 | 4G4+(2x1)+(2x22AWG) | 15.8 | 268 | 407 |
| 1023281 | 4G6+(2x1)+(2x22AWG) | 17.8 | 334 | 485 |
| 1023282 | 4G0,5+(2x0,34)+(2x26AWG) | 9.6 | 73 | 132 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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# ÖLFLEX® SERVO 3D 7DSL

Low capacitive hybrid servo cable with PUR outer sheath for three-dimensional robotic application - certified




**Info**

- One cable solution for servo drives
- Suitable for Hiperface DSL® and SCS open link interfaces
- 3D - Simultaneous bending and torsion

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Only one connection line between drive and motor-feedback system. Instead of the encoder cable a specific integrated data pair takes over the signalling
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- Connecting cable between servo controller and motor
- In industrial robots, moving machine parts or cable chain
- Automated handling equipment
- Particularly in wet areas of machine tools and transfer lines
- Inside of dresspacks of buckling arm robots and for use for gantry robots
- For indoor and outdoor use

## Product features

- High oil-resistance
- Abrasion and notch-resistant
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Flexible at low temperatures
- Low-capacitance design

## Norm references / Approvals

- UL AWM Style 21223
  cRU AWM I/II A/B FT1
- UL File No. E63634
- Designed for up to 5 million torsion cycles
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine-wire, bare copper conductor (power cores and control pair) and 19-wire, tinned copper conductor (data pair)
- Core insulation: Polypropylene (PP) respectively fluorinated ethylene propylene (FEP)
- Power cores with screened control pair and data pair twisted together
- Special tape wrapping
- Spiral shield made of tinned copper wires
- Wrapping of PTFE tape
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Data pair: white, blue
Control pair: black, white

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
DSL data pair: 19-wired

**Torsion**
Torsion load max. ± 180 °/m

**Minimum bending radius**
Moved: 10 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
Power and control cores:
IEC: U0/U: 600/1000 V
UL: 600 V
Data pair UL: 600 V

**Test voltage**
Power and control: 4 kV
Data pair: 1kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO 3D 7DSL** | | | | |
| 1023351 | 4 G 0,5 + (2 x 0,25) + (2 x 26AWG) | 9.4 | 70 | 130 |
| 1023352 | 4 G 1,5 + (2 x 1,0) + (2 x 22AWG) | 13.3 | 152 | 276 |
| 1023353 | 4 G 2,5 + (2 x 1,0) + (2 x 22AWG) | 14.4 | 195 | 326 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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# ÖLFLEX® SERVO FD 7OCS

Low capacitive hybrid servo cables with PUR outer sheath for highly dynamic cable chain application - certified

**Info**

- One cable solutions for servo drives
- Suitable for various OEM transmission protocols
- Extended Line Performance - High cable chain requirements




## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Only one connection line between drive and motor-feedback system. Instead of the encoder cable integrated data pairs, quads or signal cores take over the signalling
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- In cable chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- For indoor and outdoor use

## Product features

- OCS - One Cable Solution
- High oil-resistance
- Abrasion and notch-resistant
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Flexible at low temperatures

## Norm references / Approvals

- UL AWM Style 21223 or 20233
  cRU AWM I/II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine or fine wired conductor made of bare or tinned copper
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores with screened control pair or bundle and specific data pairs, quads or signal cores twisted together
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Details see datasheet

**Conductor stranding**
Power cores and brake pairs or triplets: Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
Signal cores, data pairs or star quads: Fine-wired

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
Power and control cores:
Version 1,3 & 4: IEC $U_0$/U 600/1000 V
Version 2: IEC 300 V
UL all versions: see data sheet
Individual data pairs and quads: see data sheet

**Test voltage**
Details see datasheet

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SERVO FD 7OCS** | | | | |
| 1023373 | 4G1,5 + (2 x 0,75) + (2 x 0,30 + 2 x 2 x 0,15) | 12.8 | 165 | 250 |
| 1023374 | 4G2,5 + (2 x 1) + (2 x 0,30 + 2 x 2 x 0,15) | 14.2 | 213 | 316 |
| 1023375 | 4G1,5 + (2 x 0,75) + (4 x 24AWG) | 13.3 | 154 | 252 |
| 1023376 | 4G4 + (2 x 1) + (2 x 0,30 + 2 x 2 x 0,15) | 15.8 | 275 | 395 |
| 1023380 | 4G1,5 + (2 x 1,5) + (4 x 0,20) | 12.7 | 170 | 257 |
| 1023381 | 4G2,5 + (2 x 1,5) + (4 x 0,20) | 13.7 | 210 | 303 |
| 1023385 | 4G22AWG + (2 x 22AWG) + (4 x 0,20) | 9.8 | 75 | 128 |
| 1023386 | 4G19AWG + (2 x 21AWG) + (4 x 0,20) | 10.6 | 100 | 159 |
| 1023387 | 4G1,5 + (1 x Z50) + 2 x (2 x 1) | 15.7 | 196 | 332 |
| 1023388 | 4G2,5 + (1 x Z50) + 2 x (2 x 1) | 16.7 | 242 | 390 |
| 1023389 | 4G4 + (1 x Z50) + 2 x (2 x 1) | 17.4 | 300 | 458 |
| 1023394 | 4G0,75 + (2 x 0,5) + (4 x 24AWG) | 11.7 | 115 | 187 |
| 1023395 | 4G0,75 + (2 x 0,5) + ((4 x 24AWG)) | 11.7 | 130 | 204 |
| 1023396 | 4G1,5 + (2 x 0,75) + ((4 x 24AWG)) | 13.3 | 172 | 264 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC FD 810

Highly flexible control cable with PVC core insulation and PVC sheath




**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- The classic for multi-functional use

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: 0°C to +70°C
Fixed installation: -40°C to +80°C

## Benefits

- Well-proven and reliable
- For various applications
- Good combination of quality and price
- Low particle emission at moved chain application

## Application range

- In cable chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- In damp or wet interiors
- Only for outdoor use within the indicated operating temperature range, with UV-protection

## Product features

- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface

## Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC FD 810** | | | | |
| 0026100 | 2 X 0.5 | 5.3 | 10 | 40 |
| 0026101 | 3 G 0.5 | 5.7 | 15 | 48 |
| 0026102 | 4 G 0.5 | 6.3 | 19.2 | 58 |
| 0026103 | 5 G 0.5 | 6.8 | 24 | 67 |
| 0026104 | 7 G 0.5 | 8 | 34 | 88 |
| 0026105 | 12 G 0.5 | 9.5 | 58 | 136 |
| 0026106 | 18 G 0.5 | 11.4 | 86.4 | 195 |
| 0026107 | 25 G 0.5 | 13.7 | 120 | 274 |
| 0026108 | 30 G 0.5 | 14.3 | 144 | 312 |
| 0026109 | 34 G 0.5 | 15.6 | 164 | 359 |
| 0026110 | 50 G 0.5 | 18.5 | 240 | 515 |
| 0026119 | 2 X 0.75 | 5.7 | 15 | 49 |
| 0026120 | 3 G 0.75 | 6.2 | 22 | 60 |
| 0026121 | 4 G 0.75 | 6.8 | 29 | 73 |
| 0026122 | 5 G 0.75 | 7.4 | 37 | 86 |
| 0026123 | 7 G 0.75 | 8.9 | 51 | 117 |
| 0026124 | 12 G 0.75 | 10.6 | 87 | 181 |
| 0026125 | 16 G 0.75 | 12 | 116 | 234 |
| 0026126 | 18 G 0.75 | 12.7 | 130 | 259 |
| 0026127 | 25 G 0.75 | 15.2 | 181 | 363 |
| 0026130 | 2 X 1.0 | 6.1 | 19 | 58 |
| 0026131 | 3 G 1.0 | 6.6 | 29 | 72 |
| 0026132 | 4 G 1.0 | 7.3 | 39 | 88 |
| 0026133 | 5 G 1.0 | 8 | 48 | 104 |
| 0026134 | 7 G 1.0 | 9.6 | 67 | 142 |
| 0026135 | 12 G 1.0 | 11.4 | 115 | 221 |
| 0026136 | 14 G 1.0 | 12.3 | 134.4 | 258 |
| 0026137 | 16 G 1.0 | 13 | 153 | 287 |
| 0026138 | 18 G 1.0 | 13.9 | 173 | 324 |
| 0026139 | 25 G 1.0 | 16.4 | 240 | 445 |
| 0026140 | 26 G 1.0 | 16.4 | 249.6 | 459 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026141 | 34 G 1.0 | 18.9 | 326.4 | 595 |
| 0026142 | 41 G 1.0 | 20.6 | 394 | 712 |
| 0026143 | 50 G 1.0 | 22.3 | 480 | 854 |
| 0026144 | 65 G 1.0 | 25.4 | 624 | 1097 |
| 0026149 | 2 X 1.5 | 6.8 | 29 | 74 |
| 0026150 | 3 G 1.5 | 7.4 | 43.2 | 93 |
| 0026151 | 4 G 1.5 | 8.1 | 58 | 114 |
| 0026152 | 5 G 1.5 | 9.1 | 72 | 139 |
| 0026153 | 7 G 1.5 | 10.9 | 101 | 189 |
| 0026154 | 12 G 1.5 | 12.9 | 173 | 295 |
| 0026156 | 18 G 1.5 | 15.6 | 259 | 429 |
| 0026157 | 25 G 1.5 | 18.6 | 360 | 597 |
| 0026158 | 26 G 1.5 | 18.6 | 374.4 | 615 |
| 0026159 | 34 G 1.5 | 21.1 | 489.6 | 783 |
| 0026160 | 41 G 1.5 | 23 | 613 | 936 |
| 0026161 | 42 G 1.5 | 23 | 629 | 954 |
| 0026162 | 50 G 1.5 | 25 | 720 | 1134 |
| 0026170 | 3 G 2.5 | 9 | 72 | 145 |
| 0026171 | 4 G 2.5 | 10 | 96 | 179 |
| 0026172 | 5 G 2.5 | 11.2 | 120 | 218 |
| 0026173 | 7 G 2.5 | 13.6 | 168 | 303 |
| 0026174 | 12 G 2.5 | 16 | 288 | 473 |
| 0026175 | 14 G 2.5 | 17.2 | 336 | 548 |
| 0026180 | 3 G 4.0 | 10.6 | 120 | 214 |
| 0026181 | 4 G 4.0 | 11.7 | 160 | 266 |
| 0026182 | 5 G 4.0 | 13.1 | 200 | 325 |
| 0026183 | 4 G 6.0 | 13.9 | 230.4 | 396 |
| 0026184 | 5 G 6.0 | 15.5 | 288 | 484 |
| 0026185 | 4 G 10.0 | 17.6 | 384 | 644 |
| 0026186 | 5 G 10.0 | 19.6 | 480 | 785 |
| 0026187 | 4 G 16.0 | 21 | 615 | 922 |
| 0026188 | 5 G 16.0 | 23.6 | 768 | 1133 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC FD 810 CY

Highly flexible, screened control cable with PVC core insulation and PVC inner and outer sheath

**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- The classic for multi-functional use
- EMC-compliant




## Benefits

- Well-proven and reliable
- For various applications
- Good combination of quality and price
- Additional robustness thanks to inner sheath
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Power circuits for electrical equipments used in automation engineering
- Assembly lines, production lines, in all kinds of machines
- Only for outdoor use within the indicated operating temperature range, with UV-protection

## Product features

- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- PVC inner sheath, grey
- Tinned-copper braiding
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: 0°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC FD 810 CY** | | | | |
| 0026200 | 2 X 0.5 | 6.9 | 33 | 74 |
| 0026201 | 3 G 0.5 | 7.3 | 39 | 84 |
| 0026202 | 4 G 0.5 | 7.9 | 46 | 98 |
| 0026203 | 5 G 0.5 | 8.4 | 54 | 110 |
| 0026204 | 7 G 0.5 | 9.8 | 70 | 143 |
| 0026205 | 12 G 0.5 | 11.3 | 100 | 201 |
| 0026206 | 18 G 0.5 | 13.4 | 153 | 287 |
| 0026207 | 25 G 0.5 | 15.9 | 202 | 394 |
| 0026208 | 30 G 0.5 | 16.5 | 228 | 432 |
| 0026219 | 2 X 0.75 | 7.3 | 39 | 85 |
| 0026220 | 3 G 0.75 | 7.8 | 48 | 99 |
| 0026221 | 4 G 0.75 | 8.4 | 59 | 116 |
| 0026222 | 5 G 0.75 | 9 | 69 | 133 |
| 0026223 | 7 G 0.75 | 10.7 | 90 | 178 |
| 0026224 | 12 G 0.75 | 12.4 | 129 | 253 |
| 0026226 | 18 G 0.75 | 14.9 | 205 | 368 |
| 0026227 | 25 G 0.75 | 17.4 | 271 | 496 |
| 0026229 | 30 G 0.75 | 18 | 320 | 549 |
| 0026230 | 2 X 1.0 | 7.7 | 46 | 97 |
| 0026231 | 3 G 1.0 | 8.2 | 57 | 114 |
| 0026232 | 4 G 1.0 | 8.9 | 70 | 134 |
| 0026233 | 5 G 1.0 | 9.8 | 81 | 159 |
| 0026234 | 7 G 1.0 | 11.4 | 110 | 207 |
| 0026235 | 12 G 1.0 | 13.4 | 182 | 314 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026238 | 18 G 1.0 | 16.1 | 254 | 443 |
| 0026239 | 25 G 1.0 | 18.8 | 365 | 612 |
| 0026240 | 26 G 1.0 | 18.8 | 374 | 625 |
| 0026241 | 34 G 1.0 | 21.5 | 463 | 787 |
| 0026242 | 41 G 1.0 | 23.2 | 542 | 918 |
| 0026243 | 50 G 1.0 | 25.3 | 640 | 1120 |
| 0026249 | 2 X 1.5 | 8.4 | 58 | 117 |
| 0026250 | 3 G 1.5 | 9 | 75 | 139 |
| 0026251 | 4 G 1.5 | 9.9 | 91 | 169 |
| 0026252 | 5 G 1.5 | 10.9 | 112 | 201 |
| 0026253 | 7 G 1.5 | 12.7 | 145 | 262 |
| 0026254 | 12 G 1.5 | 15.1 | 247 | 404 |
| 0026255 | 16 G 1.5 | 16.8 | 314 | 503 |
| 0026256 | 18 G 1.5 | 17.8 | 348 | 560 |
| 0026257 | 25 G 1.5 | 21.2 | 498 | 793 |
| 0026259 | 34 G 1.5 | 23.9 | 700 | 1005 |
| 0026270 | 3 G 2.5 | 10.8 | 119 | 207 |
| 0026271 | 4 G 2.5 | 11.8 | 161 | 247 |
| 0026272 | 5 G 2.5 | 13.2 | 194 | 307 |
| 0026273 | 7 G 2.5 | 15.8 | 262 | 418 |
| 0026281 | 4 G 4.0 | 13.7 | 238 | 360 |
| 0026282 | 5 G 4.0 | 15.3 | 280 | 436 |
| 0026283 | 4 G 6.0 | 16.1 | 318 | 514 |
| 0026285 | 4 G 10.0 | 20.2 | 521 | 824 |
| 0026287 | 4 G 16.0 | 23.6 | 780 | 1207 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 809 SC

Highly flexible, single core cable with PVC insulation and PVC sheath - certified for North America




**Info**

- Basic Line Performance - Moderate travel lengths or acceleration
- Rated voltage 0,6/1 kV
- AWM certification for USA and Canada

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Low-adhesive surface

## Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107
  cRU AWM II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- PVC outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black or green-yellow, other colours available on request

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 600 V

**Test voltage**
4000 V

**Temperature range**
Flexing: 0°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Core colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CHAIN 809 SC** | | | | | |
| 1062900 | 6 | 7.4 | green-yellow | 57.6 | 101 |
| 1062901 | 6 | 7.4 | black | 57.6 | 101 |
| 1062902 | 10 | 9 | green-yellow | 96 | 158 |
| 1062903 | 10 | 9 | black | 96 | 158 |
| 1062904 | 16 | 9.9 | green-yellow | 153.6 | 217 |
| 1062905 | 16 | 9.9 | black | 153.6 | 217 |
| 1062906 | 25 | 11.3 | green-yellow | 240 | 307 |
| 1062907 | 25 | 11.3 | black | 240 | 307 |
| 1062908 | 35 | 13.1 | green-yellow | 336 | 427 |
| 1062909 | 35 | 13.1 | black | 336 | 427 |
| 1062910 | 50 | 15.9 | green-yellow | 480 | 611 |
| 1062911 | 50 | 15.9 | black | 480 | 611 |
| 1062912 | 70 | 17.6 | green-yellow | 672 | 778 |
| 1062913 | 70 | 17.6 | black | 672 | 778 |
| 1062914 | 95 | 19.8 | green-yellow | 912 | 1015 |
| 1062915 | 95 | 19.8 | black | 912 | 1015 |
| 1062916 | 120 | 23 | green-yellow | 1152 | 1296 |
| 1062917 | 120 | 23 | black | 1152 | 1296 |
| 1062918 | 150 | 24.8 | green-yellow | 1440 | 1597 |
| 1062919 | 150 | 24.8 | black | 1440 | 1597 |
| 1062920 | 185 | 27.1 | green-yellow | 1776 | 1971 |
| 1062921 | 185 | 27.1 | black | 1776 | 1971 |
| 1062922 | 240 | 30.6 | green-yellow | 2304 | 2419 |
| 1062923 | 240 | 30.6 | black | 2304 | 2419 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 809 SC CY

Highly flexible, screened single core cable with PVC insulation and PVC sheath - certified for North America




## Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Copper braiding screens the cable against electromagnetic interference
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107
  cRU AWM II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Non-woven wrapping
- Tinned-copper braiding
- Non-woven wrapping
- PVC outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black, other colours are available upon request

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 600 V

**Test voltage**
4000 V

**Temperature range**
Flexing: 0°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 809 SC CY** | | | | |
| 1062940 | 6 | 8.1 | 76 | 126 |
| 1062941 | 10 | 9.7 | 122 | 190 |
| 1062942 | 16 | 10.6 | 180 | 250 |
| 1062943 | 25 | 12 | 268 | 351 |
| 1062944 | 35 | 14.8 | 392 | 519 |
| 1062945 | 50 | 16.8 | 544 | 686 |
| 1062946 | 70 | 18.5 | 766 | 885 |
| 1062947 | 95 | 20.9 | 1020 | 1135 |
| 1062948 | 120 | 24.1 | 1272 | 1443 |
| 1062949 | 150 | 26.1 | 1593 | 1788 |
| 1062950 | 185 | 28.4 | 1941 | 2177 |
| 1062951 | 240 | 31.9 | 2518 | 2671 |
| 1062952 | 300 | 33.5 | 3116 | 3299 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 90

Highly flexible, single core cable with PVC insulation and PVC sheath - certified for North America




**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- Well-proven and reliable
- AWM certification for USA and Canada

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Also suitable for fixed installation where space is limited
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

## Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Low-adhesive surface

## Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm²
- CSA AWM IA/B IIA/B FT 1 ≤ 120 mm²
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Non-woven wrapping
- Core insulation: PVC
- PVC outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black or green-yellow, other colours available on request

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 600 V

**Test voltage**
4000 V

**Temperature range**
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Core colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® FD 90** | | | | | |
| 0026600 | 10 | 9 | green-yellow | 96 | 176 |
| 0026601 | 10 | 9 | black | 96 | 176 |
| 0026603 | 16 | 10.5 | green-yellow | 153.6 | 240 |
| 0026604 | 16 | 10.5 | black | 153.6 | 240 |
| 0026607 | 25 | 11.8 | green-yellow | 240 | 361 |
| 0026608 | 25 | 11.8 | black | 240 | 361 |
| 0026610 | 35 | 14.2 | green-yellow | 336 | 482 |
| 0026611 | 35 | 14.2 | black | 336 | 482 |
| 0026613 | 50 | 16.2 | green-yellow | 480 | 660 |
| 0026614 | 50 | 16.2 | black | 480 | 660 |
| 0026616 | 70 | 18.3 | green-yellow | 672 | 898 |
| 0026617 | 70 | 18.3 | black | 672 | 898 |
| 0026619 | 95 | 19.8 | green-yellow | 912 | 1179 |
| 0026620 | 95 | 19.8 | black | 912 | 1179 |
| 0026622 | 120 | 23.4 | green-yellow | 1152 | 1521 |
| 0026623 | 120 | 23.4 | black | 1152 | 1521 |
| 0026625 | 150 | 25.1 | green-yellow | 1440 | 1739 |
| 0026626 | 150 | 25.1 | black | 1440 | 1739 |
| 0026628 | 185 | 28.1 | green-yellow | 1776 | 2305 |
| 0026629 | 185 | 28.1 | black | 1776 | 2305 |
| 0026634 | 240 | 31.6 | green-yellow | 2304 | 2944 |
| 0026635 | 240 | 31.6 | black | 2304 | 2944 |
| 0026640 | 300 | 33.5 | green-yellow | 2880 | 3545 |
| 0026641 | 300 | 33.5 | black | 2880 | 3545 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 90 CY

Highly flexible, screened single core cable with PVC insulation and PVC sheath - certified for North America

**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening




## Benefits

- Multi-standard certification reduces part varieties and saves costs
- For various applications
- Also suitable for fixed installation where space is limited
- Copper screening complies with EMC requirements and protects against electromagnetic interference
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

## Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm²
- CSA AWM IA/B IIA/B FT 1 ≤ 120 mm²
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Non-woven wrapping
- Core insulation: PVC
- Tinned-copper braiding
- PVC outer sheath, orange (similar RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black, other colours are available upon request

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 600 V

**Test voltage**
4000 V

**Temperature range**
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 90 CY** | | | | |
| 0026651 | 10 | 9.7 | 127.6 | 227 |
| 0026653 | 16 | 11.2 | 186.2 | 297 |
| 0026655 | 25 | 12.5 | 257.8 | 410 |
| 0026657 | 35 | 15.1 | 400.7 | 607 |
| 0026659 | 50 | 17.1 | 554.8 | 808 |
| 0026661 | 70 | 19.4 | 775.6 | 1081 |
| 0026663 | 95 | 20.9 | 1028.1 | 1382 |
| 0026665 | 120 | 24.5 | 1282.4 | 1752 |
| 0026667 | 150 | 26.2 | 1578 | 1924 |
| 0026669 | 185 | 29.2 | 1935 | 2611 |
| 0026671 | 240 | 32.9 | 2526 | 3372 |
| 0026673 | 300 | 34.8 | 3128.8 | 4105 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA - Decentralized and standardized installation technology for machine tools and manufacturing systems
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 809

Highly flexible control cable with PVC core insulation and PVC sheath - certified for North America




**Info**

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada

## Benefits

- Good combination of quality and price
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Assembly lines, production lines, in all kinds of machines

## Product features

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Low-adhesive surface

## Norm references / Approvals

- UL AWM Style 20886
- CUL AWM II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
VDE: U0/U: 300/500 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: 0°C to +70°C
(UL/CSA: +80°C)
Fixed installation: -40°C to +70°C
(UL/CSA +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 809** | | | | |
| 1026700 | 2 X 0.5 | 5.2 | 10 | 40 |
| 1026701 | 3 G 0.5 | 5.5 | 15 | 48 |
| 1026702 | 4 G 0.5 | 6 | 20 | 58 |
| 1026703 | 5 G 0.5 | 6.5 | 24 | 67 |
| 1026704 | 7 G 0.5 | 7.7 | 34 | 88 |
| 1026705 | 12 G 0.5 | 9.2 | 58 | 136 |
| 1026706 | 18 G 0.5 | 11 | 87 | 195 |
| 1026707 | 25 G 0.5 | 13.3 | 120 | 274 |
| 1026708 | 2 X 0.75 | 5.6 | 15 | 49 |
| 1026709 | 3 G 0.75 | 6 | 22 | 60 |
| 1026710 | 4 G 0.75 | 6.5 | 29 | 73 |
| 1026711 | 5 G 0.75 | 7.1 | 37 | 86 |
| 1026712 | 7 G 0.75 | 8.5 | 51 | 117 |
| 1026713 | 12 G 0.75 | 10.3 | 87 | 181 |
| 1026714 | 18 G 0.75 | 12.2 | 130 | 259 |
| 1026715 | 25 G 0.75 | 14.8 | 181 | 363 |
| 1026716 | 2 X 1.0 | 5.9 | 19 | 58 |
| 1026717 | 3 G 1.0 | 6.3 | 29 | 72 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1026718 | 4 G 1.0 | 6.9 | 39 | 88 |
| 1026719 | 5 G 1.0 | 7.5 | 48 | 104 |
| 1026720 | 7 G 1.0 | 9 | 67 | 142 |
| 1026721 | 12 G 1.0 | 10.9 | 115 | 221 |
| 1026722 | 18 G 1.0 | 13.2 | 173 | 324 |
| 1026723 | 25 G 1.0 | 15.7 | 240 | 445 |
| 1026724 | 2 X 1.5 | 6.5 | 29 | 74 |
| 1026725 | 3 G 1.5 | 6.9 | 43.2 | 93 |
| 1026726 | 4 G 1.5 | 7.6 | 58 | 114 |
| 1026727 | 5 G 1.5 | 8.5 | 72 | 139 |
| 1026728 | 7 G 1.5 | 10.3 | 101 | 189 |
| 1026729 | 12 G 1.5 | 12.3 | 173 | 295 |
| 1026730 | 18 G 1.5 | 14.9 | 259 | 429 |
| 1026731 | 25 G 1.5 | 17.9 | 360 | 597 |
| 1026732 | 3 G 2.5 | 8.4 | 72 | 145 |
| 1026733 | 4 G 2.5 | 9.3 | 96 | 179 |
| 1026734 | 7 G 2.5 | 12.7 | 168 | 218 |
| 1026737 | 4 G 4.0 | 11.1 | 160 | 266 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 809 CY

Highly flexible, screened control cable with PVC core insulation and PVC sheath - certified for North America




## Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

## Benefits

- Good combination of quality and price
- Thin and light, without inner sheath
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- In EMC-sensitive environments
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Assembly and production lines

## Product features

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- EMC-compliant
- Low-adhesive surface

## Norm references / Approvals

- UL AWM Style 20886
- CUL AWM II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Torsion movement in WTG**
TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
VDE: U0/U: 300/500 V
UL & CSA: 1000 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: 0°C to +70°C
(UL/CSA: +80°C)
Fixed installation: -40°C to +70°C
(UL/CSA +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 809 CY** | | | | |
| 1026751 | 2 X 0.5 | 5.8 | 36 | 45 |
| 1026752 | 3 G 0.5 | 6.1 | 43 | 59 |
| 1026753 | 4 G 0.5 | 6.6 | 49 | 83 |
| 1026754 | 5 G 0.5 | 7.1 | 57 | 96 |
| 1026755 | 7 G 0.5 | 8.5 | 69 | 136 |
| 1026756 | 12 G 0.5 | 10 | 104 | 200 |
| 1026757 | 18 G 0.5 | 11.8 | 141 | 275 |
| 1026758 | 25 G 0.5 | 14.1 | 211 | 350 |
| 1026759 | 2 X 0.75 | 6.2 | 43 | 56 |
| 1026760 | 3 G 0.75 | 6.6 | 52 | 70 |
| 1026761 | 4 G 0.75 | 7.1 | 61 | 95 |
| 1026762 | 5 G 0.75 | 7.7 | 72 | 130 |
| 1026763 | 7 G 0.75 | 9.1 | 89 | 168 |
| 1026764 | 12 G 0.75 | 10.9 | 138 | 232 |
| 1026765 | 18 G 0.75 | 13 | 211 | 315 |
| 1026766 | 25 G 0.75 | 15.6 | 280 | 435 |
| 1026767 | 2 X 1.0 | 6.5 | 51 | 84 |
| 1026768 | 3 G 1.0 | 6.9 | 62 | 110 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1026769 | 4 G 1.0 | 7.5 | 74 | 130 |
| 1026770 | 5 G 1.0 | 8.3 | 88 | 156 |
| 1026771 | 7 G 1.0 | 9.8 | 112 | 192 |
| 1026772 | 12 G 1.0 | 11.7 | 185 | 285 |
| 1026773 | 18 G 1.0 | 14 | 268 | 395 |
| 1026774 | 25 G 1.0 | 16.7 | 354 | 486 |
| 1026775 | 2 X 1.5 | 7.1 | 65 | 97 |
| 1026776 | 3 G 1.5 | 7.5 | 82 | 125 |
| 1026777 | 4 G 1.5 | 8.4 | 100 | 165 |
| 1026778 | 5 G 1.5 | 9.1 | 119 | 193 |
| 1026779 | 7 G 1.5 | 10.9 | 154 | 245 |
| 1026780 | 12 G 1.5 | 13.3 | 268 | 365 |
| 1026781 | 18 G 1.5 | 15.7 | 373 | 553 |
| 1026782 | 25 G 1.5 | 18.7 | 530 | 734 |
| 1026783 | 3 G 2.5 | 9 | 118 | 188 |
| 1026784 | 4 G 2.5 | 10.1 | 147 | 236 |
| 1026785 | 7 G 2.5 | 13.5 | 253 | 340 |
| 1026788 | 4 G 4.0 | 11.9 | 248 | 305 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN PN

Power cable: PVC jacketed PN Colours; UL recognised



## Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- PROFINET-compliant design

## Benefits

- Durable cable chain use with moderate travel distances or acceleration (LAPP performance class “Basic Line”)
- Proven cable successfully tested for over 2 million bending cycles in cable chains
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Operating voltage of 1000 V according to UL, permitted for North America
- Product with multiple certifications enables universal use and reduces the variety of parts, thus guaranteeing logistics savings

## Application range

- For flexible use in the PROFINET network
- The cable design enables flexible, moderate continuously flexing use in moving machine parts and cable chains, with horizontal travel distances of up to 10 m
- Also suitable for torsion applications in wind turbines
- Can be used in dry, damp or wet interiors
- Suitable for light to medium mechanical stress
- The heat-resistant PVC outer sheath is highly resistant to acids and alkaline solutions

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Brown (L1), Blue (N1), Black (L2), White (N2)
5 cores: additionally pink (FE)

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
VDE: U0/U: 300/500 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with functional earthing (FE) pink
X = without functional earthing (FE)

**Temperature range**
Flexing: 0°C to +90°C
(UL/CSA: +90°C)
Fixed installation: -40°C to +90°C
(UL/CSA +90°C)

| Article number | Number of cores and mm² per conductor | Including funtional earth conductor | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ÖLFLEX® CHAIN PN** | | | | | | |
| 1026791 | 4 | X | 0.75 | 6.5 | 29 | 73 |
| 1026792 | 5 | G | 0.75 | 7.1 | 37 | 86 |
| 1026793 | 4 | X | 1.5 | 7.6 | 58 | 114 |
| 1026794 | 5 | G | 1.5 | 8.5 | 72 | 139 |
| 1026795 | 4 | X | 2.5 | 9.3 | 96 | 179 |
| 1026797 | 5 | G | 2.5 | 10.4 | 120 | 214 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 891

Highly flexible control cable with PVC core insulation and PVC sheath - certified for North America




## Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Under consideration of the temperature range also suitable for flexible outdoor use

## Application range

- In cable chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Machine tools
- Plant engineering

## Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Oil-resistant
- Low-adhesive surface

## Norm references / Approvals

- UL AWM Style 21098
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PVC outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 891** | | | | |
| 1026012 | 12 G 0.5 | 10.8 | 57.6 | 162 |
| 1026103 | 3 G 0.75 | 6.6 | 21.6 | 63 |
| 1026104 | 4 G 0.75 | 7.3 | 28.8 | 75 |
| 1026105 | 5 G 0.75 | 8 | 36 | 90 |
| 1026107 | 7 G 0.75 | 9.6 | 50.4 | 132 |
| 1026112 | 12 G 0.75 | 11.6 | 86.5 | 201 |
| 1026118 | 18 G 0.75 | 13.9 | 129.6 | 300 |
| 1026125 | 25 G 0.75 | 16.6 | 180 | 415 |
| 1026127 | 3 G 1.0 | 7.1 | 28.8 | 65 |
| 1026129 | 4 G 1.0 | 7.8 | 39 | 82 |
| 1026130 | 5 G 1.0 | 8.8 | 48 | 105 |
| 1026128 | 7 G 1.0 | 10.5 | 67.2 | 149 |
| 1026131 | 12 G 1.0 | 12.5 | 116 | 225 |
| 1026132 | 18 G 1.0 | 15 | 173 | 331 |
| 1026133 | 25 G 1.0 | 17.9 | 240 | 484 |
| 1026303 | 3 G 1.5 | 7.7 | 43.2 | 93 |
| 1026304 | 4 G 1.5 | 8.8 | 57.6 | 122 |
| 1026305 | 5 G 1.5 | 9.6 | 72 | 147 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1026307 | 7 G 1.5 | 11.6 | 100.8 | 219 |
| 1026312 | 12 G 1.5 | 13.9 | 172.8 | 322 |
| 1026318 | 18 G 1.5 | 16.9 | 259.2 | 478 |
| 1026325 | 25 G 1.5 | 20.1 | 360 | 670 |
| 1026334 | 34 G 1.5 | 23.6 | 489.6 | 897 |
| 1026403 | 3 G 2.5 | 8.8 | 72 | 129 |
| 1026404 | 4 G 2.5 | 9.8 | 96 | 167 |
| 1026405 | 5 G 2.5 | 11 | 120 | 212 |
| 1026407 | 7 G 2.5 | 13.4 | 168 | 304 |
| 1026412 | 12 G 2.5 | 15.8 | 288 | 452 |
| 1026504 | 4 G 4.0 | 11.8 | 153.6 | 263 |
| 1026505 | 5 G 4.0 | 13.2 | 192 | 325 |
| 1026507 | 7 G 4.0 | 16.1 | 268.8 | 469 |
| 1026604 | 4 G 6.0 | 13.7 | 230.4 | 368 |
| 1026614 | 4 G 10.0 | 17.9 | 384 | 588 |
| 1026624 | 4 G 16.0 | 24.1 | 614.4 | 1031 |
| 1026634 | 4 G 25.0 | 27.9 | 960 | 1530 |
| 1026644 | 4 G 35.0 | 31.1 | 1344 | 1959 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA - Decentralized and standardized installation technology for machine tools and manufacturing systems
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 891 CY

Highly flexible, screened control cable with PVC insulation and PVC inner and outer sheath - certified




**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Under consideration of the temperature range also suitable for flexible outdoor use
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Machine tools
- Plant engineering

## Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Oil-resistant
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- UL AWM Style 21098
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 891 CY** | | | | |
| 1027003 | 3 G 0.5 | 7.9 | 38.9 | 89 |
| 1027004 | 4 G 0.5 | 8.5 | 47.3 | 102 |
| 1027005 | 5 G 0.5 | 9.2 | 55.3 | 127 |
| 1027007 | 7 G 0.5 | 10.9 | 81.1 | 177 |
| 1027012 | 12 G 0.5 | 12.6 | 99.9 | 234 |
| 1027018 | 18 G 0.5 | 15.5 | 160.1 | 381 |
| 1027025 | 25 G 0.5 | 17.7 | 203.9 | 472 |
| 1027103 | 3 G 0.75 | 8.2 | 49.2 | 105 |
| 1027104 | 4 G 0.75 | 8.9 | 59.9 | 123 |
| 1027105 | 5 G 0.75 | 10 | 68.6 | 155 |
| 1027107 | 7 G 0.75 | 11.6 | 91.7 | 206 |
| 1027112 | 12 G 0.75 | 13.8 | 152.1 | 304 |
| 1027118 | 18 G 0.75 | 16.3 | 204.4 | 425 |
| 1027292 | 3 G 1.0 | 8.7 | 56 | 124 |
| 1027301 | 4 G 1.0 | 9.8 | 70.2 | 155 |
| 1027293 | 5 G 1.0 | 10.6 | 84 | 182 |
| 1027294 | 7 G 1.0 | 12.3 | 108 | 237 |
| 1027295 | 12 G 1.0 | 14.7 | 178 | 352 |
| 1027302 | 18 G 1.0 | 17.3 | 255 | 497 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1027296 | 25 G 1.0 | 20.5 | 352 | 702 |
| 1027303 | 3 G 1.5 | 9.7 | 74.8 | 152 |
| 1027304 | 4 G 1.5 | 10.6 | 94.2 | 187 |
| 1027305 | 5 G 1.5 | 11.4 | 101.1 | 187 |
| 1027307 | 7 G 1.5 | 13.8 | 165.6 | 320 |
| 1027312 | 12 G 1.5 | 16.3 | 246.5 | 460 |
| 1027318 | 18 G 1.5 | 19.5 | 374.7 | 677 |
| 1027325 | 25 G 1.5 | 23.6 | 489.4 | 926 |
| 1027403 | 3 G 2.5 | 10.6 | 103.9 | 194 |
| 1027404 | 4 G 2.5 | 11.8 | 161.8 | 235 |
| 1027405 | 5 G 2.5 | 13 | 184.6 | 306 |
| 1027407 | 7 G 2.5 | 15.8 | 242.1 | 428 |
| 1027412 | 12 G 2.5 | 18.2 | 403.5 | 590 |
| 1027503 | 3 G 4.0 | 12.4 | 157.5 | 275 |
| 1027504 | 4 G 4.0 | 14 | 218.1 | 365 |
| 1027507 | 7 G 4.0 | 18.3 | 373.2 | 629 |
| 1027604 | 4 G 6.0 | 16.1 | 304.7 | 500 |
| 1027624 | 4 G 16.0 | 27.1 | 803.6 | 1357 |
| 1027634 | 4 G 25.0 | 31.3 | 1180.4 | 1879 |
| 1027644 | 4 G 35.0 | 34.3 | 1593.7 | 2360 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA - Decentralized and standardized installation technology for machine tools and manufacturing systems
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN TM

Highly flexible control cable with TC-ER, MTW, WTTC or CIC/TC listing acc. (UL) or c(UL) for North America




## Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- The normative multi-talent according NEC and NFPA 79
- Problem-free use in cable trays, industrial machines or wind turbines

## Benefits

- Multi-standard certification offers universal application range, reduces part varieties and saves costs
- TC-ER and MTW listings enable open wiring on cable trays as well as the usage for industrial machines with only one cable
- Resistant to contact with many mineral oil-based lubricants and other chemical media
- Ideal for export-oriented machinery and equipment manufacturers thanks to high normative acceptance by the North American NEC (National Electrical Code)
- Under consideration of the temperature range also suitable for flexible outdoor use

## Application range

- In cable chains or moving machine parts
- Static open wiring on and between cable tray an industrial machine acc. NEC
- Industrial machinery and machine tools
- Wind turbine engineering
- Linear robots, automated handling equipment

## Product features

- High oil-resistance, according to UL OIL RES I and UL OIL RES II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Sunlight Resistant; Direct Burial
- Water-resistant, UL 75°C WET rating

## Norm references / Approvals

- Certifications USA (UL) & UL AWM:
  TC-ER Tray Cable-Exposed Run
  MTW Machine Tool Wire „Constant Flexing“
  WTTC Wind Turbine Tray Cable
  PLTC-ER Power Limited Tray Cable
  ITC Instrumentation Tray Cable
  DP-1 Data Processing Cable
  AWM Style 20886
- Certifications Canada c(UL) & CSA AWM:
  CIC/TC-ER Control Instrumentation Cable/Tray Cable FT4, AWM I/II A/B FT4
- Class 1 Division 2 per NEC Article 501
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PVC with nylon skin
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Outer jacket: Specially formulated thermoplastic polymer
- Sheath colour: black (similar RAL 9005)

## Technical data

**Core identification code**
Black with white numbers

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), 1000 V (WTTC, AWM)
IEC: $U_0$/U 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Fixed installation:
-40°C (-25°C UL TC) to +90°C (UL TC, MTW, according AWM +105°C)
Flexing:
-25°C to +90°C (according UL MTW)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN TM** | | | | |
| 8718030 | 3 G 1.0 | 7.8 | 29.8 | 66 |
| 8718040 | 4 G 1.0 | 8.6 | 38.7 | 82 |
| 8718050 | 5 G 1.0 | 9.3 | 49.1 | 95 |
| 8718070 | 7 G 1.0 | 10.7 | 68.5 | 125 |
| 8718120 | 12 G 1.0 | 12.3 | 117.6 | 210 |
| 8718180 | 18 G 1.0 | 15.4 | 175.6 | 308 |
| 8718250 | 25 G 1.0 | 17.8 | 244.0 | 414 |
| 8716030 | 3 G 1.5 | 8.6 | 43.2 | 92 |
| 8716040 | 4 G 1.5 | 9.5 | 58.0 | 112 |
| 8716050 | 5 G 1.5 | 10.3 | 72.9 | 134 |
| 8716070 | 7 G 1.5 | 12 | 101.2 | 180 |
| 8716120 | 12 G 1.5 | 14.7 | 166.7 | 311 |
| 8716180 | 18 G 1.5 | 17.2 | 260.4 | 443 |
| 8716250 | 25 G 1.5 | 20 | 360.1 | 621 |
| 8714040 | 4 G 2.5 | 10.6 | 96.7 | 180 |
| 8714070 | 7 G 2.5 | 14.5 | 168.2 | 286 |
| 8712040 | 4 G 4.0 | 12.4 | 154.8 | 295 |
| 8710040 | 4 G 6.0 | 15.2 | 230.7 | 397 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN TM CY

Highly flexible, screened control cable with TC-ER, MTW, WTTC or CIC/TC listing acc. (UL) or c(UL) for North America

**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- The normative multi-talent according NEC and NFPA 79
- Problem-free use in cable trays, industrial machines or wind turbines




## Benefits

- Multi-standard certification offers universal application range, reduces part varieties and saves costs
- TC-ER and MTW listings enable open wiring on cable trays as well as the usage for industrial machines with only one cable
- Resistant to contact with many mineral oil-based lubricants and other chemical media
- Ideal for export-oriented machinery and equipment manufacturers thanks to high normative acceptance by the North American NEC (National Electrical Code)
- Under consideration of the temperature range also suitable for flexible outdoor use

## Application range

- In cable chains or moving machine parts
- Static open wiring on and between cable tray an industrial machine acc. NEC
- Industrial machinery and machine tools
- Wind turbine engineering
- Linear robots, automated handling equipment

## Product features

- High oil-resistance, according to UL OIL RES I and UL OIL RES II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Sunlight Resistant; Direct Burial
- Water-resistant, UL 75°C WET rating
- EMC-compliant

## Norm references / Approvals

- Certifications USA (UL) & UL AWM:
  TC-ER Tray Cable-Exposed Run
  MTW Machine Tool Wire „Constant Flexing“
  WTTC Wind Turbine Tray Cable
  PLTC-ER Power Limited Tray Cable
  ITC Instrumentation Tray Cable
  DP-1 Data Processing Cable
  AWM Style 20886
- Certifications Canada c(UL) & CSA AWM:
  CIC/TC-ER Control Instrumentation Cable/Tray Cable FT4, AWM I/II A/B FT4
- Class 1 Division 2 per NEC Articles 336, 501
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PVC with nylon skin
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Sheath colour: black (similar RAL 9005)

## Technical data

**Core identification code**
Black with white numbers

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Fixed installation:
-40°C (-25°C UL TC) to +90°C
(UL TC, MTW, according AWM +105°C)
Flexing:
-25°C to +90°C (according UL MTW)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN TM CY** | | | | |
| 8718030S | 3 G 1.0 | 8.4 | 59.5 | 122 |
| 8718040S | 4 G 1.0 | 9.1 | 71.4 | 158 |
| 8718050S | 5 G 1.0 | 10 | 84.8 | 183 |
| 8718070S | 7 G 1.0 | 11.4 | 139.9 | 207 |
| 8718120S | 12 G 1.0 | 13.9 | 227.7 | 341 |
| 8718180S | 18 G 1.0 | 16.1 | 321.4 | 472 |
| 8718250S | 25 G 1.0 | 18.6 | 336.3 | 649 |
| 8716030S | 3 G 1.5 | 9.2 | 77.4 | 170 |
| 8716040S | 4 G 1.5 | 10.2 | 98.2 | 190 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 8716050S | 5 G 1.5 | 11 | 113.1 | 223 |
| 8716070S | 7 G 1.5 | 12.7 | 145.8 | 269 |
| 8716120S | 12 G 1.5 | 15.4 | 248.5 | 463 |
| 8716180S | 18 G 1.5 | 18.1 | 349.7 | 679 |
| 8716250S | 25 G 1.5 | 22.1 | 465.8 | 951 |
| 8714040S | 4 G 2.5 | 11.4 | 138.4 | 269 |
| 8714070S | 7 G 2.5 | 15.2 | 218.8 | 420 |
| 8712040S | 4 G 4.0 | 13.1 | 229.1 | 463 |
| 8710040S | 4 G 6.0 | 16.1 | 309.5 | 574 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® DC CHAIN 800

Highly flexible TPE power cable for direct current grids. Connects moving machine parts to the DC grid via cable chains



**Info**

- Specially constructed for the long term operation with DC voltage up to 0.75/1.5 kV
- Suitable for the construction of energy efficient DC grids in industrial plants

## Benefits

- Durable cable chain use with long travel distances or high acceleration (LAPP performance class “Extended Line”)
- Particularly short core stranding allows small bending radii
- Outer sheath made of specially designed thermoplastic polymer is highly chemical resistant and has increased oil resistance in accordance with DIN EN 50363-4-1 (TM5)
- Tested resistance to ECOLAB® disinfectants and cleaning agents
- Colour code according to DIN EN 60445 for direct current systems

## Application range

- For direct current applications in the low voltage range
- For connecting moving electrical system components to the direct current grid
- The cable design allows flexible, continuously flexing use in moving machine parts and in the cable chain
- Can be used in dry, wet and especially in harsh and oily environments
- Suitable for light to medium mechanical stress
- Suitable for outdoor use
- Flexible use at temperatures down to -40°C

## Technical data

**Core identification code**
Red (L+), White (L-), GN/YE
According to DIN EN 60445

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7,5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 0.75kV/1.5 kV DC according to IEC

**Test voltage**
4 kV

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Fixed installation:
-50°C up to + 105°C
Flexing:
-40°C up to + 105°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|
| **ÖLFLEX® DC CHAIN 800** | | | |
| 11101300 | 3 G 0.5 | 7.3 | 52 |
| 11101309 | 3 G 0.75 | 7.7 | 63 |
| 11101310 | 3 G 1.0 | 8.1 | 74 |
| 11101301 | 3 G 1.5 | 9.1 | 98 |
| 11101302 | 3 G 2.5 | 10.5 | 140 |
| 11101303 | 3 G 4.0 | 11.9 | 201 |
| 11101304 | 3 G 6.0 | 13.2 | 281 |
| 11101305 | 3 G 10.0 | 17.1 | 467 |
| 11101306 | 3 G 16.0 | 20 | 689 |
| 11101307 | 3 G 25.0 | 23.9 | 952 |
| 11101308 | 3 G 35.0 | 27.3 | 1375 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC FD 810 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath




## Benefits

- Well-proven and reliable
- Various applications
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Power circuits for electrical equipments used in automation engineering
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- In dry, damp or wet interiors with normal mechanical stress conditions

## Product features

- Flame-retardant according IEC 60332-1-2
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

## Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in short lay lengths
- Non-woven wrapping
- PUR outer sheath, grey (similar RAL 7001)

## Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Oil resistant and abrasion-proof

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC FD 810 P** | | | | |
| 0026300 | 2 X 0.5 | 5.3 | 10 | 36 |
| 0026301 | 3 G 0.5 | 5.7 | 15 | 44 |
| 0026302 | 4 G 0.5 | 6.3 | 19 | 53 |
| 0026303 | 5 G 0.5 | 6.8 | 24 | 62 |
| 0026304 | 7 G 0.5 | 8 | 34 | 82 |
| 0026305 | 12 G 0.5 | 9.5 | 58 | 129 |
| 0026306 | 18 G 0.5 | 11.4 | 86.4 | 185 |
| 0026319 | 2 X 0.75 | 5.7 | 15 | 44 |
| 0026320 | 3 G 0.75 | 6.2 | 22 | 55 |
| 0026321 | 4 G 0.75 | 6.8 | 29 | 67 |
| 0026322 | 5 G 0.75 | 7.4 | 37 | 80 |
| 0026323 | 7 G 0.75 | 8.9 | 51 | 109 |
| 0026324 | 12 G 0.75 | 10.6 | 87 | 172 |
| 0026326 | 18 G 0.75 | 12.7 | 130 | 247 |
| 0026327 | 25 G 0.75 | 15.2 | 181 | 346 |
| 0026330 | 2 X 1.0 | 6.1 | 20 | 52 |
| 0026331 | 3 G 1.0 | 6.6 | 29 | 66 |
| 0026332 | 4 G 1.0 | 7.3 | 39 | 82 |
| 0026333 | 5 G 1.0 | 8 | 48 | 97 |
| 0026334 | 7 G 1.0 | 9.6 | 67 | 117 |
| 0026335 | 12 G 1.0 | 11.4 | 115 | 211 |
| 0026338 | 18 G 1.0 | 13.9 | 173 | 310 |
| 0026339 | 25 G 1.0 | 16.4 | 240 | 426 |
| 0026341 | 34 G 1.0 | 18.9 | 326.4 | 571 |
| 0026342 | 41 G 1.0 | 20.6 | 394 | 684 |
| 0026343 | 50 G 1.0 | 22.3 | 480 | 822 |
| 0026344 | 65 G 1.0 | 25.4 | 624 | 1058 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026349 | 2 X 1.5 | 6.8 | 29 | 68 |
| 0026350 | 3 G 1.5 | 7.4 | 43.2 | 86 |
| 0026351 | 4 G 1.5 | 8.1 | 58 | 106 |
| 0026352 | 5 G 1.5 | 9.1 | 72 | 131 |
| 0026353 | 7 G 1.5 | 10.9 | 101 | 178 |
| 0026354 | 12 G 1.5 | 12.9 | 173 | 281 |
| 0026355 | 16 G 1.5 | 14.6 | 230 | 365 |
| 0026356 | 18 G 1.5 | 15.6 | 259 | 411 |
| 0026357 | 25 G 1.5 | 18.6 | 360 | 571 |
| 0026359 | 34 G 1.5 | 21.1 | 489.6 | 753 |
| 0026361 | 42 G 1.5 | 23 | 629 | 919 |
| 0026362 | 50 G 1.5 | 25 | 720 | 1093 |
| 0026370 | 3 G 2.5 | 9 | 72 | 135 |
| 0026371 | 4 G 2.5 | 10 | 96 | 168 |
| 0026372 | 5 G 2.5 | 11.2 | 120 | 206 |
| 0026373 | 7 G 2.5 | 13.6 | 168 | 286 |
| 0026374 | 12 G 2.5 | 16 | 288 | 453 |
| 0026375 | 14 G 2.5 | 17.2 | 336 | 525 |
| 0026381 | 4 G 4.0 | 11.7 | 160 | 252 |
| 0026382 | 5 G 4.0 | 13.1 | 200 | 309 |
| 0029200 | 1 G 6.0 | 6.4 | 60 | 84 |
| 0026383 | 4 G 6.0 | 13.9 | 230 | 377 |
| 0029210 | 1 G 10.0 | 7.7 | 100 | 141 |
| 0026385 | 4 G 10.0 | 17.6 | 384 | 614 |
| 0026386 | 5 G 10.0 | 19.6 | 480 | 751 |
| 0029220 | 1 G 16.0 | 9.2 | 160 | 198 |
| 0026387 | 4 G 16.0 | 21 | 615 | 851 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CLASSIC FD 810 CP

Highly flexible, screened control cable with PVC insulation, inner sheath and abrasion and oil resistant PUR jacket

**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- Oil resistant and abrasion-proof
- EMC compliant copper screening




## Benefits

- Well-proven and reliable
- Various applications
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Power circuits for electrical equipments used in automation engineering
- Suitable for use in measuring, control and regulating circuits
- In dry, damp or wet interiors with normal mechanical stress conditions

## Product features

- Flame-retardant according to IEC 60332.1.2
- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface

## Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in short lay lengths
- Non-woven wrapping
- PVC inner sheath
- Tinned-copper braiding
- PUR outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CLASSIC FD 810 CP** | | | | |
| 0026400 | 2 X 0.5 | 6.9 | 33 | 70 |
| 0026401 | 3 G 0.5 | 7.3 | 39 | 80 |
| 0026402 | 4 G 0.5 | 7.9 | 46 | 94 |
| 0026403 | 5 G 0.5 | 8.4 | 54 | 106 |
| 0026404 | 7 G 0.5 | 9.8 | 70 | 138 |
| 0026405 | 12 G 0.5 | 11.3 | 100 | 194 |
| 0026419 | 2 X 0.75 | 7.3 | 39 | 81 |
| 0026420 | 3 G 0.75 | 7.8 | 48 | 95 |
| 0026421 | 4 G 0.75 | 8.4 | 59 | 111 |
| 0026422 | 5 G 0.75 | 9 | 69 | 128 |
| 0026423 | 7 G 0.75 | 10.7 | 90 | 171 |
| 0026424 | 12 G 0.75 | 12.4 | 129 | 244 |
| 0026425 | 16 G 0.75 | 14.2 | 186 | 328 |
| 0026426 | 18 G 0.75 | 14.9 | 205 | 356 |
| 0026427 | 25 G 0.75 | 17.4 | 271 | 479 |
| 0026430 | 2 X 1.0 | 7.7 | 46 | 93 |
| 0026431 | 3 G 1.0 | 8.2 | 57 | 109 |
| 0026432 | 4 G 1.0 | 8.9 | 70 | 129 |
| 0026433 | 5 G 1.0 | 9.8 | 81 | 154 |
| 0026434 | 7 G 1.0 | 11.4 | 110 | 200 |
| 0026435 | 12 G 1.0 | 13.4 | 182 | 304 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026438 | 18 G 1.0 | 16.1 | 254 | 429 |
| 0026439 | 25 G 1.0 | 18.8 | 365 | 593 |
| 0026449 | 2 X 1.5 | 8.4 | 58 | 112 |
| 0026450 | 3 G 1.5 | 9 | 75 | 133 |
| 0026451 | 4 G 1.5 | 9.9 | 91 | 163 |
| 0026452 | 5 G 1.5 | 10.9 | 112 | 193 |
| 0026453 | 7 G 1.5 | 12.7 | 145 | 252 |
| 0026454 | 12 G 1.5 | 15.1 | 247 | 391 |
| 0026456 | 18 G 1.5 | 17.8 | 348 | 542 |
| 0026457 | 25 G 1.5 | 21.2 | 498 | 767 |
| 0026470 | 3 G 2.5 | 10.8 | 119 | 199 |
| 0026471 | 4 G 2.5 | 11.8 | 161 | 238 |
| 0026472 | 5 G 2.5 | 13.2 | 194 | 297 |
| 0026473 | 7 G 2.5 | 15.8 | 262 | 403 |
| 0026474 | 12 G 2.5 | 18.2 | 410 | 589 |
| 0026475 | 14 G 2.5 | 19.8 | 490 | 702 |
| 0026481 | 4 G 4.0 | 13.7 | 238 | 349 |
| 0026483 | 4 G 6.0 | 16.1 | 318 | 499 |
| 0026484 | 5 G 6.0 | 17.7 | 410 | 596 |
| 0026485 | 4 G 10.0 | 20.2 | 521 | 842 |
| 0026487 | 4 G 16.0 | 23.6 | 780 | 1173 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBUST FD

Highly flexible, all-weather control cable with TPE sheath - resistant to a wide range of chemical media




**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- Good weather resistance
- Good chemical resistance

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Low particle emission at moved chain application

## Application range

- In cable chains or moving machine parts
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For indoor and outdoor use

## Product features

- Highly resistant to oil and chemicals
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Hydrolysis-resistant to warm and hot water
- Good chemical resistance to ester-based hydraulic fluids
- Flexible down to -40°C

## Norm references / Approvals

- Based on VDE 0250 / 0285
- Cleanroom classification for individual items on request
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Robust outer sheath made of special halogen-free TPE, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black cores with printed white numbers (VDE 0293-334)

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing:
up from 7.5 x outer diameter
(at temperatures < 70 °C)
up from 10 x outer diameter
(at max. temperature of 105 °C)
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +105°C
Fixed installation: -50°C to +105°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBUST FD** | | | | |
| 0026536 | 2 X 0.5 | 6.1 | 9.6 | 34 |
| 0026537 | 3 G 0.5 | 6.6 | 14.4 | 45 |
| 0026538 | 4 G 0.5 | 7.3 | 19.2 | 55 |
| 0026539 | 5 G 0.5 | 8 | 24 | 67 |
| 0026540 | 7 G 0.5 | 9.6 | 33.6 | 93 |
| 0026544 | 12 G 0.5 | 11.6 | 57.6 | 142 |
| 0026545 | 18 G 0.5 | 13.9 | 86.4 | 208 |
| 0026546 | 25 G 0.5 | 17.3 | 120 | 298 |
| 0026547 | 2 X 0.75 | 6.4 | 14.4 | 41 |
| 0026501 | 3 G 0.75 | 6.9 | 21.6 | 51 |
| 0026502 | 4 G 0.75 | 7.7 | 28.8 | 69 |
| 0026503 | 5 G 0.75 | 8.6 | 36 | 87 |
| 0026504 | 7 G 0.75 | 10.4 | 50.4 | 127 |
| 0026505 | 12 G 0.75 | 12.2 | 86.4 | 182 |
| 0026506 | 18 G 0.75 | 14.9 | 129.6 | 277 |
| 0026507 | 25 G 0.75 | 18.5 | 180 | 421 |
| 0026508 | 2 X 1.0 | 6.8 | 28.8 | 49 |
| 0026509 | 3 G 1.0 | 7.4 | 28.8 | 63 |
| 0026510 | 4 G 1.0 | 8.2 | 38.4 | 82 |
| 0026511 | 5 G 1.0 | 9.2 | 48 | 105 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026516 | 7 G 1.0 | 11.1 | 67.2 | 157 |
| 0026517 | 12 G 1.0 | 13.3 | 115.2 | 226 |
| 0026518 | 18 G 1.0 | 15.9 | 172.8 | 345 |
| 0026519 | 25 G 1.0 | 19.8 | 240 | 547 |
| 0026548 | 2 X 1.5 | 8 | 28.8 | 73 |
| 0026521 | 3 G 1.5 | 8.9 | 43.2 | 90 |
| 0026522 | 4 G 1.5 | 9.9 | 57.6 | 118 |
| 0026523 | 5 G 1.5 | 11 | 72 | 149 |
| 0026524 | 7 G 1.5 | 13.4 | 100.8 | 233 |
| 0026525 | 12 G 1.5 | 15.8 | 172.8 | 322 |
| 0026526 | 18 G 1.5 | 18.9 | 259.2 | 494 |
| 0026527 | 25 G 1.5 | 23.5 | 360 | 695 |
| 0026531 | 4 G 2.5 | 11.8 | 96 | 181 |
| 0026532 | 5 G 2.5 | 12.9 | 120 | 228 |
| 0026533 | 7 G 2.5 | 15.7 | 168 | 329 |
| 0026534 | 12 G 2.5 | 18.7 | 288 | 491 |
| 0026541 | 4 G 4.0 | 13.8 | 153.6 | 261 |
| 0026551 | 4 G 6.0 | 14.8 | 230.4 | 356 |
| 0026561 | 4 G 10.0 | 20.1 | 384 | 596 |
| 0026571 | 4 G 16.0 | 23.8 | 614.4 | 910 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBUST FD C

Highly flexible, screened all-weather control cable with TPE sheath - resistant to a wide range of chemical media




## Info

- Extended Line Performance - Long travel lengths or high acceleration
- Good weather resistance
- Good chemical resistance

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

## Product features

- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Highly resistant to oil and chemicals
- Hydrolysis-resistant to warm and hot water
- Good chemical resistance to ester-based hydraulic fluids
- Flexible down to -40°C

## Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned-copper braiding
- Robust outer sheath made of special halogen-free TPE, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black cores with printed white numbers (VDE 0293-334)

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing:
up from 7.5 x outer diameter
(at temperatures < 70 °C)
up from 10 x outer diameter
(at max. temperature of 105 °C)
Fixed installation: 4 x Outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40 °C to +105 °C
Fixed installation: -50 °C to +105 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBUST FD C** | | | | |
| 0026736 | 2 X 0.5 | 8.3 | 33.6 | 77 |
| 0026737 | 3 G 0.5 | 8.8 | 41.8 | 92 |
| 0026738 | 4 G 0.5 | 9.5 | 49.9 | 108 |
| 0026739 | 5 G 0.5 | 10.4 | 57.9 | 127 |
| 0026740 | 7 G 0.5 | 12 | 74.1 | 165 |
| 0026744 | 12 G 0.5 | 14.4 | 120.5 | 248 |
| 0026745 | 18 G 0.5 | 16.7 | 158 | 330 |
| 0026746 | 25 G 0.5 | 20.3 | 230.8 | 471 |
| 0026747 | 2 X 0.75 | 8.6 | 41.4 | 87 |
| 0026701 | 3 G 0.75 | 9.1 | 49.6 | 110 |
| 0026702 | 4 G 0.75 | 10.1 | 60.9 | 137 |
| 0026703 | 5 G 0.75 | 10.8 | 72.8 | 160 |
| 0026704 | 7 G 0.75 | 12.6 | 107.2 | 238 |
| 0026705 | 12 G 0.75 | 15 | 151.5 | 312 |
| 0026706 | 18 G 0.75 | 17.7 | 205.5 | 448 |
| 0026707 | 25 G 0.75 | 21.7 | 299.1 | 657 |
| 0026708 | 2 X 1.0 | 9 | 47.2 | 105 |
| 0026709 | 3 G 1.0 | 9.8 | 61.1 | 125 |
| 0026710 | 4 G 1.0 | 10.6 | 74.8 | 157 |
| 0026711 | 5 G 1.0 | 12.1 | 86.2 | 198 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0026716 | 7 G 1.0 | 13.9 | 132.3 | 278 |
| 0026717 | 12 G 1.0 | 16.1 | 189.1 | 370 |
| 0026718 | 18 G 1.0 | 18.7 | 277.5 | 549 |
| 0026719 | 25 G 1.0 | 23 | 369.6 | 784 |
| 0026748 | 2 X 1.5 | 10.2 | 59.4 | 127 |
| 0026721 | 3 G 1.5 | 10.9 | 79.8 | 163 |
| 0026722 | 4 G 1.5 | 12.1 | 99.2 | 210 |
| 0026723 | 5 G 1.5 | 13.6 | 129.7 | 264 |
| 0026724 | 7 G 1.5 | 15.8 | 175.2 | 370 |
| 0026725 | 12 G 1.5 | 18.4 | 257.1 | 498 |
| 0026726 | 18 G 1.5 | 22.1 | 378.9 | 749 |
| 0026727 | 25 G 1.5 | 27.1 | 555.5 | 1042 |
| 0026731 | 4 G 2.5 | 14.4 | 161.5 | 307 |
| 0026732 | 5 G 2.5 | 15.5 | 188.3 | 361 |
| 0026733 | 7 G 2.5 | 18.3 | 252.6 | 512 |
| 0026734 | 12 G 2.5 | 21.9 | 406.5 | 730 |
| 0026741 | 4 G 4.0 | 16.2 | 227.3 | 412 |
| 0026751 | 4 G 6.0 | 17.2 | 306.7 | 519 |
| 0026761 | 4 G 10.0 | 23.3 | 513.6 | 853 |
| 0026771 | 4 G 16.0 | 27.2 | 809.6 | 1273 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 90 P

Highly flexible single core power cable with abrasion and oil resistant PUR sheath - certified for North America




**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems
- For indoor and outdoor use

## Product features

- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
  - No flame propagation acc. to IEC 60332-3-24 Cat. C or /-25 Cat. D
- Good weather, UV and oil resistance
- Abrasion and notch-resistant
- Flexible at low temperatures
- Low-capacitance design

## Norm references / Approvals

- USA: UL AWM Style 11624, VW-1
  Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black or green-yellow, other colours available on request

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Temperature range**
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Core colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CHAIN 90 P** | | | | | |
| 1026513 | 1.5 | 6.3 | green-yellow | 14.4 | 48 |
| 1026514 | 1.5 | 6.3 | black | 14.4 | 48 |
| 1026515 | 2.5 | 6.9 | green-yellow | 24 | 63 |
| 1026516 | 2.5 | 6.9 | black | 24 | 63 |
| 1026517 | 4 | 7.2 | green-yellow | 38.4 | 77 |
| 1026518 | 4 | 7.2 | black | 38.4 | 77 |
| 1026519 | 6 | 7.7 | green-yellow | 57.6 | 95 |
| 1026520 | 6 | 7.7 | black | 57.6 | 95 |
| 1026521 | 10 | 9.1 | green-yellow | 96 | 145 |
| 1026522 | 10 | 9.1 | black | 96 | 145 |
| 1026523 | 16 | 10.6 | green-yellow | 153.6 | 205 |
| 1026524 | 16 | 10.6 | black | 153.6 | 205 |
| 1026525 | 25 | 12.3 | green-yellow | 240 | 290 |
| 1026526 | 25 | 12.3 | black | 240 | 290 |
| 1026527 | 35 | 13.3 | green-yellow | 336 | 413 |
| 1026528 | 35 | 13.3 | black | 336 | 413 |

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Core colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 1026529 | 50 | 15.9 | green-yellow | 480 | 535 |
| 1026530 | 50 | 15.9 | black | 480 | 535 |
| 1026531 | 70 | 18 | green-yellow | 672 | 776 |
| 1026532 | 70 | 18 | black | 672 | 776 |
| 1026533 | 95 | 19.9 | green-yellow | 912 | 998 |
| 1026534 | 95 | 19.9 | black | 912 | 998 |
| 1026535 | 120 | 22.5 | green-yellow | 1152 | 1249 |
| 1026536 | 120 | 22.5 | black | 1152 | 1249 |
| 1026537 | 150 | 24.6 | green-yellow | 1440 | 1486 |
| 1026538 | 150 | 24.6 | black | 1440 | 1486 |
| 1026539 | 185 | 27.2 | green-yellow | 1776 | 1788 |
| 1026540 | 185 | 27.2 | black | 1776 | 1788 |
| 1026541 | 240 | 32.1 | green-yellow | 2304 | 2381 |
| 1026542 | 240 | 32.1 | black | 2304 | 2381 |
| 1026543 | 300 | 34 | green-yellow | 2880 | 2964 |
| 1026544 | 300 | 34 | black | 2880 | 2964 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 90 CP

Highly flexible, screened single core power cable with abrasion and oil resistant PUR sheath - certified for North America

**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire




## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems
- For indoor and outdoor use

## Product features

- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
  - No flame propagation acc. to IEC 60332-3-24 Cat. C or /-25 Cat. D
- Good weather, UV and oil resistance
- Flexible at low temperatures
- Low-capacitance design
- EMC-compliant

## Norm references / Approvals

- USA: UL AWM Style 11624, VW-1
  Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Black, other colours are available upon request

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 600/1000 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Temperature range**
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 90 CP** | | | | |
| 1026547 | 1.5 | 7 | 23.8 | 60 |
| 1026548 | 2.5 | 7.6 | 41 | 90 |
| 1026549 | 4 | 7.9 | 58.8 | 100 |
| 1026550 | 6 | 8.4 | 81.3 | 120 |
| 1026551 | 10 | 9.8 | 123 | 180 |
| 1026553 | 16 | 11.3 | 187.7 | 240 |
| 1026555 | 25 | 13 | 280.6 | 340 |
| 1026557 | 35 | 14.2 | 398.9 | 480 |

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1026559 | 50 | 16.8 | 551.7 | 610 |
| 1026561 | 70 | 19.1 | 773.2 | 880 |
| 1026563 | 95 | 21.6 | 1036.6 | 1160 |
| 1026565 | 120 | 23.6 | 1277.7 | 1380 |
| 1026567 | 150 | 25.9 | 1618 | 1670 |
| 1026569 | 185 | 28.5 | 1957.3 | 1980 |
| 1026571 | 240 | 33.4 | 2511.7 | 2600 |
| 1026573 | 300 | 35.3 | 3117 | 3210 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 819 P

Highly flexible control cable with PVC core insulation and robust, oil resistant outer sheath - certified




**Info**

- Basic Line Performance - Moderate travel lengths or acceleration
- Good oil resistance
- UL/cUL certified for North America

## Benefits

- Good combination of quality and price
- Durable thanks to robust sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- Very suitable for oily wet areas within machinery and production lines
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Indoor applications or dry rooms

## Product features

- High oil-resistance
- Flammability:
  IEC/EN: 60332-1-2
  UL/CSA: Horizontal Flame, FT2
- Mechanically robust
- Low-adhesive surface

## Norm references / Approvals

- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Outer sheath of Lapp-PU-Special Blend, black (similar RAL 9005)

## Technical data

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 300/500 V
UL: 1000 V

**Test voltage**
Core/core: 4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 819 P** | | | | |
| 1027800 | 2 X 0.5 | 5.2 | 9.6 | 30.7 |
| 1027801 | 3 G 0.5 | 5.5 | 14.4 | 39.2 |
| 1027802 | 4 G 0.5 | 6 | 19.2 | 48.5 |
| 1027803 | 5 G 0.5 | 6.5 | 24 | 58 |
| 1027804 | 7 G 0.5 | 7.7 | 33.6 | 79 |
| 1027805 | 12 G 0.5 | 9.2 | 57.6 | 121.1 |
| 1027806 | 18 G 0.5 | 11 | 86.4 | 177.9 |
| 1027807 | 25 G 0.5 | 13.3 | 120 | 250 |
| 1027810 | 2 X 0.75 | 5.6 | 14.4 | 37.9 |
| 1027811 | 3 G 0.75 | 6 | 21.6 | 49.4 |
| 1027812 | 4 G 0.75 | 6.5 | 28.8 | 61.5 |
| 1027813 | 5 G 0.75 | 7.1 | 36 | 74.5 |
| 1027814 | 7 G 0.75 | 8.5 | 50.4 | 105.6 |
| 1027815 | 12 G 0.75 | 10.3 | 86.4 | 163.3 |
| 1027816 | 18 G 0.75 | 12.2 | 129.6 | 239 |
| 1027817 | 25 G 0.75 | 14.8 | 180 | 334.8 |
| 1027820 | 2 X 1.0 | 5.9 | 19.2 | 43.1 |
| 1027821 | 3 G 1.0 | 6.3 | 28.8 | 56.5 |
| 1027822 | 4 G 1.0 | 6.9 | 39 | 71.3 |
| 1027823 | 5 G 1.0 | 7.5 | 48 | 86.2 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1027824 | 7 G 1.0 | 9 | 67 | 122.3 |
| 1027825 | 12 G 1.0 | 10.9 | 115.2 | 190.3 |
| 1027826 | 18 G 1.0 | 13.2 | 172.8 | 285.4 |
| 1027827 | 25 G 1.0 | 15.7 | 240 | 391.2 |
| 1027830 | 2 X 1.5 | 6.5 | 28.8 | 55.6 |
| 1027831 | 3 G 1.5 | 6.9 | 43.2 | 74.5 |
| 1027832 | 4 G 1.5 | 7.6 | 58 | 94.7 |
| 1027833 | 5 G 1.5 | 8.5 | 72 | 119.3 |
| 1027834 | 7 G 1.5 | 10.3 | 100.8 | 169.5 |
| 1027835 | 12 G 1.5 | 12.3 | 172.8 | 263.9 |
| 1027836 | 18 G 1.5 | 14.9 | 259.2 | 395.1 |
| 1027837 | 25 G 1.5 | 17.9 | 360 | 549.4 |
| 1027840 | 3 G 2.5 | 8.4 | 72 | 115.6 |
| 1027841 | 4 G 2.5 | 9.3 | 96 | 148.2 |
| 1027844 | 5 G 2.5 | 10.4 | 120 | 186 |
| 1027842 | 7 G 2.5 | 12.7 | 168 | 268.9 |
| 1027843 | 12 G 2.5 | 15.2 | 288 | 420.2 |
| 1027850 | 4 G 4.0 | 11.1 | 153.6 | 222.1 |
| 1027852 | 4 G 10.0 | 17.2 | 384 | 541 |
| 1027855 | 4 G 16.0 | 20.1 | 614.4 | 804.6 |
| 1027857 | 4 G 25.0 | 24.9 | 960 | 1259.5 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 819 CP

Highly flexible, screened control cable with PVC core insulation and robust, oil resistant outer sheath - certified




**Info**

- Basic Line Performance - Moderate travel lengths or acceleration
- Good oil resistance
- UL/cUL certified for North America

## Benefits

- Good combination of quality and price
- Durable thanks to robust sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Copper braiding screens the cable against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- In EMC-sensitive environments
- Very suitable for oily wet areas within machinery and production lines
- Assembly lines, production lines, in all kinds of machines
- Suitable for use in measuring, control and regulating circuits
- Indoor applications or dry rooms

## Product features

- High oil-resistance
- Flammability:
  IEC/EN: 60332-1-2
  UL/CSA: Horizontal Flame, FT2
- Mechanically robust
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath of Lapp-PU-Special Blend, black (similar RAL 9005)

## Technical data

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

TW-0 & TW-1, refer to Appendix T0

**Minimum bending radius**
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 300/500 V
UL: 1000 V

**Test voltage**
Core/core: 4000 V
Core/screen: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 819 CP** | | | | |
| 1027900 | 2 X 0.5 | 5.8 | 22.5 | 42.9 |
| 1027901 | 3 G 0.5 | 6.1 | 27.1 | 50.6 |
| 1027902 | 4 G 0.5 | 6.6 | 35.1 | 62.6 |
| 1027903 | 5 G 0.5 | 7.1 | 43.1 | 74.7 |
| 1027904 | 7 G 0.5 | 8.5 | 55.8 | 101 |
| 1027905 | 12 G 0.5 | 10 | 83.1 | 144.5 |
| 1027906 | 18 G 0.5 | 11.8 | 120 | 207.1 |
| 1027907 | 25 G 0.5 | 14.1 | 171 | 288.6 |
| 1027910 | 2 X 0.75 | 6.2 | 30.4 | 52.7 |
| 1027911 | 3 G 0.75 | 6.6 | 37.5 | 63.4 |
| 1027912 | 4 G 0.75 | 7.1 | 47.9 | 78 |
| 1027913 | 5 G 0.75 | 7.7 | 55.2 | 90.4 |
| 1027914 | 7 G 0.75 | 9.1 | 75.9 | 126.1 |
| 1027915 | 12 G 0.75 | 10.9 | 115.3 | 183.6 |
| 1027916 | 18 G 0.75 | 13 | 168 | 269.8 |
| 1027917 | 25 G 0.75 | 15.6 | 239.6 | 377 |
| 1027920 | 2 X 1.0 | 6.5 | 35.3 | 58.5 |
| 1027921 | 3 G 1.0 | 6.9 | 44.7 | 71.6 |
| 1027922 | 4 G 1.0 | 7.5 | 57.7 | 89.4 |
| 1027923 | 5 G 1.0 | 8.3 | 70.3 | 110.2 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1027924 | 7 G 1.0 | 9.8 | 92.7 | 149.2 |
| 1027925 | 12 G 1.0 | 11.7 | 148.7 | 224.4 |
| 1027926 | 18 G 1.0 | 14 | 224.1 | 331.3 |
| 1027927 | 25 G 1.0 | 16.7 | 299.5 | 449.2 |
| 1027930 | 2 X 1.5 | 7.1 | 47.9 | 73.8 |
| 1027931 | 3 G 1.5 | 7.5 | 62.5 | 92.6 |
| 1027932 | 4 G 1.5 | 8.4 | 80 | 118.9 |
| 1027933 | 5 G 1.5 | 9.1 | 97.5 | 142.7 |
| 1027934 | 7 G 1.5 | 10.9 | 129.7 | 194.9 |
| 1027935 | 12 G 1.5 | 13.3 | 211 | 301.9 |
| 1027936 | 18 G 1.5 | 15.7 | 319 | 447.8 |
| 1027937 | 25 G 1.5 | 18.7 | 428.1 | 606.5 |
| 1027940 | 3 G 2.5 | 9 | 97.4 | 138.9 |
| 1027941 | 4 G 2.5 | 10.1 | 124.8 | 178.2 |
| 1027944 | 5 G 2.5 | 11.2 | 148.7 | 215.4 |
| 1027942 | 7 G 2.5 | 13.5 | 206.5 | 301.6 |
| 1027943 | 12 G 2.5 | 16.2 | 347.5 | 478.5 |
| 1027950 | 4 G 4.0 | 11.9 | 187 | 256.1 |
| 1027952 | 4 G 10.0 | 18.2 | 452.1 | 606.5 |
| 1027955 | 4 G 16.0 | 21.3 | 699.5 | 884.2 |
| 1027957 | 4 G 25.0 | 26.3 | 1062.1 | 1349.7 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 891 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath - certified




**Info**

- Core Line Performance - Medium to increased travel lengths or acceleration
- High oil resistance
- AWM certification for USA and Canada

## Benefits

- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Suitable for use in measuring, control and regulating circuits
- Plant engineering
- In dry, damp or wet interiors with normal mechanical stress conditions

## Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

## Norm references / Approvals

- UL rec. AWM Style 20234
- CRU AWM II A/B FT 1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: $U_0$/U 300/500 V
UL/CSA: 600 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 891 P** | | | | |
| 1028752 | 2 X 0.5 | 6.5 | 9.6 | 46 |
| 1028007 | 7 G 0.5 | 9.6 | 33.6 | 118 |
| 1028103 | 3 G 0.75 | 7.3 | 21.6 | 66 |
| 1028104 | 4 G 0.75 | 8 | 28.8 | 82 |
| 1028105 | 5 G 0.75 | 8.7 | 36 | 101 |
| 1028107 | 7 G 0.75 | 10.7 | 50.4 | 142 |
| 1028112 | 12 G 0.75 | 11.7 | 86.4 | 196 |
| 1028118 | 18 G 0.75 | 13.9 | 129.6 | 282 |
| 1028125 | 25 G 0.75 | 16.6 | 180 | 404 |
| 1028134 | 34 G 0.75 | 18.9 | 244.8 | 541 |
| 1028150 | 50 G 0.75 | 22.5 | 360 | 738 |
| 1028303 | 3 G 1.5 | 8.4 | 43.2 | 98 |
| 1028304 | 4 G 1.5 | 9.3 | 57.6 | 125 |
| 1028305 | 5 G 1.5 | 10.1 | 72 | 155 |
| 1028307 | 7 G 1.5 | 11.9 | 100.8 | 221 |
| 1028312 | 12 G 1.5 | 13.9 | 172.8 | 318 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1028318 | 18 G 1.5 | 16.9 | 259.2 | 484 |
| 1028325 | 25 G 1.5 | 20.1 | 360 | 671 |
| 1028334 | 34 G 1.5 | 23.1 | 489.6 | 910 |
| 1028952 | 2 X 2.5 | 8.9 | 48 | 102 |
| 1028403 | 3 G 2.5 | 9.3 | 72 | 134 |
| 1028404 | 4 G 2.5 | 10.3 | 96 | 173 |
| 1028405 | 5 G 2.5 | 11.3 | 120 | 217 |
| 1028407 | 7 G 2.5 | 13.4 | 168 | 312 |
| 1028412 | 12 G 2.5 | 15.8 | 288 | 460 |
| 1028503 | 3 G 4.0 | 10.9 | 115.2 | 197 |
| 1028504 | 4 G 4.0 | 12.1 | 153.6 | 257 |
| 1028507 | 7 G 4.0 | 16.1 | 268.8 | 471 |
| 1028604 | 4 G 6.0 | 13.7 | 230.4 | 363 |
| 1028614 | 4 G 10.0 | 17.9 | 384 | 605 |
| 1028624 | 4 G 16.0 | 23.4 | 614.4 | 973 |
| 1028634 | 4 G 25.0 | 27.6 | 960 | 1437 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 855 P

Halogen-free, highly flexible control cable with abrasion and oil resistant PUR sheath - certified




## Info

- Extended Line Performance - Long travel lengths or high acceleration
- All-rounder with small bending radii
- UL/cUL certified for North America

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Low particle emission at moved chain application
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

## Application range

- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For use in assembling & pick-and-place machinery
- For highly dynamic applications
- For indoor and outdoor use

## Product features

- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Flexible down to -40°C
- Abrasion and notch-resistant
- Low-adhesive surface

## Norm references / Approvals

- Based on VDE 0250 / 0285
- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- PUR outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 5 x outer diameter
Fixed installation: 3 x outer diameter

**Nominal voltage**
IEC U0/U: 300/500 V
UL: 1000 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 855 P** | | | | |
| 0027530 | 2 X 0.5 | 5.1 | 10 | 34 |
| 0027531 | 3 G 0.5 | 5.5 | 14 | 40 |
| 0027532 | 5 G 0.5 | 6.6 | 24 | 55 |
| 0027533 | 6 G 0.5 | 7.1 | 29 | 63 |
| 0027534 | 7 G 0.5 | 7.7 | 34 | 76 |
| 0027535 | 12 G 0.5 | 9.1 | 58 | 114 |
| 0027536 | 18 G 0.5 | 10.9 | 86 | 165 |
| 0027537 | 20 G 0.5 | 11.5 | 96 | 180 |
| 0027538 | 25 G 0.5 | 13.4 | 120 | 219 |
| 0027540 | 30 G 0.5 | 13.6 | 144 | 251 |
| 0027541 | 36 G 0.5 | 14.7 | 173 | 290 |
| 0027545 | 2 X 0.75 | 5.6 | 14 | 42 |
| 0027546 | 3 G 0.75 | 6 | 22 | 50 |
| 0027547 | 4 G 0.75 | 6.7 | 29 | 60 |
| 0027548 | 5 G 0.75 | 7.3 | 36 | 71 |
| 0027549 | 7 G 0.75 | 8.8 | 50 | 99 |
| 0027550 | 12 G 0.75 | 10.3 | 86 | 158 |
| 0027551 | 18 G 0.75 | 12.4 | 130 | 219 |
| 0027552 | 20 G 0.75 | 13.3 | 144 | 240 |
| 0027553 | 25 G 0.75 | 15.5 | 180 | 309 |
| 0027555 | 36 G 0.75 | 16.9 | 259 | 411 |
| 0027560 | 2 X 1.0 | 6 | 19 | 50 |
| 0027561 | 3 G 1.0 | 6.5 | 29 | 61 |
| 0027562 | 4 G 1.0 | 7.2 | 38 | 70 |
| 0027563 | 5 G 1.0 | 7.8 | 48 | 93 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0027564 | 7 G 1.0 | 9.5 | 67 | 122 |
| 0027565 | 12 G 1.0 | 11.2 | 115 | 196 |
| 0027566 | 18 G 1.0 | 13.7 | 173 | 274 |
| 0027567 | 20 G 1.0 | 14.4 | 192 | 300 |
| 0027568 | 25 G 1.0 | 16.8 | 240 | 385 |
| 0027570 | 30 G 1.0 | 17 | 288 | 444 |
| 0027571 | 36 G 1.0 | 18.6 | 346 | 516 |
| 0027575 | 2 X 1.5 | 6.7 | 29 | 68 |
| 0027576 | 3 G 1.5 | 7.3 | 43 | 83 |
| 0027586 | 4 G 1.5 | 8 | 58 | 100 |
| 0027577 | 5 G 1.5 | 9 | 72 | 128 |
| 0027578 | 7 G 1.5 | 10.7 | 101 | 177 |
| 0027579 | 12 G 1.5 | 12.7 | 173 | 275 |
| 0027580 | 18 G 1.5 | 15.2 | 259 | 405 |
| 0027582 | 25 G 1.5 | 18.8 | 360 | 565 |
| 0027584 | 30 G 1.5 | 18.8 | 432 | 652 |
| 0027585 | 36 G 1.5 | 20.6 | 518 | 759 |
| 0027587 | 41 G 1.5 | 22.4 | 614 | 978 |
| 0027370 | 3 G 2.5 | 8.9 | 72 | 121 |
| 0027371 | 4 G 2.5 | 9.9 | 96 | 163 |
| 0027372 | 5 G 2.5 | 11 | 120 | 196 |
| 0027373 | 7 G 2.5 | 13.4 | 168 | 266 |
| 0027374 | 12 G 2.5 | 15.8 | 288 | 446 |
| 0027375 | 18 G 2.5 | 18.9 | 432 | 665 |
| 0027376 | 25 G 2.5 | 23.5 | 600 | 929 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® FD 855 CP

Halogen-free, highly flexible and screened control cable with abrasion and oil resistant PUR sheath - certified




**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- EMC compliant copper screening
- UL/cUL certified for North America

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Multi-standard certification reduces part varieties and saves costs
- Copper screening complies with EMC requirements and protects against electromagnetic interference

## Application range

- In cable chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- For use in assembling & pick-and-place machinery
- Assembly lines, production lines, in all kinds of machines
- In EMC-sensitive environments
- For indoor and outdoor use

## Product features

- Good mechanical, abrasion and notch-resistance
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Flexible down to -40 °C
- Low-adhesive surface
- EMC-compliant

## Norm references / Approvals

- Based on VDE 0250 / 0285
- USA: UL AWM Style 21576 with add. VW-1 Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned-copper braiding
- PUR outer sheath, grey (similar RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 300/500 V
UL: 1000 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40 °C to +80 °C
Fixed installation: -50 °C to +80 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® FD 855 CP** | | | | |
| 0027605 | 2 X 0.5 | 6.7 | 32 | 67 |
| 0027606 | 3 G 0.5 | 7.1 | 40 | 79 |
| 0027607 | 5 G 0.5 | 8.2 | 53 | 107 |
| 0027608 | 6 G 0.5 | 8.7 | 59 | 121 |
| 0027609 | 7 G 0.5 | 9.5 | 67 | 132 |
| 0027610 | 12 G 0.5 | 10.9 | 97 | 190 |
| 0027611 | 18 G 0.5 | 12.9 | 131 | 245 |
| 0027612 | 20 G 0.5 | 13.5 | 156 | 281 |
| 0027613 | 25 G 0.5 | 15.6 | 190 | 367 |
| 0027615 | 30 G 0.5 | 15.8 | 222 | 408 |
| 0027616 | 36 G 0.5 | 16.9 | 251 | 459 |
| 0027620 | 2 X 0.75 | 7.2 | 40 | 79 |
| 0027621 | 3 G 0.75 | 7.6 | 47 | 96 |
| 0027622 | 4 G 0.75 | 8.3 | 58 | 112 |
| 0027623 | 5 G 0.75 | 8.9 | 65 | 126 |
| 0027624 | 7 G 0.75 | 10.6 | 85 | 165 |
| 0027625 | 12 G 0.75 | 12.1 | 127 | 231 |
| 0027626 | 18 G 0.75 | 14.6 | 198 | 330 |
| 0027628 | 25 G 0.75 | 17.7 | 259 | 459 |
| 0027630 | 36 G 0.75 | 19.5 | 348 | 605 |
| 0027635 | 2 X 1.0 | 7.6 | 45 | 93 |
| 0027636 | 3 G 1.0 | 8.1 | 55 | 109 |
| 0027637 | 4 G 1.0 | 8.8 | 68 | 126 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0027638 | 5 G 1.0 | 9.6 | 81 | 147 |
| 0027639 | 7 G 1.0 | 11.3 | 106 | 196 |
| 0027640 | 12 G 1.0 | 13.2 | 175 | 292 |
| 0027641 | 18 G 1.0 | 15.9 | 242 | 418 |
| 0027643 | 25 G 1.0 | 19.5 | 329 | 575 |
| 0027645 | 30 G 1.0 | 19.6 | 377 | 635 |
| 0027646 | 36 G 1.0 | 21.2 | 467 | 758 |
| 0027649 | 2 X 1.5 | 8.3 | 58 | 115 |
| 0027650 | 3 G 1.5 | 8.9 | 76 | 139 |
| 0027661 | 4 G 1.5 | 9.8 | 91 | 156 |
| 0027651 | 5 G 1.5 | 10.8 | 111 | 198 |
| 0027652 | 7 G 1.5 | 12.5 | 145 | 254 |
| 0027653 | 12 G 1.5 | 14.9 | 242 | 416 |
| 0027654 | 18 G 1.5 | 17.4 | 346 | 564 |
| 0027656 | 25 G 1.5 | 21.4 | 486 | 811 |
| 0027659 | 36 G 1.5 | 23.4 | 655 | 1066 |
| 0027380 | 3 G 2.5 | 10.7 | 110 | 194 |
| 0027381 | 4 G 2.5 | 11.7 | 136 | 234 |
| 0027382 | 5 G 2.5 | 12.8 | 180 | 293 |
| 0027383 | 7 G 2.5 | 15.6 | 246 | 418 |
| 0027384 | 12 G 2.5 | 18 | 377 | 629 |
| 0027385 | 18 G 2.5 | 21.5 | 569 | 912 |
| 0027386 | 25 G 2.5 | 26.5 | 765 | 1266 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® PETRO FD 865 CP

Halogen-free, highly flexible and screened control cable with abrasion and MUD-resistant PUR sheath - certified

## Info

- Extended Line Performance - Long travel lengths or high acceleration
- Resistant to oil and drilling fluids according to NEK TS 606:2016 (Oil & Mud)
- EMC compliant copper screening




## Benefits

- Especially suitable for contact with oil- and ester-based drilling muds as well as calcium bromide solutions
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Suitable for long horizontal cable chain travel distances
- Additional robustness thanks to inner sheath
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Permanently moved cable chains or machine parts in harsh environment
- Onshore and offshore applications
- In wet areas within machinery and production or assembly lines
- For use in assembling & pick-and-place machinery
- For indoor and outdoor use

## Product features

- Salt water-resistant according to UL 1309
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Good weather, ozone, UV and oil resistance
- Good notch and abrasion resistance
- Flexible at low temperatures
- EMC-compliant

## Norm references / Approvals

- DNV Det Norske Veritas certified
- Resistant to oil and drilling fluids according to NEK TS 606:2016 and IEC 61892-4
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: TPE
- Cores twisted in short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned copper screen braiding
- Outer sheath made of robust special polymer, colour black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -50°C to +80°C
Fixed installation: -60°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® PETRO FD 865 CP** | | | | |
| 0023300 | 2 X 0.5 | 6.7 | 32 | 67 |
| 0023301 | 3 G 0.5 | 7.1 | 40 | 79 |
| 0023302 | 4 G 0.5 | 7.6 | 47 | 84 |
| 0023303 | 5 G 0.5 | 8.2 | 53 | 107 |
| 0023304 | 7 G 0.5 | 9.5 | 67 | 132 |
| 0023305 | 12 G 0.5 | 10.9 | 97 | 190 |
| 0023306 | 18 G 0.5 | 12.9 | 131 | 245 |
| 0023307 | 20 G 0.5 | 13.5 | 156 | 281 |
| 0023308 | 25 G 0.5 | 15.6 | 190 | 367 |
| 0023309 | 30 G 0.5 | 15.8 | 222 | 408 |
| 0023310 | 36 G 0.5 | 16.9 | 251 | 459 |
| 0023311 | 2 X 0.75 | 7.2 | 40 | 79 |
| 0023312 | 3 G 0.75 | 7.6 | 47 | 96 |
| 0023313 | 4 G 0.75 | 8.3 | 58 | 112 |
| 0023314 | 5 G 0.75 | 8.9 | 65 | 126 |
| 0023315 | 7 G 0.75 | 10.6 | 85 | 165 |
| 0023316 | 12 G 0.75 | 12.1 | 127 | 231 |
| 0023317 | 18 G 0.75 | 14.6 | 198 | 330 |
| 0023318 | 20 G 0.75 | 15.5 | 213 | 354 |
| 0023319 | 25 G 0.75 | 17.7 | 259 | 459 |
| 0023320 | 30 G 0.75 | 17.7 | 296 | 480 |
| 0023321 | 36 G 0.75 | 19.5 | 348 | 605 |
| 0023322 | 2 X 1.0 | 7.6 | 45 | 93 |
| 0023323 | 3 G 1.0 | 8.1 | 55 | 109 |
| 0023324 | 4 G 1.0 | 8.8 | 68 | 126 |
| 0023325 | 5 G 1.0 | 9.6 | 81 | 147 |
| 0023326 | 7 G 1.0 | 11.3 | 106 | 196 |
| 0023327 | 12 G 1.0 | 13.2 | 175 | 292 |
| 0023328 | 18 G 1.0 | 15.9 | 242 | 418 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0023329 | 20 G 1.0 | 16.6 | 269 | 427 |
| 0023330 | 25 G 1.0 | 19.2 | 329 | 575 |
| 0023331 | 30 G 1.0 | 19.6 | 377 | 635 |
| 0023332 | 36 G 1.0 | 21.2 | 467 | 758 |
| 0023333 | 2 X 1.5 | 8.3 | 58 | 115 |
| 0023334 | 3 G 1.5 | 8.9 | 76 | 139 |
| 0023335 | 4 G 1.5 | 9.8 | 91 | 156 |
| 0023336 | 5 G 1.5 | 10.8 | 111 | 198 |
| 0023337 | 7 G 1.5 | 12.5 | 145 | 254 |
| 0023338 | 12 G 1.5 | 14.9 | 242 | 416 |
| 0023339 | 18 G 1.5 | 17.4 | 346 | 564 |
| 0023340 | 20 G 1.5 | 18.3 | 377 | 562 |
| 0023341 | 25 G 1.5 | 21.4 | 486 | 811 |
| 0023342 | 30 G 1.5 | 21.4 | 568 | 821 |
| 0023343 | 36 G 1.5 | 23.4 | 655 | 1066 |
| 0023344 | 2 X 2.5 | 9.8 | 73 | 129 |
| 0023345 | 3 G 2.5 | 10.7 | 110 | 194 |
| 0023346 | 4 G 2.5 | 11.7 | 136 | 234 |
| 0023347 | 5 G 2.5 | 12.8 | 180 | 293 |
| 0023348 | 7 G 2.5 | 15.6 | 246 | 418 |
| 0023349 | 12 G 2.5 | 18 | 377 | 629 |
| 0023350 | 18 G 2.5 | 21.5 | 569 | 912 |
| 0023351 | 20 G 2.5 | 22.7 | 582 | 850 |
| 0023352 | 25 G 2.5 | 26.5 | 765 | 1266 |
| 0023353 | 4 G 4.0 | 13.9 | 205 | 311 |
| 0023354 | 5 G 4.0 | 15.4 | 250 | 381 |
| 0023355 | 4 G 6.0 | 16.2 | 289 | 423 |
| 0023356 | 5 G 6.0 | 17.8 | 354 | 512 |
| 0023357 | 4 G 10.0 | 20.4 | 475 | 672 |
| 0023358 | 5 G 10.0 | 22.3 | 582 | 814 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CHAIN 896 P

Highly flexible, halogen-free power cable with low capacitive insulation and oil resistant PUR sheath - certified




**Info**

- Extended Line Performance - Long travel lengths or high acceleration
- High oil resistance
- Rated voltage 0,6/1 kV

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Wide temperature range for applications in harsh climatic environments

## Application range

- In cable chains or moving machine parts
- Applications in automation engineering
- Power circuits in industrial machines
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- For indoor and outdoor use

## Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Low-capacitance design
- Flexible down to -40°C

## Norm references / Approvals

- VDE - reg - no. 8661
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Non-woven wrapping
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing:
up from 7.5 x outer diameter (up to 16mm²)
up from 10 x outer diameter (from 25mm²)
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CHAIN 896 P** | | | | |
| 1023229 | 4 G 1.5 | 9.6 | 58 | 120 |
| 1023230 | 5 G 1.5 | 10 | 72 | 143 |
| 1023238 | 4 G 2.5 | 11 | 96 | 174 |
| 1023239 | 5 G 2.5 | 12 | 120 | 210 |
| 1023245 | 4 G 4.0 | 12.5 | 154 | 242 |
| 1023246 | 5 G 4.0 | 13.7 | 192 | 316 |
| 1023248 | 4 G 6.0 | 14.3 | 231 | 335 |
| 1023249 | 5 G 6.0 | 15.7 | 288 | 439 |
| 1023250 | 4 G 10.0 | 17 | 384 | 503 |
| 1023251 | 5 G 10.0 | 18.9 | 480 | 663 |
| 1023252 | 4 G 16.0 | 21.2 | 615 | 810 |
| 1023253 | 5 G 16.0 | 23.8 | 768 | 1065 |
| 1023254 | 4 G 25.0 | 25.9 | 960 | 1254 |
| 1023255 | 5 G 25.0 | 29 | 1200 | 1582 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Robotics







# ÖLFLEX® ROBOT 900 P

Abrasion- and oil-resistant PUR robot cable for dynamic bending and torsion motions




**Info**

- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m

## Benefits

- Space-saving installation due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

## Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In cable chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

## Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

## Norm references / Approvals

- Designed for up to 5 million torsion cycles
- For use in cable chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m

## Product Make-up

- Fine or extra-fine strands made of bare copper wire
- Core insulation: TPE
- Cores twisted in layers
- Versions with additional center pair: 2 cores twisted to a pair, PTFE foil wrapping, layer of tinned copper wires
- Wrapping of PTFE tape
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white numbers, cores of screened pair (2 x 1.0) are marked with no. 1 + 2

**Mutual capacitance**
C/C approx. 100 nF/km
C/S approx. 120 nF/km

**Inductivity**
approx. 0.7 mH/km

**Conductor stranding**
Fine wire or extra-fine wire

**Torsion**
Torsion load max. ± 360 °/m

**Minimum bending radius**
For flexible use: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
Up to 0,34 mm²: 48 V AC
From 0.5 mm² U0/U: 300/500 V

**Test voltage**
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBOT 900 P** | | | | |
| **Core colours according to DIN 47100** | | | | |
| 0028110 | 7 X 0.25 | 6.2 | 16.8 | 50 |
| 0028116 | 25 X 0.25 | 10.2 | 60 | 138 |
| 0028188 | 2 X 0.34 | 5.0 | 7 | 28 |
| **Numbered Cores** | | | | |
| 0028145 | 18 G 0.5 | 11.2 | 86.4 | 170 |
| 0028146 | 25 G 0.5 | 13.3 | 120 | 249 |
| 0028160 | 4 G 0.75 | 6.6 | 28.8 | 61 |
| 0028164 | 14 G 0.75 | 11.2 | 100.8 | 180 |
| 0028170 | 2 X 1.0 | 6.2 | 19.2 | 46 |
| 0028171 | 3 G 1.0 | 6.5 | 29 | 59 |
| 0028172 | 4 G 1.0 | 7.0 | 38.4 | 76 |
| 0028174 | 7 G 1.0 | 9.3 | 67.2 | 131 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0028176 | 12 G 1.0 | 11.5 | 115.2 | 202 |
| 0028185 | 16 G 1,0 + (2 x 1,0) | 16.0 | 195 | 362 |
| 0028178 | 18 G 1.0 | 13.2 | 172.8 | 287 |
| 0028186 | 23 G 1,0 + (2 x 1,0) | 17.3 | 262 | 436 |
| 0028180 | 25 G 1.0 | 16.4 | 240 | 415 |
| 0028190 | 34 G 1.0 | 19.9 | 326.4 | 572 |
| 0028191 | 41 G 1.0 | 22.3 | 393.6 | 667 |
| 0028198 | 18 G 1.5 | 15.8 | 259.2 | 406 |
| 0028181 | 3 G 2.5 | 9.3 | 72 | 124 |
| 0028182 | 4 G 2.5 | 10.1 | 96 | 157 |
| 0028400 | 3 G 16.0 | 21.4 | 460.8 | 728 |
| 0028187 | 3 G 25.0 | 26.2 | 720 | 1120 |
| 0028189 | 3 G 35.0 | 28.8 | 1008 | 1469 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBOT 900 DP

Shielded, abrasion- and oil-resistant PUR robot cable for dynamic bending and torsion motions

**Info**

- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- Copper screening




## Benefits

- Space-saving installation due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Copper shielding protects against electromagnetic interference

## Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In cable chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

## Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

## Norm references / Approvals

- Designed for up to 5 million torsion cycles
- For use in cable chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m

## Product Make-up

- Fine or extra-fine strands made of bare copper wire
- Core insulation: TPE
- Cores twisted in layers
- Wrapping of PTFE tape
- Spiral shield made of tinned copper wires
- PUR outer sheath, black (similar RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white numbers

**Mutual capacitance**
C/C approx. 100 nF/km
C/S approx. 120 nF/km

**Inductivity**
approx. 0.7 mH/km

**Conductor stranding**
Fine wire or extra-fine wire

**Torsion**
Torsion load max. ± 180 °/m

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
Up to 0,34 mm²: 48 V AC
From 0.5 mm² U0/U: 300/500 V

**Test voltage**
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBOT 900 DP** | | | | |
| **Core colours according to DIN 47100** | | | | |
| 0028100 | 12 x 0,14 | 6.7 | 42.5 | 69 |
| 0028105 | 3 x 2 x 0,14 | 6.2 | 17 | 45 |
| 0028126 | 25 x 0,25 | 11.1 | 103.5 | 183 |
| 0028135 | 4 x 0,34 | 5.7 | 21.3 | 44 |
| 0028136 | 5 x 2 x 0,34 | 9.1 | 64.4 | 106 |
| **Numbered Cores** | | | | |
| 0028195 | 12 G 1,5 | 14.0 | 259 | 324 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBOT F1

Abrasion- and oil resistant PUR robot cable for high dynamic bending and torsion motions, UL/cUL AWM certified




**Info**

- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m
- AWM certification for USA and Canada

## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In cable chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

## Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

## Norm references / Approvals

- UL AWM Style 20940
  cUL AWM I/II A/B
- UL File No. E213974
- Designed for up to 10 million torsion cycles
- For use in cable chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m

## Product Make-up

- Extra-fine strands, 0.14 mm² - 0.5 mm² made of tinned copper wires, bare above
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- Wrapping of PTFE tape
- Wrapping made of tinned copper wires for versions with individually screened pairs
- PUR outer sheath, colour anthracite

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black numbers, cores of screened pair (2 x 1.0) are marked with no. 1 + 2

**Conductor stranding**
Extra-fine wire

**Torsion**
Torsion load max. ± 360 °/m

**Minimum bending radius**
Flexible use: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: up to 0.34 mm² 250 Vss.
0.5 - 2.5 mm² $U_0$/U 300/500 V
UL/CSA: up to 1.5 mm² 600 V,
from 2.5 mm² 1000 V

**Test voltage**
Up to 0.34 mm²: 1500 V
From 0.5 mm² - 1.5 mm2: 2000 V
From 2.5 mm²: 3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBOT F1** | | | | |
| **Core colours according to DIN 47100** | | | | |
| 0029590 | 7 X 0.25 | 6.7 | 16.8 | 62 |
| 0029591 | 12 X 0.25 | 9.0 | 30 | 122 |
| 0029592 | 18 X 0.25 | 10.6 | 45 | 156 |
| 0029593 | 25 X 0.25 | 12.5 | 60 | 205 |
| 0029594 | 2 X 0.34 | 4.6 | 7 | 38 |
| 0029595 | 3 X 0.34 | 4.8 | 10 | 40 |
| 0029596 | 4 X 0.34 | 5.2 | 15 | 48 |
| 0029599 | 12 X 0.34 | 9.4 | 40 | 130 |
| 0029600 | 18 X 0.34 | 11.2 | 60 | 170 |
| 0029601 | 25 X 0.34 | 13.1 | 83 | 220 |
| **Numbered Cores** | | | | |
| 0029608 | 18 G 0.5 | 12.3 | 84 | 202 |
| 0029609 | 25 G 0.5 | 15.2 | 120 | 284 |
| 0029610 | 2 X 1.0 | 6.3 | 19 | 60 |
| 0029611 | 3 G 1.0 | 6.6 | 28 | 71 |
| 0029612 | 4 G 1.0 | 7.2 | 38 | 87 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0029614 | 7 G 1.0 | 9.2 | 65 | 141 |
| 0029615 | 12 G 1.0 | 12.4 | 110 | 237 |
| 0029616 | 14 G 1.0 | 13.2 | 128 | 257 |
| 0029617 | 16 G 1,0 + (2 x 1,0) | 15.4 | 190 | 346 |
| 0029618 | 18 G 1.0 | 16.1 | 170 | 349 |
| 0029619 | 23 G 1 + (2 x 1,0) | 18.0 | 250 | 461 |
| 0029620 | 25 G 1.0 | 18.3 | 240 | 407 |
| 0029621 | 34 G 1.0 | 21.1 | 320 | 600 |
| 0029622 | 41 G 1.0 | 23.6 | 390 | 753 |
| 0029624 | 4 G 1.5 | 8.2 | 57 | 114 |
| 0029625 | 5 G 1.5 | 9.1 | 72 | 141 |
| 0029627 | 7 G 1.5 | 10.5 | 101 | 187 |
| 0029629 | 12 G 1.5 | 14.3 | 170 | 294 |
| 0029630 | 18 G 1.5 | 17.5 | 259 | 450 |
| 0029631 | 25 G 1.5 | 22.2 | 360 | 661 |
| 0029632 | 3 G 2.5 | 9.1 | 72 | 136 |
| 0029641 | 4 G 6.0 | 13.3 | 220 | 330 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® ROBOT F1 ( C )

Shielded, abrasion- and oil-resistant PUR robot cable for high dynamic bending and torsion motions, UL/cUL AWM certified

**Info**

- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- AWM certification for USA and Canada




## Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

## Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In cable chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

## Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

## Norm references / Approvals

- UL AWM Style 20940
  cUL AWM I/II A/B
- UL File No. E213974
- Designed for up to 10 million torsion cycles
- For use in cable chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m

## Product Make-up

- Extra-fine strands, 0.14 mm² - 0.5 mm² made of tinned copper wires, bare above
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- Wrapping made of tinned copper wires for versions with individually screened pairs
- Wrapping of PTFE tape
- Spiral shield of tinned copper wires, version 12 G 1,5 and 18 G 1,5 with screen braiding
- PUR outer sheath, colour anthracite

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black numbers, cores of screened pair (2 x 1.0) are marked with no. 5 + 6

**Conductor stranding**
Extra-fine wire

**Torsion**
Torsion load max. ± 180 °/m

**Minimum bending radius**
Flexible use: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
IEC: up to 0.34 mm² 250 Vss.
0.5 - 2.5 mm² $U_0$/U 300/500 V
UL/CSA: up to 1.5 mm² 600 V,
from 2.5 mm² 1000 V

**Test voltage**
Up to 0.34 mm²: 1500 V
From 0.5 mm² - 1.5 mm2: 2000 V
From 2.5 mm²: 3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® ROBOT F1 (C)** | | | | |
| **Core colours according to DIN 47100** | | | | |
| 0029653 | 3 x 2 x 0,25 | 8.0 | 38 | 100 |
| 0029654 | 25 x 0,25 | 13.8 | 115 | 280 |
| 0029655 | 2 x 0,34 | 5.2 | 18 | 54 |
| 0029656 | 3 x 0,34 | 5.4 | 20 | 56 |
| 0029657 | 4 x 0,34 | 6.6 | 28 | 72 |
| 0029658 | 5 x 2 x 0,34 | 10.2 | 69 | 158 |
| **Numbered Cores** | | | | |
| 0029689 | 12 G 1,5 | 15.4 | 230 | 380 |
| 0029690 | 18 G 1,5 | 18.5 | 340 | 590 |
| 0029664 | 4 G 1,5 | 8.8 | 75.1 | 150 |
| 0029665 | 4 G 2,5 | 10.3 | 116 | 196 |
| 0029691 | 4 G 1,5 + (2 x 1,0) | 11.0 | 116 | 213 |
| 0029692 | 4 G 2,5 + (2 x 1,0) | 12.0 | 150 | 270 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Special applications










# LiFY

Flexible at cold temperatures, Class 6 single conductor for devices or measurements

**Info**

- Extremely flexible / Extra-finely stranded




## Benefits

- Very soft PVC insulation that is flexible at low temperatures

## Application range

- For use in and on mobile equipment
- For measuring assemblies in technical training sessions, education and electric laboratories

## Norm references / Approvals

- Based on VDE 0812 and VDE 0250-1

## Product Make-up

- Stranded copper wire
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Extra-finely stranded IEC conductor class 6: 0.07 mm

**Nominal voltage**
Highly flexible LiFY cores:
up to 1.0 mm²: U0/U: 300/500 V,
from 1.5 mm²: U0/U: 450/750 V

**Temperature range**
Flexible use: -15°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | PU | red | blue | black | green/yellow |
|---|---|---|---|---|---|---|---|
| 0.75 | 2.5 | 7.2 | 100 | 4560016S | 4560014S | 4560013S | 4560017S |
| 1 | 2.9 | 9.6 | 100 | 4560026S | 4560024S | 4560023S | 4560027S |
| 1.5 | 3.7 | 14.4 | 100 | 4560036S | 4560034S | 4560033S | 4560037S |
| 2.5 | 4.2 | 24 | 50 | 4560056S | 4560054S | 4560053S | 4560057S |
| 4 | 5.1 | 38.4 | 50 | | 4560064 | 4560063 | 4560067 |
| 6 | 6.0 | 57.6 | 50 | 4560076 | 4560074 | 4560073 | 4560077 |
| 10 | 7.4 | 96 | 50 | 4560086 | | 4560083 | 4560087 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# LiFY 1 kV

Flexible at cold temperatures, Class 6 single conductor for devices or measurements






**Info**

- Extremely flexible / Extra-finely stranded

## Benefits

- Very soft PVC insulation that is flexible at low temperatures

## Application range

- For use in and on mobile equipment
- The 1000 V version with thick insulation wall is ideal for many measuring instruments such as multimeters.
- For measuring assemblies in technical training sessions, education and electric laboratories

## Norm references / Approvals

- Based on VDE 0812 and VDE 0250-1

## Product Make-up

- Stranded copper wire
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Extra-finely stranded IEC conductor class 6: 0.07 mm

**Nominal voltage**
LiFY measurement cores:
U: 1000 VAC

**Temperature range**
Flexible use: -15 °C to +70 °C

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | PU | red | blue | black |
|---|---|---|---|---|---|---|
| 0.75 | 4.0 | 7.2 | 50 | 4560041S | 4560021S | 4560011S |
| 1.5 | 4.0 | 14.4 | 50 | 4560042S | 4560022S | 4560012S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ESUY Copper Earthing Cable

Flexible single conductor for grounding and shorting as well as for grounding installation and potential equalisation

**Info**

- Grounding, Shorting prior to field maintenance
- Mechanically highly flexible




## Benefits

- Very flexible despite a large cross-section

## Application range

- Provides protection during repairs
- For earthing in high-voltage power installations of power companies and railway systems
- For earthing devices and potential equalisation on machine parts and EDP systems

## Product features

- Flame-retardant according IEC 60332-1-2

## Product Make-up

- Conductor made of bare copper wires
- Braiding made of bare copper wires
- Outer sheath: Based on PVC, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
according to DIN 46440

**Minimum bending radius**
Flexible use: 12 x outer diameter

**Test voltage**
2000 V

**Temperature range**
Flexible use: -5°C to +70°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ESUY Copper Earthing Cable** | | | | |
| 4571101 | 16 | 8.8 | 177 | 230 |
| 4571102 | 25 | 10.4 | 275 | 316 |
| 4571103 | 35 | 12.4 | 387 | 475 |
| 4571104 | 50 | 14.6 | 560 | 670 |
| 4571105 | 70 | 17.0 | 791 | 905 |
| 4571106 | 95 | 19.8 | 1069 | 1220 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# X00V3-D Copper Earthing Cable

Flexible at cold temperatures, <HAR>-type single conductor for earthing and shorting




**Info**

- Grounding, Shorting prior to field maintenance
- Flexible at low temperatures

## Application range

- Provides protection during repairs
- For earthing in high-voltage power installations of power companies and railway systems
- For earthing devices and potential equalisation on machine parts and EDP systems
- For applications in cold environments

## Norm references / Approvals

- Based on VDE 0283 part 3 resp. EN 61138

## Product Make-up

- Conductor made of bare copper wires
- Outer sheath: Based on PVC, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Based on VDE 0283 part 3 resp. EN 61138

**Minimum bending radius**
Flexible use: 12 x outer diameter

**Test voltage**
1000 V

**Temperature range**
Flexible use: -25 °C to +55 °C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **X00V3-D Copper Earthing Cable** | | | | |
| 4571110 | 16 | 8.1 | 153.6 | 170 |
| 4571111 | 25 | 9.5 | 240 | 290 |
| 4571112 | 35 | 11.0 | 336 | 400 |
| 4571113 | 50 | 13.2 | 480 | 550 |
| 4571114 | 70 | 15.8 | 672 | 770 |
| 4571115 | 95 | 18.3 | 912 | 1010 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® TRUCK 170 FLRYY

**Info**

- For commercial verhicles
- For hazardous materials transportation




## Benefits

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

## Application range

- For commercial verhicles
- Wiring of electrical equipments in all trailers and semi-trailers

## Product features

- UV-resistant
- Resistant to cold temperatures
- Resistant to most oils, chemicals and weather conditions

## Norm references / Approvals

- ISO 4141 and DIN/ISO 6722

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
ISO 4141-3

**Capacity of data pairs**
Related to length between cores, max. 50 pF/m and between each data transmission core and all other cores in the cable, max. 100 pF/m

**Conductor stranding**
Fine wire according to DIN/ISO 6722

**Minimum bending radius**
12 x outer diameter

**Nominal voltage**
60 V

**Test voltage**
5 kV rms for at least 5 min.

**Temperature range**
Area of application, Class A
Fixed installation: -40°C to +85°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® TRUCK 170 FLRYY** | | | | | |
| 7027060 | 2 x 1,0 | 6.0 | white-black | 19.2 | 55 |
| 7027061 | 2 x 1,0 | 6.0 | white-brown | 19.2 | 55 |
| 7027000 | 2 x 1,5 | 6.6 | white-black | 28.8 | 68 |
| 7027001 | 2 x 1,5 | 6.6 | white-brown | 28.8 | 68 |
| 7027062 | 3 x 1,0 | 6.3 | black-brown-blue | 28.8 | 63 |
| 7027012 | 3 x 1,0 | 6.3 | white/brown/blue, newest ISO design | 28.8 | 63 |
| 7027063 | 4 x 1,0 | 6.8 | white/black/red/brown | 38.4 | 81 |
| 7027034 | 4 x 1,5 | 7.5 | white/black/red/brown | 57.6 | 106 |
| 7027064 | 5 x 1,0 | 7.5 | white/brown/green/red/grey | 48 | 97 |
| 7027065 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = green/brown/red/blue/violet; 2.5 = white | 72 | 133 |
| 7027066 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = yellow/black/red/blue/violet; 2.5 = white | 72 | 133 |
| 7027015 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = brown/green/red/grey/violet; 2.5 = white, newest ISO design | 72 | 133 |
| 7027016 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = brown/yellow/red/grey/violet; 2.5 = white, newest ISO design | 72 | 133 |
| 7027007 | 7 x 0,75 | 7.3 | white/black/yellow/red/green/brown/blue | 50.4 | 101 |
| 7027067 | 7 x 1,5 | 8.9 | white/black/yellow/red/green/brown/blue | 100.8 | 166 |
| 7027068 | 6 x 1,5 + 1 x 2,5 | 10.3 | ISO 4141 1.5 = black/yellow/red/green/brown/blue; 2.5 = white | 110.4 | 187 |
| 7027069 | 8 x 1,5 + 1 x 2,5 | 11.7 | ISO 4141 + grey/violet | 139.2 | 239 |
| 7027070 | 10 x 1,5 + 3 x 2,5 + 1x(2x1,5) | 14.4 | white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13; 1.5 = no. 14, 15 | 244.8 | 391 |
| 7027010 | 10 x 1,5 + 3 x 2,5 + 1x(2x1,5) | 14.4 | ISO 12098 | 244.8 | 391 |
| 7027071 | 10 x 1,5 + 3 x 2,5 | 14.4 | white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13 | 216 | 367 |
| 7027035 | 2 x 0,75 + 2 x 1,5 | 7.2 | 0.75 = white-brown; 1.5 = yellow-green | 43.2 | 85 |
| 7027017 | 5 x 1,5 + 2 x 2,5 | 10.3 | 1.5 = black/yellow/green/brown/blue; 2.5 = white/red | 120 | 217 |
| 7027004 | 8 x 1,5 + 5 x 2,5 | 14.8 | 1.5 = yellow/blue/green/brown/red/black/pink/white-blue; 2.5 = white/orange/grey/white-black/white-red | 235.2 | 360 |
| 7027073 | 9 x 1,5 + 4 x 2,5 | 14.8 | white with black numbers; 1.5 = no. 2, 4 - 8, 10 - 12; 2.5 = no. 1, 3, 9, 13 | 225.6 | 352 |
| 7027074 | 4 x 6 + 1 x 1,5 | 13.7 | 1.5 = grey; 6.0 = brown/red/black/blue | 244.8 | 352 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® TRUCK 470 P FLRYY 11Y




**Info**

- For commercial verhicles
- For hazardous materials transportation
- Hydrolysis and microbe resistant

## Benefits

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

## Application range

- For commercial verhicles
- Wiring of electrical equipments in all trailers and semi-trailers

## Product features

- UV-resistant
- Resistant to cold temperatures
- Resistant to most oils, chemicals and weather conditions
- Resistant to hydrolysis and microbes

## Norm references / Approvals

- ISO 4141 and DIN/ISO 6722

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based inner sheath
- Outer sheath made of special polyurethane

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
ISO 4141-3

**Capacity of data pairs**
Related to length between cores, max. 50 pF/m and between each data transmission core and all other cores in the cable, max. 100 pF/m

**Conductor stranding**
Fine wire according to DIN/ISO 6722

**Minimum bending radius**
12 x outer diameter

**Nominal voltage**
60 V

**Test voltage**
5 kV rms for at least 5 min.

**Temperature range**
Fixed installation: -40°C to +85°C
Area of application, Class A

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® TRUCK 470 P FLRYY 11Y** | | | | | |
| 7027080 | 2 x 1,0 | 6.0 | white-black | 19.2 | 55 |
| 7027081 | 2 x 1,0 | 6.0 | white-brown | 19.2 | 55 |
| 7027020 | 2 x 1,5 | 6.6 | white-black | 28.8 | 68 |
| 7027021 | 2 x 1,5 | 6.6 | white-brown | 28.8 | 68 |
| 7027082 | 3 x 1,0 | 6.3 | black-brown-blue | 28.8 | 67 |
| 7027022 | 3 x 1,0 | 6.3 | white/brown/blue, newest ISO design | 28.8 | 67 |
| 7027083 | 4 x 1,0 | 6.8 | white/black/red/brown | 38.4 | 81 |
| 7027038 | 4 x 1,5 | 7.5 | white/black/red/brown | 57.6 | 106 |
| 7027084 | 5 x 1,0 | 7.5 | white/brown/green/red/grey | 48 | 97 |
| 7027085 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = green/brown/red/blue/violet; 2.5 = white | 72 | 133 |
| 7027086 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = yellow/black/red/blue/violet; 2.5 = white | 72 | 133 |
| 7027025 | 5 x 1,0 + 1 x 2,5 | 9.0 | 1.0 = brown/green/red/grey/violet; 2.5 = white, newest ISO design | 72 | 133 |
| 7027087 | 6 x 1,5 + 1 x 2,5 | 10.3 | ISO 4141 1.5 = black/yellow/red/green/brown/blue; 2.5 = white | 110.4 | 187 |
| 7027130 | 7 x 0,75 | 7.3 | white/black/yellow/red/green/brown/blue | 50.4 | 101 |
| 7027088 | 7 x 1,5 | 8.9 | white/black/yellow/red/green/brown/blue | 100.8 | 166 |
| 7027089 | 8 x 1,5 + 1 x 2,5 | 11.7 | ISO 4141 + grey/violet | 139.2 | 239 |
| 7027090 | 10x1,5+3x2,5+1x(2x1,5) | 14.4 | white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13; 1.5 = no. 14, 15 | 244.8 | 391 |
| 7027030 | 10x1,5+3x2,5+1x(2x1,5) | 14.4 | ISO 12098 | 244.8 | 395 |
| 7027091 | 10x1,5+3x2,5 | 14.4 | white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13 | 216 | 367 |
| 7027031 | 10x1,5+3x2,5 | 14.4 | 1.5 = yellow/green/blue/black/brown/red/pink/grey/white-black/ white-blue; 2.5 = white/orange/white-red | 216 | 367 |
| 7027046 | 2 x 0,75 + 2 x 1,5 | 7.2 | 0.75 = white-brown; 1.5 = yellow-green | 43.2 | 85 |
| 7027092 | 2 x 6 + 3 x 1,5 ABS | 12.1 | DIN 72570 6.0 = red/brown; 1.5 = black/yellow/white | 158.4 | 267 |
| 7027093 | 2x6+3x1,5+1x(2x1,5) EBS | 12.1 | DIN 72570 6.0 = red/brown; 1.5 = black/yellow/white; 1.5 = white-grey/ white-brown | 187.2 | 321 |
| 7027094 | 2x4+3x1,5+1x(2x1,5) EBS | 11.9 | 4.0=red/brown; 1.5=black/yellow/white; 1.5=white-grey/white-brown | 148.8 | 257 |
| 7027024 | 18 x 1,5 | 13.7 | white with black numbers | 259.2 | 407 |
| 7027032 | 25 x 1,5 | 16.1 | white with black numbers | 360 | 560 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® TRUCK 170 TWIN

**Info**

- Battery twin cable
- For commercial verhicles
- For hazardous materials transportation




## Benefits

- Polarity identification is possible without stripping the sheath or external marking (the item designation is always printed on the positive pole). This rules out incorrect connections.
- No brushing of cores after stripping and therefore optimum subsequent handling, for example when crimping/contacting
- Special ADR approval

## Application range

- Battery cable between the power source and the end user
- For commercial verhicles

## Product features

- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Very strong connection but offering easy separation of the cable by hand

## Norm references / Approvals

- ADR approval TÜ.EGG.091-04

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Minimum bending radius**
15 x outer diameter

**Nominal voltage**
60 V DC

**Test voltage**
3000 V AC

**Temperature range**
Fixed installation: -40 °C to +85 °C
Area of application, Class A

| Article number | Number of cores and mm² per conductor | Outer dimensions, width x height (mm) | Copper index (kg/km) |
|---|---|---|---|
| **ÖLFLEX® TRUCK 170 TWIN PVC/PVC** | | | |
| 7027055 | PVC/PVC 2 x 6,0 | 15.2 x 7.1 | 115.2 |
| 7027056 | PVC/PVC 2 x 10,0 | 18.8 x 8.9 | 192 |
| 7027057 | PVC/PVC 2 x 16,0 | 21.0 x 10.0 | 307.2 |
| 7027058 | PVC/PVC 2 x 25,0 | 25.6 x 12.3 | 480 |
| 7027059 | PVC/PVC 2 x 35,0 | 28.4 x 13.5 | 672 |
| 7027054 | PVC/PVC 2 x 50,0 | 33.0 x 16.0 | 960 |
| 7027052 | PVC/PVC 2 x 70,0 | 39.8 x 18.4 | 1344 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HV EV T6 FHLR2GCB2G

Thin-wall HV screened cables for electric vehicle




## Benefits

- Extremely flexible thanks to the Flexible copper
- The insulation and the jacket made of silicone make the handling of the cable during the operations very easy
- Ideal protection against electromagnetic interference thanks to the double screening foil and braiding with a high degree of coverage
- Double screening makes the connection safe against electromagnetic interference
- Also suitable for fixed wiring in applications where cables are difficult to use due to space requirements and minimum bending radii
- Specially designed for energy circuits of motors driven by frequency converters
- Flame retardant and Halogen Free cable, with low emission of smoke and corrosive gases in case of fire
- Excellent tearing resistance, good resistance to most oils, chemicals and weather conditions

## Application range

- Thin-wall HV screened cables T6-200 °C for vehicles
- Flexible screened single core cables
- Heat resistant, special silicone elastomeric compound insulated and sheathed
- Suitable for connection cables for HV machines, transformers, generators and motors for hybrid and electric industrial/ logistic vehicles
- Test systems in the automotive industry, vehicles and stationary fuel cell systems
- For circuits that require a higher nominal voltage due to their installation

## Technical data

**Conductor stranding**
Flexible bare copper class C acc. to ISO 19642

**Minimum bending radius**
4x outer diameter

**Nominal voltage**
acc. to ISO 19642: 1.000 Vac / 1.500 Vdc

**Temperature range**
fixed installation: -65°C up to 200°C
Temperature Class Rating F acc. to ISO 19642-1 Temperature Class Rating T6 acc. to ISO 19642-1

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HV EV T6 FHLR2GCB2G UT** | | | | |
| 550000000806 | 4 | 5.4 | x | 85 |
| 550000000807 | 6 | 6.3 | 108.8 | 105 |
| 550000000808 | 10 | 7.8 | 147.7 | 180 |
| 550000000809 | 16 | 9.4 | 205.7 | 260 |
| 550000000810 | 25 | 11 | 307.4 | 390 |
| 550000000811 | 35 | 12.9 | 432.6 | 530 |
| 550000000812 | 50 | 14.9 | 593.6 | 690 |
| 550000000813 | 70 | 17 | 804.4 | 920 |
| 550000000814 | 95 | 19.6 | 1064.5 | 1210 |
| 550000000815 | 120 | 22.5 | 1311 | 1550 |

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HV EV T6 FHLR2GCB2G T** | | | | |
| 550000000816 | 10 | 8.6 | 147.7 | 190 |
| 550000000817 | 16 | 10 | 205.7 | 270 |
| 550000000818 | 25 | 12 | 307.4 | 400 |
| 550000000819 | 35 | 14.2 | 432.6 | 550 |
| 550000000820 | 50 | 15.6 | 593.6 | 720 |
| 550000000821 | 70 | 17.9 | 804.4 | 940 |
| 550000000822 | 95 | 20.6 | 1064.5 | 1250 |

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Ultra Thin HV T6 FHLR2GCB2G** | | | | |
| 18016006 | 6 | 6.3 | 108.8 | 135 |
| 18016010 | 10 | 7.8 | 147.7 | 180 |
| 18016016 | 16 | 9.4 | 205.7 | 260 |
| 18016025 | 25 | 11 | 307.4 | 390 |
| 18016035 | 35 | 12.9 | 432.6 | 530 |
| 18016050 | 50 | 14.9 | 593.6 | 690 |
| 18016070 | 70 | 17 | 804.4 | 920 |
| 18016095 | 95 | 19.6 | 1064.5 | 1210 |
| 18016120 | 120 | 22.5 | 1311 | 1550 |

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Thin HV T6 FHLR2GCB2G** | | | | |
| 18016610 | 10 | 8.6 | 147.7 | 190 |
| 18016616 | 16 | 10 | 205.7 | 270 |
| 18016625 | 25 | 12 | 307.4 | 400 |
| 18016635 | 35 | 14.2 | 432.6 | 550 |
| 18016650 | 50 | 15.6 | 593.6 | 720 |
| 18016670 | 70 | 17.9 | 804.4 | 940 |
| 18016695 | 95 | 20.6 | 1064.5 | 1250 |

(trade product)

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Selected items from the LAPP product range for rail vehicles

Based on decades of experience as a full-service provider for electrical cables, cable connections and accessories, LAPP has rounded out its portfolio with products for the railway industry and can now offer its customers high-quality solutions in this sector as well.

The table below provides an excerpt of our power and control cables for rail vehicles. You can find the right cable glands, connector inserts, protective conduit systems, crimping accessories and automation products in our special catalogue or this main catalogue.

## ÖLFLEX® TRAIN – Product overview

| Product | Type standard | Nominal voltage | Type | Number of cores | Cross-section mm² | Temperature | Shielding | Fire behaviour EN 45545-2 |
|---|---|---|---|---|---|---|---|---|
| **EN 50306 - Thin-wall cables** | | | | | | | | |
| ÖLFLEX® TRAIN 301 TW 300V | EN 50306-2 | 300/500 V | M | 1 | 0.5 – 2.5 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 310 TW-P 300V | EN 50306-4 1P | 300/500 V | MM | 4 – 48 | 0.5 – 2.5 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 315 C TW-P 300V | EN 50306-4 3P | 300/500 V | MM S | 2 – 8 | 0.5 – 2.5 | -45°C – +120°C | x | HL1 - HL3 |
| ÖLFLEX® TRAIN 317 C TW-P 300V | EN 50306-4 5P | 300/500 V | MM S | 2x2 – 7x2 | 0.5 – 1.5 | -45°C – +120°C | x | HL1 - HL3 |
| ÖLFLEX® TRAIN 320 TW-E 300V | EN 50306-4 1E | 300/500 V | MM | 4 – 48 | 0.5 – 2.5 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 325 C TW-E 300V | EN 50306-4 3E | 300/500 V | MM S | 2 – 8 | 0.5 – 2.5 | -45°C – +120°C | x | HL1 - HL3 |
| ÖLFLEX® TRAIN 327 C TW-E 300V | EN 50306-4 5E | 300/500 V | MM S | 2x2 – 7x2 | 0.5 – 1.5 | -45°C – +120°C | x | HL1 - HL3 |
| **EN 50264 - Reduced wall thicknesses** | | | | | | | | |
| ÖLFLEX® TRAIN 331 600V | EN 50264-3-1 | 0.6/1 kV | M | 1 | 1 – 300 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 340 600V | EN 50264-3-2 | 0.6/1 kV | MM | 2 – 4 | 1.5 – 50 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 345 C 600V | EN 50264-3-2 | 0.6/1 kV | MM S | 2 – 4 | 1.5 – 50 | -45°C – +120°C | x | HL1 - HL3 |
| ÖLFLEX® TRAIN 350 300V | EN 50264-3-2 | 300/500 V | MM | 2 – 40 | 1 – 2.5 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 355 C 300V | EN 50264-3-2 | 300/500 V | MM S | 2 – 40 | 1 – 2.5 | -45°C – +120°C | x | HL1 - HL3 |
| ÖLFLEX® TRAIN 361 1,8kV | EN 50264-3-1 | 1.8/3.6 kV | M | 1 | 1.5 – 300 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 371 1,8kV | EN 50264-3-1 | 1.8/3.6 kV | MM | 1 | 1.5 – 300 | -45°C – +120°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN 381 3,6kV | EN 50264-3-1 | 3.6/6 kV | MM | 1 | 2.5 – 300 | -45°C – +120°C | | HL1 - HL3 |
| **EN 50382 - Silicone high temperature cables** | | | | | | | | |
| ÖLFLEX® TRAIN HT 150 F 1,8kV | EN 50382-2 | 1.8 kV | F | 1 | 1.5 – 240 | -40°C – +150°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN HT 150 F 3,6kV | EN 50382-2 | 3.6 kV | F | 1 | 2.5 – 240 | -40°C – +150°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN HT 150 FF 1,8kV | EN 50382-2 | 1.8 kV | FF | 1 | 1.5 – 240 | -40°C – +150°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN HT 150 FF 3,6kV | EN 50382-2 | 3.6 kV | FF | 1 | 2.5 – 240 | -40°C – +150°C | | HL1 - HL3 |
| ÖLFLEX® TRAIN HT 150 FX 3,6kV | EN 50382-2 | 3.6 kV | FX | 1 | 50 – 185 | -40°C – +150°C | | HL1 - HL3 |
| **EN 50200 + EN 50264** | | | | | | | | |
| UNIRAIL S 50264-3-1 600 M FR | EN 50264-3-1 | 600 V | M | 1 | 0,5 - 400 | -40°C - +90°C | | HL1 - HL3 |
| UNIRAIL S 50264-3-2 600 MM FR | EN 50264-3-2 | 600 V | MM | 2-4 | 1,5 - 4 | -40°C - +90°C | | HL1 - HL3 |
| UNIRAIL S 50264-3-2 600 MMS FR | EN 50264-3-2 | 600 V | MMS | 2-4 | 1,5 - 2,5 | -40°C - +90°C | x | HL1 - HL3 |
| UNIRAIL S 50264-3-2 300 MM FR | EN 50264-3-2 | 300 V | MM | 2-6 | 0,5 - 2,5 | -40°C - +90°C | | HL1 - HL3 |
| UNIRAIL S 50264-3-2 300 MMS FR | EN 50264-3-2 | 300 V | MMS | 2-4 | 0,5 - 2,5 | -40°C - +90°C | x | HL1 - HL3 |




**Online catalogue**

Use our website for industry-specific applications to find the right solution for railway and other industries.

## DC application for the industry

Direct current (DC) serves as a future key technology for the integration of renewable energy sources and helps to avoid energy conversions within the production process. A simplified energy transfer between energy source and production plant/machine parts, as well as a process-optimised storage connection are important advantages of this technology in order to be able to implement an intelligent energy supply in the industry. Lapp is working intensively on solutions and can actively contribute to the implementation and application of direct current in the production process with the following portfolio.

## **ÖLFLEX® DC** – Product range

| Product | Application range | Nominal voltage (power cores) | Cross section (mm²) (power cores) | Temperature |
|---|---|---|---|---|
| ÖLFLEX® DC 100  | Power cable for fixed installation and occasional flexible use | 0.75/1.5 kV DC | 1.5 - 185 | Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C |
| ÖLFLEX® DC GRID 100  | Power cable for fixed installation suitable for direct underground installation | 0,75/1,5 kV DC | 1,5 – 240 | Fixed installation: -40 °C to +70 °C |
| ÖLFLEX® CLASSIC 128 H BK SC  | Power cable for fixed installation and occasional flexible use | 0,75/1,5 kV DC | 16 – 240 | Occasionally flexing -5 °C to +70 °<br>Ffixed installation -40 °C to + 80 °C |
| ÖLFLEX® DC SERVO 700  | Power cable for DC servo drives | 0.75/1.5 kV DC | 2.5 | Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C |
| ÖLFLEX® DC CHAIN 800  | Power cable for highly flexible use in constant motion within cable chain | 0.75/1.5 kV DC | 0.5 - 35 | Flexible: -40°C to +105°C<br>Fixed installation: -50°C to +105°C |
| ÖLFLEX® DC ROBOT 900  | Power cable for highly flexible use with continuously alternating bending and torsional motion | 0.75/1.5 kV DC | 0.5 - 35 | Flexible: -35°C to +90°C<br>Fixed installation: -50°C to +90°C |

## Direct current improves energy and resource efficiency

**Greater availability**
- Stable energy networks due to reduced harmonics

**Energy efficiency**
- Cross-machine recuperation
- Reduced conversion losses from AC to DC
- Easier integration of renewable, decentralised energy sources

**Resource efficiency**
- Fewer components and less space required
- Less wiring work




**Knowledge Centre**

You can obtain further information online:
https://lappconnect.lappgroup.com/

# ÖLFLEX® SOLAR XLWP

Electron beam cross-linked solar cables with optimized performance in water - EN 50618 type

**Info**

- Optimised cable design - high volume resistance even after long-term period in water
- H1Z2Z2-K type certified according to EN 50618
- Mechanical UL 854 burial tests




## Benefits

- Robust against mechanical impact, for instance in case of unprotected burial in professionally made cable trench: Additional impact tests per UL 854
- The alternative for water coverage, e.g. due to elevated water line caused by flooding
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Extruded colour stripe serves as reverse polarity protection during installation
- Exact quantity control during installation by meter marking on the cable sheath

## Application range

- Photovoltaic systems with DC system voltage up to 1800 V
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Underground use without protection conduit/ duct in professionally built cable trench with at least 50 cm of back-fill soil (70 cm underneath roads), above indicating tape, above covering plastic slab, above at least 10 cm of covering sand layer, above the cable laid on at least 10 cm high sand bed layer (cf.: Section 4.2 of VDE 0891-6, or Section 300.5 in Article 300 of NFPA 70/ NEC - National Electrical Code of the USA)
- The expected service life at normal use conditions in line with EN 50618 amounts to 25 years

## Product features

- Weather/ UV resistant per EN 50618 as well as ozone resistant per EN 50396; Transversely watertight “AD8” per IEC 60364-5-51/ HD 60364-5-51, IEC 62440, and EN 50525-2-21
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- Tested against burial-related, mechanical UL 854 Tests Impact-Resistance and Crushing-Resistance
- XLWP = X-Linked + Water-Proof (Permanent water contact AD8 acc. to IEC 60364-5-51, 10 mtr. in max. submersion depth @ temperature of widely unmoved water between 5°C and 40°C), Proven electron beam cross-linked quality

## Norm references / Approvals

- H1Z2Z2-K type certified according to EN 50618
- Items with other cross-sections on request

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: Black only, or Black with Red or Blue stripe

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
D</=8mm: 4D;
8<D</=12mm: 5D;
D>12mm: 6D

**Nominal voltage**
AC $U_0$/U: 1.0/1.0 kV
DC $U_0$/U: 1.5/1.5 kV
Max. permissible DC operating voltage: 1.8 kV

**Test voltage**
AC 6500 V

**Current rating**
Im compliance with EN 50618

**Temperature range**
-40°C to +120°C
max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® SOLAR XLWP** | | | | |
| **Core insulation: white / Outer sheath: black** | | | | |
| 1023601 | 4.0 | 5.8 | 38.4 | 68.1 |
| 1023602 | 6.0 | 6.4 | 57.6 | 91.6 |
| 1023603 | 10.0 | 7.6 | 96 | 138.6 |
| 1023604 | 16.0 | 9.1 | 153.6 | 209.7 |
| **Core insulation: white / Outer sheath: black with red stripe** | | | | |
| 1023621 | 4.0 | 5.8 | 38.4 | 68.1 |
| 1023622 | 6.0 | 6.4 | 57.6 | 91.6 |
| 1023623 | 10.0 | 7.6 | 96 | 138.6 |
| 1023624 | 16.0 | 9.1 | 153.6 | 209.7 |
| **Core insulation: white / Outer sheath: black with blue stripe** | | | | |
| 1023625 | 4.0 | 5.8 | 38.4 | 68.1 |
| 1023626 | 6.0 | 6.4 | 57.6 | 91.6 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® SOLAR H1 BUR

H1Z2Z2-K/ EN 50618/ IEC 62930 solar cable, Burial in ground, AD8, CPR Dca




## Benefits

- Halogen free core insulation and sheath compound to meet special fire safety requirements
- A laterally waterproof cable allows permanent submersion in shallow, uncontaminated water: AD8 in accordance with IEC 60364-5-51 and IEC 62440
- Due to its increased mechanical strength, suitable for underground installation in a cable trench with a sand bed, tested using the “Impact-Resistance Test„ and “Crushing-Resistance Test„ according to UL 854
- Cross-linked insulation and sheath materials promote durability at high temperatures or at high current load, ensure a high dielectric strength and a high short circuit temperature
- IEC certification allows international use of the product in countries where IEC standards apply
- Expected service life of 25 years in accordance with EN 50618 for H1Z2Z2-K compliant application
- Available in three different outer sheath colours so that the DC conductor can be identified externally

## Applications ranges

- For unprotected connection of solar modules and inverters in earthed and non-earthed photovoltaic systems according to EN 50618 and IEC 62930
- For interconnecting solar modules.
- For direct current applications up to 1.8 kV
- For use with the solar connectors of the EPIC® SOLAR series
- For fixed installation and occasional flexing, if necessary freely hanging.
- Underground installation in protective cable conduits according to IEC 60364-5-52
- Underground installation in a cable trench with a sand bed based on VDE 0891-6 and DIN EN 50174-3
- Can be installed in closed installation ducts, under plaster and in devices

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: Crosslinked XLPE within the group of XLPO‘s
- Outer sheath: Crosslinked XLPE within the group of XLPO‘s
- Outer sheath colour: Black, Red or Blue

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Moved: 4D;
Stationary: 3D

**Nominal voltage**
AC $U_0$/U: 1.0/1.0 kV
DC $U_0$/U: 1.5/1.5 kV
Max. permissible DC operating voltage: 1.8 kV

**Test voltage**
AC 6500 V

**Current rating**
Im compliance with EN 50618, HD 60364-5-52, IEC 62930, IEC 60364-5-52

**Temperature range**
see the datasheet

| Article number | mm² per conductor | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|
| **ÖLFLEX® SOLAR H1 BUR** | | | |
| **Black outer sheath** | | | |
| 38115805 | 2.5 | 5 | 24 |
| 38115806 | 4 | 5.6 | 38.4 |
| 38115807 | 6 | 6.2 | 57.6 |
| 38115808 | 10 | 7.4 | 96 |
| 38115809 | 16 | 8.4 | 153.6 |
| 38115810 | 25 | 10.5 | 240 |
| 38115811 | 35 | 11.8 | 336 |
| **Red outer sheath** | | | |
| 38115812 | 2.5 | 5 | 24 |
| 38115813 | 4 | 5.6 | 38.4 |
| 38115814 | 6 | 6.2 | 57.6 |
| 38115815 | 10 | 7.4 | 96 |
| 38115816 | 16 | 8.4 | 153.6 |
| 38115817 | 25 | 10.5 | 240 |
| 38115818 | 35 | 11.8 | 336 |
| **Blue outer sheath** | | | |
| 38115819 | 2.5 | 5 | 24 |
| 38115820 | 4 | 5.6 | 38.4 |
| 38115821 | 6 | 6.2 | 57.6 |
| 38115822 | 10 | 7.4 | 96 |
| 38115823 | 16 | 8.4 | 153.6 |
| 38115824 | 25 | 10.5 | 240 |
| 38115825 | 35 | 11.8 | 336 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg.
Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: Coil 100 m; Drum (500; 1000) m.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.


ÖLFLEX® CHAIN TM CY
ÖLFLEX® CHAIN TM

# ÖLFLEX® TORSION FRNC

Cold and oil-resistant cables for flexible applications under torsional load, halogen-free - 0.6/1 kV




**Info**

- Torsion resistant, Cold flexible and Oil resistant for drip loops
- Halogen-free, Highly flame retardant, Low smoke density

## Application range

- Stationary or Flexible
- Torsion in Wind Turbines

## Product features

- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators
- Resistant to weather, abrasion, temperature, sunlight (EN 50525-1, EN 50618, EN 50620, EN ISO 4892-2/ Method A) and ozone (EN 50396)
- Resistant to splashes of sea water as well as broad oil resistance, incl. EN 60811-404 and UL OIL RES I + II
- Fire behaviour:
  - Halogen-free (IEC 60754-1);
  - Low corrosivity (IEC 60754-2);
  - Low smoke density (IEC 61034-2);
  - Highly flame retardant (IEC 60332-3-24 and -25; IEC 60332-1-2)

## Norm references / Approvals

- UL AWM Style 21288

## Product Make-up

- Extra-fine wire conductor made of bare copper
- Core insulation: polyolefin compound
- Outer sheath: special compound, halogen-free, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
HD 308 coloured up to 5 cores, from 6 cores all black with white numbers (except PE)
Paired signal cables: DIN 47100

**Conductor stranding**
IEC 60228, Cl. 6

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexible: 10x Outer diameter
Stationary: 6x Outer diameter

**Nominal voltage**
IEC $U_0$/U=0.6/1kV; UL 1kV

**Test voltage**
C/C: 4000 V

**Temperature range**
-40°C to +90°C
UL: max. +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® TORSION FRNC** | | | | |
| 1150373 | 12 G 1.0 | 13.2 | 115.2 | 274 |
| 1150378 | 16 G 1.0 | 14.8 | 153.6 | 392 |
| 1150271 | 3 G 1.5 | 9.0 | 43.2 | 131 |
| 1150272 | 4 G 1.5 | 9.7 | 57.6 | 156 |
| 1150273 | 5 G 1.5 | 10.6 | 72 | 183 |
| 1150275 | 7 G 1.5 | 12.6 | 100.8 | 253 |
| 1150279 | 12 G 1.5 | 15.3 | 172.8 | 386 |
| 1150311 | 3 G 2.5 | 10.4 | 72 | 181 |
| 1150312 | 4 G 2.5 | 11.3 | 96 | 242 |
| 1150313 | 5 G 2.5 | 12.4 | 120 | 258 |
| 1150350 | 3 G 4.0 | 11.9 | 115.2 | 254 |
| 1150351 | 4 G 4.0 | 13.0 | 153.6 | 313 |
| 1150357 | 5 G 6.0 | 16.0 | 288 | 486 |
| 1150362 | 5 G 10.0 | 20.5 | 480 | 799 |

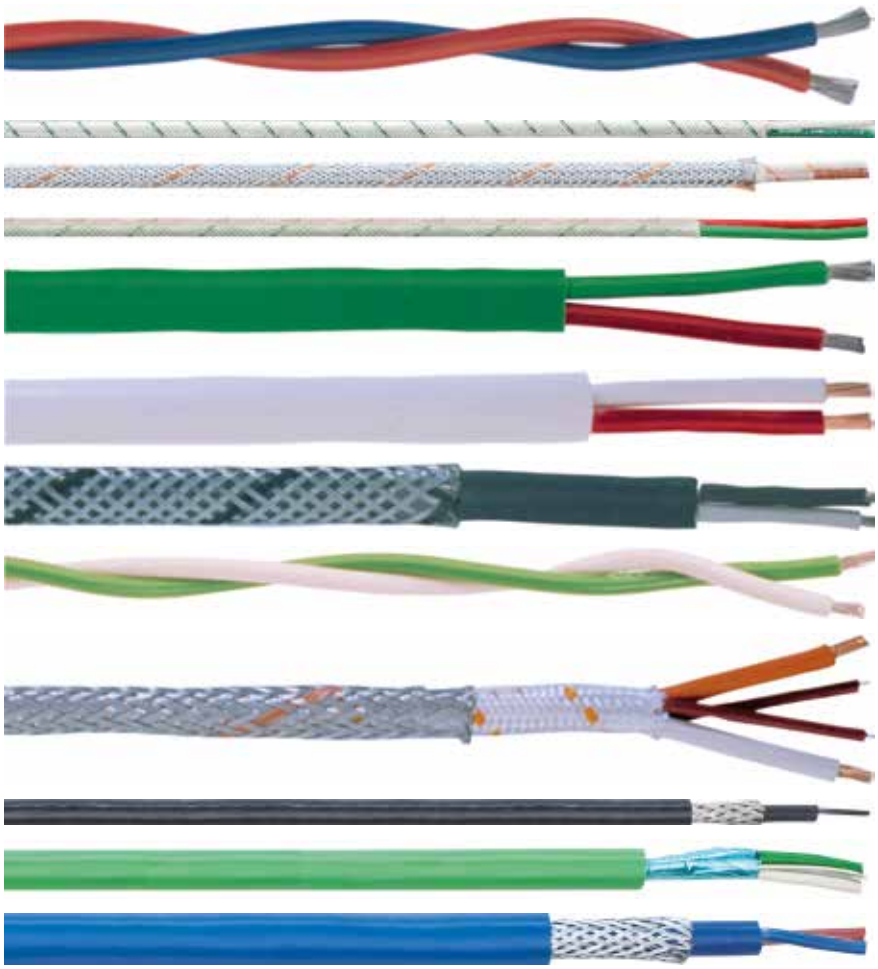
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Extension- and compensating cables, paired

PVC, silicone, FEP or glass fibre-insulated

**Info**

- Available in many different designs
- New: thermocouple cable type K



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000838
ETIM 5.0/6.0 Class-Description: Thermocouple cable

**Based on**
Limiting deviation in accordance with DIN and IEC in accordance with class 2

**Conductor stranding**
1.5 mm²: approx. 48 x 0.20 mm
0.75 mm²: approx. 24 x 0.20 mm
0.5 mm²: approx. 16 x 0.20 mm
0.22 mm²: approx. 7 x 0.20 mm

**Minimum bending radius**
Without metal braiding:
12 x cable diameter
With metal braiding:
15 x cable diameter

**Temperature range**
(referring to insulation and sheath material)
PVC: -5°C to +80°C
Silicone: -25°C to +180°C
Glass fibre: -25°C to +200°C
FEP: -100°C to +205°C
E-Glass: -25°C to +400°C

### Norm references / Approvals

- Space-saving and flexible
- For more detailed information, see appendix T8 and data sheets

### Application range

- Allows temperature measurement even in places where non-contact temperature measurement is not possible or reasonable
- The thermocouple is used to measure temperature as a part of monitoring the manufacturing process, thus the sheath material should be selected with reference to the maximum ambient temperature at its junction.
- Conductor materials (alloys):
  Fe/CuNi (LX, JX)
  Conductor alloys are identical to thermocouple alloys
- NiCr/Ni (K, KX, KCA)
  K and KX version - conductor alloys are identical to thermocouple alloys
  KCA version: compensating alloys (for KCA: Fe/CuNi), not identical to thermocouple alloys
- PtRh/Pt (RCB, SCB)
  Compensating alloys (for RCB, SCB: Cu/CuNi) are not identical to thermocouple alloys

### Norm references / Approvals

- Colour identity code
  DIN 43710
  Negative conductor and outer sheath:
  Fe/CuNi: blue
  NiCr/Ni: green
  PtRh/Pt: white
  Positive conductor: always red
  IEC 60 584
  Positive conductor and outer sheath:
  Fe/CuNi: black
  NiCr/Ni: green
  PtRh/Pt: orange
  Negative conductor: always white

### Product Make-up

- Design abbreviations:
  PVC: Polyvinylchloride
  SIL: Silicone rubber
  GL: Glass fibre
  FEP: Fluorinated ethylene propylene
  EGL: E-Glass fibre
  C: Copper braiding screen
  ST: Aluminium foil screen
  S: Steel wire braiding
- Design, for example PVC-PVC-S-PVC:
  - PVC core insulation
  - PVC inner sheath
  - Steel wire braiding
  - PVC outer sheath

- Examples shown (top to bottom):
  Fe/CuNi DIN 2 x 1.5 PVC
  NiCr/Ni IEC 2 x 1.5 GL-GL
  PtRh/Pt IEC 2 x 1.5 GL-GL-S
  NiCr/Ni DIN 2 x 1.5 SIL-GL
  NiCr/Ni DIN 2 x 1.5 PVC-PVC
  PtRh/Pt DIN 2 x 1.5 SIL-SIL
  Fe/CuNi IEC 2 x 1.5 SIL-SIL-S
  NiCr/Ni IEC 2 x 1.5 SIL
  PtRh/Pt IEC 2 x 1.5 SIL-GL-S
  Fe/CuNi IEC 2 x 0.22 PVC-PVC-C-PVC
  NiCr/Ni IEC 2 x 1.5 PVC-ST-PVC
  Fe/CuNi DIN 2 x 1.5 PVC-PVC-S-PVC

| Article number | Reference/article designation | Thermocouple | Product Make-up | Cable design | Number of cores and mm² per conductor | Outer diameter [mm] | Outer dimensions, width x height (mm) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|
| **0.22 mm² extension and compensating cables** | | | | | | | | |
| 0151051 | KE 9-022 L | Fe/CuNi | DIN LX | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0161051 | KE 9-022 L | Fe/CuNi | IEC JX | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0152051 | KN 9-022 L | NiCr/Ni | DIN KCA | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0162051 | KN 9-022 L | NiCr/Ni | IEC KCA | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0153051 | KP 9-022 L | PtRh/Pt | DIN RCB, SCB | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0163051 | KP 9-022 L | PtRh/Pt | IEC RCB, SCB | PVC-PVC | 2 x 0.22 | 4.0 | | 22 |
| 0151052 | KE 5-022 L-CY | Fe/CuNi | DIN LX | PVC-PVC-C-PVC | 2 x 0.22 | 4.9 | | 31 |
| 0161052 | KE 5-022 L-CY | Fe/CuNi | IEC JX | PVC-PVC-C-PVC | 2 x 0.22 | 4.9 | | 31 |
| 0152052 | KN 5-022 L-CY | NiCr/Ni | DIN KCA | PVC-PVC-C-PVC | 2 x 0.22 | 4.9 | | 31 |
| 0162052 | KN 5-022 L-CY | NiCr/Ni | IEC KCA | PVC-PVC-C-PVC | 2 x 0.22 | 4.9 | | 31 |
| 0153052 | KP 5-022 L-CY | PtRh/Pt | DIN RCB, SCB | PVC-PVC-C-PVC | 2 x 0.22 | 4.9 | | 31 |
| 0163052 | KP 5-022 L-CY | PtRh/Pt | IEC RCB, SCB | PVC-PVC-C-PVC | 2 x 0.22 | 4,9 | | 31 |
| 1161011 | KN FEP-SIL | NiCr/Ni | IEC KCA | FEP-SIL | 2 x 0.22 | 3,8 | | 22 |
| 1161007 | K FEP-C-FEP | NiCr/Ni | IEC K | FEP-C-FEP | 2 x 0.22 | 3.0 | | 22 |
| **Thermocouple cable type K, 0,5 mm** | | | | | | | | |
| 1161008 | K FEP-FEP | NiCr/Ni | IEC K | FEP-FEP ovale | 2 x 0.5 | | 2.4 x 1.5 | 45 |
| 1161009 | K GL-GL | NiCr/Ni | IEC K | EGL-EGL ovale | 2 x 0.5 | | 2.3 x 1.3 | 45 |
| **0.5 mm² extension and compensating cables** | | | | | | | | |
| 0151030 | KE 91 L | Fe/CuNi | DIN LX | PVC-PVC | 2 x 0.5 | 5.4 | | 45 |
| 0161030 | KE 91 L | Fe/CuNi | IEC JX | PVC-PVC | 2 x 0.5 | 5.4 | | 45 |
| 0152040 | KN 91 L | NiCr/Ni | DIN KCA | PVC-PVC | 2 x 0.5 | 5.4 | | 45 |
| 0162040 | KN 91 L | NiCr/Ni | IEC KCA | PVC-PVC | 2 x 0.5 | 5.4 | | 45 |
| 0151040 | KE 41 L-SIL | Fe/CuNi | DIN LX | SIL-SIL-S ovale | 2 x 0.5 | | 6.4 x 4.4 | 51 |
| 0161040 | KE 41 L-SIL | Fe/CuNi | IEC JX | SIL-SIL-S ovale | 2 x 0.5 | | 6.4 x 4.4 | 51 |
| 0152030 | KN 41 L-SIL | NiCr/Ni | DIN KCA | SIL-SIL-S ovale | 2 x 0.5 | | 6.4 x 4.4 | 51 |
| 0162030 | KN 41 L-SIL | NiCr/Ni | IEC KCA | SIL-SIL-S ovale | 2 x 0.5 | | 6.4 x 4.4 | 51 |
| **0.75 mm² extension and compensating cables** | | | | | | | | |
| 0151035 | KE 92 L | Fe/CuNi | DIN LX | PVC-PVC | 2 x 0.75 | 6.0 | | 56 |
| 0161035 | KE 92 L | Fe/CuNi | IEC JX | PVC-PVC | 2 x 0.75 | 6.0 | | 56 |
| 0152045 | KN 92 L | NiCr/Ni | DIN KCA | PVC-PVC | 2 x 0.75 | 6.0 | | 56 |
| 0162045 | KN 92 L | NiCr/Ni | IEC KCA | PVC-PVC | 2 x 0.75 | 6.0 | | 56 |
| 0151050 | KE 42 L-SIL | Fe/CuNi | DIN LX | SIL-SIL-S ovale | 2 x 0.75 | | 6.4 x 4.4 | 58 |
| 0161050 | KE 42 L-SIL | Fe/CuNi | IEC JX | SIL-SIL-S ovale | 2 x 0.75 | | 6.4 x 4.4 | 58 |
| 0152035 | KN 42 L-SIL | NiCr/Ni | DIN KCA | SIL-SIL-S ovale | 2 x 0.75 | | 6.4 x 4.4 | 58 |
| 0162035 | KN 42 L-SIL | NiCr/Ni | IEC KCA | SIL-SIL-S ovale | 2 x 0.75 | | 6.4 x 4.4 | 58 |
| **PVC-insulated versions 1,5 mm²** | | | | | | | | |
| 0151001 | KE 1 L | Fe/CuNi | DIN LX | PVC | 2 x 1.5 | 5.4 | | 40 |
| 0161001 | KE 1 L | Fe/CuNi | IEC JX | PVC | 2 x 1.5 | 5.4 | | 40 |
| 0152001 | KN 1 L | NiCr/Ni | DIN KCA | PVC | 2 x 1.5 | 5.4 | | 40 |
| 0162001 | KN 1 L | NiCr/Ni | IEC KCA | PVC | 2 x 1.5 | 5.4 | | 40 |
| 0151010 | KE 9 L | Fe/CuNi | DIN LX | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0161010 | KE 9 L | Fe/CuNi | IEC JX | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0152010 | KN 9 L | NiCr/Ni | DIN KCA | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0162010 | KN 9 L | NiCr/Ni | IEC KCA | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0154010 | KXN 9 L | NiCr/Ni | DIN KX | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0164010 | KXN 9 L | NiCr/Ni | IEC KX | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0153010 | KP 9 L | PtRh/Pt | DIN RCB, SCB | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0163010 | KP 9 L | PtRh/Pt | IEC RCB, SCB | PVC-PVC round | 2 x 1.5 | 7.1 | | 79 |
| 0151017 | KE 12 L | Fe/CuNi | DIN LX | PVC-PVC ovale | 2 x 1.5 | | 7.2 x 4.4 | 69 |
| 0161017 | KE 12 L | Fe/CuNi | IEC JX | PVC-PVC ovale | 2 x 1.5 | | 7.2 x 4.4 | 69 |
| 0152017 | KN 12 L | NiCr/Ni | DIN KCA | PVC-PVC ovale | 2 x 1.5 | | 7.2 x 4.4 | 69 |
| 0162017 | KN 12 L | NiCr/Ni | IEC KCA | PVC-PVC ovale | 2 x 1.5 | | 7.2 x 4.4 | 69 |
| 0154011 | KE 20 L | Fe/CuNi | DIN LX | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0164011 | KE 20 L | Fe/CuNi | IEC JX | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0154012 | KN 20 L | NiCr/Ni | DIN KCA | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0164012 | KN 20 L | NiCr/Ni | IEC KCA | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0154013 | KXN 20 L | NiCr/Ni | DIN KX | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0164013 | KXN 20 L | NiCr/Ni | IEC KX | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0154014 | KP 20 L | PtRh/Pt | DIN RCB, SCB | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0164014 | KP 20 L | PtRh/Pt | IEC RCB, SCB | PVC-ST-PVC | 2 x 1.5 | 7.6 | | 85 |
| 0151011 | KE 9 L-S | Fe/CuNi | DIN LX | PVC-PVC-S | 2 x 1.5 | 8.0 | | 140 |
| 0161011 | KE 9 L-S | Fe/CuNi | IEC JX | PVC-PVC-S | 2 x 1.5 | 8.0 | | 140 |
| 0152011 | KN 9 L-S | NiCr/Ni | DIN KCA | PVC-PVC-S | 2 x 1.5 | 8.0 | | 140 |
| 0162011 | KN 9 L-S | NiCr/Ni | IEC KCA | PVC-PVC-S | 2 x 1.5 | 8.0 | | 140 |
| 0157514 | KE 9 L-SY | Fe/CuNi | DIN LX | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| 0167514 | KE 9 L-SY | Fe/CuNi | IEC JX | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| 0157513 | KN 9 L-SY | NiCr/Ni | DIN KCA | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| 0167513 | KN 9 L-SY | NiCr/Ni | IEC KCA | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| 0157515 | KP 9 L-SY | PtRh/Pt | DIN RCB, SCB | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| 0167515 | KP 9 L-SY | PtRh/Pt | IEC RCB, SCB | PVC-PVC-S-PVC | 2 x 1.5 | 10.3 | | 160 |
| **Silicone-insulated versions 1.5 mm²** | | | | | | | | |
| 0151003 | KE 1 L-SIL | Fe/CuNi | DIN LX | SIL | 2 x 1.5 | 5.4 | | 40 |
| 0161003 | KE 1 L-SIL | Fe/CuNi | IEC JX | SIL | 2 x 1.5 | 5.4 | | 40 |
| 0152003 | KN 1 L-SIL | NiCr/Ni | DIN KCA | SIL | 2 x 1.5 | 5.4 | | 40 |
| 0162003 | KN 1 L-SIL | NiCr/Ni | IEC KCA | SIL | 2 x 1.5 | 5.4 | | 40 |
| 0151022 | KE 15 L-SIL | Fe/CuNi | DIN LX | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0161022 | KE 15 L-SIL | Fe/CuNi | IEC JX | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0152022 | KN 15 L-SIL | NiCr/Ni | DIN KCA | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0162022 | KN 15 L-SIL | NiCr/Ni | IEC KCA | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0153022 | KP 15 L-SIL | PtRh/Pt | DIN RCB, SCB | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0163022 | KP 15 L-SIL | PtRh/Pt | IEC RCB, SCB | SIL-SIL round | 2 x 1.5 | 7.0 | | 76 |
| 0151023 | KE 15 L-SIL-S | Fe/CuNi | DIN LX | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |
| 0161023 | KE 15 L-SIL-S | Fe/CuNi | IEC JX | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |

| Article number | Reference/article designation | Thermocouple | Product Make-up | Cable design | Number of cores and mm² per conductor | Outer diameter [mm] | Outer dimensions, width x height (mm) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|
| 0152023 | KN 15 L-SIL-S | NiCr/Ni | DIN KCA | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |
| 0162023 | KN 15 L-SIL-S | NiCr/Ni | IEC KCA | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |
| 0153023 | KP 15 L-SIL-S | PtRh/Pt | DIN RCB, SCB | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |
| 0163023 | KP 15 L-SIL-S | PtRh/Pt | IEC RCB, SCB | SIL-SIL-S round | 2 x 1.5 | 7.8 | | 105 |
| 0151007 | KE 4 L-SIL-S | Fe/CuNi | DIN LX | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0161007 | KE 4 L-SIL-S | Fe/CuNi | IEC JX | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0152007 | KN 4 L-SIL-S | NiCr/Ni | DIN KCA | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0162007 | KN 4 L-SIL-S | NiCr/Ni | IEC KCA | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0153007 | KP 4 L-SIL-S | PtRh/Pt | DIN RCB, SCB | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0163007 | KP 4 L-SIL-S | PtRh/Pt | IEC RCB, SCB | SIL-SIL-S ovale | 2 x 1.5 | | 8.0 x 5.2 | 85 |
| 0151019 | KE 13 L-SIL | Fe/CuNi | DIN LX | SIL-GL ovale | 2 x 1.5 | | 6.0 x 3.3 | 50 |
| 0161019 | KE 13 L-SIL | Fe/CuNi | IEC JX | SIL-GL ovale | 2 x 1.5 | | 6.0 x 3.3 | 50 |
| 0152019 | KN 13 L-SIL | NiCr/Ni | DIN KCA | SIL-GL ovale | 2 x 1.5 | | 6.0 x 3.3 | 50 |
| 0162019 | KN 13 L-SIL | NiCr/Ni | IEC KCA | SIL-GL ovale | 2 x 1.5 | | 6.0 x 3.3 | 50 |
| 0153019 | KP 13 L-SIL | PtRh/Pt | DIN RCB, SCB | SIL-GL ovale | 2 x 1.5 | | 6.0 x 3.3 | 50 |
| 0151015 | KE 11 L-SIL-S | Fe/CuNi | DIN LX | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 0161015 | KE 11 L-SIL-S | Fe/CuNi | IEC JX | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 0152015 | KN 11 L-SIL-S | NiCr/Ni | DIN KCA | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 0162015 | KN 11 L-SIL-S | NiCr/Ni | IEC KCA | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 0153015 | KP 11 L-SIL-S | PtRh/Pt | DIN RCB, SCB | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 0163015 | KP 11 L-SIL-S | PtRh/Pt | IEC RCB, SCB | SIL-GL-S | 2 x 1.5 | 6.7 | | 82 |
| 1161012 | KP 11 L-SIL-S | NiCr/Ni | IEC KCA | SIL-GL-S ovale | 2 x 1.5 | | 6.8 x 4.1 | 82 |
| **Glass fibre-insulated versions 1.5 mm²** | | | | | | | | |
| 0151005 | KE 3 L | Fe/CuNi | DIN LX | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0161005 | KE 3 L | Fe/CuNi | IEC JX | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0152005 | KN 3 L | NiCr/Ni | DIN KCA | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0162005 | KN 3 L | NiCr/Ni | IEC KCA | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0153005 | KP 3 L | PtRh/Pt | DIN RCB, SCB | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0163005 | KP 3 L | PtRh/Pt | IEC RCB, SCB | GL-GL ovale | 2 x 1.5 | | 5.1 x 2.7 | 64 |
| 0151006 | KE 4 L-S | Fe/CuNi | DIN LX | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |
| 0161006 | KE 4 L-S | Fe/CuNi | IEC JX | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |
| 0152006 | KN 4 L-S | NiCr/Ni | DIN KCA | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |
| 0162006 | KN 4 L-S | NiCr/Ni | IEC KCA | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |
| 0153006 | KP 4 L-S | PtRh/Pt | DIN RCB, SCB | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |
| 0163006 | KP 4 L-S | PtRh/Pt | IEC RCB, SCB | GL-GL-S ovale | 2 x 1.5 | | 5.9 x 3.7 | 87 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Extension- and compensating cables, multi-paired

PVC insulated - with and without steel wire armouring or foil screen




**Info**

- Version SY - Armoured against mechanical loads
  Version ST - Screened against electro-magnetical interference

## Product Make-up

- Version Y:
  - Fine-wire conductor alloy
  - PVC core insulation
  - Cores twisted into layers
  - PVC outer sheath
- Version SY:
  - Design as version Y
  - Additional galvanised steel wire braiding
  - PVC outer sheath
- Version ST:
  - Design as verison Y
  - Cores twisted in pairs, pairs twisted in layers
  - Aluminium foil screening + drain wire
  - PVC outer sheath
- Design, for example PVC-PVC-S-PVC:
  - PVC core insulation
  - PVC inner sheath
  - Steel wire braiding
  - PVC outer sheath
- Design, for example PVC-ST-PVC:
  - PVC core insulation
  - STatic foil screen
  - PVC outer sheath
- Colour identity code
  DIN 43710
  Negative conductor and outer sheath:
  Fe/CuNi: blue
  NiCr/Ni: green
  PtRh/Pt: white
  Positive conductor: always red
  IEC 60 584
  Positive conductor and outer sheath:
  Fe/CuNi: black
  NiCr/Ni: green
  PtRh/Pt: orange
  Negative conductor: always white
- Extension-conductor alloys are identified with X, e.g. JX (Fe/CuNi)
  Compensating-conductor alloys are identified with C, e.g. KCA (NiCr/Ni)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000838
ETIM 5.0/6.0 Class-Description: Thermocouple cable

**Core identification code**
From 4 cores in pairs with consecutively marked numbers (1-1, 2-2, 3-3, 4-4...)

**Based on**
Limiting deviation in accordance with DIN and IEC in accordance with class 2

**Conductor stranding**
48 x 0.20 mm

**Minimum bending radius**
For flexible use:
12.5 x outer diameter
Type SY with steel braid:
15 x outer diameter
Type ST with foil screen:
15 x outer diameter

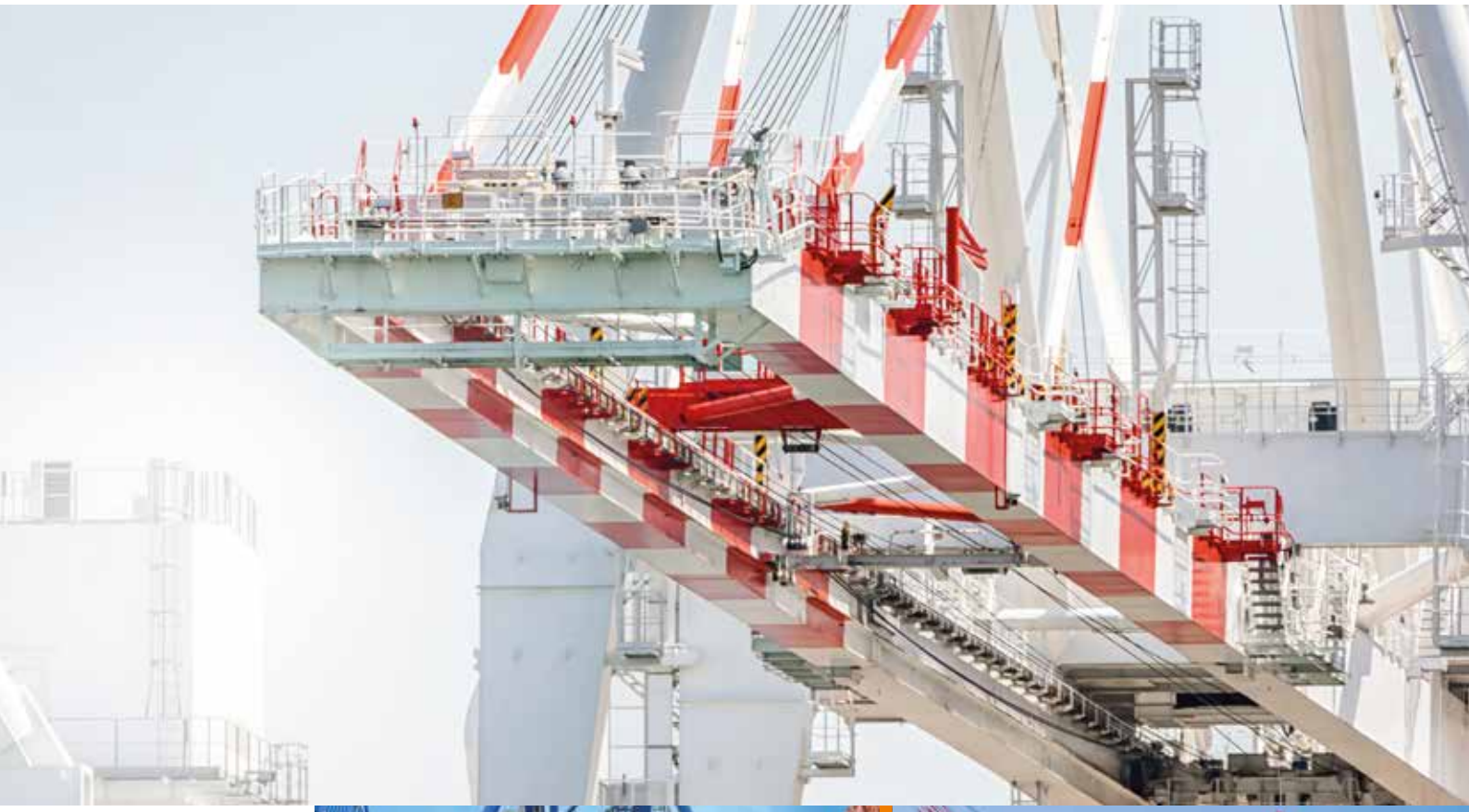
**Temperature range**
(referring to insulation and sheath material)
Flexing: -5°C to +80°C
Fixed installation: -40°C to +80°C

| Article number | Thermocouple | Product Make-up | Cable design | Number of cores and mm² per conductor | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **Type Y without steel wire braiding** | | | | | | |
| 0155001 | Fe/CuNi | DIN-LX | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0165001 | Fe/CuNi | IEC-JX | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0156001 | NiCr/Ni | DIN-KCA | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0166001 | NiCr/Ni | IEC-KCA | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0157001 | PtRh/Pt | DIN-RCB/SCB | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0167001 | PtRh/Pt | IEC-RCB/SCB | PVC-PVC | 4 x 1.5 | 8.2 | 130 |
| 0155002 | Fe/CuNi | DIN-LX | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0165002 | Fe/CuNi | IEC-JX | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0156002 | NiCr/Ni | DIN-KCA | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0166002 | NiCr/Ni | IEC-KCA | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0157002 | PtRh/Pt | DIN-RCB/SCB | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0167002 | PtRh/Pt | IEC-RCB/SCB | PVC-PVC | 6 x 1.5 | 10.2 | 200 |
| 0155003 | Fe/CuNi | DIN-LX | PVC-PVC | 8 x 1.5 | 11.2 | 238 |
| 0165003 | Fe/CuNi | IEC-JX | PVC-PVC | 8 x 1.5 | 11.2 | 238 |
| 0156003 | NiCr/Ni | DIN-KCA | PVC-PVC | 8 x 1.5 | 11.2 | 238 |
| 0166003 | NiCr/Ni | IEC-KCA | PVC-PVC | 8 x 1.5 | 11.2 | 238 |
| 0155005 | Fe/CuNi | DIN-LX | PVC-PVC | 12 x 1.5 | 13.3 | 335 |
| 0165005 | Fe/CuNi | IEC-JX | PVC-PVC | 12 x 1.5 | 13.3 | 335 |
| 0155007 | Fe/CuNi | DIN-LX | PVC-PVC | 16 x 1.5 | 15.0 | 447 |
| 0165007 | Fe/CuNi | IEC-JX | PVC-PVC | 16 x 1.5 | 15.0 | 447 |
| 0156007 | NiCr/Ni | DIN-KCA | PVC-PVC | 16 x 1.5 | 15.0 | 447 |
| 0166007 | NiCr/Ni | IEC-KCA | PVC-PVC | 16 x 1.5 | 15.0 | 447 |
| 0155010 | Fe/CuNi | DIN-LX | PVC-PVC | 24 x 1.5 | 19.0 | 555 |
| 0165010 | Fe/CuNi | IEC-JX | PVC-PVC | 24 x 1.5 | 19.0 | 555 |
| 0156010 | NiCr/Ni | DIN-KCA | PVC-PVC | 24 x 1.5 | 19.0 | 555 |
| 0166010 | NiCr/Ni | IEC-KCA | PVC-PVC | 24 x 1.5 | 19.0 | 555 |

| Article number | Thermocouple | Product Make-up | Cable design | Number of cores and mm² per conductor | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **Type SY with steel wire braiding** | | | | | | |
| 0155501 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0165501 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0156501 | NiCr/Ni | DIN-KCA | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0166501 | NiCr/Ni | IEC-KCA | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0157501 | PtRh/Pt | DIN-RCB/SCB | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0167501 | PtRh/Pt | IEC-RCB/SCB | PVC-PVC-S-PVC | 4 x 1.5 | 11.4 | 240 |
| 0155502 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0165502 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0156502 | NiCr/Ni | DIN-KCA | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0166502 | NiCr/Ni | IEC-KCA | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0157502 | PtRh/Pt | DIN-RCB/SCB | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0167502 | PtRh/Pt | IEC-RCB/SCB | PVC-PVC-S-PVC | 6 x 1.5 | 13.0 | 355 |
| 0155503 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 8 x 1.5 | 13.8 | 410 |
| 0165503 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 8 x 1.5 | 13.8 | 410 |
| 0156503 | NiCr/Ni | DIN-KCA | PVC-PVC-S-PVC | 8 x 1.5 | 13.8 | 410 |
| 0166503 | NiCr/Ni | IEC-KCA | PVC-PVC-S-PVC | 8 x 1.5 | 13.8 | 410 |
| 0155505 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 12 x 1.5 | 17.9 | 550 |
| 0165505 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 12 x 1.5 | 17.9 | 550 |
| 0156505 | NiCr/Ni | DIN-KCA | PVC-PVC-S-PVC | 12 x 1.5 | 17.9 | 550 |
| 0166505 | NiCr/Ni | IEC-KCA | PVC-PVC-S-PVC | 12 x 1.5 | 17.9 | 550 |
| 0155507 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 16 x 1.5 | 19.4 | 730 |
| 0165507 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 16 x 1.5 | 19.4 | 730 |
| 0155510 | Fe/CuNi | DIN-LX | PVC-PVC-S-PVC | 24 x 1.5 | 23.8 | 847 |
| 0165510 | Fe/CuNi | IEC-JX | PVC-PVC-S-PVC | 24 x 1.5 | 23.8 | 847 |
| **Type ST with static overall screening** | | | | | | |
| 0158500 | Fe/CuNi | DIN-LX | PVC-ST-PVC | 2 x 2 x 1.5 | 11.4 | 145 |
| 0168500 | Fe/CuNi | IEC-JX | PVC-ST-PVC | 2 x 2 x 1.5 | 11.4 | 145 |
| 0158501 | NiCr/Ni | DIN-KCA | PVC-ST-PVC | 2 x 2 x 1.5 | 11.4 | 145 |
| 0168501 | NiCr/Ni | IEC-KCA | PVC-ST-PVC | 2 x 2 x 1.5 | 11.4 | 145 |
| 0158503 | Fe/CuNi | DIN-LX | PVC-ST-PVC | 4 x 2 x 1.5 | 13.7 | 257 |
| 0168503 | Fe/CuNi | IEC-JX | PVC-ST-PVC | 4 x 2 x 1.5 | 13.7 | 257 |
| 0158504 | NiCr/Ni | DIN-KCA | PVC-ST-PVC | 4 x 2 x 1.5 | 13.7 | 257 |
| 0168504 | NiCr/Ni | IEC-KCA | PVC-ST-PVC | 4 x 2 x 1.5 | 13.7 | 257 |
| 0158506 | Fe/CuNi | DIN-LX | PVC-ST-PVC | 8 x 2 x 1.5 | 18.3 | 469 |
| 0168506 | Fe/CuNi | IEC-JX | PVC-ST-PVC | 8 x 2 x 1.5 | 18.3 | 469 |
| 0158507 | NiCr/Ni | DIN-KCA | PVC-ST-PVC | 8 x 2 x 1.5 | 18.3 | 469 |
| 0168507 | NiCr/Ni | IEC-KCA | PVC-ST-PVC | 8 x 2 x 1.5 | 18.3 | 469 |
| 0158509 | Fe/CuNi | DIN-LX | PVC-ST-PVC | 12 x 2 x 1.5 | 22.2 | 573 |
| 0168509 | Fe/CuNi | IEC-JX | PVC-ST-PVC | 12 x 2 x 1.5 | 22.2 | 573 |
| 0158510 | NiCr/Ni | DIN-KCA | PVC-ST-PVC | 12 x 2 x 1.5 | 22.2 | 573 |
| 0168510 | NiCr/Ni | IEC-KCA | PVC-ST-PVC | 12 x 2 x 1.5 | 22.2 | 573 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Conveyor technology







# ÖLFLEX® CRANE NSHTÖU

Reelable cables for low and medium mechanical stress

**Info**

- Robust and efficient
- Suitable for outdoor use
- Integrated sheath supporting braid




## Benefits

- Can be used as hawser, drum and towing cable as well as for energy supply chains
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

## Application range

- For use in hoists, transport and conveyor systems
- Reeling/unreeling during operation without fixing
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance
- UV-resistant

## Norm references / Approvals

- <VDE> NSHTÖU cable type certification acc. VDE 0250-814

## Product Make-up

- Strands of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Support braid integrated in the outer sheath
- Outer sheath: rubber compound, type 5GM3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexible use:
Cables with outer diameter < 21,5 mm: 5 x outer diameter
Cables with outer diameter > 21,5 mm: 6,25 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
VDE 0298 Part 4

**Temperature range**
Flexible use: -25°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CRANE NSHTÖU** | | | | |
| 0043006 | 3 G 1.5 | 14 | 43.2 | 190 |
| 00430053 | 4 G 1.5 | 14.8 | 57.6 | 220 |
| 00430073 | 5 G 1.5 | 15.7 | 72 | 260 |
| 0043008 | 7 G 1.5 | 18.2 | 100.8 | 380 |
| 0043009 | 12 G 1.5 | 23.9 | 172.8 | 720 |
| 0043010 | 18 G 1.5 | 23.9 | 259.2 | 770 |
| 0043011 | 24 G 1.5 | 27.1 | 345.6 | 1000 |
| 0043012 | 30 G 1.5 | 30.2 | 432 | 1320 |
| 0043013 | 3 G 2.5 | 15.5 | 72 | 250 |
| 00430303 | 4 G 2.5 | 16.9 | 96 | 330 |
| 00430143 | 5 G 2.5 | 18 | 120 | 390 |
| 0043015 | 7 G 2.5 | 20.6 | 168 | 510 |
| 0043016 | 12 G 2.5 | 27.4 | 288 | 970 |
| 0043017 | 18 G 2.5 | 27.4 | 432 | 1100 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0043018 | 24 G 2.5 | 31.6 | 576 | 1450 |
| 0043019 | 30 G 2.5 | 36.3 | 720 | 1950 |
| 00430203 | 4 G 4.0 | 18.4 | 153.6 | 440 |
| 00430333 | 5 G 4.0 | 19.6 | 192 | 520 |
| 00430213 | 4 G 6.0 | 19.8 | 230.4 | 530 |
| 00430343 | 5 G 6.0 | 21.7 | 288 | 690 |
| 00430223 | 4 G 10.0 | 23.4 | 384 | 830 |
| 00430003 | 5 G 10.0 | 25.2 | 480 | 1000 |
| 00430233 | 4 G 16.0 | 25.5 | 614.4 | 1170 |
| 00430323 | 5 G 16.0 | 27.5 | 768 | 1400 |
| 00430243 | 4 G 25.0 | 32.6 | 960 | 1830 |
| 00430253 | 4 G 35.0 | 34.8 | 1344 | 2280 |
| 00430263 | 4 G 50.0 | 40.6 | 1920 | 3220 |
| 00430283 | 4 G 70.0 | 44.8 | 2688 | 4200 |
| 00430293 | 4 G 95.0 | 51.2 | 3648 | 5530 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE VS (N)SHTÖU

Reelable cables for medium to high mechanical stress




**Info**

- Reinforced outer sheath design
- Central and tear-resistant supporting element
- Suitable for extreme tensile stress

## Benefits

- The central supporting element absorbs the tensile loads that occur, thereby allowing reeling, unreeling and deflection for free-hanging cables even over large distances.
- Reeling, unreeling and guiding operations also impose tensile stresses on the cables
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

## Application range

- For use in hoists, transport and conveyor systems
- Cables are reeled, unreeled, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance

## Norm references / Approvals

- Based on VDE 0250-814 (NSHTÖU)

## Product Make-up

- Strands of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Central supporting element
- Support braid integrated in the outer sheath
- Outer sheath: rubber compound, type 5GM5

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Flexible use: 7.5 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
VDE 298 Part 4

**Temperature range**
Flexible use: -25°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Tensile strength (N) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CRANE VS (N)SHTÖU** | | | | | |
| 0044008 | 7 G 1.5 | 18.8 | 2150 | 100.8 | 430 |
| 0044009 | 12 G 1.5 | 25.3 | 2250 | 172.8 | 820 |
| 0044010 | 18 G 1.5 | 25.3 | 2400 | 259.2 | 930 |
| 0044011 | 24 G 1.5 | 30.1 | 4500 | 345.6 | 1260 |
| 0044036 | 36 G 1.5 | 34 | 4800 | 518.4 | 1650 |
| 0044015 | 7 G 2.5 | 21.6 | 2250 | 168 | 630 |
| 0044016 | 12 G 2.5 | 29.4 | 4450 | 288 | 1150 |
| 00440333 | 5 G 4.0 | 19.6 | 2300 | 192 | 510 |
| 00440223 | 4 G 10.0 | 23.4 | 2600 | 384 | 830 |
| 00440233 | 4 G 16.0 | 25.5 | 2950 | 614.4 | 1170 |
| 00440323 | 5 G 16.0 | 27.5 | 3200 | 768 | 1400 |
| 00440243 | 4 G 25.0 | 32.6 | 3500 | 960 | 1850 |
| 00440253 | 4 G 35.0 | 34.8 | 4100 | 1344 | 2250 |
| 00440263 | 4 G 50.0 | 40.6 | 7000 | 1920 | 3200 |
| 00440283 | 4 G 70.0 | 44.8 | 8200 | 2688 | 4200 |
| 00440293 | 4 G 95.0 | 51.2 | 12700 | 3648 | 5550 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE PUR

Reelable polyurethane cables for low, medium and high mechanical stress

**Info**

- Multifunctional application possibilities, flexible use down to -40°C
- Lightweight due to minimised diameters
- Halogen-free




## Benefits

- Designed with a smaller outer diameter to save space and weight
- Cost-saving due to the use of smaller drums, guide rollers, as well as drive engines when possible
- Reeling, unreeling and guiding operations also impose tensile stresses on the cables
- The central supporting element absorbs the tensile loads that occur, thereby allowing reeling, unreeling and deflection for free-hanging cables even over large distances.
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

## Application range

- For use in hoists, transport and conveyor systems
- Cables are reeled, unreeled, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

## Product features

- Halogen-free and flame-retardant (IEC 60332-1-2)
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: TPE compound
- Central supporting element
- Support braid integrated in the outer sheath
- Outer sheath: PUR compound, halogen-free

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexible use: 7.5 x outer diameter

**Nominal voltage**
U0/U: 600/1000 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Current rating**
VDE 298 Part 4

**Temperature range**
Flexible use: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Tensile strength (N) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CRANE PUR** | | | | | |
| 0045207 | 4 G 1.5 | 10.9 | 500 | 57.6 | 169 |
| 0045209 | 5 G 1.5 | 11.6 | 1000 | 72 | 197 |
| 0045210 | 7 G 1.5 | 12.9 | 2500 | 100.8 | 239 |
| 0045211 | 12 G 1.5 | 17.6 | 2500 | 172.8 | 401 |
| 0045212 | 18 G 1.5 | 17.5 | 2500 | 259.2 | 507 |
| 0045213 | 24 G 1.5 | 20.7 | 2500 | 345.6 | 673 |
| 0045215 | 30 G 1.5 | 28.9 | 3000 | 432 | 1100 |
| 0045214 | 36 G 1.5 | 31.4 | 3000 | 518.4 | 1350 |
| 0045216 | 4 G 2.5 | 12.2 | 500 | 96 | 227 |
| 0045218 | 5 G 2.5 | 13.2 | 2000 | 120 | 274 |
| 0045220 | 7 G 2.5 | 15.4 | 3000 | 168 | 358 |
| 0045221 | 12 G 2.5 | 21.6 | 3000 | 288 | 619 |
| 0045222 | 18 G 2.5 | 21.5 | 3000 | 432 | 793 |
| 0045223 | 24 G 2.5 | 25.5 | 3000 | 576 | 1123 |
| 0045224 | 30 G 2.5 | 34.7 | 3000 | 720 | 1641 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Tensile strength (N) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 0045225 | 4 G 4.0 | 14.3 | 1000 | 153.6 | 341 |
| 0045227 | 5 G 4.0 | 15.5 | 2000 | 192 | 411 |
| 0045228 | 4 G 6.0 | 16.6 | 1500 | 230.4 | 457 |
| 0045229 | 5 G 6.0 | 17.7 | 2000 | 288 | 538 |
| 0045235 | 7 G 6.0 | 21.5 | 2500 | 403 | 750 |
| 0045230 | 4 G 10.0 | 19.2 | 2000 | 384 | 674 |
| 0045237 | 5 G 10.0 | 21.6 | 2500 | 480 | 825 |
| 0045231 | 4 G 16.0 | 22.2 | 2500 | 614.4 | 966 |
| 0045238 | 5 G 16.0 | 25.6 | 3500 | 768 | 1222 |
| 0045232 | 4 G 25.0 | 27.6 | 3500 | 960 | 1506 |
| 0045233 | 4 G 35.0 | 31 | 4500 | 1344 | 2004 |
| 0045234 | 4 G 50.0 | 36.1 | 6000 | 1920 | 2838 |
| 0045240 | 3x25+3G6 | 25.7 | 2000 | 892.8 | 1380 |
| 0045241 | 3x35+3G6 | 27.6 | 2500 | 1180.8 | 1695 |
| 0045242 | 3x50+3G10 | 32.1 | 3500 | 1728 | 2307 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE

Highly flexible and weather-proof rubber cables with support element




**Info**

- Suitable for outdoor use
- Integrated supporting element
- Also suitable for cable chains and cable trolley systems

## Benefits

- Weather-resistant for harsh environmental conditions
- Very flexible due to extra-fine wire conductor design
- Cables up to a max. 24 cores can also be used in cable chains

## Application range

- Machinery and equipment that are permanently exposed to the weather; conveying and hoisting equipment; construction machinery; shipyard machinery
- Suitable for use in special conditions, such as not more than 2 weeks without interruption of submersion in industrial or sea water
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5
- For highly flexible applications, please follow the assembly guidelines for ÖLFLEX® FD cables in cable chains; see appendix T3

## Product features

- Flame-retardant according IEC 60332-1-2
- Not suitable for use on guide pulleys or drums under tensile load
- Refer to the article table for the tensile strength of the support element
- The cable should be installed in a way that the supporting element can absorb the tensile forces
- The mobility of the cores must not be affected by the clamps

## Norm references / Approvals

- Based on VDE 0250

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound
- Special supporting element as strain relief
- Outer sheath: rubber compound, type EM2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
0.15 mm wire diameter at 1.0 mm²
0.20 mm wire diameter from 1.5 mm²

**Minimum bending radius**
Flexible use: 12.5 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -25°C to +80°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Tensile strength (N) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CRANE** | | | | | |
| 0039001 | 2.0 X 1.0 | 7.4 | 300 | 19.2 | 89 |
| 0039002 | 3.0 G 1.0 | 8.3 | 300 | 28.8 | 106 |
| 00390033 | 4.0 G 1.0 | 8.9 | 300 | 38.4 | 127 |
| 00390043 | 5.0 G 1.0 | 10.4 | 300 | 48 | 149 |
| 0039107 | 7.0 G 1.0 | 12.9 | 300 | 67.2 | 206 |
| 0039109 | 9.0 G 1.0 | 14.4 | 300 | 86.4 | 281 |
| 0039054 | 12.0 G 1.0 | 18.5 | 360 | 115.2 | 422 |
| 0039055 | 18.0 G 1.0 | 19.2 | 540 | 172.8 | 451 |
| 0039056 | 24.0 G 1.0 | 22.1 | 720 | 230.4 | 646 |
| 0039057 | 36.0 G 1.0 | 26.1 | 1080 | 345.6 | 863 |
| 0039017 | 2.0 X 1.5 | 8 | 300 | 28.8 | 108 |
| 0039018 | 3.0 G 1.5 | 8.7 | 300 | 43.2 | 128 |
| 00390193 | 4.0 G 1.5 | 9.9 | 300 | 57.6 | 158 |
| 00390203 | 5.0 G 1.5 | 10.9 | 300 | 72 | 188 |
| 0039061 | 7.0 G 1.5 | 14 | 315 | 100.8 | 260 |
| 0039208 | 8.0 G 1.5 | 15.2 | 360 | 115.2 | 300 |
| 0039209 | 9.0 G 1.5 | 15.9 | 405 | 129.6 | 375 |
| 0039210 | 10.0 G 1.5 | 17 | 450 | 144 | 427 |
| 0039058 | 12.0 G 1.5 | 19.9 | 540 | 172.8 | 557 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Tensile strength (N) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 0039059 | 18.0 G 1.5 | 20.9 | 810 | 259.2 | 608 |
| 0039060 | 24.0 G 1.5 | 23.4 | 1080 | 345.6 | 825 |
| 0039034 | 2.0 X 2.5 | 9.7 | 300 | 48 | 145 |
| 0039035 | 3.0 G 2.5 | 10.2 | 300 | 72 | 173 |
| 00390363 | 4.0 G 2.5 | 11.6 | 300 | 96 | 219 |
| 00390373 | 5.0 G 2.5 | 12.4 | 375 | 120 | 259 |
| 0039307 | 7.0 G 2.5 | 16.6 | 525 | 168 | 378 |
| 0039309 | 9.0 G 2.5 | 18.9 | 675 | 216 | 518 |
| 0039312 | 12.0 G 2.5 | 23.3 | 900 | 288 | 770 |
| 0039316 | 16.0 G 2.5 | 22.8 | 1200 | 384 | 749 |
| 0039318 | 18.0 G 2.5 | 24.4 | 1350 | 432 | 837 |
| 0039324 | 24.0 G 2.5 | 28.5 | 1800 | 576 | 1184 |
| 00390463 | 4.0 G 4.0 | 15.2 | 480 | 153.6 | 307 |
| 00390473 | 5.0 G 4.0 | 16.8 | 600 | 192 | 394 |
| 00390483 | 4.0 G 6.0 | 16.8 | 720 | 230.4 | 409 |
| 00390493 | 5.0 G 6.0 | 19.2 | 900 | 288 | 528 |
| 00390503 | 4.0 G 10.0 | 21.8 | 1200 | 384 | 698 |
| 00390513 | 5.0 G 10.0 | 24.6 | 1500 | 480 | 853 |
| 00390523 | 4.0 G 16.0 | 25.4 | 1920 | 614.4 | 974 |
| 00390533 | 5.0 G 16.0 | 28 | 2400 | 768 | 1226 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE 2ST

Flexible at cold temperatures, PVC cables with external steel supporting elements

**Info**

- New Product, Follower of ÖLFLEX® CRANE 2S




## Benefits

- Two steel support elements that are integrated into the outer sheath on opposite sides absorb the tensile forces during operation
- Tensile strength of 2100 N per supporting element

## Application range

- For connecting movable control panels and consoles
- As a self-supporting shaft cable; in high rack systems
- Suitable for outdoor applications
- Do not use for lift applications!

## Product features

- Flame-retardant according IEC 60332-1-2
- Flexible at low temperatures

## Norm references / Approvals

- Based on VDE 0250

## Product Make-up

- Conductor made of bare copper wires
- Special PVC-based core insulation
- Special textile wrapping to improve sliding movement between the sheath and cores
- Special PVC-based outer sheath
- Opposing, integrated steel supporting elements

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexible use: 20 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -15°C to +70°C

| Article number | Number of cores and mm² per conductor | Cable Ø (mm) | Distance between strain wires (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® CRANE 2ST** | | | | | |
| 2027503 | 8.0 G 1.5 | 13.6 | 19 | 115 | 430 |
| 2027504 | 12.0 G 1.5 | 15.5 | 21 | 172.8 | 510 |
| 2027505 | 20.0 G 1.5 | 20 | 25 | 288 | 720 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® LIFT N

Flexible at cold temperatures, PVC lift cables with supporting element




**Info**

- New Product, Follower of ÖLFLEX® LIFT

## Benefits

- Special cable design for a long service life
- Very flexible due to extra-fine wire conductor design

## Application range

- Lift cable that ensures the electrical integrity in various areas of lift construction
- Suitable for use in outdoor lifts
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

## Product features

- Flame-retardant according IEC 60332-1-2
- Good weather-resistance

## Product Make-up

- Conductor made of bare copper wires
- Special PVC-based core insulation
- Supporting element made of synthetic fibre
- Fleece-wrapping between cores and sheath
- Special PVC-based outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000826
ETIM 5.0/6.0 Class-Description: Elevator cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Suspension length**
refer to article table

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexible use: 20 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -15°C to +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Max. suspension length (m) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ÖLFLEX® LIFT N** | | | | | |
| 2027019 | 5 G 1.0 | 9.8 | 50 | 48 | 129 |
| 2027020 | 7 G 1.0 | 11.3 | 80 | 67.2 | 190 |
| 2027022 | 12 G 1.0 | 16.1 | 80 | 115.2 | 370 |
| 2027024 | 18 G 1.0 | 16.3 | 60 | 172.8 | 430 |
| 2027027 | 24 G 1.0 | 19.3 | 60 | 230.4 | 595 |
| 2027029 | 36 G 1.0 | 22 | 90 | 345.6 | 815 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE F

Weather-resistant flat rubber cables

**Info**

- For outdoor cable trolley application
- Space-saving installation
- Also suitable for cable chains and lift applications




## Benefits

- Weather-resistant for harsh environmental conditions
- Flat cables need less space than round cables
- Smaller bending radii is possible

## Application range

- As a lift control cable: max. 50 m suspension length
- In crane systems on building sites and shipyards for fixed installation, or for flexible use in cable trolley systems
- Sewage treatment plants, steelworks and high rack facilities

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0250-809 (NGFLGÖU)

## Product Make-up

- Conductors: Finely stranded bare copper
- Core insulation: rubber compound
- Outer sheath: special rubber compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Copper conductor according to VDE 0295/IEC 60228
up to 25 mm²: extra-fine wire, class 6
from 35 mm²: fine wire, class 5

**Minimum bending radius**
Flexible use: 10 x cable thickness
Fixed installation: 4 x cable thickness

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer dimensions, width x height (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CRANE F** | | | | |
| 0041041 | 4.0 G 1.5 | 17.5 x 6.2 | 57.6 | 200 |
| 0041042 | 5.0 G 1.5 | 21.5 x 6.2 | 72 | 240 |
| 0041043 | 7.0 G 1.5 | 29.0 x 6.2 | 100.8 | 360 |
| 0041044 | 8.0 G 1.5 | 31.5 x 6.2 | 115 | 370 |
| 0041045 | 10.0 G 1.5 | 40.0 x 6.5 | 144 | 520 |
| 0041046 | 12.0 G 1.5 | 47.0 x 6.5 | 172.8 | 620 |
| 0041047 | 4.0 G 2.5 | 21.0 x 7.5 | 96 | 280 |
| 0041048 | 5.0 G 2.5 | 27.0 x 7.5 | 120 | 400 |
| 0041049 | 7.0 G 2.5 | 35.0 x 7.5 | 168 | 520 |
| 0041050 | 8.0 G 2.5 | 39.0 x 7.5 | 192 | 550 |
| 0041051 | 12.0 G 2.5 | 56.0 x 8.0 | 288 | 800 |

| Article number | Number of cores and mm² per conductor | Outer dimensions, width x height (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0041052 | 4.0 G 4.0 | 26.0 x 9.0 | 153.6 | 410 |
| 0041053 | 7.0 G 4.0 | 42.0 x 9.0 | 268.8 | 700 |
| 0041054 | 4.0 G 6.0 | 29.0 x 9.5 | 230 | 600 |
| 0041056 | 7.0 G 6.0 | 42.0 x 9.5 | 403 | 850 |
| 0041057 | 4.0 G 10.0 | 33.0 x 11.0 | 384 | 800 |
| 0041059 | 4.0 G 16.0 | 38.0 x 13.0 | 614 | 1150 |
| 0041060 | 4.0 G 25.0 | 49.5 x 15.0 | 960 | 1700 |
| 0041061 | 4.0 G 35.0 | 55.0 x 17.0 | 1344 | 2360 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CRANE CF

Weather-resistant flat rubber cables with copper screening




**Info**

- For outdoor cable trolley application
- EMC-compliant

## Benefits

- Weather-resistant for harsh environmental conditions
- Flat cables need less space than round cables
- Smaller bending radii is possible
- Copper braiding screens the cable against electromagnetic interference

## Application range

- In crane systems on building sites and shipyards for fixed installation, or for flexible use in cable trolley systems
- Sewage treatment plants, steelworks and high rack facilities
- As a lift control cable: max. 50 m suspension length

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0250-809 (NGFLGÖU)

## Product Make-up

- Conductors: Finely stranded bare copper
- Core insulation: rubber compound
- Individual core screening consist of
  - plastic foil wrapping
  - tin-plated copper braiding
  - plastic foil wrapping
- Outer sheath: special rubber compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Copper conductor according to VDE 0295/IEC 60228
up to 25 mm²: extra-fine wire, class 6
from 35 mm²: fine wire, class 5

**Minimum bending radius**
Flexible use: 10 x cable thickness
Fixed installation: 4 x cable thickness

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer dimensions, width x height (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® CRANE CF** | | | | |
| 0041075 | 4.0 G 1.5 | 18.5 x 6.5 | 79 | 220 |
| 0041076 | 8.0 G 1.5 | 36.0 x 7.5 | 155 | 470 |
| 0041077 | 12.0 G 1.5 | 54.5 x 8.5 | 238 | 745 |
| 0041078 | 4.0 G 2.5 | 22.5 x 7.5 | 141 | 320 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® LIFT F

Flexible at cold temperatures, PVC flat cables




## Info

- For cable trolley application
- Space-saving installation
- Also suitable for cable chains and lift applications

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
U0/U 300/500 V versions, fine wire according to VDE 0295 Class 5 or IEC 60228 Cl. 5
U0/U 450/750 V versions, extra-fine wire according to VDE 0295 Class 6 or IEC 60228 Cl. 6 (from nominal conductor cross section 10 mm²: finely stranded/ class 5)

**Minimum bending radius**
Flexible use: 10 x cable thickness

**Nominal voltage**
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use:
0 °C to +70 °C (up to 1.0 mm²)
-15 °C to +70 °C (as from 1.5 mm²)

## Benefits

- Flat cables need less space than round cables
- Smaller bending radii is possible

## Application range

- For hoisting equipment and conveyor systems
- Indoor cranes and high-rack facilities
- As supply line for moving machine parts
- According to VDE definition, this can also be used as a lift control cable with up to 35 m suspension length, and a maximum speed of travel at 1.6 m/s

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on EN 50214/ VDE 0283-2 (H05VVH6-F or H07VVH6-F)
- Meets the requirements of the harmonised PVC flat cable H07VVH6-F

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Outer sheath: Based on PVC

| Article number | Number of cores and mm² per conductor | Outer dimensions, width x height (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® LIFT F** | | | | |
| **Nominal voltage U0/U: 300/500 V, temperature range: 0°C to +70°C** | | | | |
| 0042020 | 12.0 G 1.0 | 36.0 x 4.7 | 115 | 392 |
| 0042021 | 16.0 G 1.0 | 48.5 x 4.7 | 153.6 | 521 |
| 0042022 | 20.0 G 1.0 | 59.0 x 4.7 | 192 | 645 |
| 0042023 | 24.0 G 1.0 | 71.5 x 4.7 | 230 | 772 |
| **Nominal voltage U0/U: 450/750 V, temperature range: -15°C to +70°C** | | | | |
| 00420013 | 4.0 G 1.5 | 15.5 x 5.2 | 57.6 | 132 |
| 00420023 | 5.0 G 1.5 | 19.7 x 5.2 | 72 | 170 |
| 0042003 | 7.0 G 1.5 | 27.0 x 5.2 | 100.8 | 236 |
| 0042004 | 8.0 G 1.5 | 29.0 x 5.2 | 115 | 266 |
| 0042005 | 10.0 G 1.5 | 36.5 x 5.2 | 144 | 333 |
| 0042006 | 12.0 G 1.5 | 42.0 x 5.2 | 172.8 | 422 |
| 00420073 | 4.0 G 2.5 | 19.0 x 5.9 | 96 | 206 |
| 00420083 | 5.0 G 2.5 | 24.0 x 5.9 | 120 | 257 |
| 0042009 | 7.0 G 2.5 | 32.5 x 5.9 | 168 | 345 |
| 0042010 | 8.0 G 2.5 | 35.0 x 5.9 | 192 | 390 |
| 0042050 | 12.0 G 2.5 | 52.5 x 5.9 | 288 | 580 |
| 00420113 | 4.0 G 4.0 | 21.0 x 6.8 | 153.6 | 343 |
| 0042012 | 7.0 G 4.0 | 38.0 x 6.8 | 268.8 | 589 |
| 00420133 | 4.0 G 6.0 | 24.0 x 7.3 | 230 | 425 |
| 00420143 | 4.0 G 10.0 | 30.5 x 9.5 | 384 | 709 |
| 00420153 | 4.0 G 16.0 | 35.0 x 10.8 | 614 | 1015 |
| 00420163 | 4.0 G 25.0 | 42.0 x 13.0 | 960 | 1366 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Expanded
## ambient temperatures










# ÖLFLEX® HEAT 105 MC

Colour-coded connection cables made of high heat-resistant PVC




**Info**

- Based on H05V2V2-F
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Possible to operate at higher peak temperature (almost 30% more) compared to conventional PVC cables

## Application range

- For connection of motors, transformers, reels, plants, machines, appliances, switch cabinets and other installations with a higher operating or ambient temperature
- For indoor and outdoor use

## Product features

- Resistant to acids, alkalis and certain oils at room temperature
- Flame-retardant according IEC 60332-1-2
- Good UV-resistance

## Norm references / Approvals

- Based on EN 50525-2-11

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, high heat-resistance
- Cores twisted in layers
- Outer sheath: PVC, heat-resistant, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Short-term: +105 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 105 MC** | | | | |
| 0026001 | 2 X 0.75 | 6.2 | 14.4 | 53 |
| 0026002 | 3 G 0.75 | 6.5 | 21.6 | 62 |
| 00260033 | 4 G 0.75 | 7.1 | 28.8 | 76 |
| 00260043 | 5 G 0.75 | 8.0 | 36 | 95 |
| 0026005 | 7 G 0.75 | 9.7 | 50 | 113 |
| 0026006 | 2 X 1.0 | 6.5 | 19.2 | 61 |
| 0026007 | 3 G 1.0 | 6.9 | 29 | 74 |
| 00260083 | 4 G 1.0 | 7.7 | 38.4 | 89 |
| 00260093 | 5 G 1.0 | 8.4 | 48 | 110 |
| 0026010 | 7 G 1.0 | 10.2 | 67 | 130 |
| 0026011 | 2 X 1.5 | 7.5 | 29 | 78 |
| 0026012 | 3 G 1.5 | 8.1 | 43.2 | 98 |
| 00260133 | 4 G 1.5 | 8.9 | 57.6 | 122 |
| 00260143 | 5 G 1.5 | 10.0 | 72 | 144 |
| 0026015 | 7 G 1.5 | 12.3 | 101 | 180 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 125 MC 300/500 V

Electron beam cross-linked cables for more demanding application requirements




**Info**

- CPR: Article number choice under www.lapp.com
- Improved characteristics in the event of a fire
- GL - Germanischer Lloyd approved

## Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

## Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For use in traffic regulation systems and outdoors
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- For outdoor applications

## Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2, NF C 32-070 (C1) and NF-F 16-101 (Class C))
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-22, IEC 60332-3-24 and IEC 60332-3-25 (Flame spread on vertical cable bundle)
- Oil-resistant acc. IEC 60227-1 (ST9) and EN 50264-1 (EM104)
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- GL - Germanischer Lloyd approved
- Based on EN 50525-3-21 and EN 50525-3-41

## Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation
- Cores twisted in layers
- Outer sheath: electron beam cross-linked polyolefin copolymer, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
$U_0$/U 300/500 V

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -35 °C to +120 °C
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 MC 300/500 V** | | | | |
| 1024300 | 2 X 0.5 | 6.0 | .6 | 38 |
| 1024301 | 3 G 0.5 | 6.3 | 14,4 | 46 |
| 1024360 | 3 X 0.5 | 6.3 | 14,4 | 60.37 |
| 1024302 | 4 G 0.5 | 6.9 | 1.2 | 55 |
| 1024361 | 4 X 0.5 | 6.9 | 1.2 | 72.74 |
| 1024303 | 5 G 0.5 | 7.5 | 24 | 86.45 |
| 1024304 | 7 G 0.5 | 8.4 | 33,6 | 10.7 |
| 1024307 | 2 X 0.75 | 6.4 | 14,4 | 40 |
| 1024308 | 3 G 0.75 | 6.8 | 21,6 | 53 |
| 1024362 | 3 X 0.75 | 6.8 | 21,6 | 72.34 |
| 1024309 | 4 G 0.75 | 7.4 | 28,8 | 69 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1024363 | 4 X 0.75 | 7.4 | 28,8 | 87.55 |
| 1024310 | 5 G 0.75 | 8.3 | 36 | 86 |
| 1024311 | 7 G 0.75 | 9.0 | 50 | 127 |
| 1024312 | 12 G 0.75 | 12.2 | 86 | 218.69 |
| 1024315 | 2 X 1.0 | 6.6 | 1.2 | 50 |
| 1024316 | 3 G 1.0 | 7.0 | 28,8 | 67 |
| 1024364 | 3 X 1.0 | 7.0 | 28,8 | 80.74 |
| 1024317 | 4 G 1.0 | 7.8 | 38,4 | 87 |
| 1024365 | 4 X 1.0 | 7.8 | 38,4 | 102.13 |
| 1024318 | 5 G 1.0 | 8.6 | 48 | 107 |
| 1024319 | 7 G 1.0 | 9.5 | 67 | 152 |
| 1024320 | 12 G 1.0 | 12.8 | 115 | 221 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 125 MC 450/750 V

Electron beam cross-linked cables for more demanding application requirements




## Info

- CPR: Article number choice under www.lapp.com
- Improved characteristics in the event of a fire
- GL - Germanischer Lloyd approved

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
$U_0$/U 450/500 V
0.6/1kV in the case of fixed and protected installation

**Test voltage**
4000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -35 °C to +120 °C
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

## Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

## Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For use in traffic regulation systems and outdoors
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- For outdoor applications

## Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2, NF C 32-070 (C1) and NF-F 16-101 (Class C))
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-22, IEC 60332-3-24 and IEC 60332-3-25 (Flame spread on vertical cable bundle)
- Oil-resistant acc. IEC 60227-1 (ST9) and EN 50264-1 (EM104)
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- GL - Germanischer Lloyd approved
- Based on EN 50525-3-21 and EN 50525-3-41

## Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation
- Cores twisted in layers
- Outer sheath: electron beam cross-linked polyolefin copolymer, black

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 MC 450/750 V** | | | | |
| 1024323 | 2 X 1.5 | 7.6 | 29 | 71 |
| 1024324 | 3 G 1.5 | 8.3 | 43 | 96 |
| 1024366 | 3 X 1.5 | 8.3 | 43.2 | 115.91 |
| 1024325 | 4 G 1.5 | 9.0 | 58 | 123 |
| 1024367 | 4 X 1.5 | 9.0 | 57.6 | 141.32 |
| 1024326 | 5 G 1.5 | 10.1 | 72 | 156 |
| 1024327 | 7 G 1.5 | 11.2 | 101 | 224 |
| 1024328 | 12 G 1.5 | 15.1 | 173 | 316 |
| 1024333 | 2 X 2.5 | 9.0 | 48 | 102 |
| 1024334 | 3 G 2.5 | 9.8 | 72 | 145 |
| 1024335 | 4 G 2.5 | 10.8 | 96 | 189 |
| 1024336 | 5 G 2.5 | 11.9 | 120 | 235 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1024337 | 7 G 2.5 | 13.2 | 168 | 344 |
| 1024339 | 2 X 4.0 | 10.6 | 76.8 | 193.5 |
| 1024340 | 3 G 4.0 | 11.4 | 115 | 239.73 |
| 1024341 | 4 G 4.0 | 12.7 | 154 | 276 |
| 1024342 | 5 G 4.0 | 14.0 | 192 | 334 |
| 1024345 | 3 G 6.0 | 12.7 | 172.8 | 319.73 |
| 1024346 | 4 G 6.0 | 14.1 | 230 | 341 |
| 1024347 | 5 G 6.0 | 15.8 | 288 | 431 |
| 1024351 | 4 G 10.0 | 17.9 | 384 | 675.1 |
| 1024352 | 5 G 10.0 | 19.9 | 480 | 831.57 |
| 1024357 | 4 G 16.0 | 20.7 | 614 | 1.005.56 |
| 1024358 | 5 G 16.0 | 23.0 | 768 | 1.240.19 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# ÖLFLEX® HEAT 125 C MC

Electron beam cross-linked cables for more demanding application requirements




## Info

- CPR: Article number choice under www.lapp.com
- Improved characteristics in the event of a fire
- GL - Germanischer Lloyd approved

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Colour-coded according to VDE 0293-308, refer to Appendix T9
or black with white numbers
refer to article table

**Specific insulation resistance**
>2 TOhm x cm

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 5 x outer diameter

**Nominal voltage**
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

**Test voltage**
C/C 4000 V, C/S 2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Occasional flexing: -35 °C to +120 °C
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

## Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications
- Copper braiding screens the cable against electromagnetic interference

## Application range

- For outdoor applications
- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For use in traffic regulation systems and outdoors
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology

## Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2, NF C 32-070 (C1) and NF-F 16-101 (Class C))
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-22, IEC 60332-3-24 and IEC 60332-3-25 (Flame spread on vertical cable bundle)
- Oil-resistant acc. IEC 60227-1 (ST9) and EN 50264-1 (EM104)
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

## Norm references / Approvals

- GL - Germanischer Lloyd approved
- Based on EN 50525-3-21 and EN 50525-3-41

## Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation
- Cores twisted in layers
- Tinned-copper braiding
- Outer sheath: electron beam cross-linked polyolefin copolymer, black

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 C MC 300/500 V - colour-coded** | | | | |
| 1024400 | 2 X 0.5 | 6.8 | 41 | 45 |
| 1024401 | 3 G 0.5 | 7.1 | 45.5 | 59 |
| 1024407 | 2 X 0.75 | 7.2 | 46 | 79 |
| 1024408 | 3 G 0.75 | 7.6 | 57.9 | 96 |
| 1024409 | 4 G 0.75 | 8.4 | 64 | 116 |
| 1024410 | 5 G 0.75 | 9.1 | 77.4 | 139 |
| 1024415 | 2 X 1.0 | 7.4 | 56 | 90 |
| 1024416 | 3 G 1.0 | 8.0 | 65.3 | 104 |
| 1024417 | 4 G 1.0 | 8.6 | 78.1 | 129 |
| 1024418 | 5 G 1.0 | 9.6 | 89.4 | 153 |
| **ÖLFLEX® HEAT 125 C MC 450/750 V - colour-coded** | | | | |
| 1024423 | 2 X 1.5 | 8.6 | 65 | 114 |
| 1024424 | 3 G 1.5 | 9.1 | 83 | 132 |
| 1024425 | 4 G 1.5 | 10.0 | 100 | 163 |
| 1024426 | 5 G 1.5 | 11.1 | 125 | 200 |
| 1024433 | 2 X 2.5 | 10.0 | 112 | 157 |
| 1024434 | 3 G 2.5 | 10.7 | 146 | 198 |
| 1024435 | 4 G 2.5 | 11.6 | 167 | 236 |
| 1024436 | 5 G 2.5 | 12.9 | 200 | 287 |
| 1024441 | 4 G 4.0 | 13.7 | 237 | 317 |
| 1024446 | 4 G 6.0 | 15.1 | 318 | 404 |
| 1024451 | 4 G 10.0 | 19.3 | 558 | 669 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 C MC 300/500 V - Black with white numbers** | | | | |
| 1024480 | 2 X 0.75 | 7.2 | 46 | 79 |
| 1024481 | 3 X 0.75 | 7.6 | 57.9 | 96 |
| 1024482 | 4 X 0.75 | 8.4 | 64 | 116 |
| 1024411 | 7 G 0.75 | 10.0 | 102 | 186 |
| 1024483 | 7 X 0.75 | 10.0 | 102 | 186 |
| 1024412 | 12 G 0.75 | 13.4 | 177 | 219 |
| 1024484 | 2 X 1.0 | 7.4 | 56 | 90 |
| 1024485 | 3 X 1.0 | 8.0 | 65.3 | 104 |
| 1024419 | 7 G 1.0 | 10.3 | 113.3 | 211 |
| 1024420 | 12 G 1.0 | 14.0 | 188.1 | 266 |
| **ÖLFLEX® HEAT 125 C MC 450/750 V - Black with white numbers** | | | | |
| 1024486 | 2 X 1.5 | 8.6 | 65 | 114 |
| 1024487 | 4 X 1.5 | 10.0 | 100 | 163 |
| 1024427 | 7 G 1.5 | 12.0 | 149 | 273 |
| 1024488 | 7 X 1.5 | 12.0 | 149 | 273 |
| 1024428 | 12 G 1.5 | 16.3 | 280 | 371 |
| 1024489 | 3 X 2.5 | 10.7 | 146 | 198 |
| 1024490 | 4 X 2.5 | 11.6 | 167 | 236 |
| 1024437 | 7 G 2.5 | 14.4 | 288 | 385 |
| 1024438 | 12 G 2.5 | 19.3 | 477.3 | 569 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 SiHF

Silicone cables with extended temperature range




**Info**

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals

- Based on EN 50525-2-83

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted in layers
- Silicone-based outer sheath, colour red-brown

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-60 °C to +180 °C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiHF** | | | | |
| 0046001 | 2 X 0.75 | 6.4 | 14.4 | 59 |
| 0046002 | 3 G 0.75 | 6.8 | 21.6 | 70 |
| 00460033 | 4 G 0.75 | 7.6 | 28.8 | 89 |
| 00460043 | 5 G 0.75 | 8.5 | 36 | 112 |
| 0046005 | 6 G 0.75 | 9.2 | 43.2 | 131 |
| 0046006 | 7 G 0.75 | 9.2 | 50.4 | 136 |
| 0046007 | 2 X 1.0 | 6.6 | 19.2 | 66 |
| 0046008 | 3 G 1.0 | 7.0 | 29 | 79 |
| 00460093 | 4 G 1.0 | 7.9 | 38.4 | 101 |
| 00460103 | 5 G 1.0 | 8.8 | 48 | 127 |
| 0046012 | 7 G 1.0 | 9.5 | 67 | 156 |
| 0046013 | 2 X 1.5 | 7.6 | 29 | 90 |
| 0046014 | 3 G 1.5 | 8.0 | 43 | 109 |
| 00460153 | 4 G 1.5 | 8.8 | 58 | 134 |
| 00460163 | 5 G 1.5 | 9.6 | 72 | 163 |
| 0046018 | 7 G 1.5 | 10.4 | 101 | 202 |
| 0046039 | 12 G 1.5 | 14.0 | 173 | 361 |
| 0046040 | 16 G 1.5 | 16.2 | 230.4 | 478 |
| 0046041 | 20 G 1.5 | 17.5 | 288 | 574 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0046042 | 24 G 1.5 | 19.8 | 345.6 | 720 |
| 0046019 | 2 X 2.5 | 8.8 | 48 | 128 |
| 0046020 | 3 G 2.5 | 9.7 | 72 | 167 |
| 00460213 | 4 G 2.5 | 10.6 | 96 | 206 |
| 00460223 | 5 G 2.5 | 11.6 | 120 | 251 |
| 0046024 | 7 G 2.5 | 12.6 | 168 | 313 |
| 0046025 | 2 X 4.0 | 10.8 | 76.8 | 196 |
| 0046026 | 3 G 4.0 | 11.5 | 115 | 241 |
| 00460273 | 4 G 4.0 | 12.6 | 154 | 300 |
| 00460283 | 5 G 4.0 | 14.0 | 192 | 374 |
| 0046030 | 7 G 4.0 | 15.6 | 269 | 486 |
| 0046031 | 2 X 6.0 | 12.4 | 116 | 268 |
| 0046032 | 3 G 6.0 | 13.2 | 173 | 333 |
| 00460333 | 4 G 6.0 | 14.7 | 230 | 425 |
| 00460343 | 5 G 6.0 | 16.6 | 288 | 538 |
| 0046036 | 7 G 6.0 | 18.6 | 403 | 705 |
| 00460373 | 4 G 10.0 | 19.4 | 384 | 707 |
| 00460453 | 5 G 10.0 | 21.6 | 480 | 878 |
| 00460383 | 4 G 16.0 | 21.4 | 614 | 1004 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 H05SS-F EWKF

Europe-wide standardised silicone connection cables with increased mechanical performance

**Info**

- International use in combination with proven EWKF quality




## Benefits

- Harmonised use in Europe
- Notch and tear-resistant silicone compounds reduce damage due to mechanical stress
- For harsh environments, more durable than conventional H05SS-F standardised cables
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals

- EN 50525-2-83 (H05SS-F)

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: based on EWKF silicone
- Cores twisted together
- Outer sheath: silicone-based EWKF, notch-resistant, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-50 °C to +180 °C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 H05SS-F EWKF** | | | | |
| 0046900 | 2 X 0.75 | 6.4 | 14.4 | 54 |
| 0046901 | 3 G 0.75 | 7.0 | 21.6 | 67 |
| 00469023 | 4 G 0.75 | 7.6 | 28.8 | 87 |
| 00469033 | 5 G 0.75 | 8.5 | 36 | 105 |
| 0046904 | 2 X 1.0 | 6.8 | 19.2 | 63 |
| 0046905 | 3 G 1.0 | 7.2 | 28.8 | 81 |
| 00469063 | 4 G 1.0 | 7.9 | 38.4 | 98 |
| 00469073 | 5 G 1.0 | 8.8 | 48 | 121 |
| 0046908 | 2 X 1.5 | 8.4 | 28.8 | 84 |
| 0046909 | 3 G 1.5 | 8.9 | 43.2 | 103 |
| 00469103 | 4 G 1.5 | 9.9 | 57.6 | 128 |
| 00469113 | 5 G 1.5 | 10.9 | 72 | 154 |
| 0046912 | 2 X 2.5 | 9.8 | 48 | 141 |
| 0046913 | 3 G 2.5 | 10.4 | 72 | 158 |
| 00469143 | 4 G 2.5 | 11.6 | 96 | 195 |
| 00469153 | 5 G 2.5 | 12.9 | 120 | 241 |
| 0046916 | 3 G 4.0 | 12.3 | 115.2 | 239 |
| 00469173 | 4 G 4.0 | 13.7 | 153.6 | 312 |
| 0046919 | 3 G 6.0 | 14.0 | 172.8 | 345 |
| 00469203 | 4 G 6.0 | 15.6 | 230.4 | 451 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 MS

Certified silicone cables for North America (AWM recognized)




**Info**

- MS = Multi-Standard
  For use in the USA and Canada
- UL AWM Style 4476 (150 °C/600 V)
- CPR: Article number choice under www.lapp.com

## Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Thicker cable design meets the requirements of the FT-1 flame test and also approved for the external interconnection of apparatuses and appliances
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2)
- Flame-retardant acc. to IEC 60332-1-2, Cable Flame Test, CSA FT 1
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals

- UL AWM 4476 and cUL AWM II A/B Construction B, External wiring
- UL File No. E63634

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Silicone-based outer sheath, colour black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5
(Refer to Appendix T16 for the matching US conductor sizes in AWG standard)

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
Working voltage UL: 600 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
According to VDE: -60 °C to +180 °C
UL/cUL: up to +150°C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 MS** | | | | |
| 0046600 | 2 X 0.5 | 7.4 | 9.8 | 72 |
| 0046601 | 3 G 0.5 | 7.8 | 14.7 | 83 |
| 00466023 | 4 G 0.5 | 8.5 | 19.6 | 99 |
| 00466033 | 5 G 0.5 | 9.2 | 24.5 | 119 |
| 0046604 | 7 G 0.5 | 9.9 | 34.3 | 142 |
| 0046612 | 2 X 1.0 | 8.2 | 19.2 | 93 |
| 0046613 | 3 G 1.0 | 8.7 | 28.8 | 110 |
| 00466143 | 4 G 1.0 | 9.4 | 38.4 | 133 |
| 00466153 | 5 G 1.0 | 10.3 | 48 | 160 |
| 0046616 | 7 G 1.0 | 11.1 | 67.2 | 195 |
| 0046617 | 12 G 1.0 | 14.9 | 115.2 | 345 |
| 0046618 | 2 X 1.5 | 8.8 | 28.8 | 113 |
| 0046619 | 3 G 1.5 | 9.3 | 43.2 | 135 |
| 00466203 | 4 G 1.5 | 10.1 | 57.6 | 165 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 00466213 | 5 G 1.5 | 11.1 | 72 | 200 |
| 0046622 | 7 G 1.5 | 12.0 | 100.8 | 246 |
| 0046623 | 12 G 1.5 | 16.1 | 172.8 | 437 |
| 0046625 | 18 G 1.5 | 18.8 | 259.2 | 613 |
| 0046626 | 25 G 1.5 | 22.9 | 360 | 904 |
| 0046628 | 2 X 2.5 | 9.6 | 48 | 146 |
| 0046629 | 3 G 2.5 | 10.2 | 72 | 178 |
| 00466303 | 4 G 2.5 | 11.1 | 96 | 220 |
| 00466313 | 5 G 2.5 | 12.2 | 120 | 269 |
| 0046633 | 3 G 4.0 | 11.5 | 115.2 | 246 |
| 00466343 | 4 G 4.0 | 12.6 | 153.6 | 307 |
| 00466353 | 5 G 4.0 | 14.2 | 192 | 389 |
| 0046636 | 3 G 6.0 | 14.9 | 172.8 | 396 |
| 00466373 | 4 G 6.0 | 16.4 | 230.4 | 495 |
| 00466383 | 5 G 6.0 | 18.0 | 288 | 608 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 C MS

Screened and approved silicone cables for North America (AWM recognized)

**Info**

- MS = Multi-Standard
  For use in the USA and Canada
- UL AWM Style 4476 (150 °C/600 V)
- CPR: Article number choice under www.lapp.com




## Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Thicker cable design meets the requirements of the FT-1 flame test and also approved for the external interconnection of apparatuses and appliances
- Flexibility simplifies installation where space is limited
- Copper braiding screens the cable against electromagnetic interference

## Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2)
- Flame-retardant acc. to IEC 60332-1-2, Cable Flame Test, CSA FT 1
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals

- UL AWM 4476 and cUL AWM II A/B Construction B, External wiring
- UL File No. E63634

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Tinned-copper screen braiding, interleaved plastic foil wrapping
- Silicone-based outer sheath, colour black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295, class 5/IEC 60228 class 5
(Refer to Appendix T16 for the matching US conductor sizes in AWG standard)

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V
Working voltage UL: 600 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
According to VDE: -60 °C to +180 °C
UL/cUL: up to +150°C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 C MS** | | | | |
| 0046701 | 3 G 0.5 | 8.6 | 43.4 | 100 |
| 0046702 | 4 G 0.5 | 9.3 | 55.4 | 122 |
| 0046703 | 5 G 0.5 | 10.0 | 60.2 | 137 |
| 0046708 | 2 X 1.0 | 9.0 | 48.2 | 104 |
| 0046709 | 3 G 1.0 | 9.5 | 65 | 131 |
| 0046710 | 4 G 1.0 | 10.2 | 74.6 | 152 |
| 0046711 | 5 G 1.0 | 11.0 | 91.5 | 181 |
| 0046712 | 7 G 1.0 | 11.9 | 117.9 | 228 |
| 0046716 | 2 X 1.5 | 9.6 | 65 | 126 |
| 0046717 | 3 G 1.5 | 10.1 | 79.4 | 152 |
| 0046718 | 4 G 1.5 | 10.9 | 101.1 | 186 |
| 0046719 | 5 G 1.5 | 11.8 | 122.7 | 222 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0046720 | 7 G 1.5 | 12.8 | 158.7 | 281 |
| 0046721 | 12 G 1.5 | 16.9 | 245.2 | 431 |
| 0046723 | 18 G 1.5 | 19.6 | 346.1 | 600 |
| 0046724 | 25 G 1.5 | 23.9 | 495.7 | 833 |
| 0046728 | 3 G 2.5 | 11.0 | 115.5 | 197 |
| 0046729 | 4 G 2.5 | 11.9 | 146.7 | 244 |
| 0046730 | 5 G 2.5 | 12.9 | 177.9 | 291 |
| 0046734 | 3 G 4.0 | 12.3 | 165.9 | 261 |
| 0046735 | 4 G 4.0 | 13.4 | 211.5 | 325 |
| 0046736 | 5 G 4.0 | 14.9 | 257.2 | 389 |
| 0046740 | 4 G 6.0 | 17.2 | 302.8 | 482 |
| 0046741 | 5 G 6.0 | 18.7 | 367.6 | 580 |
| 0046742 | 4 G 10.0 | 22.8 | 508.4 | 802 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 EWKF

Silicone cables with increased mechanical characteristics




**Info**

- Proven notch-resistant EWKF quality
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Longer durability in harsh applications than conventional silicone cables
- Notch and tear-resistant silicone compounds reduce damage due to mechanical stress
- Due to the use of special additives in EWKF silicone, armoured cable versions will not be required
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals

- Based on EN 50525-2-83

## Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: based on EWKF silicone
- Cores twisted together
- Outer sheath: silicone-based EWKF, notch-resistant, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-60 °C to +180 °C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 EWKF** | | | | |
| 0046500 | 2 X 0.75 | 6.4 | 15 | 49 |
| 0046501 | 3 G 0.75 | 6.9 | 22 | 60 |
| 00465023 | 4 G 0.75 | 7.6 | 29 | 76 |
| 00465033 | 5 G 0.75 | 8.5 | 36 | 96 |
| 0046506 | 2 X 1.0 | 6.8 | 20 | 56 |
| 0046507 | 3 G 1.0 | 7.1 | 29 | 68 |
| 00465083 | 4 G 1.0 | 7.9 | 39 | 88 |
| 00465093 | 5 G 1.0 | 8.8 | 48 | 110 |
| 0046110 | 7 G 1.0 | 9.5 | 67.2 | 137 |
| 0046511 | 2 X 1.5 | 8.0 | 29 | 77 |
| 0046512 | 3 G 1.5 | 8.4 | 43 | 94 |
| 00465133 | 4 G 1.5 | 9.5 | 58 | 117 |
| 00465143 | 5 G 1.5 | 10.4 | 72 | 143 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0046115 | 7 G 1.5 | 11.0 | 101 | 180 |
| 0046116 | 12 G 1.5 | 14.9 | 173 | 319 |
| 0046117 | 16 G 1.5 | 17.1 | 230.4 | 424 |
| 0046119 | 24 G 1.5 | 21.0 | 345.6 | 637 |
| 0046520 | 2 X 2.5 | 9.4 | 48 | 110 |
| 0046521 | 3 G 2.5 | 9.8 | 72 | 146 |
| 00465223 | 4 G 2.5 | 11.1 | 96 | 181 |
| 00465233 | 5 G 2.5 | 11.9 | 120 | 222 |
| 0046131 | 3 G 4.0 | 11.5 | 114 | 213 |
| 00461323 | 4 G 4.0 | 12.5 | 152 | 267 |
| 00461333 | 5 G 4.0 | 13.9 | 190 | 334 |
| 0046141 | 3 G 6.0 | 13.2 | 174 | 297 |
| 00461423 | 4 G 6.0 | 14.7 | 232 | 381 |
| 00461433 | 5 G 6.0 | 16.5 | 290 | 481 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 EWKF C

Screened silicone cables with increased mechanical characteristics

**Info**

- Proven notch-resistant EWKF quality
- EMC compliant copper screening
- CPR: Article number choice under www.lapp.com




## Benefits

- Longer durability in harsh applications than conventional silicone cables
- Notch and tear-resistant outer sheath material reduces mechanical damage
- Copper braiding screens the cable against electromagnetic interference
- Flexibility simplifies installation where space is limited
- Due to the use of special additives in EWKF silicone, armoured cable versions will not be required

## Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

## Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Product Make-up

- Fine-wire, tinned-copper conductor
- Cores twisted together
- Silicone-based core insulation
- Silicone-based inner sheath
- Tinned-copper screen braiding, interleaved plastic foil wrapping
- Outer sheath: silicone-based EWKF, notch-resistant, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-60 °C to +180 °C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 EWKF C** | | | | |
| 0046301 | 2 X 0.75 | 8.6 | 37.5 | 104 |
| 0046302 | 3 G 0.75 | 8.9 | 46.1 | 118 |
| 00463033 | 4 G 0.75 | 10.2 | 57.3 | 152 |
| 00463043 | 5 G 0.75 | 10.9 | 67.3 | 176 |
| 0046307 | 2 X 1.0 | 9.0 | 43 | 116 |
| 0046308 | 3 G 1.0 | 9.7 | 55.7 | 142 |
| 00463093 | 4 G 1.0 | 10.9 | 67.8 | 175 |
| 00463103 | 5 G 1.0 | 11.6 | 80.3 | 203 |
| 0046312 | 7 G 1.0 | 12.3 | 113.9 | 250 |
| 0046313 | 2 X 1.5 | 10.8 | 58 | 166 |
| 0046314 | 3 G 1.5 | 11.2 | 74 | 188 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 00463153 | 4 G 1.5 | 12.0 | 91.4 | 222 |
| 00463163 | 5 G 1.5 | 12.8 | 121.7 | 273 |
| 0046318 | 7 G 1.5 | 13.6 | 157.2 | 341 |
| 0046320 | 3 G 2.5 | 12.8 | 121.2 | 271 |
| 00463213 | 4 G 2.5 | 13.9 | 150.9 | 328 |
| 00463223 | 5 G 2.5 | 14.8 | 180.5 | 387 |
| 00463273 | 4 G 4.0 | 16.0 | 218 | 448 |
| 00463283 | 5 G 4.0 | 17.2 | 262.9 | 531 |
| 0046330 | 3 G 6.0 | 16.4 | 240.5 | 489 |
| 00463313 | 4 G 6.0 | 17.9 | 304.7 | 591 |
| 00463323 | 5 G 6.0 | 19.4 | 370 | 706 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 GLS

Steel-armoured silicone cables for increased mechanical stress



**Info**

- Protected against thermal and mechanical loads

## Benefits

- Close-meshed braid made of galvanised steel wires protects against mechanical damage
- Longer durability in harsh applications than conventional silicone cables
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

## Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Only suitable for use in dry conditions
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Silicone-based outer sheath, colour red-brown
- Glass fibre wrapping
- Galvanised steel wire braiding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
-50 °C to +180 °C
(adequate ventilation required)

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 GLS** | | | | |
| 0046201 | 2 X 0.75 | 7.6 | 14.4 | 84 |
| 0046202 | 3 G 0.75 | 8.0 | 21.6 | 96 |
| 00462033 | 4 G 0.75 | 8.8 | 28.8 | 118 |
| 00462043 | 5 G 0.75 | 9.7 | 36 | 145 |
| 0046205 | 6 G 0.75 | 10.4 | 43.2 | 167 |
| 0046206 | 7 G 0.75 | 10.4 | 50.4 | 171 |
| 0046207 | 2 X 1.0 | 7.8 | 19.2 | 92 |
| 0046208 | 3 G 1.0 | 8.2 | 28.8 | 106 |
| 00462093 | 4 G 1.0 | 9.1 | 38.4 | 132 |
| 00462103 | 5 G 1.0 | 10.0 | 48 | 161 |
| 0046212 | 7 G 1.0 | 10.7 | 67 | 205 |
| 0046213 | 2 X 1.5 | 8.8 | 29 | 119 |
| 0046214 | 3 G 1.5 | 9.2 | 43 | 140 |
| 00462153 | 4 G 1.5 | 10.0 | 57.6 | 168 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 00462163 | 5 G 1.5 | 10.8 | 72 | 212 |
| 0046218 | 7 G 1.5 | 11.8 | 101 | 255 |
| 0046237 | 12 G 1.5 | 15.4 | 173 | 433 |
| 0046219 | 2 X 2.5 | 10.0 | 48 | 162 |
| 0046220 | 3 G 2.5 | 10.9 | 72 | 217 |
| 00462213 | 4 G 2.5 | 12.0 | 96 | 260 |
| 00462223 | 5 G 2.5 | 13.0 | 120 | 310 |
| 0046224 | 7 G 2.5 | 14.0 | 168 | 362 |
| 0046226 | 3 G 4.0 | 12.9 | 115 | 300 |
| 00462273 | 4 G 4.0 | 14.0 | 154 | 365 |
| 00462283 | 5 G 4.0 | 15.4 | 192 | 446 |
| 00462313 | 4 G 6.0 | 16.1 | 230 | 500 |
| 00462343 | 4 G 10.0 | 20.8 | 384 | 807 |
| 00462353 | 4 G 16.0 | 22.8 | 614 | 1117 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 205 MC

Fluorinated ethylene propylene cables for harsh applications

**Info**

- Good chemical resistance
- Wide temperature application range
- Thin, light and robust



## ÖLFLEX® HEAT 205 C MC PTFE/FEP

4-cored version with PTFE insulation and special core identity code

**Info**

- EMC compliant copper screening



### Benefits

- Space and weight-saving installations due to small cable diameters
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour
- Due to good electrical and mechanical properties suitable for sensor technology

### Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

### Product features

- ÖLFLEX® HEAT 205 made of FEP
  - Outstanding resistance against acids, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resistant against hydraulic fluids
- Flame-retardant

### Product Make-up

**ÖLFLEX® HEAT 205 MC**

- Fine-wire, tinned-copper conductor
- FEP-based core insulation
- Cores twisted together
- FEP-based outer sheath, black

**ÖLFLEX® HEAT 205 C MC PTFE/FEP**

- Fine-wire, silver-plated copper conductor
- PTFE-based core insulation
- Cores twisted together
- Tinned-copper braiding
- Outer sheath: FEP-based, white

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
**ÖLFLEX® HEAT 205 MC**
Up to 5 cores: colour-coded acc. to VDE 0293-308
From 7 cores: ÖLFLEX® colour-codes, refer to Appendix T7
**ÖLFLEX® HEAT 205 C MC PTFE/FEP**
Blue, red, grey, black

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
**ÖLFLEX® HEAT 205 MC**
2500 V
**ÖLFLEX® HEAT 205 C MC PTFE/FEP**
C/C: 2500 V
C/S: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Fixed installation: -100 °C to +205 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 205 MC** | | | | |
| 0091200 | 2 X 0.25 | 3.1 | 5 | 17.2 |
| 0091201 | 3 G 0.25 | 3.3 | 7.5 | 22.2 |
| 00912023 | 4 G 0.25 | 3.6 | 10 | 27.5 |
| 0091210 | 2 X 0.5 | 3.8 | 9.8 | 21.6 |
| 0091211 | 3 G 0.5 | 4.0 | 14.7 | 32.8 |
| 00912123 | 4 G 0.5 | 4.4 | 19.6 | 44.4 |
| 0091220 | 2 X 0.75 | 4.2 | 14.4 | 31.5 |
| 0091221 | 3 G 0.75 | 4.6 | 21.6 | 46.1 |
| 00912223 | 4 G 0.75 | 4.9 | 29 | 57.9 |
| 0091230 | 2 X 1.0 | 4.5 | 19 | 41.6 |
| 0091231 | 3 G 1.0 | 4.8 | 29 | 55.6 |
| 00912323 | 4 G 1.0 | 5.3 | 38 | 70 |
| 0091100 | 3 G 1.5 | 5.6 | 43 | 70 |
| 00911033 | 4 G 1.5 | 6.1 | 58 | 98 |
| 00911013 | 5 G 1.5 | 6.8 | 72 | 117 |
| 0091102 | 7 G 1.5 | 7.4 | 101 | 184 |
| 0091236 | 3 G 2.5 | 6.6 | 72 | 86 |
| 00912353 | 4 G 2.5 | 7.3 | 96 | 115 |
| 00912373 | 5 G 2.5 | 8.2 | 120 | 144 |
| 00912423 | 4 G 4.0 | 8.7 | 154 | 180 |
| 00912433 | 5 G 4.0 | 9.6 | 192 | 225 |
| **ÖLFLEX® HEAT 205 C MC PTFE/FEP** | | | | |
| 30016373 | 4 X 0.75 | 5.9 | 49 | 78 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 260 MC

Polytetrafluoroethylene cables for most extreme loads



**Info**

- Excellent chemical, thermal and electrical performance
- Thin, light and robust

## Benefits

- Space-saving installation due to small cable diameters
- Stress crack resistant to frequent ambient temperature fluctuations
- Due to good electrical and mechanical properties suitable for sensor technology
- Low outgassing behaviour

## Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- ÖLFLEX® HEAT 260 has proven to be an effective solution in harsh environments such as paint shop lines
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

## Product features

- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids
- Flame-retardant

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- PTFE-based outer sheath, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Fixed installation:
-190°C to +260°C
Short-term: up to +300°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 260 MC** | | | | |
| 0091300 | 2 X 0.5 | 3.9 | 9.6 | 22 |
| 0091301 | 3 G 0.5 | 4.1 | 14.4 | 33 |
| 0091302 | 4 G 0.5 | 4.5 | 19.2 | 45 |
| 0091305 | 2 X 0.75 | 4.2 | 14.4 | 32 |
| 0091306 | 3 G 0.75 | 4.4 | 21.6 | 47 |
| 0091307 | 4 G 0.75 | 5.1 | 28.8 | 58 |
| 0091310 | 2 X 1.0 | 4.8 | 19.2 | 42 |
| 0091311 | 3 G 1.0 | 5.1 | 28.8 | 56 |
| 0091312 | 4 G 1.0 | 5.8 | 38.4 | 71 |
| 0091315 | 3 G 1.5 | 5.6 | 43.2 | 72 |
| 0091316 | 4 G 1.5 | 6.1 | 57.6 | 98 |
| 0091317 | 5 G 1.5 | 7.0 | 72 | 118 |
| 0091320 | 3 G 2.5 | 7.1 | 72 | 87 |
| 0091321 | 4 G 2.5 | 7.7 | 96 | 116 |
| 0091322 | 5 G 2.5 | 8.5 | 120 | 145 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 260 C MC

Copper-screened polytetrafluoroethylene cables for most extreme loads



**Info**

- Excellent chemical, thermal and electrical performance
- Thin, light and robust
- EMC compliant copper screening

## Benefits

- Space and weight-saving installations due to small cable diameters
- Stress crack resistant to frequent ambient temperature fluctuations
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour
- Due to good electrical and mechanical properties suitable for sensor technology

## Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- ÖLFLEX® HEAT 260 has proven to be an effective solution in harsh environments such as paint shop lines
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

## Product features

- Copper braiding of screened version complies with EMC requirements and protects against electromagnetic interference
- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids
- Flame-retardant

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- Special wrapping
- Nickel-plated copper braiding
- PTFE-based outer sheath, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
C/C: 2500 V
C/S: 2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Fixed installation:
-190°C to +260°C
Short-term: up to +300°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 260 C MC** | | | | |
| 0091330 | 3 G 0.75 | 5.5 | 46 | 75 |
| 0091331 | 4 G 0.75 | 5.9 | 51 | 87 |
| 0091332 | 3 G 1.0 | 5.8 | 48 | 81 |
| 0091333 | 4 G 1.0 | 6.4 | 65 | 104 |
| 0091334 | 3 G 1.5 | 6.3 | 65 | 101 |
| 0091335 | 4 G 1.5 | 7.2 | 86 | 134 |
| 0091336 | 5 G 1.5 | 7.8 | 105 | 162 |
| 0091337 | 3 G 2.5 | 7.9 | 114 | 160 |
| 0091338 | 4 G 2.5 | 8.7 | 140 | 204 |
| 0091339 | 5 G 2.5 | 9.4 | 209 | 270 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 260 GLS

Steel-armoured PTFE cables for increased mechanical stress



**Info**

- Good thermal and mechanical performance
- Robust cable design
- GL - Germanischer Lloyd approved

## Benefits

- Close-meshed braid made of galvanised steel wires protects against mechanical damage
- Small outer diameters for maximum saving of space and weight
- Germanischer Lloyd certification for use with ship diesel engines

## Application range

- Extremely high temperatures and mechanical stress require special insulated and armoured cables
- Main applications
  - Ship-building
  - Signal systems
  - Monitoring devices
  - Diesel engines
  - Steam boiler units
  - Turbine manufacturing
- Electronics for industry and shipping, ship electrics

## Product features

- Flame-retardant
- Stress crack resistant to frequent ambient temperature fluctuations
- High dielectric strength and high abrasion resistance
- High elongation resistance and tear strength
- Only suitable for use in dry conditions

## Norm references / Approvals

- Germanischer Lloyd (GL) certificate no. 5449871 HH

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- Impregnated glass fibre braiding
- Galvanised steel wire braiding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
7-core version:
gn/ye, bl, bn, bk, bk, bk, tr

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
In fixed installations:
5 x cable diameter

**Nominal voltage**
U0/U 300/500 V
according to GL: 250 V

**Test voltage**
1500 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Fixed installation: -190°C to +260°C
According to GL: +205 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 260 GLS** | | | | |
| 0091120 | 2 X 1.5 | 5.7 | 29 | 93 |
| 0091121 | 3 G 1.5 | 6.1 | 43 | 102 |
| 00911223 | 4 G 1.5 | 6.6 | 58 | 130 |
| 00911233 | 5 G 1.5 | 7.3 | 72 | 149 |
| 0091124 | 7 G 1.5 | 8.0 | 101 | 180 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 350 MC

Suitable for use in ambient temperature from -50 °C to +350 °C



**Info**

- Voltage rating: 230/400 V
- For use in dry conditions

## Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Wide operating temperature range allows the product to be used in applications under Thermal Class C (>180°C).

## Application range

- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Extrusion and drying systems
- Lighting, apparatus and instrument industry

## Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 MC is recommended if the peak temperature of the application may briefly go beyond 350°C

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- Core insulation: glass fibre covering and impregnated glass fibre braids
- Cores twisted together
- Outer sheath: impregnated glass fibre braiding, white (natural)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
Colours according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Nominal voltage**
U0/U 230/400 V

**Test voltage**
1500 V

**Temperature range**
Fixed installation: -50°C to +350°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 350 MC** | | | | |
| 0091375 | 2 X 1.0 | 6.8 | 19.2 | 56 |
| 0091376 | 3 G 1.0 | 7.4 | 28.8 | 70 |
| 0091377 | 4 G 1.0 | 8.2 | 38.4 | 88 |
| 0091380 | 2 X 1.5 | 7.8 | 28.8 | 77 |
| 0091381 | 3 G 1.5 | 8.4 | 43.2 | 93 |
| 0091382 | 4 G 1.5 | 9.4 | 57.6 | 118 |
| 0091383 | 5 G 1.5 | 10.3 | 72 | 140 |
| 0091390 | 3 G 2.5 | 8.9 | 72 | 124 |
| 0091391 | 4 G 2.5 | 9.8 | 96 | 160 |
| 0091392 | 5 G 2.5 | 10.1 | 120 | 194 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 1565 MC

Suitable for use in ambient temperatures between -195°C to +400°C



**Info**

- Short-term: up to +1565 °C
- For use in dry conditions

## Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Able to withstand temporary contact with molten metal or glass

## Application range

- Guarantees the circuit even in areas with extremely high ambient temperatures
- Blast furnaces and coking plants
- Refineries
- Glassworks
- Aluminium and steelworks

## Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- MICA tape wrapping and impregnated glass fibre braiding
- Cores twisted together
- Outer sheath: MICA tape-wrapping, impregnated glass fibre braiding, red

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Core identification code**
2-core cable:
blue, brown
4-core cable:
black, blue, yellow, red

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Fixed installation:
5 x cable diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2200 V

**Temperature range**
-195°C to +400°C
Short-term: up to +1565 °C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 1565 MC** | | | | |
| 30020808 | 2 x 0.5 | 7.0 | 9.6 | 48 |
| 30020809 | 2 x 0.75 | 7.4 | 14.4 | 66 |
| 30016609 | 2 x 1.0 | 7.7 | 19.2 | 74 |
| 30016606 | 4 x 1.0 | 8.9 | 38.4 | 123 |
| 30016603 | 2 x 1.5 | 8.2 | 28.8 | 87 |
| 30016600 | 4 x 1.5 | 9.5 | 57.6 | 148 |
| 30020810 | 2 x 2.5 | 9.7 | 48 | 114 |
| 30020811 | 2 x 4.0 | 11.2 | 76.8 | 161 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 125 SC

VDE tested single cores according to EN 50525-3-41 (H05Z-K & H07Z-K) for more demanding requirements




## Info

- CPR: Article number choice under www.lapp.com
- VDE-tested and -marked
- Improved characteristics in the event of a fire

## Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

## Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

## Product features

- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- Extended fire behaviour:
  H05Z-K (0,5mm² up to 1,0mm²):
  see data sheet
  H07Z-K (≥ 1,5mm²):
  no fire propagation according to IEC 60332-3-24 respectively IEC 60332-3-25
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2, method A, and ozone resistant acc. to EN 50396 resp. VDE 0473-396, method B

## Norm references / Approvals

- Type H05Z-K and H07Z-K according to EN 50525-3-41 with advanced features
- Germanischer Lloyd (GL) certificate no. 11118-14HH

## Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Fixed installation: 4 x outer diameter

**Nominal voltage**
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

**Test voltage**
4000 V

**Temperature range**
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red | violet |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 SC - H05Z-K - $U_0$/U: 300/500 V** | | | | | | | | | | | |
| 0.5 | 2.2 | 100 | | 4.8 | 8 | 1232106 | 1232105 | 1232005 | 1232009 | 1232104 | 1232007 |
| 0.75 | 2.4 | 100 | | 7.2 | 11 | 1233106 | 1233105 | 1233005 | 1233009 | 1233104 | 1233007 |
| 0.75 | 2.4 | | 2500 | 7.2 | 11 | 1233106K | 1233105K | | 1233009K | 1233104K | |
| 1.0 | 2.5 | 100 | | 9.6 | 14 | 1234106 | 1234105 | 1234005 | 1234009 | 1234104 | 1234007 |
| 1.0 | 2.5 | | 2500 | 9.6 | 14 | 1234106K | 1234105K | | 1234009K | 1234104K | |
| **ÖLFLEX® HEAT 125 SC - H07Z-K - $U_0$/U: 450/750 V** | | | | | | | | | | | |
| 1.5 | 3.0 | 100 | | 14.4 | 21 | 1235106 | 1235105 | 1235005 | 1235009 | 1235104 | 1235007 |
| 1.5 | 3.0 | | 2000 | 14.4 | 21 | 1235106K | 1235105K | | 1235009K | 1235104K | |
| 2.5 | 3.6 | 100 | | 24 | 33 | 1236106 | 1236105 | 1236005 | 1236009 | 1236104 | 1236007 |
| 4.0 | 4.3 | 100 | | 38.4 | 49 | 1237106 | 1237105 | | 1237009 | 1237104 | |
| 6.0 | 4.8 | 100 | | 57.6 | 67 | 1238106 | | | | 1238104 | |
| 10.0 | 6.2 | 100 | | 96 | 112 | | | | | 1239104 | |
| 16.0 | 7.2 | 100 | | 153.6 | 172 | | | | | 1240104 | |

# Power and control cables

LAPP

## Expanded ambient temperatures • Cross-linked single cores

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | blue | green | brown | black | green/ yellow | dark blue |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 125 SC - H05Z-K - $U_0$/U: 300/500 V** | | | | | | | | | | | |
| 0.5 | 2.2 | 100 | | 4.8 | 8 | 1232002 | 1232006 | 1232003 | 1232001 | 1232000 | 1232114 |
| 0.5 | 2.2 | | 3000 | 4.8 | 8 | | | | 1232001K | | |
| 0.75 | 2.4 | 100 | | 7.2 | 11 | 1233002 | 1233006 | 1233003 | 1233001 | 1233000 | 1233114 |
| 0.75 | 2.4 | | 2500 | 7.2 | 11 | 1233002K | | 1233003K | 1233001K | | 1233114K |
| 1.0 | 2.5 | 100 | | 9.6 | 14 | 1234002 | 1234006 | 1234003 | 1234001 | 1234000 | 1234114 |
| 1.0 | 2.5 | | 2500 | 9.6 | 14 | 1234002K | | 1234003K | 1234001K | 1234000K | 1234114K |
| **ÖLFLEX® HEAT 125 SC - H07Z-K - $U_0$/U: 450/750 V** | | | | | | | | | | | |
| 1.5 | 3.0 | 100 | | 14.4 | 21 | 1235002 | 1235006 | 1235003 | 1235001 | 1235000 | 1235114 |
| 1.5 | 3.0 | | 2000 | 14.4 | 21 | 1235002K | | 1235003K | 1235001K | 1235000K | 1235114K |
| 2.5 | 3.6 | 100 | | 24 | 33 | 1236002 | 1236006 | 1236003 | 1236001 | 1236000 | 1236114 |
| 2.5 | 3.6 | | 1200 | 24 | 33 | | | | 1236001K | | |
| 4.0 | 4.3 | 100 | | 38.4 | 49 | 1237002 | | 1237003 | 1237001 | 1237000 | 1237114 |
| 6.0 | 4.8 | 100 | | 57.6 | 67 | 1238002 | | 1238003 | 1238001 | 1238000 | 1238114 |
| 10.0 | 6.2 | 100 | | 96 | 112 | 1239002 | | 1239003 | 1239001 | 1239000 | |
| 16.0 | 7.2 | 100 | | 153.6 | 172 | 1240002 | | 1240003 | 1240001 | 1240000 | 1240114 |
| 25.0 | 8.9 | 100 | | 240 | 262 | | | | 1241001 | 1241000 | |
| 35.0 | 10.1 | 100 | | 336 | 362 | | | | 1242001 | 1242000 | |
| 50.0 | 12.5 | 100 | | 480 | 512 | | | | 1243001 | 1243000 | |
| 70.0 | 14.2 | 100 | | 672 | 710 | | | | 1244001 | 1244000 | |
| 95.0 | 16.6 | 100 | | 912 | 937 | | | | 1245001 | 1245000 | |
| 120.0 | 18.2 | 100 | | 1152 | 1159 | | | | 1246001 | | |
| 150.0 | 20.6 | 100 | | 1440 | 1447 | | | | 1247001 | 1247000 | |
| 185.0 | 22.5 | 100 | | 1776 | 1790 | | | | 1248001 | | |
| 240.0 | 26.4 | 100 | | 2304 | 2318 | | | | 1249001 | | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 180 SiF

Versatile single core cable with extended temperature range



## Info

- Flexible fine-wire copper conductor
- CPR: Article number choice under www.lapp.com

## Benefits

- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

## Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Temperature range**
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red | violet | blue |
|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiF** | | | | | | | | | | |
| 0.25 | 1.9 | 2.4 | 5.4 | 0047106 | 0047105 | 0047005 | 0047009 | 0047104 | 0047007 | 0047002 |
| 0.5 | 2.1 | 4.8 | 9 | 0048106 | 0048105 | 0048005 | 0048009 | 0048104 | 0048007 | 0048002 |
| 0.75 | 2.4 | 7.2 | 12 | 0049106 | 0049105 | 0049005 | 0049009 | 0049104 | 0049007 | 0049002 |
| 1.0 | 2.5 | 9.6 | 15 | 0050106 | 0050105 | 0050005 | 0050009 | 0050104 | 0050007 | 0050002 |
| 1.5 | 2.8 | 14.4 | 20 | 0051106 | 0051105 | 0051005 | 0051009 | 0051104 | 0051007 | 0051002 |
| 2.5 | 3.4 | 24 | 32 | 0052106 | 0052105 | 0052005 | | 0052104 | 0052007 | 0052002 |
| 4.0 | 4.2 | 38 | 50 | 0053106 | 0053105 | 0053005 | 0053009 | 0053104 | | 0053002 |
| 6.0 | 5.0 | 58 | 73 | 0054106 | 0054105 | 0054005 | | 0054104 | | 0054002 |
| 10.0 | 6.6 | 96 | 118 | 0055106 | 0055105 | | 0055009 | 0055104 | | 0055002 |
| 16.0 | 7.4 | 154 | 177 | 0056106 | 0056105 | | | 0056104 | | 0056002 |
| 25.0 | 9.2 | 240 | 277 | 0057106 | | | | 0057104 | | 0057002 |
| 35.0 | 10.3 | 336 | 374 | | | | | 0058104 | | 0058002 |
| 50.0 | 12.2 | 480 | 530 | | | | | 0059104 | | |
| 70.0 | 14.2 | 672 | 724 | | | | | | | 0060002 |
| 95.0 | 16.6 | 912 | 982 | | 0061105 | | | | | |

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | green | brown | black | green/ yellow | pink |
|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiF** | | | | | | | | |
| 0.25 | 1.9 | 2.4 | 5.4 | 0047006 | 0047003 | 0047001 | 0047000 | 0047008 |
| 0.5 | 2.1 | 4.8 | 9 | 0048006 | 0048003 | 0048001 | 0048000 | 0048008 |
| 0.75 | 2.4 | 7.2 | 12 | 0049006 | 0049003 | 0049001 | 0049000 | 0049008 |
| 1.0 | 2.5 | 9.6 | 15 | 0050006 | 0050003 | 0050001 | 0050000 | 0050008 |
| 1.5 | 2.8 | 14.4 | 20 | 0051006 | 0051003 | 0051001 | 0051000 | 0051008 |
| 2.5 | 3.4 | 24 | 32 | 0052006 | 0052003 | 0052001 | 0052000 | |
| 4.0 | 4.2 | 38 | 50 | 0053006 | 0053003 | 0053001 | 0053000 | |
| 6.0 | 5.0 | 58 | 73 | 0054006 | 0054003 | 0054001 | 0054000 | |
| 10.0 | 6.6 | 96 | 118 | | 0055003 | 0055001 | 0055000 | |
| 16.0 | 7.4 | 154 | 177 | | | 0056001 | 0056000 | |
| 25.0 | 9.2 | 240 | 277 | | | 0057001 | 0057000 | |
| 35.0 | 10.3 | 336 | 374 | | | 0058001 | 0058000 | |
| 50.0 | 12.2 | 480 | 530 | | | 0059001 | 0059000 | |
| 70.0 | 14.2 | 672 | 724 | | | 0060001 | | |
| 95.0 | 16.6 | 912 | 982 | | | 0061001 | 0061000 | |
| 120.0 | 18.0 | 1152 | 1219 | | | 0062001 | 0062000 | |
| 150.0 | 20.0 | 1440 | 1524 | | | 0063001 | | |
| 185.0 | 22.5 | 1776 | 1915 | | | 0064001 | | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / Other colours are available upon request

# ÖLFLEX® HEAT 180 SiF A

UL-AWM certified Silicone single core cable with extended temperature range




**Info**

- A for Advanced
  here: certification for USA and Canada
- UL AWM Style 3644 (150°C/1000 V)
- CPR: Article number choice under www.lapp.com

## Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

## Product features

- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- Flame retardance rating (UL): FT2 (Horizontal flame test)
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

## Norm references / Approvals

- UL AWM Style 3644
- UL File No. E63634
- UL certification acc. CSA AWM standard CSA C22.2 No. 210-05: cUL AWM I A/B

## Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

**Nominal voltage**
UL: 1000 V
IEC: $U_0$/U 600/1000 V

**Test voltage**
3000 V

**Temperature range**
IEC: -50°C up to +180°C
UL (AWM): up to +150°C
(adequate ventilation required)

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red | violet | blue |
|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiF A** | | | | | | | | | | |
| 0.25 | 2.2 | 2.4 | 6.8 | 1249620 | 1249600 | 1249700 | 1249680 | 1249580 | 1249640 | 1249540 |
| 0.5 | 2.4 | 4.8 | 10.9 | 1249622 | 1249602 | 1249702 | 1249682 | 1249582 | 1249642 | 1249542 |
| 0.75 | 2.7 | 7.2 | 14 | 1249623 | 1249603 | 1249703 | 1249683 | 1249583 | 1249643 | 1249543 |
| 1.0 | 2.8 | 9.6 | 17.2 | 1249624 | 1249604 | 1249704 | 1249684 | 1249584 | 1249644 | 1249544 |
| 1.5 | 3.1 | 14.4 | 22.2 | 1249625 | 1249605 | 1249705 | 1249685 | 1249585 | 1249645 | 1249545 |
| 2.5 | 3.5 | 24 | 33.1 | 1249626 | 1249606 | 1249706 | 1249686 | 1249586 | 1249646 | 1249546 |
| 4.0 | 4.1 | 38 | 49.5 | 1249627 | 1249607 | | | 1249587 | | 1249547 |
| 6.0 | 5.5 | 58 | 78.3 | 1249628 | 1249608 | | | 1249588 | | 1249548 |
| 10.0 | 7.6 | 96 | 132.7 | | 1249609 | | | 1249589 | | 1249549 |
| 16.0 | 8.4 | 154 | 192 | | 1249610 | | | 1249590 | | 1249550 |
| 25.0 | 9.8 | 240 | 288.9 | | 1249611 | | | 1249591 | | 1249551 |
| 35.0 | 10.9 | 336 | 386 | | | | | 1249592 | | |
| 50.0 | 13.5 | 480 | 557.6 | | | | | 1249593 | | |

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | green | brown | black | green/yellow | dark blue |
|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiF A** | | | | | | | | |
| 0.25 | 2.2 | 2.4 | 6.8 | 1249720 | 1249560 | 1249520 | 1249500 | 1249660 |
| 0.5 | 2.4 | 4.8 | 10.9 | 1249722 | 1249562 | 1249522 | 1249502 | 1249662 |
| 0.75 | 2.7 | 7.2 | 14 | 1249723 | 1249563 | 1249523 | 1249503 | 1249663 |
| 1.0 | 2.8 | 9.6 | 17.2 | 1249724 | 1249564 | 1249524 | 1249504 | 1249664 |
| 1.5 | 3.1 | 14.4 | 22.2 | 1249725 | 1249565 | 1249525 | 1249505 | 1249665 |
| 2.5 | 3.5 | 24 | 33.1 | 1249726 | 1249566 | 1249526 | 1249506 | 1249666 |
| 4.0 | 4.1 | 38 | 49.5 | | 1249567 | 1249527 | 1249507 | |
| 6.0 | 5.5 | 58 | 78.3 | | 1249568 | 1249528 | 1249508 | |
| 10.0 | 7.6 | 96 | 132.7 | | 1249569 | 1249529 | 1249509 | |
| 16.0 | 8.4 | 154 | 192 | | 1249570 | 1249530 | 1249510 | |
| 25.0 | 9.8 | 240 | 288.9 | | | 1249531 | 1249511 | |
| 35.0 | 10.9 | 336 | 386 | | | 1249532 | | |
| 50.0 | 13.5 | 480 | 557.6 | | | 1249533 | | |
| 70.0 | 15.5 | 672.2 | 775.2 | | | 1249534 | | |
| 95.0 | 17.5 | 912 | 1004.4 | | | 1249535 | | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / Cross-section 0.25 - 4 mm² only available as 100 m box
Other colours are available upon request

# ÖLFLEX® HEAT 180 SiD

Silicone single core cable with solid conductor



**Info**

- Solid single copper conductor

## Benefits

- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

## Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Product Make-up

- Tinned solid copper wire
- Silicone-based insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Solid single copper conductor

**Minimum bending radius**
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Temperature range**
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

| Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | white | blue | brown | black | green/yellow |
|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiD** | | | | | | | | |
| 0.5 | 2.0 | 4.8 | 9 | 0068105 | | | 0068001 | |
| 0.75 | 2.2 | 7.2 | 12 | 0069105 | 0069002 | 0069003 | 0069001 | 0069000 |
| 1.0 | 2.3 | 9.6 | 15 | 0070105 | 0070002 | 0070003 | 0070001 | 0070000 |
| 1.5 | 2.6 | 14.4 | 20 | 0071105 | 0071002 | 0071003 | 0071001 | 0071000 |
| 2.5 | 3.2 | 24 | 32 | | 0072002 | | 0072001 | |
| 4.0 | 3.9 | 38 | 50 | | | | 0073001 | |
| 6.0 | 4.6 | 58 | 64.5 | | 0074002 | | 0074001 | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

# ÖLFLEX® HEAT 180 SiF/GL



**Info**
- With glass fibre protection braiding

# ÖLFLEX® HEAT 180 SiZ



**Info**
- Separable twin conductor

# ÖLFLEX® HEAT 180 FZLSi



**Info**
- 10 kV high-voltage ignition wire

## Benefits
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

## Application range
- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing
- ÖLFLEX® HEAT 180 SiZ is suitable as electrical sensor cable in pipe systems for modern solar hot water systems

## Product features
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

## Norm references / Approvals
**ÖLFLEX® HEAT 180 FZLSi**
- Increased voltage rating is not subject to the Low Voltage Directive 2014/35/EU

## Product Make-up
**ÖLFLEX® HEAT 180 SiF/GL**
- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Impregnated glass fibre braiding
- White, with natural glass fibre braiding

**ÖLFLEX® HEAT 180 SiZ**
- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Colour of core insulation: red
- Cores connected in parallel with a separating strip
- One of the two cores is marked for identification

**ÖLFLEX® HEAT 180 FZLSi**
- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Colour of core insulation: red

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

**Nominal voltage**
Version SiF/GL / SiZ:
U0/U 300/500 V
Version FZLSi:
10 kV

**Test voltage**
Version SiF/GL / SiZ:
2000 V
Version FZLSi:
20 kV

**Temperature range**
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 180 SiF/GL hook-up wire with glass fibre braiding** | | | | |
| 0065102 | 0.5 | 2.5 | 4.8 | 11 |
| 0065103 | 0.75 | 2.8 | 7.2 | 14 |
| 0065104 | 1.0 | 2.9 | 9.6 | 17 |
| 0065105 | 1.5 | 3.2 | 14.4 | 23 |
| 0065106 | 2.5 | 3.8 | 24 | 36 |
| 0065107 | 4.0 | 4.6 | 38 | 54 |
| 0065108 | 6.0 | 5.4 | 58 | 80 |
| 0065109 | 10.0 | 7.6 | 96 | 133 |
| 0065110 | 16.0 | 8.4 | 154 | 198 |
| 0065111 | 25.0 | 10.2 | 240 | 301 |
| 0065112 | 35.0 | 11.3 | 336 | 401 |
| 0065113 | 50.0 | 13.4 | 480 | 567 |
| **ÖLFLEX® HEAT 180 SiZ twin conductor** | | | | |
| 0065201 | 2 x 0.5 | 2.1 x 4.2 | 9.6 | 17 |
| 0065202 | 2 x 0.75 | 2.3 x 4.6 | 14.4 | 24 |
| **ÖLFLEX® HEAT 180 FZLSi high-voltage ignition wire** | | | | |
| 2510001 | 1 (32 x 0,2) | 7.0 | 9.6 | 68 |
| 2510005 | 1,5 (30 x 0,25) | 7.6 | 14.4 | 83 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 205 SC

For very high and low temperature requirements



## Info

- Now available as spools
- Thermal and chemical resistance
- Space and weight-saving

## Benefits

- Small outer diameters for maximum saving of space and weight
- Resistant to contact with mostly all highly aggressive chemical media

## Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Control cabinets with high heat generation
  - Measuring instruments
  - Furnaces and brickworks
  - Heating equipment and kitchen appliances
  - Electric motor building
  - Installations in the chemical industry

## Product features

- Flame-retardant
- ÖLFLEX® HEAT 205 made of FEP
  - Outstanding resistance against acids, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resistant against hydraulic fluids

## Product Make-up

- Fine-wire, tinned-copper conductor
- FEP core insulation
- FEP = fluorinated ethylene propylene

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

**Minimum bending radius**
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2500 V

**Temperature range**
Fixed installation: -100 °C to +205 °C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red | violet | blue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 205 SC** | | | | | | | | | | | | |
| 0.14 | 1.0 | 100 | | 1.35 | 2.6 | | 0080105 | 0080005 | | 0080104 | | 0080002 |
| 0.25 | 1.2 | 100 | | 2.4 | 4 | 0081106 | 0081105 | 0081005 | 0081009 | 0081104 | | 0081002 |
| 0.25 | 1.2 | | 500 | 2.4 | 4 | | | | | | | 0081002S |
| 0.25 | 1.2 | | 500 | 2.4 | 4 | | | | | 0081104S | | |
| 0.5 | 1.4 | 100 | | 4.8 | 6.8 | 0082106 | 0082105 | 0082005 | 0082009 | 0082104 | 0082007 | 0082002 |
| 0.5 | 1.4 | | 500 | 4.8 | 6.8 | | | | | | | 0082002S |
| 0.5 | 1.4 | | 500 | 4.8 | 6.8 | | | | | 0082104S | | |
| 0.75 | 1.8 | 100 | | 7.2 | 10.1 | | 0083105 | 0083005 | | 0083104 | | 0083002 |
| 0.75 | 1.8 | | 500 | 7.2 | 10.1 | | | | | | | 0083002S |
| 0.75 | 1.8 | | 500 | 7.2 | 10.1 | | | | | 0083104S | | |
| 1 | 1.9 | 100 | | 9.6 | 12.8 | 0084106 | 0084105 | 0084005 | | 0084104 | 0084007 | 0084002 |
| 1 | 1.9 | | 500 | 9.6 | 12.8 | | | | | | | 0084002S |
| 1 | 1.9 | | 500 | 9.6 | 12.8 | | | | | 0084104S | | |
| 1.5 | 2.1 | 100 | | 14.4 | 18 | | 0085105 | 0085005 | | 0085104 | | 0085002 |
| 1.5 | 2.1 | | 500 | 14.4 | 18 | | | | | | | 0085002S |
| 1.5 | 2.1 | | 500 | 14.4 | 18 | | | | | 0085104S | | |
| 2.5 | 2.6 | 100 | | 24 | 29.5 | 0086106 | 0086105 | | | 0086104 | 0086007 | 0086002 |
| 2.5 | 2.6 | | 500 | 24 | 29.5 | | | | | | | 0086002S |
| 2.5 | 2.6 | | 500 | 24 | 29.5 | | | | | 0086104S | | |
| 4 | 3.1 | 100 | | 38 | 45 | | 0087105 | 0087005 | | 0087104 | | 0087002 |
| 6 | 3.8 | | | 58 | 68 | | | | | 0088104 | | 0088002 |
| 10 | 4.7 | | | 96 | 116 | 0089106 | 0089105 | | | 0089104 | | 0089002 |
| 16 | 6.6 | | | 154 | 175 | | | | | 0090104 | | 0090002 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | green | brown | black | green/ yellow | transparent |
|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 205 SC** | | | | | | | | | | |
| 0.14 | 1.0 | 100 | | 1.35 | 2.6 | 0080006 | | 0080001 | | 0080010 |
| 0.25 | 1.2 | 100 | | 2.4 | 4 | 0081006 | 0081003 | 0081001 | | 0081010 |
| 0.25 | 1.2 | | 500 | 2.4 | 4 | | 0081003S | 0081001S | | |
| 0.5 | 1.4 | 100 | | 4.8 | 6.8 | 0082006 | 0082003 | 0082001 | 0082000 | 0082010 |
| 0.5 | 1.4 | | 500 | 4.8 | 6.8 | | 0082003S | 0082001S | | |
| 0.75 | 1.8 | 100 | | 7.2 | 10.1 | 0083006 | 0083003 | 0083001 | 0083000 | 0083010 |
| 0.75 | 1.8 | | 500 | 7.2 | 10.1 | | 0083003S | 0083001S | 0083000S | |
| 1 | 1.9 | 100 | | 9.6 | 12.8 | 0084006 | 0084003 | 0084001 | 0084000 | 0084010 |
| 1 | 1.9 | | 500 | 9.6 | 12.8 | | 0084003S | 0084001S | 0084000S | |
| 1.5 | 2.1 | 100 | | 14.4 | 18 | | 0085003 | 0085001 | 0085000 | 0085010 |
| 1.5 | 2.1 | | 500 | 14.4 | 18 | | 0085003S | 0085001S | 0085000S | |
| 2.5 | 2.6 | 100 | | 24 | 29.5 | | 0086003 | 0086001 | 0086000 | 0086010 |
| 2.5 | 2.6 | | 500 | 24 | 29.5 | | 0086003S | 0086001S | 0086000S | |
| 4 | 3.1 | 100 | | 38 | 45 | | 0087003 | 0087001 | 0087000 | 0087010 |
| 6 | 3.8 | | | 58 | 68 | | 0088003 | 0088001 | 0088000 | 0088010 |
| 10 | 4.7 | | | 96 | 116 | | 0089003 | 0089001 | 0089000 | 0089010 |
| 16 | 6.6 | | | 154 | 175 | | | 0090001 | 0090000 | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / Other colours are available upon request

# ÖLFLEX® HEAT 260 SC

For use in the most extreme conditions



## Info

- Excellent chemical, thermal and electrical performance
- Space and weight-saving

## Benefits

- Small outer diameters for maximum saving of space and weight
- Resistant to contact with mostly all highly aggressive chemical media
- Stress crack resistant to frequent ambient temperature fluctuations

## Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Aerospace engineering
  - High-frequency engineering
  - Control cabinets with high heat generation
  - Measuring instruments
  - Furnaces and brickworks
  - Heating equipment and kitchen appliances
  - Electric motor building
  - Installations in the chemical industry

## Product features

- Flame-retardant
- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids
- Silver plated copper is characterized by good surface conductivity (skin effect) and good solderability

## Product Make-up

- Silver-plated AWG copper conductor
- PTFE core insulation
- PTFE = Polytetrafluoroethylene

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
AWG conductor sizes: 7, 19 or 37 wires

**Minimum bending radius**
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3400 V

**Temperature range**
Fixed installation: -190 °C to +260 °C

| AWG No. and wire number | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red | violet | blue |
|---|---|---|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 260 SC** | | | | | | | | | | |
| 28 (7) | 0.8 | 0.9 | 2 | 0094106 | 0094105 | 0094005 | 0094009 | 0094104 | 0094007 | 0094002 |
| 26 (7) | 0.9 | 1.4 | 2.7 | 0095106 | 0095105 | | 0095009 | 0095104 | 0095007 | 0095002 |
| 26 (19) | 0.9 | 1.5 | 2.9 | 0106011 | | | | 0096104 | | |
| 24 (7) | 1.1 | 2.2 | 3.8 | | 0097105 | | | 0097104 | | 0097002 |
| 24 (19) | 1.1 | 2.3 | 4 | 0098106 | 0098105 | | | 0098104 | | 0098002 |
| 22 (7) | 1.2 | 3.4 | 5.4 | | 0099105 | 0099005 | | 0099104 | 0099007 | 0099002 |
| 22 (19) | 1.2 | 3.7 | 5.7 | | 0100105 | 0100005 | 0100009 | 0100104 | | 0100002 |
| 20 (7) | 1.4 | 5.4 | 7.7 | | 0101105 | | | 0101104 | | 0101002 |
| 20 (19) | 1.4 | 5.9 | 8.2 | 0102106 | 0102105 | 0102005 | 0102009 | 0102104 | 0102007 | 0102002 |
| 18 (7) | 1.7 | 8.6 | 12 | | | | | 0103104 | | |
| 18 (19) | 1.7 | 9.3 | 12 | | 0104105 | 0104005 | 0104009 | 0104104 | 0104007 | 0104002 |
| 16 (19) | 2.0 | 11.8 | 16 | | 0105105 | 0105005 | 0105009 | 0105104 | 0105007 | 0105002 |
| 14 (19) | 2.4 | 18.7 | 23 | 0106106 | 0106105 | 0106005 | | 0106104 | | 0106002 |
| 12 (19) | 2.8 | 29.6 | 35 | | 0107105 | 0107005 | 0107009 | | | 0107002 |
| 10 (37) | 3.4 | 45.6 | 51 | | 0108105 | | | 0108104 | | 0108002 |

| AWG No. and wire number | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) | green | brown | black | green/yellow |
|---|---|---|---|---|---|---|---|
| **ÖLFLEX® HEAT 260 SC** | | | | | | | |
| 28 (7) | 0.8 | 0.9 | 2 | 0094006 | 0094003 | 0094001 | 0094000 |
| 26 (7) | 0.9 | 1.4 | 2.7 | 0095006 | | 0095001 | |
| 26 (19) | 0.9 | 1.5 | 2.9 | 0096006 | | 0096001 | 0096000 |
| 24 (7) | 1.1 | 2.2 | 3.8 | | 0097003 | 0097001 | |
| 24 (19) | 1.1 | 2.3 | 4 | 0098006 | 0098003 | 0098001 | 0098000 |
| 22 (7) | 1.2 | 3.4 | 5.4 | 0099006 | 0099003 | 0099001 | |
| 22 (19) | 1.2 | 3.7 | 5.7 | | 0100003 | 0100001 | |
| 20 (7) | 1.4 | 5.4 | 7.7 | 0101006 | 0101003 | 0101001 | |
| 20 (19) | 1.4 | 5.9 | 8.2 | 0102006 | 0102003 | 0102001 | 0102000 |
| 18 (7) | 1.7 | 8.6 | 12 | | | 0103001 | |
| 18 (19) | 1.7 | 9.3 | 12 | 0104006 | 0104003 | 0104001 | 0104000 |
| 16 (19) | 2.0 | 11.8 | 16 | 0105006 | 0105003 | 0105001 | 0105000 |
| 14 (19) | 2.4 | 18.7 | 23 | 0106006 | 0106003 | 0106001 | 0106000 |
| 12 (19) | 2.8 | 29.6 | 35 | 0107006 | 0107003 | 0107001 | 0107000 |
| 10 (37) | 3.4 | 45.6 | 51 | | | 0108001 | 0108000 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil 100m / Available as original coil goods only / Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

# ÖLFLEX® HEAT 350 SC

Suitable for use in ambient temperature from -50 °C to +350 °C



**Info**

- For use in dry conditions

## Benefits

- Low conductor-resistance due to the nickel-plated copper conductors

## Application range

- Wide operating temperature range allows the product to be used in applications under Thermal Class C (>180°C).
- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Lighting, apparatus and instrument industry

## Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 650 SC and ÖLFLEX® HEAT 1565 SC are recommended if the peak temperature of the application may go beyond +350°C

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- Core insulation: glass fibre covering and impregnated glass fibre braids
- Core insulation from 16 mm²: mica wrapping and impregnated glass fibre braid
- Colour of core insulation: white

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
Fixed installation: 5 x outer diameter

**Nominal voltage**
U0/U 230/400 V

**Test voltage**
1500 V

**Temperature range**
Fixed installation: -50°C to +350°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 350 SC** | | | | |
| 0091350 | 0.5 | 2.5 | 4.8 | 13 |
| 0091351 | 0.75 | 3.0 | 7.2 | 15 |
| 0091352 | 1.0 | 3.4 | 9.6 | 17 |
| 0091353 | 1.5 | 3.5 | 14.4 | 23 |
| 0091354 | 2.5 | 3.7 | 24 | 34 |
| 0091355 | 4.0 | 4.2 | 38.4 | 54 |
| 0091356 | 6.0 | 6.2 | 57.6 | 84 |
| 0091357 | 10.0 | 7.3 | 96 | 120 |
| 0091358 | 16.0 | 8.0 | 153.6 | 199 |
| 0091359 | 25.0 | 9.5 | 240 | 300 |
| 0091360 | 35.0 | 10.9 | 336 | 399 |
| 0091361 | 50.0 | 13.2 | 480 | 540 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 1565 SC

Suitable for use in ambient temperatures between -195°C to +400°C



**Info**

- Short-term: up to +1565 °C
- For use in dry conditions

## Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Able to withstand temporary contact with molten metal or glass

## Application range

- Guarantees the circuit even in areas with extremely high ambient temperatures
- Blast furnaces and coking plants
- Refineries
- Glassworks
- Aluminium and steelworks

## Product features

- Flame-retardant
- Only suitable for use in dry conditions

## Product Make-up

- Fine-wire strand made of nickel-plated copper
- Mica tape wrapping
- Impregnated glass fibre braiding, core colour: red

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Fixed installation: 5 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2200 V

**Temperature range**
-195°C to +400°C
Short-term: up to +1565 °C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT SC 1565** | | | | |
| 3020780 | 0.75 | 2.9 | 7.2 | 15.9 |
| 3020781 | 1.0 | 3.0 | 9.6 | 18.8 |
| 3013234 | 1.5 | 3.3 | 14.4 | 24.3 |
| 3020782 | 2.5 | 3.8 | 24 | 35 |
| 3018942 | 4.0 | 4.8 | 38.4 | 56 |
| 3020783 | 6.0 | 5.6 | 57.6 | 86.4 |
| 3016697 | 10.0 | 6.2 | 96 | 123 |
| 3016698 | 16.0 | 7.9 | 153.6 | 202.5 |
| 3016699 | 25.0 | 9.2 | 240 | 295.1 |
| 3016771 | 35.0 | 10.6 | 336 | 403.9 |
| 3017861 | 50.0 | 12.2 | 480 | 545 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® HEAT 650 SC

Suitable for use in ambient temperature from -50°C to +700°C



**Info**

- For use in dry conditions

## Benefits

- Suitable for areas where the installation temperature and ambient temperature is very high
- Good electrical conductivity due to nickel strand also at high temperatures

## Application range

- Heating modules, electric heating devices, heat lockers
- Furnaces, electric ranges, night storage heater
- Heavy industry, iron and steel works, foundries, glass and ceramic processing, chemical industries
- Machinery, apparatus and power plant construction

## Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 SC is recommended if the peak temperature of the application may briefly go beyond 700°C

## Product Make-up

- Strand made of nickel
- Core insulation: glass fibre covering and impregnated glass fibre braids

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire
see data sheet

**Minimum bending radius**
Fixed installation: 5 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

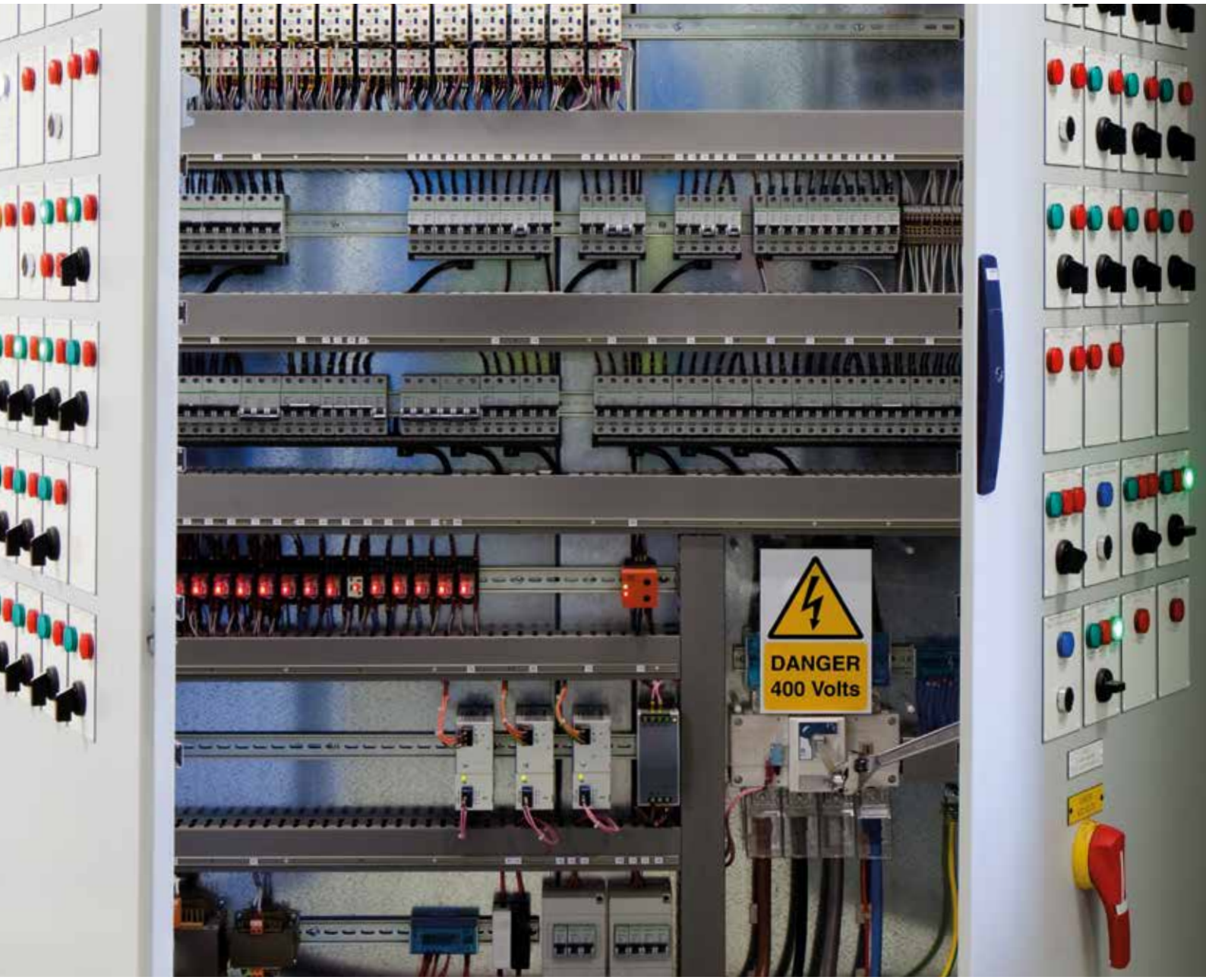
**Test voltage**
1800 V

**Temperature range**
Occasional flexing: -50°C to +650°C
Fixed installation: -50°C to +700°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Ni-index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **ÖLFLEX® HEAT 650 SC** | | | | |
| 1232650 | 0.5 | 2.4 | 4.8 | 13 |
| 1232651 | 0.75 | 2.5 | 7.6 | 15 |
| 1232652 | 1.0 | 2.9 | 9.7 | 17 |
| 1232653 | 1.5 | 3.0 | 14.8 | 23 |
| 1232654 | 2.5 | 3.5 | 23.5 | 34 |
| 1232655 | 4.0 | 3.9 | 38.6 | 54 |
| 1232656 | 6.0 | 4.6 | 57.9 | 84 |
| 1232657 | 10.0 | 7.8 | 96.5 | 120 |
| 1232658 | 16.0 | 8.2 | 152 | 199 |
| 1232659 | 25.0 | 9.8 | 236.4 | 300 |
| 1232660 | 35.0 | 10.6 | 332.8 | 399 |
| 1232661 | 50.0 | 11.2 | 481.1 | 540 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Control Cabinet
## Single Cores



# LiY

Stranded hook-up wire for telecommunication devices and electronic components

**Info**

- PVC control hook-up wire
- Cost-effective




## Application range

- Stranded hook-up wires for wiring of telecommunication devices and electronic components within devices

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 150 mm; b = 85 mm

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Stranded copper wire
- Core insulation: PVC-based, type YI 2/TI 2 according to VDE 0207-4

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Peak operating voltage**
500 V (0.14 mm²)
900 V (0.25 sq.mm)

**Conductor stranding**
0.14 mm²: ≥ 18 strands (each with 0.10 mm Ø)
0.25 mm²: ≥ 14 strands (each with 0.15 mm Ø)

**Nominal voltage**
Operating voltage < 50 VAC
UPP - peak-to-peak voltage: ≤ 250 V

**Test voltage**
1200 V (0.14 mm²)
2500 V (0.25 mm²)

**Temperature range**
Fixed installation: -30 °C to +70 °C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | grey | white | yellow | orange | red |
|---|---|---|---|---|---|---|---|---|
| 0.14 | 1.1 | 500 | 1.35 | 4125106S | 4125105S | 4125005S | 4125009S | 4125104S |
| 0.25 | 1.3 | 250 | 2.4 | 4126106S | 4126105S | 4126005S | 4126009S | 4126104S |

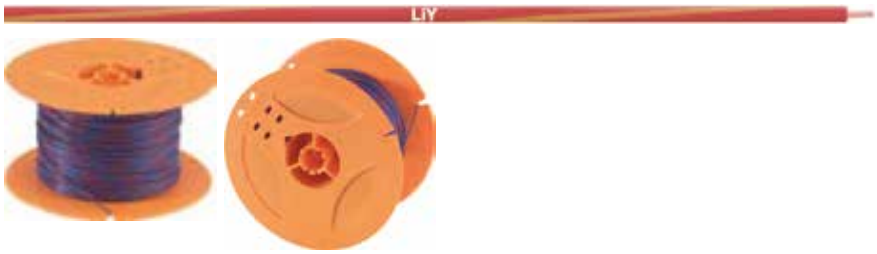
| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | violet | blue | green | brown | black |
|---|---|---|---|---|---|---|---|---|
| 0.14 | 1.1 | 500 | 1.35 | 4125007S | 4125002S | 4125006S | 4125003S | 4125001S |
| 0.25 | 1.3 | 250 | 2.4 | 4126007S | 4126002S | 4126006S | 4126003S | 4126001S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | green/yellow | dark blue | pink |
|---|---|---|---|---|---|---|
| 0.14 | 1.1 | 500 | 1.35 | 4125000S | 4125014S | 4125008S |
| 0.25 | 1.3 | 250 | 2.4 | 4126000S | 4126014S | 4126008S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# LiY with twin colour helix insulation

Stranded hook-up wire with telecommunication conductor and coloured stripes




**Info**

- PVC control hook-up wire
- Cost-effective
- Twin-colour spiralized PVC

## Application range

- Stranded hook-up wires for wiring of telecommunication devices and electronic components within devices

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 150 mm; b = 85 mm

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Stranded copper wire
- Core insulation: PVC-based, type YI 2/TI 2 according to VDE 0207-4
- Labelled with coloured stripes

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Peak operating voltage**
900 V (0.25 sq.mm)

**Conductor stranding**
0.25 mm²: ≥ 14 strands
(each with 0.15 mm Ø)

**Nominal voltage**
Operating voltage < 50 VAC
UPP - peak-to-peak voltage: ≤ 250 V

**Test voltage**
2500 V (0.25 mm²)

**Temperature range**
Fixed installation: -30°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | blue/white | blue/black | brown/green | brown/white |
|---|---|---|---|---|---|---|---|
| 0.25 | 1.5 | 250 | 2.4 | 4502262S | 4502232S | 4502282S | 4502292S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | yellow-black | yellow/red | green/white | violet/white |
|---|---|---|---|---|---|---|---|
| 0.25 | 1.5 | 250 | 2.4 | 4502302S | 4502312S | 4502342S | 4502372S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | orange/white | red/black | white/black | white/blue |
|---|---|---|---|---|---|---|---|
| 0.25 | 1.5 | 250 | 2.4 | 4502392S | 4502402S | 4502432S | 4502442S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | white/red |
|---|---|---|---|---|
| 0.25 | 1.5 | 250 | 2.4 | 4502462S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05V-K <HAR>

European <HAR> cable type certification

**Info**

- CPR: Article number choice under www.lapp.com
- <HAR>




## Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

## Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 100 | | 4.8 | 9 | 4510061 | 4510051 | 4510111 | 4510091 | 4510041 |
| 0.75 | 2.2 - 2.7 | 100 | | 7.2 | 12 | 4510062 | 4510052 | 4510112 | 4510092 | 4510042 |
| 1 | 2.4 - 2.8 | 100 | | 9.6 | 15 | 4510063 | 4510053 | 4510113 | 4510093 | 4510043 |
| 0.5 | 2.1 - 2.5 | | 250 | 4.8 | 9 | 4510061S | 4510051S | 4510111S | 4510091S | 4510041S |
| 0.75 | 2.2 - 2.7 | | 250 | 7.2 | 12 | 4510062S | 4510052S | 4510112S | 4510092S | 4510042S |
| 1 | 2.4 - 2.8 | | 250 | 9.6 | 15 | 4510063S | 4510053S | 4510113S | 4510093S | 4510043S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | violet | blue | green | brown | black |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 100 | | 4.8 | 9 | 4510071 | 4510021 | 4510121 | 4510031 | 4510011 |
| 0.75 | 2.2 - 2.7 | 100 | | 7.2 | 12 | 4510072 | 4510022 | 4510122 | 4510032 | 4510012 |
| 1 | 2.4 - 2.8 | 100 | | 9.6 | 15 | 4510073 | 4510023 | 4510123 | 4510033 | 4510013 |
| 0.5 | 2.1 - 2.5 | | 250 | 4.8 | 9 | 4510071S | 4510021S | 4510121S | 4510031S | 4510011S |
| 0.75 | 2.2 - 2.7 | | 250 | 7.2 | 12 | 4510072S | 4510022S | 4510122S | 4510032S | 4510012S |
| 1 | 2.4 - 2.8 | | 250 | 9.6 | 15 | 4510073S | 4510023S | 4510123S | 4510033S | 4510013S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | green/ yellow | dark blue | ultra-marine blue | Dark blue/ white | transparent |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 100 | | 4.8 | 9 | 4510001 | 4510141 | 4510161 | 4510921 | |
| 0.75 | 2.2 - 2.7 | 100 | | 7.2 | 12 | 4510002 | 4510142 | | 4510922 | |
| 1 | 2.4 - 2.8 | 100 | | 9.6 | 15 | 4510003 | 4510143 | 4510163 | 4510923 | |
| 0.5 | 2.1 - 2.5 | | 250 | 4.8 | 9 | 4510001S | 4510141S | | | 4510101S |
| 0.75 | 2.2 - 2.7 | | 250 | 7.2 | 12 | 4510002S | 4510142S | 4510162S | | 4510102S |
| 1 | 2.4 - 2.8 | | 250 | 9.6 | 15 | 4510003S | 4510143S | 4510163S | | 4510103S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | pink |
|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 100 | | 4.8 | 9 | 4510081 |
| 0.75 | 2.2 - 2.7 | 100 | | 7.2 | 12 | 4510082 |
| 1 | 2.4 - 2.8 | 100 | | 9.6 | 15 | 4510083 |
| 0.75 | 2.2 - 2.7 | | 250 | 7.2 | 12 | 4510082S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation




**Info**

- CPR: Article number choice under www.lapp.com
- Efficient
- <HAR>

## Benefits

- Higher cost-effectiveness due to optimum processing volumes
- Single cores are embossed so that an additional, subsequent marking by ink jet printing is readable
- The comparatively low weight of the cardboard boxes makes handling easy
- Time-saving assembly

## Application range

- Ideal for assembling to achieve longer operating times
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 3000 | 4.8 | 9 | 4511073K | 4511072K | | 4511070K | 4511071K |
| 0.75 | 2.2 - 2.7 | 2500 | 7.2 | 12 | 4510062K | 4510052K | 4510112K | 4510092K | 4510042K |
| 1 | 2.4 - 2.8 | 2000 | 9.6 | 15 | 4510063K | 4510053K | 4510113K | 4510093K | 4510043K |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | violet | blue | green | brown | black |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 3000 | 4.8 | 9 | 4511068K | 4510021K | | 4511065K | 4510011K |
| 0.5 | 2.1 - 2.5 | 9000 | 4.8 | 9 | | 4510021E | | | |
| 0.75 | 2.2 - 2.7 | 2500 | 7.2 | 12 | 4510072K | 4510022K | 4510122K | 4510032K | 4510012K |
| 0.75 | 2.2 - 2.7 | 7500 | 7.2 | 12 | | 4510022E | | | |
| 1 | 2.4 - 2.8 | 2000 | 9.6 | 15 | 4510073K | 4510023K | | 4510033K | 4510013K |
| 1 | 2.4 - 2.8 | 6000 | 9.6 | 15 | | 4510023E | | | 4510013E |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | green/ yellow | dark blue | ultra-marine blue | blue/white | Dark blue/ white |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 3000 | 4.8 | 9 | 4510001K | 4511064K | 4510161K | | 4510921K |
| 0.5 | 2.1 - 2.5 | 9000 | 4.8 | 9 | | 4511060E | | | |
| 0.75 | 2.2 - 2.7 | 2500 | 7.2 | 12 | 4510002K | 4510142K | 4510162K | 4510262K | 4510922K |
| 0.75 | 2.2 - 2.7 | 7500 | 7.2 | 12 | | 4511061E | | | |
| 1 | 2.4 - 2.8 | 2000 | 9.6 | 15 | 4510003K | 4510143K | 4510163K | 4510263K | 4510923K |
| 1 | 2.4 - 2.8 | 6000 | 9.6 | 15 | | 4511062E | | | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | pink |
|---|---|---|---|---|---|
| 0.75 | 2.2 - 2.7 | 2500 | 7.2 | 12 | 4510082K |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# X05V-K with twin colour helix insulation

**Info**

- CPR: Article number choice under www.lapp.com
- Twin-colour spiralized PVC




## Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

## Norm references / Approvals

- Based on EN 50525-2-31

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC
- Labelled with coloured stripes

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 x outer diameter (OD) if used as defined for H05V-K; 2 x OD for cautious bending

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | blue/white | Dark blue/ white | black/white | blue/black |
|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 250 | 4.8 | 9 | 4512261S | 4512921S | 4512221S | 4512231S |
| 0.75 | 2.2 - 2.7 | 250 | 7.2 | 12 | 4512262S | 4512922S | 4512222S | 4512232S |
| 1 | 2.4 - 2.8 | 250 | 9.6 | 15 | 4512263S | 4512923S | 4512223S | 4512233S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | m/box | Copper index (kg/km) | Weight (kg/km) | blue/green | blue / red | brown/black | brown/white |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 250 | | 4.8 | 9 | 4512241S | 4512251S | 4512271S | 4512291S |
| 0.75 | 2.2 - 2.7 | 250 | | 7.2 | 12 | 4512242S | 4512252S | 4512272S | 4512292S |
| 0.75 | 2.2 - 2.7 | | 4000 | 7.2 | 12 | | 4512252K | | |
| 1 | 2.4 - 2.8 | 250 | | 9.6 | 15 | 4512243S | 4512253S | 4512273S | 4512293S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | yellow/white | violet/black | violet/white | orange/black |
|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 250 | 4.8 | 9 | 4512321S | 4512351S | 4512371S | 4512381S |
| 0.75 | 2.2 - 2.7 | 250 | 7.2 | 12 | 4512322S | 4512352S | 4512372S | 4512382S |
| 1 | 2.4 - 2.8 | 250 | 9.6 | 15 | | 4512353S | 4512373S | 4512383S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | m/box | Copper index (kg/km) | Weight (kg/km) | orange/ white | red/black | red/white | white/black |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 250 | | 4.8 | 9 | 4512391S | 4512401S | 4512421S | 4512431S |
| 0.75 | 2.2 - 2.7 | 250 | | 7.2 | 12 | 4512392S | 4512402S | 4512422S | 4512432S |
| 1 | 2.4 - 2.8 | 250 | | 9.6 | 15 | 4512393S | 4512403S | 4512423S | 4512433S |
| 1 | 2.4 - 2.8 | | 2000 | 9.6 | 15 | 4512393K | | 4512423K | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | white/blue | grey-black |
|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.5 | 250 | 4.8 | 9 | 4512441S | 4512471S |
| 0.75 | 2.2 - 2.7 | 250 | 7.2 | 12 | 4512442S | 4512472S |
| 1 | 2.4 - 2.8 | 250 | 9.6 | 15 | 4512443S | 4512473S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07V-K <HAR>

European <HAR> cable type certification




**Info**

- CPR: Article number choice under www.lapp.com
- <HAR>

## Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

## Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | | 150 | 14.4 | 22 | 4520061S | 4520051S | | | 4520041S |
| 2.5 | 3.4 - 4.1 | | 100 | 24 | 37 | 4520062S | 4520052S | 4520112S | | 4520042S |
| 1.5 | 2.8 - 3.4 | 100 | | 14.4 | 22 | 4520061 | 4520051 | 4520111 | 4520091 | 4520041 |
| 2.5 | 3.4 - 4.1 | 100 | | 24 | 37 | 4520062 | 4520052 | 4520112 | 4520092 | 4520042 |
| 4 | 3.9 - 4.8 | 100 | | 38.4 | 45 | 4520063 | 4520053 | 4520113 | 4520093 | 4520043 |
| 6 | 4.4 - 5.3 | 100 | | 57.6 | 71 | 4520064 | 4520054 | 4520114 | 4520094 | 4520044 |
| 10 | 5.7 - 6.8 | 100 | | 96 | 120 | 4520065 | 4520055 | | 4520095 | 4520045 |
| 16 | 6.7 - 8.1 | | | 153.6 | 187 | 4520066 | 4520056 | | 4520096 | 4520046 |
| 25 | 8.4 - 10.2 | | | 240 | 290 | 4521061 | 4521051 | | 4521091 | 4521041 |
| 35 | 9.7 - 11.7 | | | 336 | 399 | 4521062 | | | 4521092 | 4521042 |
| 50 | 11.5 - 13.9 | | | 480 | 559 | | | | | 4521043 |
| 70 | 13.2 - 16 | | | 672 | 776 | | | | | 4521044 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | violet | blue | green | brown | black |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | | 150 | 14.4 | 22 | 4520071S | 4520021S | 4520121S | 4520031S | 4520011S |
| 2.5 | 3.4 - 4.1 | | 100 | 24 | 37 | | 4520022S | 4520122S | 4520032S | 4520012S |
| 1.5 | 2.8 - 3.4 | 100 | | 14.4 | 22 | 4520071 | 4520021 | 4520121 | 4520031 | 4520011 |
| 2.5 | 3.4 - 4.1 | 100 | | 24 | 37 | 4520072 | 4520022 | 4520122 | 4520032 | 4520012 |
| 4 | 3.9 - 4.8 | 100 | | 38.4 | 45 | 4520073 | 4520023 | 4520123 | 4520033 | 4520013 |
| 6 | 4.4 - 5.3 | 100 | | 57.6 | 71 | 4520074 | 4520024 | 4520124 | 4520034 | 4520014 |
| 10 | 5.7 - 6.8 | 100 | | 96 | 120 | 4520075 | 4520025 | 4520125 | 4520035 | 4520015 |
| 16 | 6.7 - 8.1 | | | 153.6 | 187 | | 4520026 | 4520126 | 4520036 | 4520016 |
| 25 | 8.4 - 10.2 | | | 240 | 290 | | 4521021 | | 4521031 | 4521011 |
| 35 | 9.7 - 11.7 | | | 336 | 399 | | 4521022 | | 4521032 | 4521012 |
| 50 | 11.5 - 13.9 | | | 480 | 559 | | 4521023 | | 4521033 | 4521013 |
| 70 | 13.2 - 16 | | | 672 | 776 | | 4521024 | | 4521034 | 4521014 |
| 95 | 15.1 - 18.2 | | | 912 | 1031 | | 4521025 | | | 4521015 |
| 120 | 16.7 - 20.2 | | | 1152 | 1285 | | | | | 4521016 |
| 150 | 18.6 - 22.5 | | | 1440 | 1563 | | | | | 4521017 |
| 185 | 20.6 - 24.9 | | | 1776 | 1915 | | | | | 4521018 |
| 240 | 23.5 - 28.4 | | | 2304 | 2550 | | | | | 4521019 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/spool | Copper index (kg/km) | Weight (kg/km) | green/yellow | dark blue | ultra-marine blue |
|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | | 150 | 14.4 | 22 | 4520001S | 4520141S | |
| 2.5 | 3.4 - 4.1 | | 100 | 24 | 37 | 4520002S | 4520142S | |
| 1.5 | 2.8 - 3.4 | 100 | | 14.4 | 22 | 4520001 | 4520141 | 4520161 |
| 2.5 | 3.4 - 4.1 | 100 | | 24 | 37 | 4520002 | 4520142 | 4520162 |
| 4 | 3.9 - 4.8 | 100 | | 38.4 | 45 | 4520003 | 4520143 | 4520163 |
| 6 | 4.4 - 5.3 | 100 | | 57.6 | 71 | 4520004 | 4520144 | 4520164 |
| 10 | 5.7 - 6.8 | 100 | | 96 | 120 | 4520005 | 4520145 | 4520165 |
| 16 | 6.7 - 8.1 | | | 153.6 | 187 | 4520006 | 4520146 | |
| 25 | 8.4 - 10.2 | | | 240 | 290 | 4521001 | 4521141 | |
| 35 | 9.7 - 11.7 | | | 336 | 399 | 4521002 | 4521142 | |
| 50 | 11.5 - 13.9 | | | 480 | 559 | 4521003 | | |
| 70 | 13.2 - 16 | | | 672 | 776 | 4521004 | | |
| 95 | 15.1 - 18.2 | | | 912 | 1031 | 4521005 | | |
| 120 | 16.7 - 20.2 | | | 1152 | 1285 | 4521006 | | |
| 150 | 18.6 - 22.5 | | | 1440 | 1563 | 4521007 | | |
| 185 | 20.6 - 24.9 | | | 1776 | 1915 | 4521008 | | |
| 240 | 23.5 - 28.4 | | | 2304 | 2550 | 4521009 | | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

# H07V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation




## Info

- CPR: Article number choice under www.lapp.com
- Efficient
- <HAR>

## Benefits

- Higher cost-effectiveness due to optimum processing volumes
- Single cores are embossed so that an additional, subsequent marking by ink jet printing is readable
- The comparatively low weight of the cardboard boxes makes handling easy
- Time-saving assembly

## Application range

- Ideal for assembling to achieve longer operating times
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V AC

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange | red |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 1500 | 14.4 | 22 | 4520061K | 4520051K | 4520111K | 4520091K | 4520041K |
| 1.5 | 2.8 - 3.4 | 4000 | 14.4 | 22 | | | | | 4520041E |
| 2.5 | 3.4 - 4.1 | 900 | 24 | 37 | 4520062K | 4520052K | 4520112K | 4520092K | 4520042K |
| 4 | 3.9 - 4.8 | 600 | 38.4 | 45 | 4520063K | | | 4520093K | 4520043K |
| 6 | 4.4 - 5.3 | 400 | 57.6 | 71 | 4520064K | | 4520114K | 4520094K | 4520044K |
| 6 | 4.4 - 5.3 | 1500 | 57.6 | 71 | | | | | 4520044E |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | violet | blue | green | brown | black |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 1500 | 14.4 | 22 | 4520071K | 4520021K | 4520121K | 4520031K | 4520011K |
| 1.5 | 2.8 - 3.4 | 4000 | 14.4 | 22 | | 4520021E | | 4520031E | 4520011E |
| 2.5 | 3.4 - 4.1 | 900 | 24 | 37 | 4520072K | 4520022K | 4520122K | 4520032K | 4520012K |
| 2.5 | 3.4 - 4.1 | 2500 | 24 | 37 | | 4520022E | | | 4520012E |
| 4 | 3.9 - 4.8 | 600 | 38.4 | 45 | 4520073K | 4520023K | | 4520033K | 4520013K |
| 4 | 3.9 - 4.8 | 2000 | 38.4 | 45 | | | | | 4520013E |
| 6 | 4.4 - 5.3 | 400 | 57.6 | 71 | | 4520024K | | 4520034K | 4520014K |
| 6 | 4.4 - 5.3 | 1500 | 57.6 | 71 | | 4520024E | | | 4520014E |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/box | Copper index (kg/km) | Weight (kg/km) | green/yellow | dark blue | blue/white | Dark blue/ white |
|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 1500 | 14.4 | 22 | 4520001K | 4520141K | | |
| 1.5 | 2.8 - 3.4 | 4000 | 14.4 | 22 | 4520001E | 4520141E | | |
| 2.5 | 3.4 - 4.1 | 900 | 24 | 37 | 4520002K | 4520142K | | 4520922K |
| 2.5 | 3.4 - 4.1 | 2500 | 24 | 37 | 4520002E | | | |
| 4 | 3.9 - 4.8 | 600 | 38.4 | 45 | 4520003K | 4520143K | 4520263K | 4520923K |
| 6 | 4.4 - 5.3 | 400 | 57.6 | 71 | 4520004K | 4520144K | 4520264K | 4520924K |
| 6 | 4.4 - 5.3 | 1500 | 57.6 | 71 | 4520004E | | | |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# X07V-K with twin colour helix insulation

**Info**

- CPR: Article number choice under www.lapp.com
- Twin-colour spiralized PVC




## Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

## Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

## Norm references / Approvals

- Based on EN 50525-2-31

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC
- Labelled with coloured stripes

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 x outer diameter if used as defined for H07V-K; 2 x outer diameter for short-term bending

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V

**Current rating**
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | blue/white | Dark blue/ white | black/red | black/ white | blue/black | blue / red | brown/ white |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 150 | 14.4 | 22 | 4522261S | 4522921S | 4522211S | 4522221S | 4522231S | 4522251S | 4522291S |
| 2.5 | 3,4 - 4,1 | 100 | 24 | 37 | 4522262S | 4522922S | | 4522222S | | 4522252S | 4522292S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | yellow/ red | yellow/ white | violet/ white | orange/ black | orange/ white | red/black | red/ white |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 150 | 14.4 | 22 | 4522311S | 4522321S | 4522371S | 4522381S | 4522391S | 4522401S | 4522421S |
| 2.5 | 3,4 - 4,1 | 100 | 24 | 37 | | | 4522372S | | 4522392S | 4522402S | 4522422S |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) | white/blue | white/red |
|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 150 | 14.4 | 22 | 4522441S | 4522461S |
| 2.5 | 3,4 - 4,1 | 100 | 24 | 37 | 4522442S | 4522462S |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE <HAR>

# H07V-U

European <HAR> cable type certification




**Info**

- CPR: Article number selection on the LAPP website.
- <HAR>

## Benefits

- Made according to harmonised European type H07V-U, with HAR testing mark for proven reliability and quality (not applicable for: green (single colour), yellow (single colour)
- HAR-style cables are widely accepted and can be used in Europe
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website
- Compact design for easy processing
- Versatile use in various applications and environments
- Different core insulation colours available
- Different ring lengths available
- Longer ring lengths save travel distances. The Maxi rings (article numbers ending with "X") are ideal for use with the TRONIC module. In combination with the TRONIC single core trolley, the module is used for controlled and guided cutting and for organised and compact storage of single cores

## Application range

- For wiring circuits inside machines.
- Suitable for wiring inside control cabinets.
- For wiring lighting
- Can also be used for in-house electrical installations
- Maxi rings (article numbers ending with "X") are suitable for use with the TRONIC module
- For fixed and protected installation in an electrical installation pipe on or under plaster
- Can be used for open installation on cable trays for equipotential bonding
- Flexible use at temperatures down to -40°C

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Solid wire acc. to IEC 60228, Class 1

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2500 V AC

**Current rating**
VDE 0298 Part 4

**Temperature range**
Fixed installation: -40°C to +70°C

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4527001 | yellow/green | 1.5 | 2.6 - 3.2 | 100 | 14.4 | 19 |
| 4527011 | black | 1.5 | 2.6 - 3.2 | 100 | 14.4 | 19 |
| 4527021 | blue | 1.5 | 2.6 - 3.2 | 100 | 14.4 | 19 |
| 4527031 | brown | 1.5 | 2.6 - 3.2 | 100 | 14.4 | 19 |
| 4527111 | yellow | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527121 | green | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527071 | violet | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527041 | red | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527051 | white | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527061 | grey | 1.5 | 2.6 - 3.2 | 100 | 15 | 19 |
| 4527091 | orange | 1.5 | 2.6 - 3.2 | 100 | 14.4 | 19 |
| 4527002 | yellow/green | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527012 | black | 2.5 | 3.2 - 3.2 | 100 | 24 | 30 |
| 4527022 | blue | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527032 | brown | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527112 | yellow | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527122 | green | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527072 | violet | 2.5 | 3.2 - 2.6 | 100 | 24 | 30 |
| 4527042 | red | 2.5 | 3.2 - 3.9 | 100 | 25 | 30 |
| 4527052 | white | 2.5 | 3.2 - 3.9 | 100 | 25 | 30 |
| 4527062 | grey | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527092 | orange | 2.5 | 3.2 - 3.9 | 100 | 24 | 30 |
| 4527003 | yellow/green | 4.0 | 3.6 - 4.4 | 100 | 40 | 44 |
| 4527033 | brown | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527023 | blue | 4.0 | 3.6 - 4.4 | 100 | 40 | 44 |
| 4527013 | black | 4.0 | 3.6 - 4.4 | 100 | 40 | 44 |
| 4527113 | yellow | 4.0 | 3.6 - 4.4 | 100 | 40 | 44 |
| 4527125 | green | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527073 | violet | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527043 | red | 4.0 | 3.6 - 4.4 | 100 | 40 | 44 |
| 4527053 | white | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527063 | grey | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527093 | orange | 4.0 | 3.6 - 4.4 | 100 | 38.4 | 44 |
| 4527004 | yellow/green | 6.0 | 4.1 - 5.0 | 100 | 60 | 63 |
| 4527014 | black | 6.0 | 4.1 - 5.0 | 100 | 58 | 63 |
| 4527024 | blue | 6.0 | 4.1 - 5.0 | 100 | 60 | 63 |
| 4527034 | brown | 6.0 | 4.1 - 5.0 | 100 | 58 | 63 |
| 4527114 | yellow | 6.0 | 4.1 - 5.0 | 100 | 57.6 | 63 |
| 4527126 | green | 6.0 | 4.1 - 5.0 | 100 | 57.6 | 63 |
| 4527074 | violet | 6.0 | 4.1 - 5.0 | 100 | 58 | 63 |
| 4527044 | red | 6.0 | 4.1 - 5.0 | 100 | 60 | 63 |

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4527054 | white | 6.0 | 4.1 - 5.0 | 100 | 57.6 | 63 |
| 4527064 | grey | 6.0 | 4.1 - 5.0 | 100 | 57.6 | 63 |
| 4527094 | orange | 6.0 | 4.1 - 5.0 | 100 | 57.6 | 63 |
| 4527001X | yellow/green | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527011X | black | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527021X | blue | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527031X | brown | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527061X | grey | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527071X | violet | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527041X | red | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527051X | white | 1.5 | 2.6 - 3.2 | 350 | 14.4 | 19 |
| 4527002X | yellow/green | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527012X | black | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527022X | blue | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527032X | brown | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527072X | violet | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527042X | red | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527052X | white | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |
| 4527062X | grey | 2.5 | 3.2 - 3.9 | 200 | 24 | 30 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg.
Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05V2-K

European <HAR> cable type certification




**Info**

- CPR: Article number selection on the LAPP website
- <HAR>

## Benefits

- Thermal resistance up to 90°C enables higher current ratings at higher ambient temperatures. In certain cases, this allows smaller conductor cross-sections to be selected in compliance with the applicable standards
- Llyod's Register (LR) approval for maritime use
- Made in accordance with harmonised European design H05V2-K, with
- ◁HAR▷ testing mark for proven reliability and quality
- ◁HAR▷ -style cables are widely accepted and can be used in Europe.
- Suitable for voltage class 300/500 V
- Different core insulation colours available
- Also available in large disposable cardboard boxes
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- For wiring circuits inside machines
- Suitable for wiring inside control cabinets
- For fixed and protected installation
- Can be used for open installation on cable trays for equipotential bonding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD)

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2500 V AC

**Current rating**
According to IEC 60364-5-52

**Temperature range**
Fixed installation: -10°C to +90°C

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4515001 | yellow/green | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515002 | yellow/green | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515003 | yellow/green | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515011 | black | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515012 | black | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515013 | black | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515021 | blue | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515022 | blue | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515023 | blue | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515141 | dark blue | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515142 | dark blue | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515143 | dark blue | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515031 | brown | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515032 | brown | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515033 | brown | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515111 | yellow | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515112 | yellow | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515113 | yellow | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515121 | green | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515122 | green | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515123 | green | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515071 | violet | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515072 | violet | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515073 | violet | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515081 | pink | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515082 | pink | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515083 | pink | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515091 | orange | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515092 | orange | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515093 | orange | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515041 | red | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515042 | red | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515043 | red | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515051 | white | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515052 | white | 0.75 | 2.7 | 100 | 7.2 | 11 |
| 4515053 | white | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515061 | grey | 0.5 | 2.5 | 100 | 4.8 | 9 |
| 4515062 | grey | 0.75 | 2.7 | 100 | 7.2 | 11 |

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4515063 | grey | 1 | 2.8 | 100 | 9.6 | 14 |
| 4515923 | dark blue/white | 1 | 2.8 | 100 | 9.6 | 14 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg.
Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H05V2-K cardboard box

European <HAR> cable type certification




**Info**

- CPR: Article number selection on the LAPP website
- <HAR>

## Benefits

- Thermal resistance up to 90°C enables higher current ratings at higher ambient temperatures. In certain cases, this allows smaller conductor cross-sections to be selected in compliance with the applicable standards
- Llyod's Register (LR) approval for maritime use
- Made in accordance with harmonised European design H05V2-K, with ◁ HAR ▷ testing mark for proven reliability and quality
- ◁ HAR ▷ style cables are widely accepted and can be used in Europe
- Suitable for voltage class 300/500 V
- Different core insulation colours available
- Also available in large disposable cardboard boxes
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- For wiring circuits inside machines
- Suitable for wiring inside control cabinets
- For fixed and protected installation
- Can be used for open installation on cable trays for equipotential bonding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD)

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2500 V AC

**Current rating**
According to IEC 60364-5-52

**Temperature range**
Fixed installation: -10°C to +90°C

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4515001K | yellow/green | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515002K | yellow/green | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515003K | yellow/green | 1 | 2.8 | 2000 | 9.6 | 14 |
| 4515011K | black | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515012K | black | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515013K | black | 1 | 2.8 | 2000 | 9.6 | 14 |
| 4515021K | blue | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515022K | blue | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515023K | blue | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515031K | brown | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515032K | brown | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515033K | brown | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515041K | red | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515042K | red | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515043K | red | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515051K | white | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515052K | white | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515053K | white | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515061K | grey | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515062K | grey | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515063K | grey | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515071K | violet | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515072K | violet | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515073K | violet | 1 | 2.8 | 2000 | 9.6 | 14 |
| 4515081K | pink | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515082K | pink | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515083K | pink | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515091K | orange | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515092K | orange | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515093K | orange | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515111K | yellow | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515112K | yellow | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515113K | yellow | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515121K | green | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515122K | green | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515123K | green | 1.0 | 2.8 | 2000 | 9.6 | 14 |
| 4515141K | dark blue | 0.5 | 2.5 | 3000 | 4.8 | 9 |
| 4515142K | dark blue | 0.75 | 2.7 | 2500 | 7.2 | 11 |
| 4515143K | dark blue | 1 | 2.8 | 2000 | 9.6 | 14 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg.
Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07V2-K

European <HAR> cable type certification



**Info**

- CPR: Article number selection on the LAPP website
- <HAR>




## Benefits

- Thermal resistance up to 90°C enables higher current ratings at higher ambient temperatures. In certain cases, this allows smaller conductor cross-sections to be selected in compliance with the applicable standards
- Llyod's Register (LR) approval for maritime use
- Made according to harmonised European design H07V2-K, with◁HAR▷esting mark for proven reliability and quality (not applicable for: transparent, green (single colour), yellow (single colour), all double colours (except green/yellow and yellow/green))
- ◁HAR▷ style cables are widely accepted and can be used in Europe
- Suitable for voltage class 450/750 V
- Different core insulation colours available
- Also available in large disposable cardboard boxes. Large cardboard boxes are available depending on the colour and cross-section and generally only up to 6 mm² conductor cross-section
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- For wiring circuits inside machines
- Suitable for wiring inside control cabinets
- For fixed and protected installation
- Can be used for open installation on cable trays for equipotential bonding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD)

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2000 V

**Current rating**
According to IEC 60364-5-52

**Temperature range**
Fixed installation: -40°C to +90°C

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4519001 | yellow/green | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519002 | yellow/green | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519003 | yellow/green | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519004 | yellow/green | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519005 | yellow/green | 10 | 6.8 | 100 | 96 | 109 |
| 4519006 | yellow/green | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519007 | yellow/green | 25 | 10.2 | 100 | 240 | 251 |
| 4519008 | yellow/green | 35 | 11.7 | 50 | 336 | 350 |
| 4519011 | black | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519012 | black | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519013 | black | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519014 | black | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519015 | black | 10 | 6.8 | 100 | 96 | 109 |
| 4519016 | black | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519017 | black | 25 | 10.2 | 100 | 240 | 251 |
| 4519018 | black | 35 | 11.7 | 50 | 336 | 350 |
| 4519021 | blue | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519022 | blue | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519023 | blue | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519024 | blue | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519025 | blue | 10 | 6.8 | 100 | 96 | 109 |
| 4519026 | blue | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519027 | blue | 25 | 10.2 | 100 | 240 | 251 |
| 4519028 | blue | 35 | 11.7 | 50 | 336 | 350 |
| 4519141 | dark blue | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519142 | dark blue | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519143 | dark blue | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519144 | dark blue | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519145 | dark blue | 10 | 6.8 | 100 | 96 | 109 |
| 4519146 | dark blue | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519031 | brown | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519032 | brown | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519033 | brown | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519034 | brown | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519035 | brown | 10 | 6.8 | 100 | 96 | 109 |
| 4519036 | brown | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519071 | violet | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519072 | violet | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519091 | orange | 1.5 | 3.4 | 100 | 14.4 | 22 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg.
Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Power and control cables

LAPP

## Control Cabinet Single Cores • Various applications

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4519092 | orange | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519093 | orange | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519094 | orange | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519095 | orange | 10 | 6.8 | 100 | 96 | 109 |
| 4519096 | orange | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519041 | red | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519042 | red | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519043 | red | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519044 | red | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519045 | red | 10 | 6.8 | 100 | 96 | 109 |
| 4519046 | red | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519047 | red | 25 | 10.2 | 100 | 240 | 251 |
| 4519048 | red | 35 | 11.7 | 50 | 336 | 350 |
| 4519051 | white | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519052 | white | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519053 | white | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519054 | white | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519061 | grey | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519062 | grey | 2.5 | 4.1 | 100 | 24 | 31 |
| 4519063 | grey | 4 | 4.8 | 100 | 38.4 | 45 |
| 4519064 | grey | 6 | 5.3 | 100 | 57.6 | 65 |
| 4519065 | grey | 10 | 6.8 | 100 | 96 | 109 |
| 4519066 | grey | 16 | 8.1 | 100 | 153.6 | 163 |
| 4519081 | pink | 1.5 | 3.4 | 100 | 14.4 | 22 |
| 4519009 | yellow/green | 50 | 13.9 | - | 480 | 559 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

# H07V2-K cardboard box

European <HAR> cable type certification



**Info**

- CPR: Article number selection on the LAPP website
- <HAR>




## Benefits

- Thermal resistance up to 90°C enables higher current ratings at higher ambient temperatures. In certain cases, this allows smaller conductor cross-sections to be selected in compliance with the applicable standards
- Llyod's Register (LR) approval for maritime use
- Made according to harmonised European design H07V2-K, with◁HAR▷esting mark for proven reliability and quality (not applicable for: transparent, green (single colour), yellow (single colour), all double colours (except green/yellow and yellow/green))
- ◁HAR▷ style cables are widely accepted and can be used in Europe
- Suitable for voltage class 450/750 V
- Different core insulation colours available
- Also available in large disposable cardboard boxes. Large cardboard boxes are available depending on the colour and cross-section and generally only up to 6 mm² conductor cross-section
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- For wiring circuits inside machines
- Suitable for wiring inside control cabinets
- For fixed and protected installation
- Can be used for open installation on cable trays for equipotential bonding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD)

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
2000 V

**Current rating**
According to IEC 60364-5-52

**Temperature range**
Fixed installation: -40°C to +90°C

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4519001K | yellow/green | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519002K | yellow/green | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519003K | yellow/green | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519004K | yellow/green | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519011K | black | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519012K | black | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519013K | black | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519014K | black | 6 | 5.3 | 400 | 57.6 | 65 |
| 4519021K | blue | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519022K | blue | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519023K | blue | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519024K | blue | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519031K | brown | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519032K | brown | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519033K | brown | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519034K | brown | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519041K | red | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519042K | red | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519043K | red | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519044K | red | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519051K | white | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519052K | white | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519053K | white | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519054K | white | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519061K | grey | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519062K | grey | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519063K | grey | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519064K | grey | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519071K | violet | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519072K | violet | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519073K | violet | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519074K | violet | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519081K | pink | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519082K | pink | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519083K | pink | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519084K | pink | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519091K | orange | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519092K | orange | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519093K | orange | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519094K | orange | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519111K | yellow | 1.5 | 3.4 | 1500 | 14.4 | 22 |

# Power and control cables

LAPP

## Control Cabinet Single Cores • Various applications

| Article number | Single core color | Conductor cross-section (mm²) | Outer diameter [mm] | m/spool | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| 4519112K | yellow | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519113K | yellow | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519114K | yellow | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519121K | green | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519122K | green | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519123K | green | 4.0 | 4.8 | 100 | 38.4 | 45 |
| 4519124K | green | 6.0 | 5.3 | 400 | 57.6 | 65 |
| 4519141K | deep blue | 1.5 | 3.4 | 1500 | 14.4 | 22 |
| 4519142K | deep blue | 2.5 | 4.1 | 900 | 24 | 31 |
| 4519143K | deep blue | 4.0 | 4.8 | 100 | 38.4 | - |
| 4519144K | deep blue | 6.0 | 5.3 | 400 | 57.6 | 65 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# ÖLFLEX® WIRE MS 1

UL-recognised (AWM) + CSA AWM I A/B + <HAR> H05V-K, tinned-copper strands






**Info**

- Formerly: Multi-Standard single core UL-CSA-HAR 1007/1569
- CPR: Article number choice under www.lapp.com

## Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easy storage
- Increases the cost-effectiveness of the production process

## Application range

- Factory wiring
- Internal wiring of devices
- Control cabinet wiring

## Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

## Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H05V-K acc. EN 50525-2-31, UL AWM styles 1007 & 1569 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), CSA AWM I A/B (by CSA acc. CSA standard CSA C22.2 No. 210-05, CSA class 5851-01)

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
4 x outer diameter (OD) for normal use; 2 x OD for cautions bending

**Nominal voltage**
HAR / IEC: U0/U: 300/500 V;
UL (AWM): U: 300 V;
CSA (AWM I A/B): U: 300 V

**Test voltage**
2000 V

**Temperature range**
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): up to +105°C;
CSA (AWM I A/B): up to +105°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | grey | white | orange |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | 4.8 | 9 | 4180406 | 4180405 | 4180409 |
| 0.75 | 2.6 | 100 | 7.2 | 12 | 4180506 | 4180505 | |
| 1 | 2.8 | 100 | 9.6 | 15 | 4180606 | 4180605 | 4180609 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | red | violet | blue |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | 4.8 | 9 | 4180404 | 4180407 | 4180402 |
| 0.75 | 2.6 | 100 | 7.2 | 12 | 4180504 | 4180507 | 4180502 |
| 1 | 2.8 | 100 | 9.6 | 15 | 4180604 | 4180607 | 4180602 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black | green/yellow |
|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 9 | 4180403 | 4180401 | 4180400 |
| 0.75 | 2.6 | 100 | | 7.2 | 12 | 4180503 | 4180501 | 4180500 |
| 1 | 2.8 | 100 | | 9.6 | 15 | 4180603 | 4180601 | 4180600 |
| 1 | 2.8 | | 2000 | 9.6 | 15 | | | 4180600K |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | dark blue |
|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 9 | 4180414 |
| 0.5 | 2.5 | | 3000 | 4.8 | 9 | 4180414K |
| 0.75 | 2.6 | 100 | | 7.2 | 12 | 4180514 |
| 0.75 | 2.6 | | 2500 | 7.2 | 12 | 4180514K |
| 1 | 2.8 | 100 | | 9.6 | 15 | 4180614 |

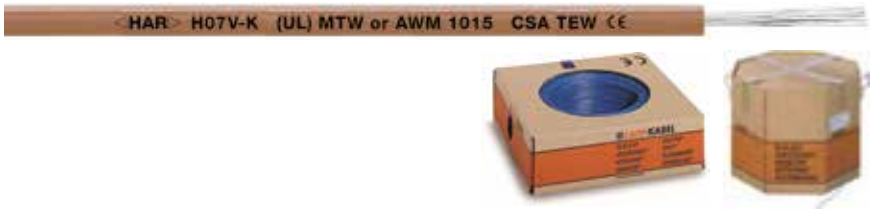
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
The outer diameters stated in the part number table are maximum values.

# ÖLFLEX® WIRE MS 2.1

USA: UL-listed (MTW), Canada: CSA (TEW), Europe: <HAR> H07V-K (depending on cross s.), tin-coated strands

**Info**

- The all-rounder for many markets
- CPR: Article number choice under www.lapp.com




## Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easier storage; increases the cost-effectiveness of the production process
- Works with “Conductor end sleeves XL, insulated”

## Application range

- Factory wiring
- Field wiring
- Internal wiring of devices
- Control cabinet wiring

## Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

## Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H07V-K acc. EN 50525-2-31, UL AWM style 1015 (by UL acc. UL standard UL 758, U.I. Lapp GmbH‘s UL AWM file number: E63634), (UL) MTW (by UL acc. UL standard UL 1063, U.I. Lapp GmbH‘s (UL) MTW file number: E198296), CSA TEW (by CSA acc. CSA standard CSA C22.2 No. 127, CSA class 5835-01)

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

**Nominal voltage**
HAR / IEC: U0/U: 450/750 V;
UL (AWM): U: 600 V;
UL (MTW): U: 600 V;
CSA (TEW): U: 600 V

**Temperature range**
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): up to +105°C;
UL (MTW): up to +90°C;
CSA (TEW): up to +105°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160106 | 4160105 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | 4160106K | 4160105K |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160206 | 4160205 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160206K | 4160205K |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160306 | 4160305 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160306K | 4160305K |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160406 | 4160405 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160406K | 4160405K |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160506 | 4160505 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160506K | 4160505K |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160606 | 4160605 |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160706 | 4160705 |
| 6 | 4.8 | | 400 | 57.6 | 67 | 4160706K | |
| 10 | 6.5 | 100 | | 96 | 120 | 4160806 | 4160805 |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160906 | 4160905 |
| 25 | 9.8 | 100 | | 240 | 260 | 4161006 | |
| 35 | 11.3 | | | 336 | 360 | 4161106 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | yellow | orange |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160110 | 4160109 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | | 4160109K |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160210 | 4160209 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | | 4160209K |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160310 | 4160309 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160310K | 4160309K |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160410 | 4160409 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160410K | 4160409K |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160510 | 4160509 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160510K | 4160509K |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160610 | 4160609 |
| 4 | 4.3 | | 600 | 38.4 | 49 | 4160610K | 4160609K |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160710 | 4160709 |
| 6 | 4.8 | | 400 | 57.6 | 67 | | 4160709K |
| 10 | 6.5 | 100 | | 96 | 120 | 4160810 | 4160809 |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160910 | 4160909 |
| 25 | 9.8 | 100 | | 240 | 260 | 4161010 | 4161009 |

# Power and control cables

LAPP

## Control Cabinet Single Cores • Harmonised and certified

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | red | violet |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160104 | 4160107 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | 4160104K | 4160107K |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160204 | 4160207 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160204K | 4160207K |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160304 | 4160307 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160304K | |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160404 | 4160407 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160404K | |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160504 | 4160507 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160504K | |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160604 | 4160607 |
| 4 | 4.3 | | 600 | 38.4 | 49 | 4160604K | |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160704 | 4160707 |
| 6 | 4.8 | | 400 | 57.6 | 67 | 4160704K | |
| 10 | 6.5 | 100 | | 96 | 120 | 4160804 | |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160904 | |
| 25 | 9.8 | 100 | | 240 | 260 | 4161004 | |
| 35 | 11.3 | | | 336 | 360 | 4161104 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | blue | green |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160102 | 4160111 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | 4160102K | |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160202 | 4160211 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160202K | |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160302 | 4160311 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160302K | |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160402 | 4160411 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160402K | |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160502 | 4160511 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160502K | |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160602 | 4160611 |
| 4 | 4.3 | | 600 | 38.4 | 49 | 4160602K | |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160702 | 4160711 |
| 6 | 4.8 | | 400 | 57.6 | 67 | 4160702K | |
| 10 | 6.5 | 100 | | 96 | 120 | 4160802 | 4160811 |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160902 | 4160911 |
| 25 | 9.8 | 100 | | 240 | 260 | 4161002 | 4161011 |
| 35 | 11.3 | | | 336 | 360 | 4161102 | 4161111 |
| 50 | 13.5 | | | 480 | 535 | 4161202 | 4161211 |
| 95 | 17.8 | | | 912 | 930 | 4161402 | |
| 120 | 19.4 | | | 1152 | 1160 | 4161502 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160103 | 4160101 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | 4160103K | 4160101K |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160203 | 4160201 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160203K | 4160201K |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160303 | 4160301 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160303K | 4160301K |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160403 | 4160401 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160403K | 4160401K |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160503 | 4160501 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160503K | 4160501K |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160603 | 4160601 |
| 4 | 4.3 | | 600 | 38.4 | 49 | 4160603K | 4160601K |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160703 | 4160701 |
| 6 | 4.8 | | 400 | 57.6 | 67 | | 4160701K |
| 10 | 6.5 | 100 | | 96 | 120 | 4160803 | 4160801 |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160903 | 4160901 |
| 25 | 9.8 | 100 | | 240 | 260 | 4161003 | 4161001 |
| 35 | 11.3 | | | 336 | 360 | | 4161101 |
| 50 | 13.5 | | | 480 | 535 | | 4161201 |
| 70 | 15.6 | | | 672 | 735 | | 4161301 |
| 95 | 17.8 | | | 912 | 930 | | 4161401 |
| 120 | 19.4 | | | 1152 | 1160 | | 4161501 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | green/yellow | dark blue |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160100 | 4160114 |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | | 4160114K |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160200 | 4160214 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160200K | 4160214K |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160300 | 4160314 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160300K | 4160314K |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160400 | 4160414 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160400K | 4160414K |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160500 | 4160514 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160500K | 4160514K |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160600 | 4160614 |
| 4 | 4.3 | | 600 | 38.4 | 49 | 4160600K | |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160700 | 4160714 |
| 6 | 4.8 | | 400 | 57.6 | 67 | 4160700K | 4160714K |
| 10 | 6.5 | 100 | | 96 | 120 | 4160800 | 4160814 |
| 16 | 8.6 | 100 | | 153.6 | 185 | 4160900 | 4160914 |
| 25 | 9.8 | 100 | | 240 | 260 | 4161000 | |
| 35 | 11.3 | | | 336 | 360 | 4161100 | |
| 50 | 13.5 | | | 480 | 535 | 4161200 | |
| 70 | 15.6 | | | 672 | 735 | 4161300 | |
| 95 | 17.8 | | | 912 | 930 | 4161400 | |
| 120 | 19.4 | | | 1152 | 1160 | 4161500 | |

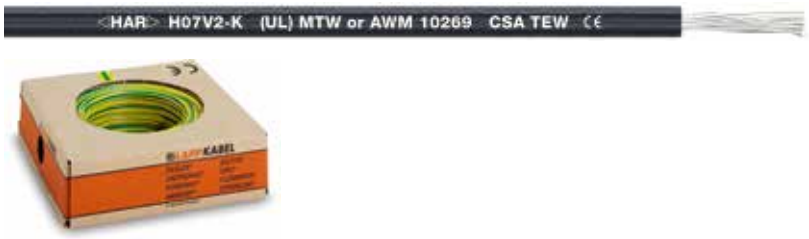
| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | blue/white | pink |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160126 | 4160108 |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160226 | 4160208 |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160226K | |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160326 | 4160308 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160326K | |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160426 | 4160408 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160426K | |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160526 | |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160626 | |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160726 | |
| 10 | 6.5 | 100 | | 96 | 120 | 4160826 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | white/blue | white/orange |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.5 | 100 | | 4.8 | 11 | 4160144 | |
| 0.5 | 2.5 | | 3000 | 4.8 | 11 | 4160144K | |
| 0.75 | 2.7 | 100 | | 7.2 | 14 | 4160244 | |
| 0.75 | 2.7 | | 2500 | 7.2 | 14 | 4160244K | |
| 1 | 2.9 | 100 | | 9.6 | 16 | 4160344 | 4160385 |
| 1 | 2.9 | | 2000 | 9.6 | 16 | 4160344K | |
| 1.5 | 3.1 | 100 | | 14.4 | 22 | 4160444 | 4160485 |
| 1.5 | 3.1 | | 1500 | 14.4 | 22 | 4160444K | |
| 2.5 | 3.7 | 100 | | 24 | 37 | 4160544 | 4160585 |
| 2.5 | 3.7 | | 900 | 24 | 37 | 4160544K | |
| 4 | 4.3 | 100 | | 38.4 | 49 | 4160644 | 4160685 |
| 6 | 4.8 | 100 | | 57.6 | 67 | 4160744 | 4160785 |
| 10 | 6.5 | 100 | | 96 | 120 | 4160844 | 4160885 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Non-harmonised, nominal cross-sections: 0.5 mm², 0.75 mm², 1 mm², 16 mm²
*for conventional use, **for careful bending; “OD” = outer diameter
The outer diameters stated in the part number table are maximum values.

# ÖLFLEX® WIRE MS 2.2

UL-listed (MTW), CSA (TEW), <HAR> H07V2-K: max. +90°C, UL (AWM): Umax = 1 kV, tinned-copper strands




**Info**

- Higher maximum conductor temperature - H07V2-K: +90 °C according to EN 50525-2-31
- Higher voltage range according to UL
- CPR: Article number choice under www.lapp.com

## Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easier storage; increases the cost-effectiveness of the production process
- Works with „Conductor end sleeves XL, insulated“

## Application range

- Factory wiring
- Field wiring
- Frequency converter power supply
- Internal wiring of devices and in control cabinets
- Protected installation in and on lighting equipments

## Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

## Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/ kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H07V2-K acc. EN 50525-2-31, UL AWM style 10269 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), (UL) MTW (by UL acc. UL standard UL 1063, U.I. Lapp GmbH's (UL) MTW file number: E198296), CSA TEW (by CSA acc. CSA standard CSA C22.2 No. 127, CSA class 5835-01)

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

**Nominal voltage**
HAR / IEC: U0/U: 450/750 V;
UL (AWM): U: 1000 V;
UL (MTW): U: 600 V;
CSA (TEW): U: 600 V

**Temperature range**
Fixed installation:
HAR/IEC: -40°C to +90°C;
UL (AWM): up to +105°C;
UL (MTW): up to +90°C;
CSA (TEW): up to +105°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.7 | 100 | 4.8 | 10 | | 4150105 | |
| 0.75 | 2.9 | 100 | 7.2 | 13 | 4150206 | 4150205 | |
| 1 | 3.1 | 100 | 9.6 | 16 | | 4150305 | |
| 1.5 | 3.4 | 100 | 14.4 | 22 | 4150406 | 4150405 | 4150410 |
| 2.5 | 4 | 100 | 24 | 37 | 4150506 | 4150505 | |
| 4 | 4.6 | 100 | 38.4 | 49 | 4150606 | 4150605 | 4150610 |
| 6 | 5.1 | 100 | 57.6 | 71 | 4150706 | 4150705 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | orange | red | blue |
|---|---|---|---|---|---|---|---|
| 0.5 | 2.7 | 100 | 4.8 | 10 | | 4150104 | 4150102 |
| 0.75 | 2.9 | 100 | 7.2 | 13 | | 4150204 | 4150202 |
| 1 | 3.1 | 100 | 9.6 | 16 | 4150309 | 4150304 | 4150302 |
| 1.5 | 3.4 | 100 | 14.4 | 22 | 4150409 | 4150404 | 4150402 |
| 2.5 | 4 | 100 | 24 | 37 | 4150509 | 4150504 | 4150502 |
| 4 | 4.6 | 100 | 38.4 | 49 | | 4150604 | 4150602 |
| 6 | 5.1 | 100 | 57.6 | 71 | | 4150704 | 4150702 |
| 10 | 6.8 | 100 | 96 | 120 | | 4150804 | 4150802 |
| 16 | 9 | 100 | 153.6 | 185 | | 4150904 | 4150902 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black | green/ yellow |
|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.7 | 100 | | 4.8 | 10 | 4150103 | 4150101 | |
| 0.75 | 2.9 | 100 | | 7.2 | 13 | 4150203 | 4150201 | |
| 1 | 3.1 | 100 | | 9.6 | 16 | 4150303 | 4150301 | 4150300 |
| 1 | 3.1 | | 2000 | 9.6 | 16 | | 4150301K | |
| 1.5 | 3.4 | 100 | | 14.4 | 22 | 4150403 | 4150401 | 4150400 |
| 1.5 | 3.4 | | 1500 | 14.4 | 22 | | 4150401K | |
| 2.5 | 4 | 100 | | 24 | 37 | 4150503 | 4150501 | 4150500 |
| 2.5 | 4 | | 900 | 24 | 37 | | 4150501K | |
| 4 | 4.6 | 100 | | 38.4 | 49 | 4150603 | 4150601 | 4150600 |
| 4 | 4.6 | | 600 | 38.4 | 49 | 4150603K | 4150601K | |
| 6 | 5.1 | 100 | | 57.6 | 71 | | 4150701 | 4150700 |
| 10 | 6.8 | 100 | | 96 | 120 | | 4150801 | 4150800 |
| 16 | 9 | 100 | | 153.6 | 185 | | 4150901 | 4150900 |
| 25 | 10.2 | 100 | | 240 | 260 | | 4151001 | 4151000 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black | green/ yellow |
|---|---|---|---|---|---|---|---|---|
| 35 | 11.7 | | | 336 | 360 | | 4151101 | 4151100 |
| 50 | 13.9 | | | 480 | 535 | | 4151201 | |
| 70 | 16 | | | 672 | 735 | | 4151301 | |
| 95 | 18.2 | | | 912 | 930 | | 4151401 | |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | dark blue |
|---|---|---|---|---|---|---|
| 0.5 | 2.7 | 100 | | 4.8 | 10 | 4150114 |
| 0.75 | 2.9 | 100 | | 7.2 | 13 | 4150214 |
| 0.75 | 2.9 | | 2500 | 7.2 | 13 | 4150214K |
| 1.5 | 3.4 | 100 | | 14.4 | 22 | 4150414 |
| 2.5 | 4 | 100 | | 24 | 37 | 4150514 |
| 4 | 4.6 | 100 | | 38.4 | 49 | 4150614 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Non-harmonsided, nominal cross-sections: 0.5 mm², 0.75 mm², 1 mm², 16 mm², 50 mm², 70 mm², 95 mm², 120 mm²
*for conventional use, **for careful bending; „OD“ = outer diameter
The outer diameters stated in the part number table are maximum values.

# H05Z1-K

Harmonised; halogen-free to protect human life, the environment and material assets




**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free and harmonised (HAR) up to +70°C
- For expanded ambient temperatures see H05Z-K 90°C

## Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

## Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures see H05Z-K 90°C

## Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-31

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

## Technical data

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V AC

**Current rating**
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
During installation:
+5°C to +70°C
Fixed installation: -40°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | grey | blue | brown |
|---|---|---|---|---|---|---|---|
| 0.75 | 2.2 - 2.7 | 100 | 7.2 | 11 | 4724052 | 4724053 | 4724051 |
| 1 | 2.4 - 2.8 | 100 | 9.6 | 14 | 4724057 | 4724058 | 4724056 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | black | green/yellow |
|---|---|---|---|---|---|---|
| 0.75 | 2.2 - 2.7 | 100 | 7.2 | 11 | 4724050 | 4724054 |
| 1 | 2.4 - 2.8 | 100 | 9.6 | 14 | 4724055 | 4724059 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07Z1-K Type 2

Harmonised; halogen-free to protect human life, the environment and material assets

**Info**

- CPR: Article number
- Halogen-free and harmonised (HAR) up to +70°C
- For expanded ambient temperatures and higher conductor cross-sections see H07Z-K 90°C




## Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

## Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures and higher conductor cross-sections see H07Z-K 90°C

## Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2 and IEC 60332-3-24

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-31

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

## Technical data

**Conductor stranding**
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

**Nominal voltage**
U0/U: 450/ 750 V

**Test voltage**
2500 V

**Current rating**
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
During installation: +5°C to +70°C
Fixed installation: -40°C to +70°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | grey | blue | brown |
|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 100 | 14.4 | 20 | 4724062 | 4724063 | 4724061 |
| 2.5 | 3.4 - 4.1 | 100 | 24 | 32 | 4724067 | 4724068 | 4724066 |
| 4.0 | 3.9 - 4.8 | 100 | 38 | 45 | 4724072 | 4724073 | 4724071 |
| 6.0 | 4.4 - 5.3 | 100 | 58 | 65 | 4724077 | 4724078 | 4724076 |
| 10.0 | 5.7 - 6.8 | 100 | 96 | 110 | 4724082 | 4724083 | 4724081 |
| 16.0 | 6.7 - 8.1 | 100 | 154 | 170 | 4724087 | 4724088 | 4724086 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | Copper index (kg/km) | Weight (kg/km) | black | green/yellow |
|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.4 | 100 | 14.4 | 20 | 4724060 | 4724064 |
| 2.5 | 3.4 - 4.1 | 100 | 24 | 32 | 4724065 | 4724069 |
| 4.0 | 3.9 - 4.8 | 100 | 38 | 45 | 4724070 | 4724074 |
| 6.0 | 4.4 - 5.3 | 100 | 58 | 65 | 4724075 | 4724079 |
| 10.0 | 5.7 - 6.8 | 100 | 96 | 110 | 4724080 | 4724084 |
| 16.0 | 6.7 - 8.1 | 100 | 154 | 170 | 4724085 | 4724089 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

# H05Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets




**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures see ÖLFLEX® HEAT 125 SC

## Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

## Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures see ÖLFLEX® HEAT 125 SC

## Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-41

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V AC

**Current rating**
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.6 | 100 | | 4.8 | 9 | 4725061 | 4725051 | 4725111 | 4725091 |
| 0.5 | 2.1 - 2.6 | | 3000 | 4.8 | 9 | 4725061K | 4725051K | 4725111K | 4725091K |
| 0.75 | 2.2 - 2.8 | 100 | | 7.2 | 11 | 4725062 | 4725052 | 4725112 | 4725092 |
| 0.75 | 2.2 - 2.8 | | 2500 | 7.2 | 11 | 4725062K | 4725052K | 4725112K | 4725092K |
| 1 | 2.4 - 2.9 | 100 | | 9.6 | 14 | 4725063 | 4725053 | 4725113 | 4725093 |
| 1 | 2.4 - 2.9 | | 2000 | 9.6 | 14 | 4725063K | 4725053K | 4725113K | 4725093K |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | red | violet | blue | green |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.6 | 100 | | 4.8 | 9 | 4725041 | 4725071 | 4725021 | 4725121 |
| 0.5 | 2.1 - 2.6 | | 3000 | 4.8 | 9 | 4725041K | 4725071K | 4725021K | 4725121K |
| 0.75 | 2.2 - 2.8 | 100 | | 7.2 | 11 | 4725042 | 4725072 | 4725022 | 4725122 |
| 0.75 | 2.2 - 2.8 | | 2500 | 7.2 | 11 | 4725042K | 4725072K | 4725022K | 4725122K |
| 1 | 2.4 - 2.9 | 100 | | 9.6 | 14 | 4725043 | 4725073 | 4725023 | 4725123 |
| 1 | 2.4 - 2.9 | | 2000 | 9.6 | 14 | 4725043K | 4725073K | 4725023K | 4725123K |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black | green/ yellow | dark blue |
|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.6 | 100 | | 4.8 | 9 | 4725031 | 4725011 | 4725001 | 4725141 |
| 0.5 | 2.1 - 2.6 | | 3000 | 4.8 | 9 | 4725031K | 4725011K | 4725001K | 4725141K |
| 0.75 | 2.2 - 2.8 | 100 | | 7.2 | 11 | 4725032 | 4725012 | 4725002 | 4725142 |
| 0.75 | 2.2 - 2.8 | | 2500 | 7.2 | 11 | 4725032K | 4725012K | 4725002K | 4725142K |
| 1 | 2.4 - 2.9 | 100 | | 9.6 | 14 | 4725033 | 4725013 | 4725003 | 4725143 |
| 1 | 2.4 - 2.9 | | 2000 | 9.6 | 14 | 4725033K | 4725013K | 4725003K | 4725143K |

| Conductor cross-section (mm²) | Outer diameter [mm] | Core colour | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | blue/white | pink |
|---|---|---|---|---|---|---|---|---|
| 0.5 | 2.1 - 2.6 | green/yellow | 100 | | 4.8 | 9 | | 4725081 |
| 0.5 | 2.1 - 2.6 | green/yellow | | 3000 | 4.8 | 9 | | 4725081K |
| 0.75 | 2.2 - 2.8 | green/yellow | 100 | | 7.2 | 11 | | 4725082 |
| 0.75 | 2.2 - 2.8 | green/yellow | | 2500 | 7.2 | 11 | | 4725082K |
| 1 | 2.4 - 2.9 | green/yellow | 100 | | 9.6 | 14 | | 4725083 |
| 1 | 2.4 - 2.9 | green/yellow | | 2000 | 9.6 | 14 | 4725263K | 4725083K |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# H07Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC




## Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

## Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC

## Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-41
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Minimum bending radius**
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

**Nominal voltage**
U0/U: 450/ 750 V

**Test voltage**
2500 V

**Current rating**
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

**Temperature range**
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | grey | white | yellow | orange |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.5 | 100 | | 14.4 | 20 | 4726061 | 4726051 | 4726111 | 4726091 |
| 1.5 | 2.8 - 3.5 | | 1500 | 14.4 | 20 | 4726061K | 4726051K | 4726111K | 4726091K |
| 2.5 | 3.4 - 4.3 | 100 | | 24 | 32 | 4726062 | 4726052 | 4726112 | 4726092 |
| 2.5 | 3.4 - 4.3 | | 900 | 24 | 32 | 4726062K | 4726052K | 4726112K | 4726092K |
| 4 | 3.9 - 4.9 | 100 | | 38.4 | 45 | 4726063 | 4726053 | 4726113 | 4726093 |
| 4 | 3.9 - 4.9 | | 600 | 38.4 | 45 | 4726063K | 4726053K | 4726113K | 4726093K |
| 6 | 4.4 - 5.5 | 100 | | 57.6 | 65 | 4726064 | 4726054 | 4726114 | 4726094 |
| 6 | 4.4 - 5.5 | | 400 | 57.6 | 65 | 4726064K | 4726054K | 4726114K | 4726094K |
| 10 | 5.7 - 7.1 | 100 | | 96 | 110 | 4726065 | 4726055 | 4726115 | 4726095 |
| 16 | 6.7 - 8.4 | 100 | | 153.6 | 170 | 4726066 | 4726056 | 4726116 | 4726096 |
| 25 | 8.4 - 10.6 | 100 | | 240 | 290 | 4726067 | 4726057 | 4726117 | 4726097 |
| 35 | 9.7 - 12.1 | | | 336 | 380 | 4726068 | 4726058 | 4726118 | 4726098 |
| 50 | 11.5 - 14.4 | | | 480 | 530 | 4726069 | 4726059 | 4726119 | 4726099 |
| 70 | 13.2 - 16.6 | | | 672 | 750 | 4727061 | 4727051 | 4727111 | 4727091 |
| 95 | 15.1 - 18.8 | | | 912 | 1000 | 4727062 | 4727052 | 4727112 | 4727092 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | red | violet | blue | green |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.5 | 100 | | 14.4 | 20 | 4726041 | 4726071 | 4726021 | 4726121 |
| 1.5 | 2.8 - 3.5 | | 1500 | 14.4 | 20 | 4726041K | 4726071K | 4726021K | 4726121K |
| 2.5 | 3.4 - 4.3 | 100 | | 24 | 32 | 4726042 | 4726072 | 4726022 | 4726122 |
| 2.5 | 3.4 - 4.3 | | 900 | 24 | 32 | 4726042K | 4726072K | 4726022K | 4726122K |
| 4 | 3.9 - 4.9 | 100 | | 38.4 | 45 | 4726043 | 4726073 | 4726023 | 4726123 |
| 4 | 3.9 - 4.9 | | 600 | 38.4 | 45 | 4726043K | 4726073K | 4726023K | 4726123K |
| 6 | 4.4 - 5.5 | 100 | | 57.6 | 65 | 4726044 | 4726074 | 4726024 | 4726124 |
| 6 | 4.4 - 5.5 | | 400 | 57.6 | 65 | 4726044K | 4726074K | 4726024K | 4726124K |
| 10 | 5.7 - 7.1 | 100 | | 96 | 110 | 4726045 | 4726075 | 4726025 | 4726125 |
| 16 | 6.7 - 8.4 | 100 | | 153.6 | 170 | 4726046 | 4726076 | 4726026 | 4726126 |
| 25 | 8.4 - 10.6 | 100 | | 240 | 290 | 4726047 | 4726077 | 4726027 | 4726127 |
| 35 | 9.7 - 12.1 | | | 336 | 380 | 4726048 | 4726078 | 4726028 | 4726128 |
| 50 | 11.5 - 14.4 | | | 480 | 530 | 4726049 | 4726079 | 4726029 | 4726129 |
| 70 | 13.2 - 16.6 | | | 672 | 750 | 4727041 | 4727071 | 4727021 | 4727121 |
| 95 | 15.1 - 18.8 | | | 912 | 1000 | 4727042 | 4727072 | 4727022 | 4727122 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | brown | black | green/ yellow | dark blue |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.5 | 100 | | 14.4 | 20 | 4726031 | 4726011 | 4726001 | 4726141 |
| 1.5 | 2.8 - 3.5 | | 1500 | 14.4 | 20 | 4726031K | 4726011K | 4726001K | 4726141K |
| 2.5 | 3.4 - 4.3 | 100 | | 24 | 32 | 4726032 | 4726012 | 4726002 | 4726142 |
| 2.5 | 3.4 - 4.3 | | 900 | 24 | 32 | 4726032K | 4726012K | 4726002K | 4726142K |
| 4 | 3.9 - 4.9 | 100 | | 38.4 | 45 | 4726033 | 4726013 | 4726003 | 4726143 |
| 4 | 3.9 - 4.9 | | 600 | 38.4 | 45 | 4726033K | 4726013K | 4726003K | 4726143K |
| 6 | 4.4 - 5.5 | 100 | | 57.6 | 65 | 4726034 | 4726014 | 4726004 | 4726144 |
| 6 | 4.4 - 5.5 | | 400 | 57.6 | 65 | 4726034K | 4726014K | 4726004K | 4726144K |
| 10 | 5.7 - 7.1 | 100 | | 96 | 110 | 4726035 | 4726015 | 4726005 | 4726145 |
| 16 | 6.7 - 8.4 | 100 | | 153.6 | 170 | 4726036 | 4726016 | 4726006 | 4726146 |
| 25 | 8.4 - 10.6 | 100 | | 240 | 290 | 4726037 | 4726017 | 4726007 | 4726147 |
| 35 | 9.7 - 12.1 | | | 336 | 380 | 4726038 | 4726018 | 4726008 | 4726148 |
| 50 | 11.5 - 14.4 | | | 480 | 530 | 4726039 | 4726019 | 4726009 | 4726149 |
| 70 | 13.2 - 16.6 | | | 672 | 750 | 4727031 | 4727011 | 4727001 | 4727141 |
| 95 | 15.1 - 18.8 | | | 912 | 1000 | 4727032 | 4727012 | 4727002 | 4727142 |

| Conductor cross-section (mm²) | Outer diameter [mm] | m/ring | m/box | Copper index (kg/km) | Weight (kg/km) | blue/white | pink |
|---|---|---|---|---|---|---|---|
| 1.5 | 2.8 - 3.5 | 100 | | 14.4 | 20 | | 4726081 |
| 1.5 | 2.8 - 3.5 | | 1500 | 14.4 | 20 | 4726261K | 4726081K |
| 2.5 | 3.4 - 4.3 | 100 | | 24 | 32 | | 4726082 |
| 2.5 | 3.4 - 4.3 | | 900 | 24 | 32 | 4726262K | 4726082K |
| 4 | 3.9 - 4.9 | 100 | | 38.4 | 45 | | 4726083 |
| 4 | 3.9 - 4.9 | | 600 | 38.4 | 45 | | 4726083K |
| 6 | 4.4 - 5.5 | 100 | | 57.6 | 65 | | 4726084 |
| 6 | 4.4 - 5.5 | | 400 | 57.6 | 65 | | 4726084K |
| 10 | 5.7 - 7.1 | 100 | | 96 | 110 | | 4726085 |
| 16 | 6.7 - 8.4 | 100 | | 153.6 | 170 | | 4726086 |
| 25 | 8.4 - 10.6 | 100 | | 240 | 290 | | 4726087 |
| 35 | 9.7 - 12.1 | | | 336 | 380 | | 4726088 |
| 50 | 11.5 - 14.4 | | | 480 | 530 | | 4726089 |
| 70 | 13.2 - 16.6 | | | 672 | 750 | | 4727081 |
| 95 | 15.1 - 18.8 | | | 912 | 1000 | | 4727082 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

# LiYCY

Screened, PVC-based wiring single core




## Benefits

- Prevention of electromagnetic interference to other components

## Application range

- Wiring of measuring instruments, switch cabinets, electrical components, transmitters and receivers
- In EMC-sensitive environments

## Product features

- Flame-retardant according IEC 60332-1-2
- The outer diameters stated in the part number table are maximum values

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Strands of tinned-copper wires
- Core insulation: Based on PVC
- Tinned-copper braiding
- Outer sheath: Based on PVC, transparent

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

**Peak operating voltage**
350 V (not for power transmission)

**Test voltage**
800 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

| Article number | Conductor cross-section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **LiYCY** | | | | |
| 4530101 | 0.14 | 2.8 | 7 | 13 |
| 4530102 | 0.25 | 3.3 | 9 | 18 |
| 4530103 | 0.5 | 3.6 | 15 | 20 |
| 4530104 | 0.75 | 3.9 | 18 | 31 |
| 4530105 | 1 | 4.7 | 25 | 35.9 |
| 4530106 | 1.5 | 5.1 | 30 | 39 |
| 4530107 | 2.5 | 6 | 35 | 55.3 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Building
## Installation









# NYM-J

Standard cable for plaster, brickwork and immovable concrete




**Info**

- CPR: Article number choice under www.lapp.com
- Standard cable for plaster and brickwork

## Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- Also suitable for outdoor use if protected against direct sunlight

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- VDE 0250 Part 204

## Product Make-up

- Bare copper wire conductor
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire
≥ 16 mm²: multi-wire

**Minimum bending radius**
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
J = with GN-YE protective conductor
O = without protective conductor

**Temperature range**
During installation: +5°C to +60°C
Fixed installation: -40°C to +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NYM-J** | | | | |
| 1600008 | 1 G 2,5 | 6.0 | 24 | 60 |
| 1600009 | 1 G 4 | 6.7 | 38 | 85 |
| 1600010 | 1 G 6 | 7.2 | 58 | 105 |
| 1600011 | 1 G 10 | 8.6 | 96 | 160 |
| 1600012 | 1 G 16 | 9.6 | 154 | 220 |
| 16000003 | 3 G 1,5 | 8.4 | 43 | 120 |
| 16000013 | 4 G 1,5 | 9.2 | 58 | 150 |
| 16000023 | 5 G 1,5 | 9.9 | 72 | 175 |
| 1600003 | 7 G 1,5 | 11.6 | 101 | 235 |
| 16000213 | 3 G 2,5 | 9.6 | 72 | 170 |
| 16000053 | 4 G 2,5 | 10.6 | 96 | 210 |
| 16000063 | 5 G 2,5 | 11.5 | 120 | 290 |
| 1600071 | 7 G 2,5 | 13.7 | 168 | 380 |
| 16010223 | 3 G 4 | 11.3 | 115 | 250 |
| 16000313 | 4 G 4 | 12.7 | 154 | 315 |
| 16000513 | 5 G 4 | 14.0 | 192 | 370 |
| 16010233 | 3 G 6 | 12.8 | 173 | 335 |
| 16000323 | 4 G 6 | 13.8 | 230 | 410 |
| 16000523 | 5 G 6 | 15.5 | 288 | 500 |
| 16000333 | 4 G 10 | 18.0 | 384 | 680 |
| 16000533 | 5 G 10 | 19.5 | 480 | 810 |
| 16000543 | 5 G 16 | 23.0 | 768 | 1200 |
| 16000353 | 4 G 25 | 26.0 | 960 | 1500 |
| 16000553 | 5 G 25 | 28.0 | 1200 | 1800 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NHXMH

Halogen-free; for plaster, bricks, concrete; at high density of people and valuable assets




**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free alternative to the PVC installation cable NYM

## Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- For buildings or industrial plants with a high density of people or valuable assets

## Product features

- Due to the use of halogen-free materials, the formation of toxic dioxins and furanes is considerably reduced in the event of a fire
- Minimizes damages to buildings and equipments that are caused by acidic fumes produced during combustion
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24

## Norm references / Approvals

- VDE 0250 part 214

## Product Make-up

- Bare copper wire conductor
- Core insulation: PE
- Filling compound over the core assembly
- Outer sheath: halogen-free polymer

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Fixed installation: 4 x outer diameter

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Maximum conductor temperature: +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NHXMH** | | | | |
| 16020003 | 3 G 1,5 | 8.5 | 43 | 120 |
| 16020013 | 4 G 1,5 | 9.3 | 58 | 145 |
| 16020023 | 5 G 1,5 | 10.0 | 72 | 170 |
| 1602003 | 7 G 1,5 | 10.8 | 101 | 210 |
| 16020103 | 3 G 2,5 | 9.4 | 72 | 160 |
| 16020123 | 5 G 2,5 | 11.0 | 120 | 230 |

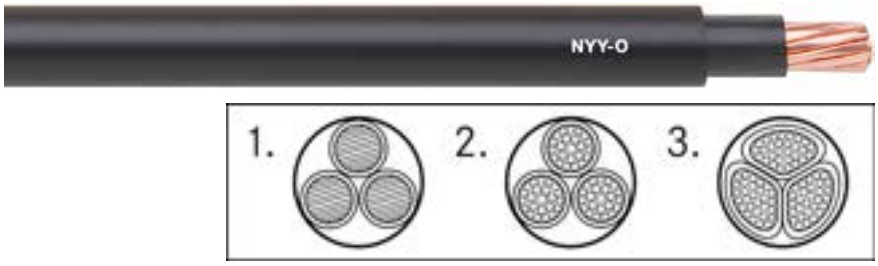
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NYY-J, NYY-O

Fixed installation, direct burial; PVC cable with different application areas

**Info**

- CPR: Article number choice under www.lapp.com
- Standard cable for direct burial with different application areas
- 0,6/1,0 kV alternative to the PVC installation cable NYM




## Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

## Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

## Norm references / Approvals

- HD 603/VDE 0276-603 (for 1 to 5 cores)
- HD 627/VDE 0276-627 (as from 7 cores)

## Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

**Protective conductor**
J = with GN-YE protective conductor
O = without protective conductor

**Temperature range**
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NYY-J** | | | | |
| 1550030 | 1 x 25rm | 13.0 | 240 | 380 |
| 1550038 | 1 x 35rm | 14.0 | 336 | 447 |
| 1550032 | 1 x 50rm | 15.0 | 480 | 650 |
| 1550033 | 1 x 70rm | 17.0 | 672 | 864 |
| 1550035 | 1 x 120rm | 21.0 | 1152 | 1400 |
| 1550037 | 1 x 185rm | 25.0 | 1776 | 2080 |
| 15500013 | 3 x 1,5re | 12.0 | 43 | 223 |
| 15500023 | 4 x 1,5re | 13.0 | 58 | 256 |
| 15500033 | 5 x 1,5re | 14.0 | 72 | 293 |
| 1550004 | 7 x 1,5re | 15.0 | 101 | 360 |
| 1550005 | 10 x 1,5re | 18.0 | 144 | 520 |
| 1550006 | 12 x 1,5re | 19.0 | 173 | 560 |
| 1550084 | 14 x 1,5re | 20.0 | 202 | 620 |
| 1550007 | 16 x 1,5re | 21.0 | 230 | 680 |
| 1550008 | 19 x 1,5re | 22.0 | 274 | 760 |
| 1550009 | 24 x 1,5re | 24.0 | 346 | 900 |
| 1550086 | 30 x 1,5re | 26.0 | 432 | 1100 |
| 15500103 | 3 x 2,5re | 13.0 | 72 | 272 |
| 15500113 | 4 x 2,5re | 14.0 | 96 | 316 |
| 15500123 | 5 x 2,5re | 15.0 | 120 | 323 |
| 1550013 | 7 x 2,5re | 16.0 | 168 | 450 |
| 1550090 | 10 x 2,5re | 20.0 | 240 | 630 |
| 1550091 | 12 x 2,5re | 20.0 | 288 | 680 |
| 1550092 | 14 x 2,5re | 21.0 | 336 | 790 |
| 1550094 | 19 x 2,5re | 23.0 | 456 | 990 |

# Power and control cables

LAPP

Building Installation • Cables for direct burial

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1550096 | 24 x 2,5re | 26.0 | 576 | 1300 |
| 1550097 | 30 x 2,5re | 28.0 | 720 | 1400 |
| 15500583 | 3 x 4re | 15.0 | 115 | 373 |
| 15500203 | 4 x 4re | 16.0 | 154 | 439 |
| 15500263 | 5 x 4re | 17.0 | 192 | 510 |
| 15500593 | 3 x 6re | 16.0 | 173 | 466 |
| 15500213 | 4 x 6re | 17.0 | 230 | 547 |
| 15500273 | 5 x 6re | 19.0 | 288 | 640 |
| 15500603 | 3 x 10re | 18.0 | 288 | 629 |
| 15500223 | 4 x 10re | 19.0 | 384 | 743 |
| 15500823 | 5 x 10re | 21.0 | 480 | 899 |
| 15500613 | 3 x 16re | 20.0 | 461 | 850 |
| 15500233 | 4 x 16re | 22.0 | 614 | 1039 |
| 15500833 | 5 x 16re | 23.0 | 768 | 1240 |
| 15500713 | 3 x 25rm/16re | 25.0 | 874 | 1595 |
| 15500243 | 4 x 25rm | 27.0 | 960 | 1620 |
| 15500153 | 3 x 35sm/16re | 27.0 | 1162 | 1718 |
| 15500753 | 4 x 35sm | 27.0 | 1344 | 1916 |
| 15500163 | 3 x 50sm/25rm | 31.0 | 1680 | 2383 |
| 15500253 | 4 x 50sm | 31.0 | 1920 | 2639 |
| 15500173 | 3 x 70sm/35sm | 33.0 | 2352 | 3196 |
| 15500763 | 4 x 70sm | 35.0 | 2688 | 3576 |
| 15500183 | 3 x 95sm/50sm | 38.0 | 3216 | 4271 |
| 15500773 | 4 x 95sm | 40.0 | 3648 | 4746 |
| 15500723 | 3 x 120sm/70sm | 41.0 | 4128 | 5281 |
| 15500783 | 4 x 120sm | 43.0 | 4608 | 5813 |
| 15500733 | 3 x 150sm/70sm | 46.0 | 4992 | 6408 |
| 15500793 | 4 x 150sm | 48.0 | 5760 | 7263 |
| 15500743 | 3 x 185sm/95sm | 50.0 | 6240 | 7909 |
| 15500803 | 4 x 185sm | 53.0 | 7104 | 8905 |
| 15500193 | 3 x 240sm/120sm | 57.0 | 8064 | 10162 |
| 15500813 | 4 x 240sm | 60.0 | 9216 | 11430 |
| **NYY-O** | | | | |
| 1550205 | 1 x 10re | 10.0 | 96 | 176 |
| 1550206 | 1 x 16re | 11.0 | 154 | 239 |
| 1550207 | 1 x 25rm | 13.0 | 240 | 380 |
| 1550208 | 1 x 35rm | 14.0 | 336 | 447 |
| 1550209 | 1 x 50rm | 15.0 | 480 | 650 |
| 1550210 | 1 x 70rm | 17.0 | 672 | 864 |
| 1550211 | 1 x 95rm | 19.0 | 912 | 1132 |
| 1550212 | 1 x 120rm | 21.0 | 1152 | 1405 |
| 1550213 | 1 x 150rm | 22.0 | 1440 | 1710 |
| 1550214 | 1 x 185rm | 25.0 | 1776 | 2080 |
| 1550215 | 1 x 240rm | 27.0 | 2304 | 2669 |
| 1550216 | 1 x 300rm | 30.0 | 2880 | 3305 |
| 1550218 | 1 x 500rm | 39.0 | 4800 | 5400 |
| 15502003 | 2 x 1,5re | 11.0 | 29 | 210 |
| 15502193 | 2 x 2,5re | 12.0 | 48 | 250 |
| 15502203 | 2 x 4re | 14.0 | 77 | 360 |
| 15502213 | 2 x 6re | 15.0 | 115 | 400 |
| 15502223 | 2 x 10re | 17.0 | 192 | 500 |
| 15502533 | 4 x 16re | 22.0 | 614 | 1039 |
| 15502543 | 4 x 25rm | 27.0 | 960 | 1620 |
| 15502563 | 4 x 50sm | 31.0 | 1920 | 2639 |
| 15502573 | 4 x 70sm | 35.0 | 2688 | 3576 |
| 15502583 | 4 x 95sm | 40.0 | 3648 | 4746 |

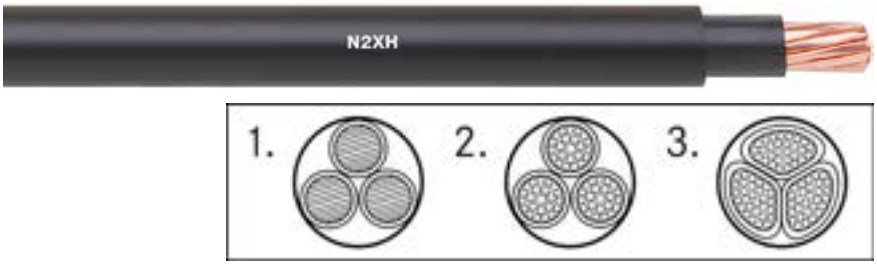
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# N2XH

Halogen-free power cable with rated voltage 0,6/1 kV for fixed installation

**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free alternative to the PVC installation cable NYY-J, NYY-O




## Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

## Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- HD 604/VDE 0276-604

## Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Outer sheath: halogen-free, thermoplastic polyolefin compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

**Protective conductor**
J = with GN-YE protective conductor
O = without protective conductor

**Temperature range**
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **N2XH-O** | | | | |
| 1550556 | 1x1,5 RE | 5.5 | 14 | 53 |
| 1550557 | 1x2,5 RE | 5.8 | 24 | 58 |
| 3017600 | 1x4 RE | 6.2 | 38 | 69 |
| 30017645 | 1x6 RE | 6.5 | 58 | 90 |
| 30017646 | 1x10 RE | 7.3 | 96 | 131 |
| 1550561 | 1x16 RE | 8.6 | 154 | 197 |
| 30017648 | 1x25 RM | 10.2 | 240 | 293 |
| 30017649 | 1x35 RM | 11.3 | 336 | 389 |
| 30017650 | 1x50 RM | 12.7 | 480 | 517 |
| 30017651 | 1x70 RM | 14.6 | 672 | 717 |
| 30017652 | 1x95 RM | 16.3 | 912 | 972 |
| 30017653 | 1x120 RM | 18.3 | 1152 | 1215 |
| 3017601 | 1x150 RM | 20.0 | 1440 | 1494 |
| 3017602 | 1x185 RM | 22.6 | 1776 | 1855 |
| 3017603 | 1x240 RM | 25.2 | 2304 | 2387 |
| 1112935 | 1x300 RM | 27.9 | 2880 | 2971 |
| 30017654 | 2x1,5 RE | 12.0 | 29 | 185 |
| 30017655 | 2x2,5 RE | 13.0 | 48 | 220 |
| 30017656 | 2x4 RE | 14.0 | 77 | 275 |
| 30017657 | 2x6 RE | 15.0 | 115 | 335 |
| 30017658 | 2x10 RE | 16.0 | 192 | 450 |
| 1550578 | 2x16 RE | 18.0 | 307 | 625 |
| 3017605 | 2x25 RM | 21.0 | 480 | 950 |
| 35002466 | 3x1,5 RE | 8.9 | 43 | 125 |
| 1550581 | 3x2,5 RE | 9.8 | 72 | 163 |

# Power and control cables

LAPP

## Building Installation • VDE standard cables

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **N2XH-J** | | | | |
| 1112940 | 1x25 RM | 10.2 | 240 | 293 |
| 1112941 | 1x35 RM | 11.3 | 336 | 389 |
| 1112942 | 1x50 RM | 12.7 | 480 | 517 |
| 1112943 | 1x70 RM | 14.6 | 672 | 717 |
| 1112944 | 1x95 RM | 16.3 | 912 | 972 |
| 1112945 | 1x120 RM | 18.3 | 1152 | 1215 |
| 1112946 | 1x150 RM | 20.0 | 1440 | 1494 |
| 1112947 | 1x185 RM | 22.6 | 1776 | 1855 |
| 1112948 | 1x240 RM | 25.2 | 2304 | 2387 |
| 1112949 | 1x300 RM | 27.9 | 2880 | 2971 |
| 30017659 | 3x1,5 RE | 8.9 | 43 | 125 |
| 30017660 | 3x2,5 RE | 9.8 | 72 | 163 |
| 30017661 | 3x4 RE | 10.8 | 115 | 219 |
| 30017662 | 3x6 RE | 11.8 | 173 | 289 |
| 30017663 | 3x10 RE | 13.6 | 288 | 431 |
| 1550601 | 3x16 RE | 16.7 | 461 | 638 |
| 30017665 | 3x25 RM | 20.2 | 720 | 1015 |
| 1550603 | 3x35 SM | 22.3 | 1080 | 1231 |
| 1550604 | 3x50 SM | 25.5 | 1440 | 1652 |
| 1550605 | 3x70 SM | 30.0 | 2016 | 2455 |
| 1550606 | 3x95 SM | 32.0 | 2736 | 3260 |
| 1550607 | 3x120 SM | 35.0 | 3456 | 4000 |
| 1550608 | 3x150 SM | 39.0 | 4320 | 5100 |
| 1550609 | 3x185 SM | 44.0 | 5328 | 6160 |
| 1550610 | 3x240 SM | 49.0 | 6912 | 8000 |
| 30017671 | 4x1,5 RE | 9.7 | 58 | 147 |
| 30017672 | 4x2,5 RE | 10.6 | 96 | 195 |
| 30017673 | 4x4 RE | 11.7 | 154 | 266 |
| 30017674 | 4x6 RE | 12.9 | 230 | 355 |
| 30017675 | 4x10 RE | 15.2 | 384 | 547 |
| 1550616 | 4x16 RE | 18.3 | 614 | 839 |
| 30017677 | 4x25 RM | 22.6 | 960 | 1294 |
| 1550618 | 4x35 SM | 25.8 | 1344 | 1605 |
| 1550619 | 4x50 SM | 29.4 | 1920 | 2154 |
| 1550620 | 4x70 SM | 34.4 | 2688 | 3047 |
| 1550621 | 4x95 SM | 38.6 | 3648 | 4102 |
| 1550622 | 4x120 SM | 42.4 | 4608 | 5062 |
| 1550623 | 4x150 SM | 47.2 | 5760 | 6256 |
| 1550624 | 4x185 SM | 52.0 | 7104 | 7751 |
| 1550625 | 4x240 SM | 58.6 | 9216 | 10047 |
| 30017683 | 5x1,5 RE | 10.5 | 72 | 174 |
| 30017684 | 5x2,5 RE | 11.5 | 120 | 233 |
| 30017685 | 5x4 RE | 12.7 | 192 | 319 |
| 30017686 | 5x6 RE | 14.2 | 288 | 437 |
| 30017687 | 5x10 RE | 17.0 | 480 | 682 |
| 1550631 | 5x16 RE | 20.2 | 768 | 1036 |
| 30017689 | 5x25 RM | 24.9 | 1200 | 1584 |
| 1550633 | 5x35 RM | 28.4 | 1680 | 2155 |
| 30017690 | 7x1,5 RE | 11.3 | 101 | 214 |
| 30017691 | 7x2,5 RE | 12.4 | 168 | 291 |
| 30017692 | 7x4 RE | 17.0 | 269 | 540 |
| 3017612 | 10x1,5 RE | 14.0 | 144 | 299 |
| 3017613 | 10x2,5 RE | 15.8 | 240 | 419 |
| 30017693 | 12x1,5 RE | 14.7 | 173 | 342 |
| 30017694 | 12x2,5 RE | 16.4 | 288 | 480 |
| 3017614 | 12x4 RE | 21.0 | 461 | 805 |
| 3017615 | 14x1,5 RE | 17.0 | 202 | 480 |
| 3017616 | 14x2,5 RE | 19.0 | 336 | 635 |
| 3017617 | 19x1,5 RE | 18.0 | 274 | 600 |
| 3017618 | 19x2,5 RE | 21.0 | 456 | 810 |
| 3017619 | 24x1,5 RE | 20.2 | 346 | 625 |
| 3017620 | 24x2,5 RE | 24.0 | 576 | 990 |
| 3017621 | 30x1,5 RE | 21.3 | 432 | 738 |
| 3017622 | 30x2,5 RE | 23.7 | 720 | 1045 |
| 1550649 | 3x50/25 SM | 28.5 | 1680 | 2100 |
| 1550650 | 3x70/35 SM | 31.4 | 2352 | 2800 |
| 1550651 | 3x95/50 SM | 34.9 | 3216 | 3750 |
| 1550652 | 3x120/70 SM | 38.0 | 4128 | 4750 |
| 1550653 | 3x150/70 SM | 43.3 | 4992 | 5750 |
| 1550654 | 3x185/95 SM | 47.2 | 6240 | 7200 |
| 1550655 | 3x240/120 SM | 53.4 | 8064 | 9300 |

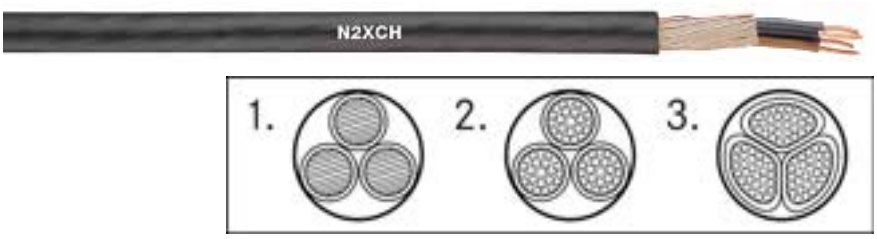
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# N2XCH

Halogen-free power cable with concentric copper conductor

**Info**

- CPR: Article number choice under www.lapp.com
- Halogen-free alternative to the PVC installation cable NYCY
- With concentric copper conductor




## Benefits

- Concentric conductor above all as PE

## Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

## Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- HD 604/VDE 0276-604

## Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Concentric conductor: bare copper wires
- Outer sheath: halogen-free, thermoplastic polyolefin compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

**Temperature range**
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

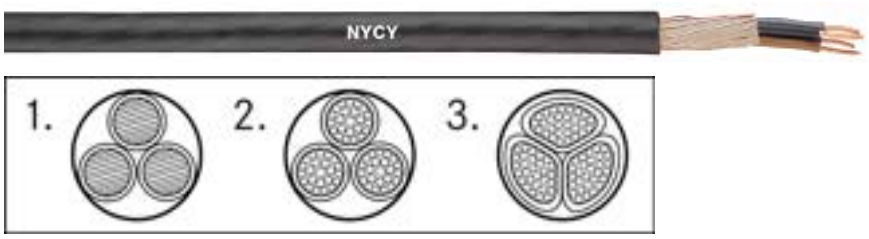
| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **N2XCH** | | | | |
| 30017695 | 2x1,5 RE/1,5 | 11.1 | 53 | 172 |
| 30017696 | 2x2,5 RE/2,5 | 11.9 | 80 | 213 |
| 30017697 | 2x4 RE/4 | 14.0 | 122 | 322 |
| 30017698 | 2x6 RE/6 | 15.0 | 183 | 410 |
| 30017699 | 2x10 RE/10 | 17.0 | 311 | 550 |
| 1550661 | 2x16 RE/16 | 19.0 | 490 | 790 |
| 30017701 | 3x1,5 RE/1,5 | 11.5 | 67 | 190 |
| 30017702 | 3x2,5 RE/2,5 | 12.3 | 103 | 239 |
| 30017703 | 3x4 RE/4 | 13.5 | 160 | 314 |
| 30017704 | 3x6 RE/6 | 14.9 | 242 | 410 |
| 30017705 | 3x10 RE/10 | 16.8 | 406 | 600 |
| 1550667 | 3x16 RE/16 | 19.9 | 643 | 896 |
| 30017707 | 3x25 RM/16 | 25.3 | 1001 | 1360 |
| 30017708 | 3x35 RM/16 | 29.2 | 1400 | 1795 |
| 1550670 | 3x50 SM/25 | 32.0 | 2003 | 2460 |
| 1550671 | 3x70 SM/35 | 36.0 | 2794 | 3080 |
| 1550672 | 3x95 SM/50 | 39.0 | 3296 | 4310 |
| 1550673 | 3x120 SM/70 | 42.0 | 4785 | 5233 |
| 1550674 | 3x150 SM/70 | 48.0 | 5100 | 5788 |
| 1550675 | 3x185 SM/95 | 49.5 | 6381 | 7150 |
| 1550676 | 3x240 SM/120 | 54.0 | 8240 | 9273 |
| 30017716 | 4x1,5 RE/1,5 | 12.2 | 80 | 217 |
| 30017717 | 4x2,5 RE/2,5 | 13.2 | 129 | 275 |
| 30017718 | 4x4 RE/4 | 14.5 | 202 | 365 |
| 30017719 | 4x6 RE/6 | 15.9 | 296 | 479 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 30017720 | 4x10 RE/10 | 18.0 | 504 | 709 |
| 1550682 | 4x16 RE/16 | 21.5 | 796 | 1068 |
| 30017722 | 4x25 RM/16 | 25.6 | 1142 | 1526 |
| 30017723 | 4x35 RM/16 | 26.9 | 1526 | 1814 |
| 1550685 | 4x50 SM/25 | 29.6 | 2203 | 2405 |
| 1550686 | 4x70 SM/35 | 34.0 | 3082 | 3378 |
| 1550687 | 4x95 SM/50 | 38.5 | 4208 | 4568 |
| 1550688 | 4x120 SM/70 | 44.7 | 5388 | 5773 |
| 1550689 | 4x150 SM/70 | 46.6 | 6540 | 6921 |
| 1550690 | 4x185 SM/95 | 53.8 | 8195 | 8866 |
| 1550691 | 4x240 SM/120 | 57.6 | 10546 | 11167 |
| 30017730 | 7x1,5 RE/2,5 | 15.0 | 133 | 360 |
| 30017731 | 7x2,5 RE/2,5 | 16.0 | 200 | 378 |
| 30017733 | 7x4 RE/4 | 18.0 | 315 | 599 |
| 30017734 | 7x6 RE/6 | 19.0 | 470 | 850 |
| 1550696 | 10x1,5 RE/2,5 | 17.2 | 177 | 420 |
| 1550697 | 10x2,5 RE/4 | 18.9 | 287 | 550 |
| 30017735 | 12x1,5 RE/2,5 | 18.0 | 205 | 437 |
| 30017736 | 12x2,5 RE/4 | 19.5 | 334 | 589 |
| 30017737 | 12x4 RE/6 | 23.0 | 528 | 920 |
| 1550701 | 16x1,5 RE/4 | 20.0 | 275 | 686 |
| 1550702 | 16x2,5 RE/6 | 20.9 | 450 | 805 |
| 30017738 | 24x1,5 RE/6 | 22.7 | 413 | 764 |
| 30017739 | 24x2,5 RE/10 | 26.0 | 695 | 1189 |
| 30017740 | 30x1,5 RE/6 | 23.9 | 499 | 880 |
| 3017741 | 30x2,5 RE/10 | 26.6 | 840 | 1238 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NYCY

Fixed installation, direct burial; PVC cable with concentric, helical copper conductor and cross-conductive spiral




**Info**

- CPR: Article number choice under www.lapp.com
- With concentric, helical copper conductor

## Benefits

- Concentric conductor above all as PE

## Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

## Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

## Norm references / Approvals

- HD 603/VDE 0276-603 for NYCY with 3 or 4 cores and the relevant additional concentric protective conductor
- HD 627/VDE 0276-627 for NYCY as from 7 cores and with the additional, concentric protective conductor

## Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, helical, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Fixed installation: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

**Temperature range**
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NYCY** | | | | |
| 15503003 | 2 x 1,5re/1,5 | 14.0 | 52 | 245 |
| 15503103 | 3 x 1,5re/1,5 | 14.0 | 66 | 280 |
| 15503203 | 4 x 1,5re/1,5 | 15.0 | 81 | 302 |
| 1550330 | 7 x 1,5re/2,5 | 17.0 | 133 | 450 |
| 1550332 | 12 x 1,5re/2,5 | 20.0 | 205 | 580 |
| 1550337 | 24 x 1,5re/6 | 26.0 | 413 | 1100 |
| 15503113 | 3 x 2,5re/2,5 | 15.0 | 104 | 316 |
| 15503213 | 4 x 2,5re/2,5 | 16.0 | 128 | 360 |
| 1550350 | 7 x 2,5re/2,5 | 18.0 | 200 | 530 |
| 1550355 | 16 x 2,5re/6 | 23.0 | 451 | 950 |
| 15503223 | 4 x 4re/4 | 18.0 | 200 | 485 |
| 15503233 | 4 x 6re/6 | 19.0 | 297 | 616 |

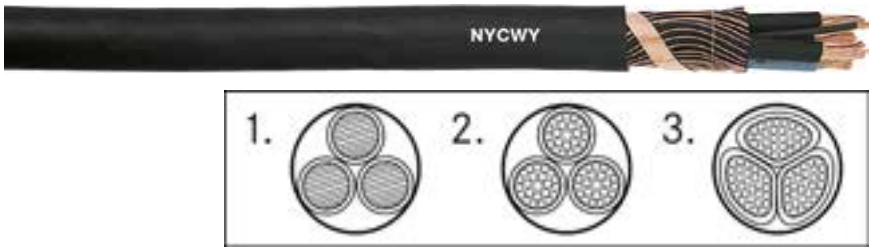
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NYCWY

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral

**Info**

- CPR: Article number choice under www.lapp.com
- With concentric, wave-like copper conductor




## Benefits

- Concentric conductor above all as PE
- Easier connection due to the waveform of the concentric copper conductor

## Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

## Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/ VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

## Norm references / Approvals

- HD 603/VDE 0276-603 for NYCWY with 3 or 4 cores and the relevant concentric protective conductor

## Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Fixed installation: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

**Temperature range**
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

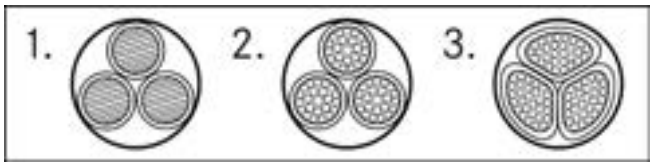
| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **NYCWY** | | | | |
| 15505003 | 2 x 10re/10 | 19.0 | 312 | 610 |
| 15505263 | 3 x 10re/10 | 20.0 | 408 | 775 |
| 15505403 | 4 x 10re/10 | 21.0 | 504 | 897 |
| 15505273 | 3 x 16re/16 | 22.0 | 643 | 1066 |
| 15505413 | 4 x 16re/16 | 24.0 | 796 | 1250 |
| 15505283 | 3 x 25rm/25 | 26.0 | 1003 | 1584 |
| 15505423 | 4 x 25rm/16 | 28.0 | 1142 | 1822 |
| 15505303 | 3 x 35sm/35 | 26.0 | 1402 | 1710 |
| 15505433 | 4 x 35sm/16 | 29.0 | 1526 | 2146 |
| 15505163 | 3 x 50sm/50 | 30.0 | 2000 | 2368 |
| 15505443 | 4 x 50sm/25 | 33.0 | 2203 | 3031 |
| 15505453 | 4 x 70sm/35 | 38.0 | 3082 | 4056 |
| 15505143 | 3 x 95sm/50 | 38.0 | 3296 | 4256 |
| 15505323 | 3 x 95sm/95 | 39.0 | 3791 | 4600 |
| 15505463 | 4 x 95sm/50 | 43.0 | 4208 | 5364 |
| 15505153 | 3 x 120sm/70 | 41.0 | 4236 | 5314 |
| 15505473 | 4 x 120sm/70 | 46.0 | 5388 | 6748 |
| 15505353 | 3 x 150sm/70 | 45.0 | 5100 | 6344 |
| 15505483 | 4 x 150sm/70 | 51.0 | 6540 | 8159 |
| 15505173 | 3 x 185sm/95 | 50.0 | 6383 | 8054 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# NAYY-J, NAYY-O

Fixed installation, direct burial; PVC cable with solid aluminium conductors




**Info**

- CPR: Article number choice under www.lapp.com
- With aluminium conductor

## Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

## Product features

- Flame-retardant according IEC 60332-1-2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm² according to HD 603/VDE 0276-603: Part 1 Appendix A.4.12 and Part 3-G point 4
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

## Norm references / Approvals

- HD 603/VDE 0276-603

## Product Make-up

- Aluminium conductor
- Abbreviations “re”, “se”:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

**Core identification code**
According to VDE 0293-308 (table T9)

**Conductor stranding**
Single or multi-wire

**Minimum bending radius**
Fixed installation: 12 x outer diameter

**Nominal voltage**
U0/U: 0.6/1.0 kV

**Test voltage**
4000 V

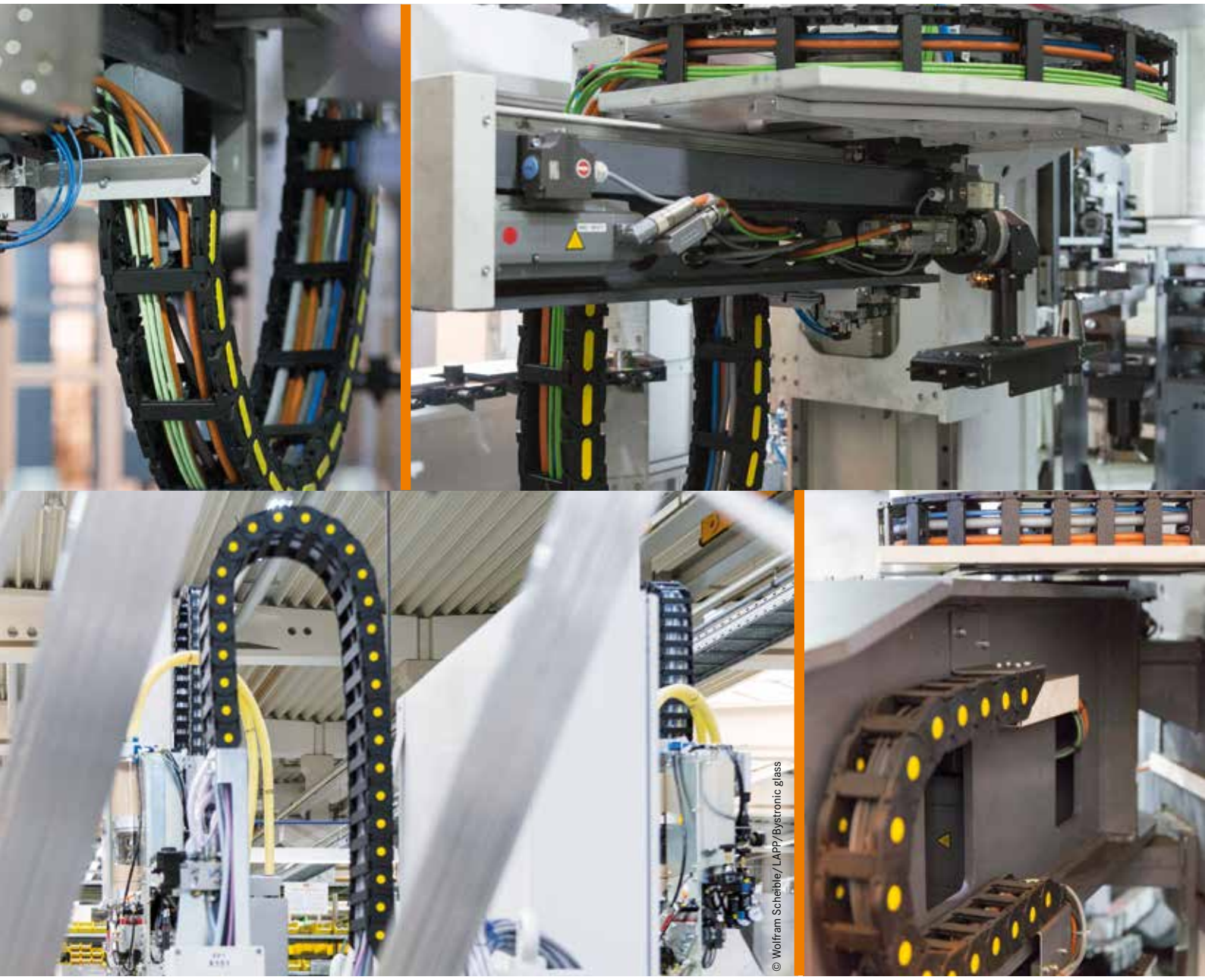
**Protective conductor**
J = with GN-YE protective conductor
O = without protective conductor

**Temperature range**
During installation: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of cores and mm² per conductor | Copper index (kg/km) | Alu index (kg/km) | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **NAYY-O** | | | | | |
| 3036547 | 1 x 70rm | 203 | 203 | 18.0 | 410 |
| 3036548 | 1 x 95rm | 276 | 276 | 20.0 | 570 |
| 3036549 | 1 x 120rm | 348 | 348 | 21.0 | 620 |
| 3036550 | 1 x 150rm | 435 | 435 | 23.0 | 735 |
| 3036551 | 1 x 185rm | 536 | 536 | 25.0 | 845 |
| 3036552 | 1 x 240rm | 696 | 696 | 28.0 | 1100 |
| 1552022 | 1 x 300rm | 870 | 870 | 30.0 | 1379 |
| **NAYY-J** | | | | | |
| 1552010 | 4 x 35re | 406 | 406 | 29.0 | 1170 |
| 1552011 | 4 x 50se | 580 | 580 | 30.0 | 1305 |
| 1552012 | 4 x 70se | 812 | 812 | 35.0 | 1730 |
| 1552013 | 4 x 95se | 1102 | 1102 | 39.0 | 2205 |
| 1552014 | 4 x 120se | 1392 | 1392 | 42.0 | 2655 |
| 1552015 | 4 x 150se | 1740 | 1740 | 46.0 | 3150 |
| 1552016 | 4 x 185se | 2146 | 2146 | 51.0 | 3925 |
| 1552017 | 4 x 240se | 2784 | 2784 | 60.0 | 4880 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Aluminium price basis: excludes aluminium. Refer to catalogue appendix T17 for the application and definition of „Metal price basis“ and „Metal index“.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® CONNECT
## Systems Solutions



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# Power and control cables

LAPP

## Servo Drive Connectivity Made Easy • with ÖLFLEX® CONNECT SERVO by LAPP

Every servo drive manufacturer has developed its own technical standards, especially when it comes to cables and connectors. Selecting the right connection components for servo drives can quickly become a challenge. With pre-assembled servo cables from LAPP, this complexity is easily managed.

The ÖLFLEX® CONNECT SERVO product family includes ready-to-connect servo, feedback, and hybrid cables for electric drives. These cables are precisely tailored to the requirements of leading drive manufacturers such as SIEMENS, SEW-EURODRIVE, Rockwell Automation, and Lenze – making them fully compatible with the most common servo drives.

Designed for reliability and performance, LAPP offers several hundred assembly variants for a wide range of applications:

- from static installation to highly dynamic use in drag chains
- with excellent electromagnetic compatibility performance
- and available in various lengths to fit your setup.

LAPP's decentralized production and logistics network enables reliable delivery while maintaining consistent quality standards – anywhere in the world.



# ÖLFLEX® SPIRAL 400 P

PUR spiral cable with increased chemical resistance



## Info

- High resistance to benzols, benzines and other substances listed in Appendix T1
- High mechanical strength
- Available in cross sections starting at 0,5 mm²

## Benefits

- High restoring forces and extension lengths up to 3 times the unextended spiral length
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- As control and power cables in machines
- Mechanical engineering
- Apparatus construction

## Product features

- Resistant to microbes, hydrolysis and almost all mineral oils
- High chemical-resistance to benzols, benzenes and other agents listed in the selection table in Appendix T1
- Abrasion and notch-resistant

## Norm references / Approvals

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Special PVC P8/1
- Use of talcum
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
Black with white numbers acc. to VDE 0293-334

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Nominal voltage**
U0/U: 300/500 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: +5°C to +50°C

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **ÖLFLEX® SPIRAL 400 P** | | | | | |
| 70002598 | 2 X 0.5 | 1500 | 500 | 5.5 | 20 |
| 70002599 | 2 X 0.5 | 3000 | 1000 | 5.5 | 20 |
| 70002600 | 2 X 0.5 | 4500 | 1500 | 5.5 | 20 |
| 70002601 | 2 X 0.5 | 6000 | 2000 | 5.5 | 20 |
| 70002602 | 3 G 0.5 | 1500 | 500 | 5.8 | 21 |
| 70002603 | 3 G 0.5 | 3000 | 1000 | 5.8 | 21 |
| 70002604 | 3 G 0.5 | 4500 | 1500 | 5.8 | 21 |
| 70002605 | 3 G 0.5 | 6000 | 2000 | 5.8 | 21 |
| 70002606 | 4 G 0.5 | 1500 | 500 | 6.2 | 21 |
| 70002607 | 4 G 0.5 | 3000 | 1000 | 6.2 | 21 |
| 70002608 | 4 G 0.5 | 4500 | 1500 | 6.2 | 21 |
| 70002609 | 4 G 0.5 | 6000 | 2000 | 6.2 | 21 |
| 70002610 | 5 G 0.5 | 1500 | 500 | 6.7 | 25 |
| 70002611 | 5 G 0.5 | 3000 | 1000 | 6.7 | 25 |
| 70002612 | 5 G 0.5 | 4500 | 1500 | 6.7 | 25 |
| 70002613 | 5 G 0.5 | 6000 | 2000 | 6.7 | 25 |
| 70002614 | 7 G 0.5 | 1500 | 500 | 7.6 | 29 |
| 70002615 | 7 G 0.5 | 3000 | 1000 | 7.6 | 29 |
| 70002616 | 7 G 0.5 | 4500 | 1500 | 7.6 | 29 |
| 70002617 | 7 G 0.5 | 6000 | 2000 | 7.6 | 29 |
| 70002618 | 12 G 0.5 | 1500 | 500 | 9.5 | 32 |
| 70002619 | 12 G 0.5 | 3000 | 1000 | 9.5 | 32 |
| 70002620 | 18 G 0.5 | 1500 | 500 | 11 | 42 |
| 70002621 | 18 G 0.5 | 3000 | 1000 | 11 | 42 |
| 70002622 | 2 X 0.75 | 1500 | 500 | 5.6 | 19.5 |
| 70002623 | 2 X 0.75 | 3000 | 1000 | 5.6 | 19.5 |
| 70002624 | 2 X 0.75 | 4500 | 1500 | 5.6 | 19.5 |
| 70002625 | 2 X 0.75 | 6000 | 2000 | 5.6 | 19.5 |
| 70002628 | 3 G 0.75 | 1500 | 500 | 5.9 | 20 |
| 70002629 | 3 G 0.75 | 3000 | 1000 | 5.9 | 20 |
| 70002630 | 3 G 0.75 | 4500 | 1500 | 5.9 | 20 |
| 70002631 | 3 G 0.75 | 6000 | 2000 | 5.9 | 20 |
| 70002634 | 4 G 0.75 | 1500 | 500 | 6.4 | 21 |

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| 70002635 | 4 G 0.75 | 3000 | 1000 | 6.4 | 21 |
| 70002636 | 4 G 0.75 | 4500 | 1500 | 6.4 | 21 |
| 70002637 | 4 G 0.75 | 6000 | 2000 | 6.4 | 21 |
| 70002640 | 5 G 0.75 | 1500 | 500 | 6.9 | 24 |
| 70002641 | 5 G 0.75 | 3000 | 1000 | 6.9 | 24 |
| 70002642 | 5 G 0.75 | 4500 | 1500 | 6.9 | 24 |
| 70002643 | 5 G 0.75 | 6000 | 2000 | 6.9 | 24 |
| 70002726 | 7 G 0.75 | 1500 | 500 | 7.5 | 27 |
| 70002727 | 7 G 0.75 | 3000 | 1000 | 7.5 | 27 |
| 70002728 | 7 G 0.75 | 4500 | 1500 | 7.5 | 27 |
| 70002729 | 7 G 0.75 | 6000 | 2000 | 7.5 | 27 |
| 70002731 | 12 G 0.75 | 1500 | 500 | 9.9 | 35 |
| 70002732 | 12 G 0.75 | 3000 | 1000 | 9.9 | 35 |
| 70002734 | 18 G 0.75 | 1500 | 500 | 11.9 | 40 |
| 70002735 | 18 G 0.75 | 3000 | 1000 | 11.9 | 40 |
| 70002646 | 2 X 1.0 | 1500 | 500 | 5.9 | 20 |
| 70002647 | 2 X 1.0 | 3000 | 1000 | 5.9 | 20 |
| 70002648 | 2 X 1.0 | 4500 | 1500 | 5.9 | 20 |
| 70002649 | 2 X 1.0 | 6000 | 2000 | 5.9 | 20 |
| 70002651 | 3 G 1.0 | 1500 | 500 | 6.2 | 21 |
| 70002652 | 3 G 1.0 | 3000 | 1000 | 6.2 | 21 |
| 70002653 | 3 G 1.0 | 4500 | 1500 | 6.2 | 21 |
| 70002654 | 3 G 1.0 | 6000 | 2000 | 6.2 | 21 |
| 70002656 | 4 G 1.0 | 1500 | 500 | 6.7 | 24 |
| 70002657 | 4 G 1.0 | 3000 | 1000 | 6.7 | 24 |
| 70002658 | 4 G 1.0 | 4500 | 1500 | 6.7 | 24 |
| 70002659 | 4 G 1.0 | 6000 | 2000 | 6.7 | 24 |
| 70002661 | 5 G 1.0 | 1500 | 500 | 7.3 | 25 |
| 70002662 | 5 G 1.0 | 3000 | 1000 | 7.3 | 25 |
| 70002663 | 5 G 1.0 | 4500 | 1500 | 7.3 | 25 |
| 70002664 | 5 G 1.0 | 6000 | 2000 | 7.3 | 25 |
| 70002666 | 7 G 1.0 | 1250 | 500 | 8.2 | 30 |
| 70002667 | 7 G 1.0 | 2500 | 1000 | 8.2 | 30 |
| 70002668 | 7 G 1.0 | 3750 | 1500 | 8.2 | 30 |
| 70002669 | 7 G 1.0 | 5000 | 2000 | 8.2 | 30 |
| 70002670 | 12 G 1.0 | 1500 | 500 | 10.9 | 37 |
| 70002671 | 12 G 1.0 | 3000 | 1000 | 10.9 | 37 |
| 70002672 | 18 G 1.0 | 1500 | 500 | 12.7 | 45 |
| 70002673 | 18 G 1.0 | 3000 | 1000 | 12.7 | 45 |
| 70002681 | 2 X 1.5 | 1500 | 500 | 6.5 | 23 |
| 70002682 | 2 X 1.5 | 3000 | 1000 | 6.5 | 23 |
| 70002683 | 2 X 1.5 | 4500 | 1500 | 6.5 | 23 |
| 70002684 | 2 X 1.5 | 6000 | 2000 | 6.5 | 23 |
| 70002687 | 3 G 1.5 | 1500 | 500 | 6.9 | 24 |
| 70002688 | 3 G 1.5 | 3000 | 1000 | 6.9 | 24 |
| 70002689 | 3 G 1.5 | 4500 | 1500 | 6.9 | 24 |
| 70002690 | 3 G 1.5 | 6000 | 2000 | 6.9 | 24 |
| 70002699 | 5 G 1.5 | 1250 | 500 | 8.3 | 30 |
| 70002700 | 5 G 1.5 | 2500 | 1000 | 8.3 | 30 |
| 70002701 | 5 G 1.5 | 3750 | 1500 | 8.3 | 30 |
| 70002702 | 5 G 1.5 | 5000 | 2000 | 8.3 | 30 |
| 70002705 | 7 G 1.5 | 1250 | 500 | 9.1 | 31 |
| 70002706 | 7 G 1.5 | 2500 | 1000 | 9.1 | 31 |
| 70002707 | 7 G 1.5 | 3750 | 1500 | 9.1 | 31 |
| 70002708 | 7 G 1.5 | 5000 | 2000 | 9.1 | 31 |
| 70002709 | 12 G 1.5 | 1500 | 500 | 12.2 | 46 |
| 70002710 | 12 G 1.5 | 3000 | 1000 | 12.2 | 46 |
| 70002711 | 18 G 1.5 | 1500 | 500 | 14.2 | 52 |
| 70002712 | 18 G 1.5 | 3000 | 1000 | 14.2 | 52 |
| 70002716 | 3 G 2.5 | 1250 | 500 | 8.3 | 28.5 |
| 70002717 | 3 G 2.5 | 2500 | 1000 | 8.3 | 28.5 |
| 70002718 | 3 G 2.5 | 3750 | 1500 | 8.3 | 28.5 |
| 70002719 | 3 G 2.5 | 5000 | 2000 | 8.3 | 28.5 |
| 70002721 | 5 G 2.5 | 1250 | 500 | 10 | 37 |
| 70002722 | 5 G 2.5 | 2500 | 1000 | 10 | 37 |
| 70002723 | 5 G 2.5 | 3750 | 1500 | 10 | 37 |
| 70002724 | 5 G 2.5 | 5000 | 2000 | 10 | 37 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

# SPIRAL H07BQ-F BLACK

Black, robust PUR spiral cable with high recoiling forces



## Info

- Heavy construction type
- Outer sheath: PUR, with high recoiling forces
- Voltage rating 450/750 V

## Benefits

- Good cost-benefit ratio
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide application range

## Application range

- Construction of engines and appliances with flexible power connections as well as at dockyards
- Construction of machinery and powered doors
- Measurement and control technology
- Any commercial/industrial/ agricultural facility: connection of tools, appliances and mobile motors
- For indoor and outdoor use

## Product features

- Black, robust outer PUR sheath
- High tensile strength and abrasion-resistance
- High restoring forces
- High resistance to oil, low temperatures, microbes and hydrolysis

## Norm references / Approvals

- Based on EN 50525-2-21 H07BQ-F
- The spiralling modifies the properties of the <HAR> certified H07BQ-F cable (sold by the metre) that certain technical requirements stipulated by the H07BQ-F standards are no longer complied with following spiralling. As a result, the <HAR> H07BQ-F design certification of the H07BQ-F cable, also identifiable on the spiral cable, is no longer valid in conjunction with the spiralled piece good design of the “SPIRAL H07BQ-F BLACK”. This is a completely logical consequence of the spiralling processing steps.

## Product Make-up

- Tinned stranded copper wire of braided conductor class 5 according to IEC 60228/VDE 0295
- Core insulation: EI6 rubber according to EN 50525-1 & EN 50363-1/ VDE 0207-363-1; coloured according to HD 308/ VDE 0293-308; VDE and HAR marking of the unspiralled H07BQ-F (sold by the metre) as the basic material for the spiralling
- Use of talcum
- Black, outer PUR sheath made of TMPU according to EN 50525-2-21; marking “H07BQ-F ...”
- For the 4 standard solid lengths available, please see the article table below
- Radial outflow shape at cable ends - length of ends: 200 mm at the first end/600 mm at the other end
- Versions with other solid lengths, end lengths and end forms available on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
Coloured according to VDE 0293-308 (HD 308)

**Conductor stranding**
Fine wire according to IEC 60228/ VDE 0295, class 5
tinned strands

**Minimum bending radius**
Flexible use: 12.5 x outer diameter

**Nominal voltage**
U0/U: 450/750 V

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
-25 °C to +50 °C (spiralled)

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **SPIRAL H07BQ-F BLACK** | | | | | |
| 70002750 | 3 G 1.5 | 1500 | 500 | 9 | 31 |
| 70002751 | 3 G 1.5 | 3000 | 1000 | 9 | 31 |
| 70002752 | 3 G 1.5 | 4500 | 1500 | 9 | 31 |
| 70002753 | 3 G 1.5 | 6000 | 2000 | 9 | 31 |
| 70002754 | 4 G 1.5 | 1500 | 500 | 10 | 38 |
| 70002755 | 4 G 1.5 | 3000 | 1000 | 10 | 38 |
| 70002756 | 4 G 1.5 | 4500 | 1500 | 10 | 38 |
| 70002757 | 4 G 1.5 | 6000 | 2000 | 10 | 38 |
| 70002758 | 5 G 1.5 | 1500 | 500 | 11 | 40 |
| 70002759 | 5 G 1.5 | 3000 | 1000 | 11 | 40 |
| 70002760 | 5 G 1.5 | 4500 | 1500 | 11 | 40 |
| 70002761 | 5 G 1.5 | 6000 | 2000 | 11 | 40 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Each item is packed separately in a plastic bag
Versions with other solid lengths, end lengths and end forms available on request

# ÖLFLEX® SPIRAL 540 P

Robust, halogen-free PUR spiral cable with high restoring forces



**Info**

- High restoring forces
- Halogen-free
- Voltage class from 1.5 mm² 450/750 V

## Benefits

- Extension lengths of up to 3.5 times the unextended spiral length, high recoiling forces
- The signal colour of the outer sheath increases safety and visual perception
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

## Application range

- Harsh conditions
- Mechanical engineering
- Construction industry
- Medical equipment
- In damp interiors or outdoors

## Product features

- UV-resistant (but colour may change after some time)
- Halogen-free
- Good resistance of the outer sheath to cutting and abrasion
- High resistance to oil, low temperatures, microbes and hydrolysis
- Flexible down to -30 °C

## Product Make-up

- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Nominal voltage**
0.75 - 1 mm²: U0/U: 300/500 Vac
As from 1.5 mm²: U0/U = 450/750 Vac

**Test voltage**
3000 V

**Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor

**Temperature range**
Flexible use: -30 °C to +50 °C

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **U0/U: 300/500 V** | | | | | |
| 73220107 | 2 X 0.75 | 1000 | 300 | 6.6 | 23 |
| 73220108 | 2 X 0.75 | 2000 | 600 | 6.6 | 23 |
| 73220109 | 2 X 0.75 | 3500 | 1000 | 6.6 | 23 |
| 73220110 | 2 X 0.75 | 5000 | 1500 | 6.6 | 23 |
| 73220111 | 3 G 0.75 | 1000 | 300 | 7 | 24 |
| 73220112 | 3 G 0.75 | 2000 | 600 | 7 | 24 |
| 73220113 | 3 G 0.75 | 3500 | 1000 | 7 | 24 |
| 73220114 | 3 G 0.75 | 5000 | 1500 | 7 | 24 |
| 71220115 | 4 G 0.75 | 1000 | 300 | 7.6 | 29 |
| 71220116 | 4 G 0.75 | 2000 | 600 | 7.6 | 29 |
| 71220117 | 4 G 0.75 | 3500 | 1000 | 7.6 | 29 |
| 71220118 | 4 G 0.75 | 5000 | 1500 | 7.6 | 29 |
| 71220119 | 5 G 0.75 | 1000 | 300 | 8.5 | 31 |
| 71220120 | 5 G 0.75 | 2000 | 600 | 8.5 | 31 |
| 71220121 | 5 G 0.75 | 3500 | 1000 | 8.5 | 31 |
| 71220122 | 5 G 0.75 | 5000 | 1500 | 8.5 | 31 |
| 73220123 | 2 X 1.0 | 1000 | 300 | 7 | 24 |
| 73220124 | 2 X 1.0 | 2000 | 600 | 7 | 24 |
| 73220125 | 2 X 1.0 | 3500 | 1000 | 7 | 24 |
| 73220126 | 2 X 1.0 | 5000 | 1500 | 7 | 24 |
| 73220127 | 3 G 1.0 | 1000 | 300 | 7.4 | 29 |
| 73220128 | 3 G 1.0 | 2000 | 600 | 7.4 | 29 |
| 73220129 | 3 G 1.0 | 3500 | 1000 | 7.4 | 29 |
| 73220130 | 3 G 1.0 | 5000 | 1500 | 7.4 | 29 |
| 71220131 | 4 G 1.0 | 1000 | 300 | 8.2 | 30 |
| 71220132 | 4 G 1.0 | 2000 | 600 | 8.2 | 30 |
| 71220133 | 4 G 1.0 | 3500 | 1000 | 8.2 | 30 |
| 71220134 | 4 G 1.0 | 5000 | 1500 | 8.2 | 30 |
| 71220135 | 5 G 1.0 | 1000 | 300 | 9 | 32 |
| 71220136 | 5 G 1.0 | 2000 | 600 | 9 | 32 |
| 71220137 | 5 G 1.0 | 3500 | 1000 | 9 | 32 |
| 71220138 | 5 G 1.0 | 5000 | 1500 | 9 | 32 |
| 73220139 | 7 G 1.0 | 1000 | 350 | 10.9 | 40 |
| 73220140 | 7 G 1.0 | 2000 | 700 | 10.9 | 40 |
| 73220141 | 7 G 1.0 | 3500 | 1200 | 10.9 | 40 |
| 73220142 | 7 G 1.0 | 5000 | 1700 | 10.9 | 40 |

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **U0/U: 450/750 V** | | | | | |
| 73220143 | 2 X 1.5 | 1000 | 300 | 8.4 | 31 |
| 73220144 | 2 X 1.5 | 2000 | 600 | 8.4 | 31 |
| 73220145 | 2 X 1.5 | 3500 | 1000 | 8.4 | 31 |
| 73220146 | 2 X 1.5 | 5000 | 1500 | 8.4 | 31 |
| 73220147 | 3 G 1.5 | 1000 | 300 | 8.9 | 32 |
| 73220148 | 3 G 1.5 | 2000 | 600 | 8.9 | 32 |
| 73220149 | 3 G 1.5 | 3500 | 1000 | 8.9 | 32 |
| 73220150 | 3 G 1.5 | 5000 | 1500 | 8.9 | 32 |
| 71220151 | 5 G 1.5 | 1000 | 350 | 10.9 | 40 |
| 71220152 | 5 G 1.5 | 2000 | 700 | 10.9 | 40 |
| 71220153 | 5 G 1.5 | 3500 | 1200 | 10.9 | 40 |
| 71220154 | 5 G 1.5 | 5000 | 1700 | 10.9 | 40 |
| 73220155 | 7 G 1.5 | 1000 | 350 | 13.5 | 52 |
| 73220156 | 7 G 1.5 | 2000 | 700 | 13.5 | 52 |
| 73220157 | 7 G 1.5 | 3500 | 1200 | 13.5 | 52 |
| 73220158 | 7 G 1.5 | 5000 | 1700 | 13.5 | 52 |
| 73220159 | 3 G 2.5 | 1000 | 350 | 10.6 | 40 |
| 73220160 | 3 G 2.5 | 2000 | 700 | 10.6 | 40 |
| 73220161 | 3 G 2.5 | 3500 | 1200 | 10.6 | 40 |
| 73220162 | 3 G 2.5 | 5000 | 1700 | 10.6 | 40 |
| 71220163 | 5 G 2.5 | 1000 | 350 | 13.4 | 51 |
| 71220164 | 5 G 2.5 | 2000 | 700 | 13.4 | 51 |
| 71220165 | 5 G 2.5 | 3500 | 1200 | 13.4 | 51 |
| 71220166 | 5 G 2.5 | 5000 | 1700 | 13.4 | 51 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

# ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug

Robust spiral cable with high restoring forces and earthing-type plug



**Info**

- Robust
- High restoring forces

## Benefits

- Extension lengths of up to 3.5 times the unextended spiral length, high recoiling forces
- The signal colour of the outer sheath increases safety and visual perception
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Sheath is resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

## Application range

- Mobile electrical devices and apparatus
- Medical equipment

## Product features

- Good resistance of the outer sheath to cutting and abrasion
- Outer sheath has high resistance to oil, low temperatures, microbes and hydrolysis
- Flexible down to -30°C
- 16-A connector with protection rating IP 20

## Norm references / Approvals

- Plug: DIN VDE 620-1/standard sheet DIN 49441 R2

## Product Make-up

- Cable: ÖLFLEX® SPIRAL 540 P based on ÖLFLEX® 540 P
- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm with moulded angular earthing-type plug, 2nd end = 600 mm with 30 mm stripping
- Other solid lengths, end lengths and end forms available on request
- 2-pin, angular plug with twin earthed contact system, extruded

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
HD 308/VDE 0293-308: 3-core with protective conductor

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Nominal voltage**
U0: 250 V AC

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
Flexible use: -30°C to +50°C

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug** | | | | | |
| 73220852 | 3 G 0.75 | 1000 | 300 | 7 | 24 |
| 73220853 | 3 G 0.75 | 2000 | 600 | 7 | 24 |
| 73220854 | 3 G 0.75 | 3500 | 1000 | 7 | 24 |
| 73220855 | 3 G 1.0 | 1000 | 300 | 7.4 | 29 |
| 73220856 | 3 G 1.0 | 2000 | 600 | 7.4 | 29 |
| 73220863 | 3 G 1.0 | 3500 | 1000 | 7.4 | 29 |
| 73220860 | 3 G 1.5 | 1000 | 300 | 8.9 | 32 |
| 73220861 | 3 G 1.5 | 2000 | 600 | 8.9 | 32 |
| 73220862 | 3 G 1.5 | 3500 | 1000 | 8.9 | 32 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
1 piece in each polyester bag
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms (not necessarily VDE-registered) available on request
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!“

# UNITRONIC® SPIRAL LiF2Y11Y

Spiral cable with outer PUR sheath for exact impulse transmission, unshielded

**Info**

- Unscreened spiral cable with small cross section
- High restoring forces
- PUR outer sheath



## Benefits

- Extended lengths of up to 4 times the unextended spiral length
- Suitable for transportable machines and appliances
- Transmission of control and measuring signals

## Application range

- For requirements of electronic applications
- In measurement and control engineering
- Handling and measurement equipment
- Conveyor and transport systems

## Product features

- Abrasion and cut-resistant
- Very high flexibility
- Halogen-free and flame-retardant

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on Polyolefin
- Outer sheath: PUR compound
- Outer sheath colour: grey
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
DIN 47100

**Peak operating voltage**
250 V (not for power transmission)

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Test voltage**
1200 V

**Temperature range**
Flexing: -5°C to +50°C

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **UNITRONIC® SPIRAL LiF2Y11Y** | | | | | |
| 73220300 | 2 x 0.14 | 400 | 100 | 3.4 | 14 |
| 73220301 | 2 x 0.14 | 800 | 200 | 3.4 | 14 |
| 73220302 | 2 x 0.14 | 1200 | 300 | 3.4 | 14 |
| 73220303 | 2 x 0.14 | 1600 | 400 | 3.4 | 14 |
| 73220304 | 2 x 0.14 | 2000 | 500 | 3.4 | 14 |
| 73220305 | 3 x 0.14 | 400 | 100 | 3.9 | 15 |
| 73220306 | 3 x 0.14 | 800 | 200 | 3.9 | 15 |
| 73220307 | 3 x 0.14 | 1200 | 300 | 3.9 | 15 |
| 73220308 | 3 x 0.14 | 1600 | 400 | 3.9 | 15 |
| 73220309 | 3 x 0.14 | 2000 | 500 | 3.9 | 15 |
| 73220310 | 4 x 0.14 | 400 | 100 | 4.2 | 17 |
| 73220311 | 4 x 0.14 | 800 | 200 | 4.2 | 17 |
| 73220312 | 4 x 0.14 | 1200 | 300 | 4.2 | 17 |
| 73220313 | 4 x 0.14 | 1600 | 400 | 4.2 | 17 |
| 73220314 | 4 x 0.14 | 2000 | 500 | 4.2 | 17 |
| 73220315 | 5 x 0.14 | 400 | 100 | 4.5 | 19 |
| 73220316 | 5 x 0.14 | 800 | 200 | 4.5 | 19 |
| 73220317 | 5 x 0.14 | 1200 | 300 | 4.5 | 19 |
| 73220318 | 5 x 0.14 | 1600 | 400 | 4.5 | 19 |
| 73220319 | 5 x 0.14 | 2000 | 500 | 4.5 | 19 |
| 73220320 | 6 x 0.14 | 400 | 100 | 4.8 | 19 |
| 73220321 | 6 x 0.14 | 800 | 200 | 4.8 | 19 |
| 73220322 | 6 x 0.14 | 1200 | 300 | 4.8 | 19 |
| 73220323 | 6 x 0.14 | 1600 | 400 | 4.8 | 19 |
| 73220324 | 6 x 0.14 | 2000 | 500 | 4.8 | 19 |
| 73220325 | 7 x 0.14 | 400 | 100 | 5.1 | 20 |
| 73220326 | 7 x 0.14 | 800 | 200 | 5.1 | 20 |
| 73220327 | 7 x 0.14 | 1200 | 300 | 5.1 | 20 |
| 73220328 | 7 x 0.14 | 1600 | 400 | 5.1 | 20 |
| 73220329 | 7 x 0.14 | 2000 | 500 | 5.1 | 20 |
| 73220330 | 12 x 0.14 | 400 | 100 | 5.9 | 21 |
| 73220331 | 12 x 0.14 | 800 | 200 | 5.9 | 21 |
| 73220332 | 12 x 0.14 | 1200 | 300 | 5.9 | 21 |
| 73220333 | 12 x 0.14 | 1600 | 400 | 5.9 | 21 |
| 73220334 | 12 x 0.14 | 2000 | 500 | 5.9 | 21 |
| 73220335 | 18 x 0.14 | 400 | 100 | 6.8 | 27 |
| 73220336 | 18 x 0.14 | 800 | 200 | 6.8 | 27 |
| 73220337 | 18 x 0.14 | 1200 | 300 | 6.8 | 27 |
| 73220338 | 18 x 0.14 | 1600 | 400 | 6.8 | 27 |
| 73220339 | 18 x 0.14 | 2000 | 500 | 6.8 | 27 |
| 73220340 | 2 x 0.25 | 400 | 100 | 4.3 | 18 |
| 73220341 | 2 x 0.25 | 800 | 200 | 4.3 | 18 |
| 73220342 | 2 x 0.25 | 1200 | 300 | 4.3 | 18 |

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| 73220343 | 2 x 0.25 | 1600 | 400 | 4.3 | 18 |
| 73220344 | 2 x 0.25 | 2000 | 500 | 4.3 | 18 |
| 73220345 | 3 x 0.25 | 400 | 100 | 4.5 | 19 |
| 73220346 | 3 x 0.25 | 800 | 200 | 4.5 | 19 |
| 73220347 | 3 x 0.25 | 1200 | 300 | 4.5 | 19 |
| 73220348 | 3 x 0.25 | 1600 | 400 | 4.5 | 19 |
| 73220349 | 3 x 0.25 | 2000 | 500 | 4.5 | 19 |
| 73220350 | 4 x 0.25 | 400 | 100 | 4.9 | 20 |
| 73220351 | 4 x 0.25 | 800 | 200 | 4.9 | 20 |
| 73220352 | 4 x 0.25 | 1200 | 300 | 4.9 | 20 |
| 73220353 | 4 x 0.25 | 1600 | 400 | 4.9 | 20 |
| 73220354 | 4 x 0.25 | 2000 | 500 | 4.9 | 20 |
| 73220355 | 5 x 0.25 | 400 | 100 | 5.3 | 20 |
| 73220356 | 5 x 0.25 | 800 | 200 | 5.3 | 20 |
| 73220357 | 5 x 0.25 | 1200 | 300 | 5.3 | 20 |
| 73220358 | 5 x 0.25 | 1600 | 400 | 5.3 | 20 |
| 73220359 | 5 x 0.25 | 2000 | 500 | 5.3 | 20 |
| 73220360 | 6 x 0.25 | 400 | 100 | 5.4 | 20 |
| 73220361 | 6 x 0.25 | 800 | 200 | 5.4 | 20 |
| 73220362 | 6 x 0.25 | 1200 | 300 | 5.4 | 20 |
| 73220363 | 6 x 0.25 | 1600 | 400 | 5.4 | 20 |
| 73220364 | 6 x 0.25 | 2000 | 500 | 5.4 | 20 |
| 73220365 | 7 x 0.25 | 400 | 100 | 6.1 | 21 |
| 73220366 | 7 x 0.25 | 800 | 200 | 6.1 | 21 |
| 73220367 | 7 x 0.25 | 1200 | 300 | 6.1 | 21 |
| 73220368 | 7 x 0.25 | 1600 | 400 | 6.1 | 21 |
| 73220369 | 7 x 0.25 | 2000 | 500 | 6.1 | 21 |
| 73220370 | 12 x 0.25 | 400 | 100 | 6.7 | 25 |
| 73220371 | 12 x 0.25 | 800 | 200 | 6.7 | 25 |
| 73220372 | 12 x 0.25 | 1200 | 300 | 6.7 | 25 |
| 73220373 | 12 x 0.25 | 1600 | 400 | 6.7 | 25 |
| 73220374 | 12 x 0.25 | 2000 | 500 | 6.7 | 25 |
| 73220375 | 18 x 0.25 | 400 | 100 | 8.5 | 31 |
| 73220376 | 18 x 0.25 | 800 | 200 | 8.5 | 31 |
| 73220377 | 18 x 0.25 | 1200 | 300 | 8.5 | 31 |
| 73220378 | 18 x 0.25 | 1600 | 400 | 8.5 | 31 |
| 73220379 | 18 x 0.25 | 2000 | 500 | 8.5 | 31 |
| 73220381 | 2 x 0.34 | 400 | 100 | 4.7 | 18 |
| 73220382 | 2 x 0.34 | 800 | 200 | 4.7 | 18 |
| 73220383 | 2 x 0.34 | 1200 | 300 | 4.7 | 18 |
| 73220384 | 2 x 0.34 | 1600 | 500 | 4.7 | 18 |
| 73220385 | 2 x 0.34 | 2000 | 500 | 4.7 | 18 |
| 73220386 | 3 x 0.34 | 400 | 100 | 5 | 19 |
| 73220387 | 3 x 0.34 | 800 | 200 | 5 | 19 |
| 73220388 | 3 x 0.34 | 1200 | 300 | 5 | 19 |
| 73220389 | 3 x 0.34 | 1600 | 400 | 5 | 19 |
| 73220390 | 3 x 0.34 | 2000 | 500 | 5 | 19 |
| 73220391 | 4 x 0.34 | 400 | 100 | 5.4 | 20 |
| 73220392 | 4 x 0.34 | 800 | 200 | 5.4 | 20 |
| 73220393 | 4 x 0.34 | 1200 | 300 | 5.4 | 20 |
| 73220394 | 4 x 0.34 | 1600 | 400 | 5.4 | 20 |
| 73220395 | 4 x 0.34 | 2000 | 500 | 5.4 | 20 |
| 73220396 | 5 x 0.34 | 400 | 100 | 5.9 | 21 |
| 73220397 | 5 x 0.34 | 800 | 200 | 5.9 | 21 |
| 73220398 | 5 x 0.34 | 1200 | 300 | 5.9 | 21 |
| 73220399 | 5 x 0.34 | 1600 | 400 | 5.9 | 21 |
| 73220400 | 5 x 0.34 | 2000 | 500 | 5.9 | 21 |
| 73220401 | 7 x 0.34 | 400 | 100 | 6.8 | 25 |
| 73220402 | 7 x 0.34 | 800 | 200 | 6.8 | 25 |
| 73220403 | 7 x 0.34 | 1200 | 300 | 6.8 | 25 |
| 73220404 | 7 x 0.34 | 1600 | 400 | 6.8 | 25 |
| 73220405 | 7 x 0.34 | 2000 | 500 | 6.8 | 25 |
| 73220406 | 10 x 0.34 | 400 | 100 | 8.5 | 30 |
| 73220407 | 10 x 0.34 | 800 | 200 | 8.5 | 30 |
| 73220408 | 10 x 0.34 | 1200 | 300 | 8.5 | 30 |
| 73220409 | 10 x 0.34 | 1600 | 400 | 8.5 | 30 |
| 73220410 | 10 x 0.34 | 2000 | 500 | 8.5 | 30 |
| 73220411 | 14 x 0.34 | 400 | 100 | 8.6 | 31 |
| 73220412 | 14 x 0.34 | 800 | 200 | 8.6 | 31 |
| 73220413 | 14 x 0.34 | 1200 | 300 | 8.6 | 31 |
| 73220414 | 14 x 0.34 | 1600 | 400 | 8.6 | 31 |
| 73220415 | 14 x 0.34 | 2000 | 500 | 8.6 | 31 |
| 73220416 | 18 x 0.34 | 400 | 100 | 9.7 | 33 |
| 73220417 | 18 x 0.34 | 800 | 200 | 9.7 | 33 |
| 73220418 | 18 x 0.34 | 1200 | 300 | 9.7 | 33 |
| 73220419 | 18 x 0.34 | 1600 | 400 | 9.7 | 33 |
| 73220420 | 18 x 0.34 | 2000 | 500 | 9.7 | 33 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

# UNITRONIC® SPIRAL

Spiral cable with outer PUR sheath and overall shielding for exact impulse transmission

**Info**

- Secure against electrical interferences
- PUR outer sheath



## Benefits

- Overall screening prevents high frequency interference and guarantees accurate signal transmission
- Extended lengths of up to 4 times the unextended spiral length

## Application range

- In measurement and control engineering
- Wherever screened cables with smallest dimensions are required
- For requirements of electronic applications
- Handling and measurement equipment
- Conveyor and transport systems

## Product features

- Abrasion and cut-resistant
- Very high flexibility

## Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Screening: wrapped with braided copper wires
- Outer sheath: PUR compound
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

**Core identification code**
DIN 47100

**Peak operating voltage**
250 V (not for power transmission)

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Test voltage**
1200 V

**Temperature range**
Flexing: -5°C to +50°C

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| **UNITRONIC® SPIRAL** | | | | | |
| 73220200 | 2 x 0.14 | 400 | 100 | 4.1 | 15 |
| 73220201 | 2 x 0.14 | 800 | 200 | 4.1 | 15 |
| 73220202 | 2 x 0.14 | 1200 | 300 | 4.1 | 15 |
| 73220203 | 2 x 0.14 | 1600 | 400 | 4.1 | 15 |
| 73220204 | 2 x 0.14 | 2000 | 500 | 4.1 | 15 |
| 73220205 | 3 x 0.14 | 400 | 100 | 4.3 | 18 |
| 73220206 | 3 x 0.14 | 800 | 200 | 4.3 | 18 |
| 73220207 | 3 x 0.14 | 1200 | 300 | 4.3 | 18 |
| 73220208 | 3 x 0.14 | 1600 | 400 | 4.3 | 18 |
| 73220209 | 3 x 0.14 | 2000 | 500 | 4.3 | 18 |
| 73220210 | 4 x 0.14 | 400 | 100 | 4.5 | 19 |
| 73220211 | 4 x 0.14 | 800 | 200 | 4.5 | 19 |
| 73220212 | 4 x 0.14 | 1200 | 300 | 4.5 | 19 |
| 73220213 | 4 x 0.14 | 1600 | 400 | 4.5 | 19 |
| 73220214 | 4 x 0.14 | 2000 | 500 | 4.5 | 19 |
| 73220215 | 5 x 0.14 | 400 | 100 | 4.8 | 20 |
| 73220216 | 5 x 0.14 | 800 | 200 | 4.8 | 20 |
| 73220217 | 5 x 0.14 | 1200 | 300 | 4.8 | 20 |
| 73220218 | 5 x 0.14 | 1600 | 400 | 4.8 | 20 |
| 73220219 | 5 x 0.14 | 2000 | 500 | 4.8 | 20 |
| 73220220 | 6 x 0.14 | 400 | 100 | 5.5 | 21 |
| 73220221 | 6 x 0.14 | 800 | 200 | 5.5 | 21 |
| 73220222 | 6 x 0.14 | 1200 | 300 | 5.5 | 21 |
| 73220223 | 6 x 0.14 | 1600 | 400 | 5.5 | 21 |
| 73220224 | 6 x 0.14 | 2000 | 500 | 5.5 | 21 |
| 73220225 | 7 x 0.14 | 400 | 100 | 5.9 | 23 |
| 73220226 | 7 x 0.14 | 800 | 200 | 5.9 | 23 |
| 73220227 | 7 x 0.14 | 1200 | 300 | 5.9 | 23 |
| 73220228 | 7 x 0.14 | 1600 | 400 | 5.9 | 23 |
| 73220229 | 7 x 0.14 | 2000 | 500 | 5.9 | 23 |
| 73220230 | 12 x 0.14 | 400 | 100 | 7.2 | 28 |
| 73220231 | 12 x 0.14 | 800 | 200 | 7.2 | 28 |
| 73220232 | 12 x 0.14 | 1200 | 300 | 7.2 | 28 |
| 73220233 | 12 x 0.14 | 1600 | 400 | 7.2 | 28 |
| 73220234 | 12 x 0.14 | 2000 | 500 | 7.2 | 28 |
| 73220235 | 18 x 0.14 | 400 | 100 | 8 | 29 |
| 73220236 | 18 x 0.14 | 800 | 200 | 8 | 29 |
| 73220237 | 18 x 0.14 | 1200 | 300 | 8 | 29 |
| 73220238 | 18 x 0.14 | 1600 | 400 | 8 | 29 |
| 73220239 | 18 x 0.14 | 2000 | 500 | 8 | 29 |
| 73220240 | 2 x 0.25 | 400 | 100 | 4.7 | 18 |
| 73220241 | 2 x 0.25 | 800 | 200 | 4.7 | 18 |
| 73220242 | 2 x 0.25 | 1200 | 300 | 4.7 | 18 |
| 73220243 | 2 x 0.25 | 1600 | 400 | 4.7 | 18 |
| 73220244 | 2 x 0.25 | 2000 | 500 | 4.7 | 18 |

| Article number | Number of cores and mm² per conductor | Spiral length, extended (mm) | Spiral length, unextended (mm) | Cable diameter (mm) | Spiral outer diameter (mm) |
|---|---|---|---|---|---|
| 73220245 | 3 x 0.25 | 400 | 100 | 5.3 | 19 |
| 73220246 | 3 x 0.25 | 800 | 200 | 5.3 | 19 |
| 73220247 | 3 x 0.25 | 1200 | 300 | 5.3 | 19 |
| 73220248 | 3 x 0.25 | 1600 | 400 | 5.3 | 19 |
| 73220249 | 3 x 0.25 | 2000 | 500 | 5.3 | 19 |
| 73220250 | 4 x 0.25 | 400 | 100 | 5.6 | 20 |
| 73220251 | 4 x 0.25 | 800 | 200 | 5.6 | 20 |
| 73220252 | 4 x 0.25 | 1200 | 300 | 5.6 | 20 |
| 73220253 | 4 x 0.25 | 1600 | 400 | 5.6 | 20 |
| 73220254 | 4 x 0.25 | 2000 | 500 | 5.6 | 20 |
| 73220255 | 5 x 0.25 | 400 | 100 | 6 | 21 |
| 73220256 | 5 x 0.25 | 800 | 200 | 6 | 21 |
| 73220257 | 5 x 0.25 | 1200 | 300 | 6 | 21 |
| 73220258 | 5 x 0.25 | 1600 | 400 | 6 | 21 |
| 73220259 | 5 x 0.25 | 2000 | 500 | 6 | 21 |
| 73220260 | 6 x 0.25 | 400 | 100 | 6.8 | 25 |
| 73220261 | 6 x 0.25 | 800 | 200 | 6.8 | 25 |
| 73220262 | 6 x 0.25 | 1200 | 300 | 6.8 | 25 |
| 73220263 | 6 x 0.25 | 1600 | 400 | 6.8 | 25 |
| 73220264 | 6 x 0.25 | 2000 | 500 | 6.8 | 25 |
| 73220265 | 7 x 0.25 | 400 | 100 | 7.3 | 26 |
| 73220266 | 7 x 0.25 | 800 | 200 | 7.3 | 26 |
| 73220267 | 7 x 0.25 | 1200 | 300 | 7.3 | 26 |
| 73220268 | 7 x 0.25 | 1600 | 400 | 7.3 | 26 |
| 73220269 | 7 x 0.25 | 2000 | 500 | 7.3 | 26 |
| 73220270 | 12 x 0.25 | 400 | 100 | 8.4 | 30 |
| 73220271 | 12 x 0.25 | 800 | 200 | 8.4 | 30 |
| 73220272 | 12 x 0.25 | 1200 | 300 | 8.4 | 30 |
| 73220273 | 12 x 0.25 | 1600 | 400 | 8.4 | 30 |
| 73220274 | 12 x 0.25 | 2000 | 500 | 8.4 | 30 |
| 73220275 | 18 x 0.25 | 400 | 100 | 9.5 | 31 |
| 73220276 | 18 x 0.25 | 800 | 200 | 9.5 | 31 |
| 73220277 | 18 x 0.25 | 1200 | 300 | 9.5 | 31 |
| 73220278 | 18 x 0.25 | 1600 | 400 | 9.5 | 31 |
| 73220279 | 18 x 0.25 | 2000 | 500 | 9.5 | 31 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

# ÖLFLEX® PLUG H05VV-F Net Connection Cable*

PVC net connection cable for electrical devices

**Info**

- Other colours and designs are available upon request



## Application range

- Electrical devices

## Product features

- For additional information regarding international plugs, please refer to our cable configurator at www.lappkabel.de
- Apart from the cable related application restrictions to be paid attention to according to the application standard EN 50565-2 for this PVC cable H05VV-F, the fact that brighter outer sheath colours deviating from black significantly reduce the UV resistance of the outer sheath and, thus, the outdoor usability of the entire, finished cable at direct sun irradiation has to be respected, too

## Product Make-up

- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- 2nd end: straight, 3-pin IEC coupling, moulded
- Alternative to Insulating tapes and shrink tubings

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

**Core identification code**
According to VDE 0293-308 (table T9)

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Nominal voltage**
U0: 250 V AC

**Test voltage**
2000 V

**Protective conductor**
G = with GN-YE protective conductor

**Temperature range**
5°C to 60°C

| Article number | Number of cores and mm² per conductor | Colour | Outer diameter [mm] | Length (m) | Copper index kg/1.000 pieces |
|---|---|---|---|---|---|
| **1st end: moulded angular earthing-type plug with double earthed contact 2nd end: straight, 3-pin C13 IEC coupling, moulded** | | | | | |
| 73222334 | 3 G 1.0 | black | 6.3 - 8.0 | 2.5 | 72 |
| 73222336 | 3 G 1.0 | grey | 6.3 - 8.0 | 2.5 | 72 |
| 73222381 | 3 G 1.5 | grey | 7.4 - 9.4 | 5 | 216 |
| 73222335 | 3 G 1.0 | white | 6.3 - 8.0 | 2.5 | 72 |
| **2nd end: rectangular, 3-pin C13 IEC coupling, moulded** | | | | | |
| 74320106 | 3 G 1.5 | black | 7.4 - 9.4 | 3.5 | 151.2 |
| 74320092 | 3 G 1.5 | black | 7.4 - 9.4 | 7.5 | 324 |
| **1st end: moulded angular earthing-type plug with double earthed contact 2nd end: 30 mm stripped, with conductor end sleeves** | | | | | |
| 70261139 | 3 G 1.0 | black | 6.3 - 8.0 | 1.5 | 43.2 |
| 70261140 | 3 G 1.0 | black | 6.3 - 8.0 | 2 | 57.6 |
| 70261141 | 3 G 1.0 | black | 6.3 - 8.0 | 3 | 86.4 |
| 70261166 | 3 G 1.0 | black | 6.3 - 8.0 | 5 | 144 |
| 70261145 | 3 G 1.0 | grey | 6.3 - 8.0 | 1.5 | 43.2 |
| 70261146 | 3 G 1.0 | grey | 6.3 - 8.0 | 2 | 57.6 |
| 70261147 | 3 G 1.0 | grey | 6.3 - 8.0 | 3 | 86.4 |
| 70261143 | 3 G 1.0 | white | 6.3 - 8.0 | 2 | 57.6 |
| 70261144 | 3 G 1.0 | white | 6.3 - 8.0 | 3 | 86.4 |
| 70261148 | 3 G 1.5 | black | 7.4 - 9.4 | 1.5 | 64.5 |
| 70261149 | 3 G 1.5 | black | 7.4 - 9.4 | 2 | 86 |
| 70261150 | 3 G 1.5 | black | 7.4 - 9.4 | 3 | 129 |
| 70261160 | 3 G 1.5 | black | 7.4 - 9.4 | 5 | 215 |
| 70261185 | 3 G 1.5 | grey | 7.4 - 9.4 | 1 | 43.2 |
| 70261154 | 3 G 1.5 | grey | 7.4 - 9.4 | 1.5 | 64.5 |
| 70261155 | 3 G 1.5 | grey | 7.4 - 9.4 | 2 | 86 |
| 70261156 | 3 G 1.5 | grey | 7.4 - 9.4 | 3 | 129 |
| 70362272 | 3 G 1.5 | grey | 7.4 - 9.4 | 4 | 172 |
| 70261151 | 3 G 1.5 | white | 7.4 - 9.4 | 1.5 | 64.5 |
| 70261152 | 3 G 1.5 | white | 7.4 - 9.4 | 2 | 86 |
| 70261153 | 3 G 1.5 | white | 7.4 - 9.4 | 3 | 129 |
| 70261163 | 3 G 2.5 | black | 9.2 - 11.4 | 3 | 216 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product / Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!"

# ÖLFLEX® PLUG Extension Cable 540 P safety yellow*

Earthing-type extension cable with straight plug and coupling



## Application range

- Mechanical engineering
- Construction industry
- Agricultural equipment
- In damp interiors or outdoors

## Product features

- Other lengths, customised versions, cable types and plug versions are available upon request

## Product Make-up

- Mounted, straight earthing-type plug (16 amp., 250 V, solid rubber, colour: black) in accordance with DIN 49440/441, protection rating: IP 44
- Mounted, straight earthing-type coupling with rubber cover (16 A, 250 V, solid rubber, colour: black) in accordance with DIN 49440/441, protection rating: IP 44

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

**Nominal voltage**
U0: 250 V AC

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Length (m) | Copper index kg/1.000 pieces |
|---|---|---|---|---|
| **ÖLFLEX® PLUG Extension Cable 540 P safety yellow*** | | | | |
| 73222337 | 3 G 1.5 | 8.9 | 5 | 215 |
| 73222322 | 3 G 1.5 | 8.9 | 10 | 430 |
| 73222375 | 3 G 1.5 | 8.9 | 15 | 645 |
| 73222323 | 3 G 1.5 | 8.9 | 25 | 1075 |
| 73222324 | 3 G 1.5 | 8.9 | 50 | 2150 |
| 73222385 | 3 G 2.5 | 10.6 | 5 | 360 |
| 73222325 | 3 G 2.5 | 10.6 | 10 | 720 |
| 73222386 | 3 G 2.5 | 10.6 | 15 | 1080 |
| 73222326 | 3 G 2.5 | 10.6 | 25 | 1800 |
| 73222327 | 3 G 2.5 | 10.6 | 50 | 3600 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ÖLFLEX® PLUG CEE Connection/ Extension Cable without phase shifter*

H07RN-F-based connecting and extension cable for three-phase current

**Info**

- Formerly: ÖLFLEX PLUG CEE (400 V) Connection / Extension Cable



## Application range

- For connections to any three-phase A.C. consumers
- Machines and systems on building sites
- According to EN 50565-2: Dry or damp rooms as well as outdoors

## Product features

- Also available with phase shifter (engine direction can be changed)
- Other dimensions, lengths, connectors, designs and customised versions are available upon request

## Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

## Product Make-up

- Mounted 5-pin CEE plug, 400 V, red, 6 o'clock in accordance with VDE 0623/ EN 60309-2, splash-proof IP 44
- 80 mm stripped, with conductor end sleeves
- From 10 mm²: 100 mm stripped, with conductor end sleeves
- Mounted 5-pin CEE coupling, 400 V, red, 6 o'clock in accordance with VDE 0623/ EN 60309-2, splash-proof IP 44

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

**Core identification code**
According to VDE 0293-308 (table T9)

**Conductor stranding**
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

**Nominal voltage**
$U_0/U$ = 200/346 to 240/415

**Test voltage**
2500 V

**Temperature range**
Flexible use: -25°C to +60°C

| Article number | Plug amps | Number of cores and mm² per conductor | Outer diameter [mm] | Length (m) | Copper index kg/1.000 pieces |
|---|---|---|---|---|---|
| **ÖLFLEX® PLUG CEE connection cable** | | | | | |
| 71222231 | 16 | 5 G 1.5 | 11.2 - 14.4 | 2.5 | 180 |
| 71222373 | 16 | 5 G 1.5 | 11.2 - 14.4 | 3.5 | 252 |
| 71222239 | 16 | 5 G 1.5 | 11.2 - 14.4 | 5 | 360 |
| 71222232 | 16 | 5 G 2.5 | 13.3 - 17.0 | 2.5 | 300 |
| 71222240 | 16 | 5 G 2.5 | 13.3 - 17.0 | 5 | 600 |
| 71222241 | 32 | 5 G 2.5 | 13.3 - 17.0 | 5 | 600 |
| 71222234 | 32 | 5 G 4.0 | 15.6 - 19.9 | 2.5 | 480 |
| 71222242 | 32 | 5 G 4.0 | 15.6 - 19.9 | 5 | 960 |
| 71222243 | 32 | 5 G 6.0 | 17.5 - 22.2 | 5 | 1440 |
| **ÖLFLEX® PLUG CEE extension cable** | | | | | |
| 71222292 | 16 | 5 G 1.5 | 11.2 - 14.4 | 10 | 720 |
| 71222295 | 16 | 5 G 2.5 | 13.3 - 17.0 | 10 | 1200 |
| 71222296 | 16 | 5 G 2.5 | 13.3 - 17.0 | 25 | 3000 |
| 71222298 | 32 | 5 G 2.5 | 13.3 - 17.0 | 10 | 1200 |
| 71222299 | 32 | 5 G 2.5 | 13.3 - 17.0 | 25 | 3000 |
| 71222301 | 32 | 5 G 4.0 | 15.6 - 19.9 | 10 | 1920 |
| 71222302 | 32 | 5 G 4.0 | 15.6 - 19.9 | 25 | 4800 |
| 71222304 | 32 | 5 G 6.0 | 17.5 - 22.2 | 10 | 2880 |
| 71222305 | 32 | 5 G 6.0 | 17.5 - 22.2 | 25 | 7200 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!"


SERVO FD 752 CP
DESINA
LAPP KABEL STUTTGART
ÖLFLEX
AWM Style 20234 80°C 1000V VW-1




# 2 UNITRONIC®

## Data communication systems

Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

**Application range**

- Industrial machinery and plant engineering
- Sensors and actuating elements
- Appliances
- Measurement and control technology
- Automated production processes and industrial robots
- Bus systems
- Computing and communication systems

## Low frequency data transmission cables

**UNITRONIC® colour codes**
UNITRONIC® 100 296
UNITRONIC® 100 CY 296
**DIN colour code**
UNITRONIC® LiYY 298
UNITRONIC® LiYCY 299
UNITRONIC® LiYY (TP) 301
UNITRONIC® LiYCY (TP) 302
UNITRONIC® LiYY BK 303
UNITRONIC® LiYCY BK 305
UNITRONIC® LiYY (TP) BK 307
UNITRONIC® LiYCY (TP) BK 308
UNITRONIC® EB CY (TP) 309
UNITRONIC® LiYCY-CY 310
UNITRONIC® CY PiDY (TP) 311
UNITRONIC® ST 312
UNITRONIC® LiYD11Y 313
UNITRONIC® PUR CP 314
UNITRONIC® PUR CP (TP) 315
**Low capacitance**
UNITRONIC® Li2YCY (TP) 316
UNITRONIC® Li2YCY (TP) fine-wire 316
UNITRONIC® Li2YCYv (TP) 316
UNITRONIC® Li2YCY PiMF 318
**Halogen-free UNITRONIC®**
UNITRONIC® ROBUST 319
UNITRONIC® ROBUST C 320
UNITRONIC® ROBUST C (TP) 321
UNITRONIC® LiHH 322
UNITRONIC® LiHCH 323
UNITRONIC® LiHCH (TP) 324
**UL/CSA-certified**
UNITRONIC® LiYY A 325
UNITRONIC® LiYCY A 326
UNITRONIC® LiYCY (TP) A 327
UNITRONIC® 300 / UNITRONIC® 300 S 328
UNITRONIC® 300 STP 329
**Highly flexible application**
UNITRONIC® FD 330
UNITRONIC® FD CY 331
**Highly flexible and UL/CSA-certified**
UNITRONIC® FD Li2YCY (TP) A BE 332
UNITRONIC® FD P plus A 333
UNITRONIC® FD CP plus A 334
UNITRONIC® FD CP (TP) plus A 335
**Computer cables (RE)**
UNITRONIC® RE-2Y(ST)Yv S 336
UNITRONIC® RE-2Y(ST)Yv PiMF 338
**Installation cable for industrial electronics**
JE-Y(ST)Y...BD 339
JE-Y(ST)Y...BD EB 339
JE-LiYCY...BD 340
JE-LiYCY...BD EB 340
POLISCREEN 341

## Telephone cables

**Indoor cables**
J-Y(ST)Y...LG Fire Alarm Cable 343
J-Y(ST)Y...LG Indoor Cable 344
J-H(ST)H...BD Fire Alarm Cable 345
J-H(ST)H...BD 346
**Outdoor cables**
A-2Y(L)2Y...ST III BD Telephone Outdoor Cable 347
A-2YF(L)2Y...ST III BD Outdoor Cable 347

## Coaxial cables

**Fixed installation and conditional flexible use**
Coaxial - RG 348
Multi coaxial cabels RG 59 B/U 349
Coaxial cabels RGB 349

## Bus systems with interface RS485/RS422

**Fixed Installation**
UNITRONIC® BUS LD 350
**Continuous flexing application**
UNITRONIC® BUS LD FD P 351

## Bus system AS-Interface

**Fixed Installation**
UNITRONIC® BUS ASI 352
**Continuous flexing application**
UNITRONIC® BUS ASI FD 353

## Bus system PROFIBUS-DP/FMS/FIP

**Fixed Installation**
UNITRONIC® BUS PB TRAY 354
UNITRONIC® BUS PB 355
UNITRONIC® BUS PB ROBUST 356
UNITRONIC® BUS PB 105 357
UNITRONIC® BUS PB 105 plus 357
UNITRONIC® BUS PB HEAT 180 358
UNITRONIC® BUS PB FRNC FC 359
UNITRONIC® BUS PB ARM 360
UNITRONIC® BUS PB Yv 361
UNITRONIC® BUS PB YY 362
UNITRONIC® BUS PB BURIAL FC 363
UNITRONIC® BUS PB Y 7-W FC BK 364
**Continuous flexing application**
UNITRONIC® BUS PB FD P 365
UNITRONIC® BUS PB FD P A 366
UNITRONIC® BUS PB FD P FC 367
UNITRONIC® BUS PB FD FRNC FC 368
UNITRONIC® BUS PB FD P COMBI 369
UNITRONIC® BUS PB FD P HYBRID 369
UNITRONIC® BUS PB TORSION 371
UNITRONIC® BUS PB FESTOON 372
**Sub-D Bus-Connectors**
EPIC® DATA PB Sub-D 373
EPIC® DATA PB Sub-D FC 374
EPIC® DATA PB Sub-D PRO 375
**M12 Connectors and accessories**
UNITRONIC® BUS PB M12 | M12-M12 377
EPIC® DATA PB M12 378
EPIC® DATA PB M12/M12 379
EPIC® DATA PB TR M12 379

## Bus system PROFIBUS-PA

**Fixed Installation**
UNITRONIC® BUS PA 380

## Bus system CAN / DeviceNet

**DeviceNet - fixed installation**
UNITRONIC® DeviceNet THICK + THIN 381
**DeviceNet - continuous flexing application**
UNITRONIC® DeviceNet FD THICK+THIN 382
**CAN - Fixed installation and high flexibility application**
UNITRONIC® BUS CAN 383
UNITRONIC® BUS CAN FD P 383
**CAN - fixed installation**
UNITRONIC® BUS CAN TRAY 384
UNITRONIC® BUS CAN BURIAL 385

## Bus systems for special applications

**Bus systems for utility vehicles**
UNITRONIC® BUS HEAT 6722 386
**Bus systems for TCN**
UNITRONIC® TRAIN 387

## Bus system CAN / DeviceNet

**Sub-D Bus-Connectors**
EPIC® DATA CAN Sub-D 388
EPIC® DATA CAN Sub-D PRO 389
**M12 Cordsets**
UNITRONIC® BUS CAN M12 | M12-M12 390
**M12 Connectors and accessories**
EPIC® DATA CAN M12 391
EPIC® DATA CAN M12/M12 391
EPIC® DATA CAN TR M12 392
EPIC® DATA CAN M12T 393
EPIC® DATA CAN CCR 393

## Bus system ISOBUS
**Flexible application**
UNITRONIC® BUS IS 394

## Bus system Foundation Fieldbus
**Fixed Installation**
UNITRONIC® BUS FF 395

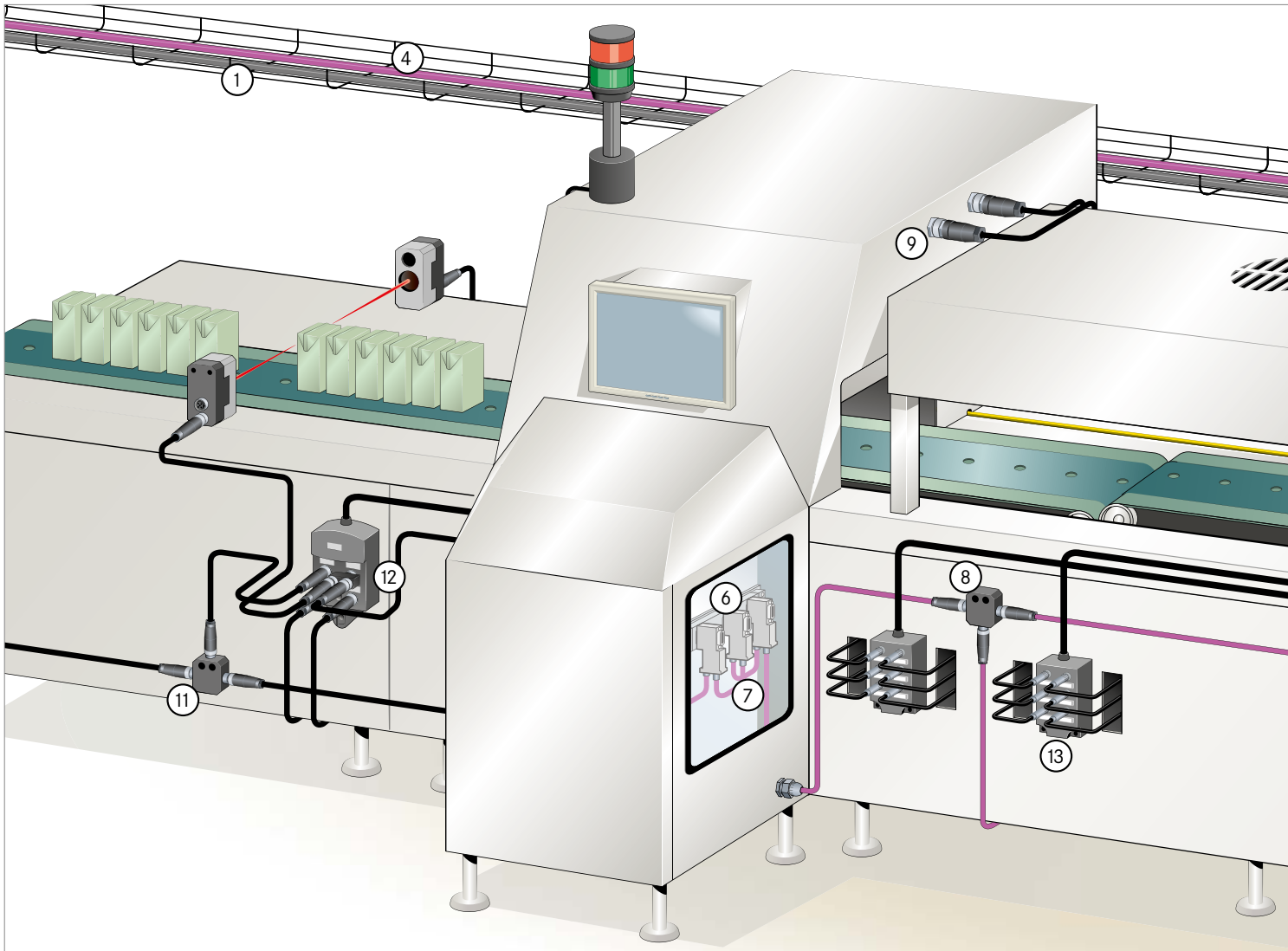
## Bus system CC-Link
**Fixed / continuous flexing application**
UNITRONIC® BUS CC 396
UNITRONIC® BUS CC FD P FRNC 397

## Bus system SAFETY BUS
UNITRONIC® BUS SAFETY 398

## Bus system INTERBUS (IBS)
**Fixed Installation**
UNITRONIC® BUS IBS 399

## Bus system EIB
**Fixed Installation**
UNITRONIC® BUS EIB / KNX 400

## Sensor/actuator cabling
**Flexible / highly flexible applications**
UNITRONIC® SENSOR master cable 401
UNITRONIC® SENSOR 402
UNITRONIC® SENSOR FD 403
UNITRONIC® ROBUST S/A FD 404
**M8 cordsets**
UNITRONIC® SENSOR M8 405
UNITRONIC® SENSOR M8-M8 406
UNITRONIC® SENSOR M8-M12 407
UNITRONIC® SENSOR PVC M8 408
**M8 Field mountable connectors and wall ducts**
EPIC® SENSOR M8 409
EPIC® SENSOR Flush-type M8 410
**M12 cordsets**
UNITRONIC® SENSOR M12 open-ended Cordsets 411
UNITRONIC® SENSOR M12 Cordsets 412
UNITRONIC® SENSOR M12-M8 413
EPIC® POWER M12L-M12L 414
UNITRONIC® SENSOR PVC M12 | M12-M12 416
**M12 Cordsets for Food&Beverage**
UNITRONIC® SENSOR HD M12 417
**M12 Field mountable connectors and wall ducts**
EPIC® SENSOR M12 418
EPIC® SENSOR M12 V4A 419
EPIC® SENSOR M12/M12 419
EPIC® SENSOR M12A screw connection 420
EPIC® SENSOR M12A solder termination 421
EPIC® SENSOR M12B Screw termination 422
EPIC® SENSOR Flush-type M12 424
EPIC® SENSOR M12 T-distributor 425
EPIC® SENSOR CCR 425
**Valve connectors**
UNITRONIC® SENSOR Valve 426
UNITRONIC® SENSOR Valve-M12 427
**Y connectors**
UNITRONIC® SENSOR M12Y 428
UNITRONIC® SENSOR M12Y-M8 429
UNITRONIC® SENSOR M12Y-M12 429
EPIC® SENSOR M8Y | M12Y 430
**Distribution boxes**
Distribution Box M8 431
Distribution Box M12 432
**Accessories for distribution box**
UNITRONIC® SENSOR M16 433
**M12 Power cordsets (A-coded)**
UNITRONIC® SENSOR M12 Power 434
**M12 Connectors for power transmission (T-coded)**
EPIC® POWER M12 60V 435
EPIC® POWER M12 60V flush-type connectors 436
**Actuator components**
UNITRONIC® ACCESS SP08 IOL 437
UNITRONIC® ACCESS MP08 438
UNITRONIC® ACCESS HUB IO-LINK 439




1. Low-frequency data cables (fixed installation)
2. Low-frequency data cables (highly flexible)
3. AS-interface cables
4. PROFIBUS® cables (fixed installation)
5. PROFIBUS® cables (highly flexible)
6. PROFIBUS® Sub-D connector
7. PROFIBUS® M12 cordsets
8. PROFIBUS® M12 T distributor
9. Sensor/actuator M12 connector
10. Valve connectors
11. Sensor/actuator T distributor
12. Sensor/actuator Y distributor
13. Sensor/actuator M8 distribution boxes
14. Sensor/actuator M12 distribution boxes

## Low-frequency data cables

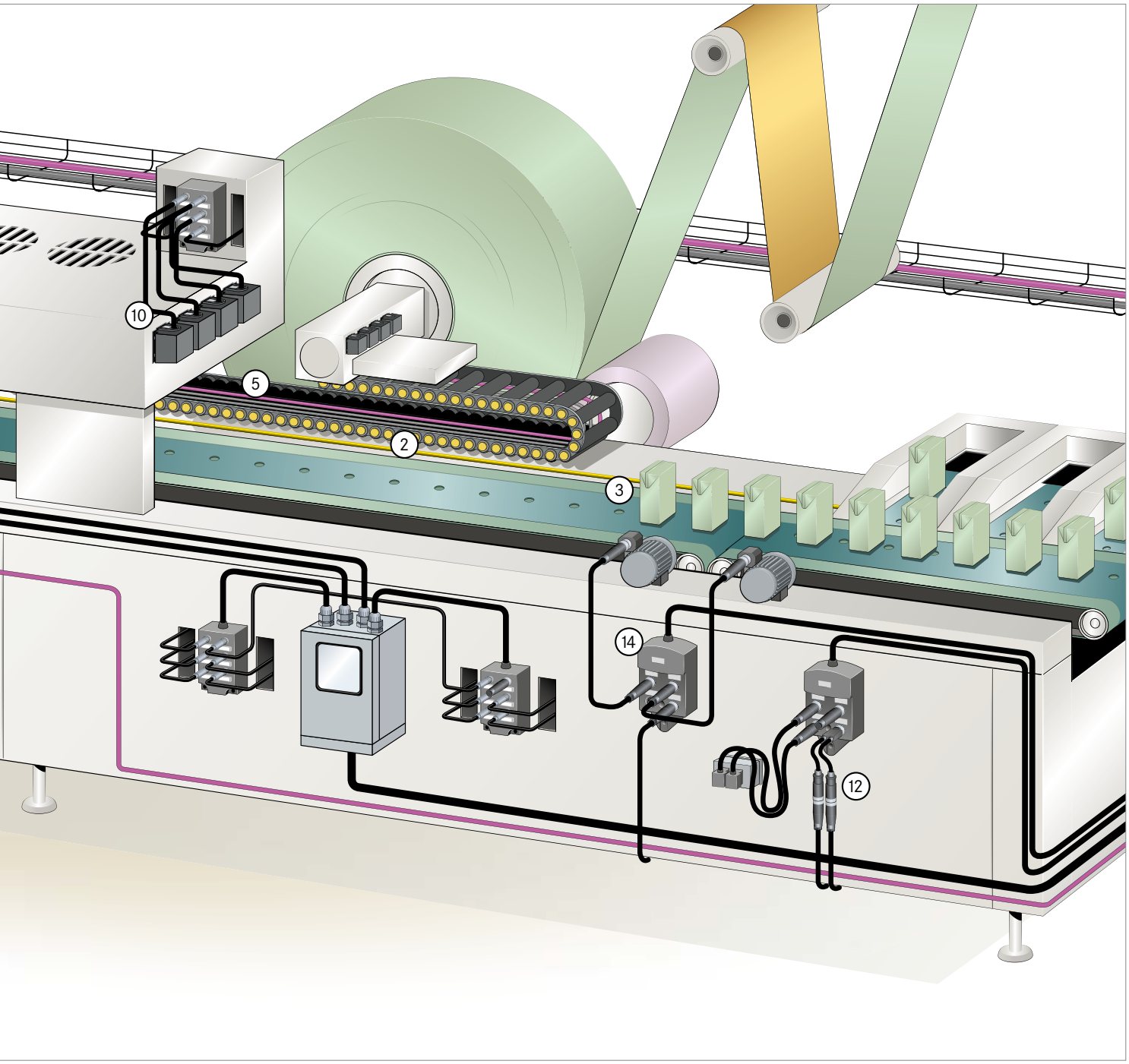



Installation/data cables for low-frequency transmission – for fixed and flexible installation, continuous flexing application.

## Coaxial cables




RG (MIL-DTL 17 H) and RGB cables for high-frequency data transmission, fixed and conditional flexing, indoor and outdoor applications, extreme temperatures.




## Bus systems




Support of all major fieldbus systems, including PROFIBUS® (DP and PA), CAN, DeviceNet™, CC-Link®, AS-Interface, ISOBUS, Foundation Fieldbus™, KNX®. Cables for indoors and outdoors, extreme temperatures, fixed/flexible installation and highly flexible application. M12 and Sub-D connectors, cordsets and accessories.

## Sensor/actuator cabling



The complete range of M8, M12 and valve connectors, cables, cordsets, matching distribution boxes and accessories. Available as shielded/unshielded version, optional LEDs, with different cable materials and connection technologies.

# UNITRONIC® 100

Control and signal cable with small cross-sections




**Info**

- UNITRONIC® colour code with protective conductor

# UNITRONIC® 100 CY

Screened control and signal cable with small cross-sections




## Application range

- These control and signal cables are used in the milliampere range for computer systems, electronic control equipment, office machines, balances etc. and wherever the thinnest possible control cables are required.

## Product features

**UNITRONIC® 100**

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

**UNITRONIC® 100 CY**

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Cable similar to UNITRONIC® 100, but with copper braiding
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

## Norm references / Approvals

- Based on: VDE 0814 or VDE 0812

## Product Make-up

**UNITRONIC® 100**

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

**UNITRONIC® 100 CY**

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Inner sheath made of PVC
- For the cross section of 0.14 mm², a polyester tape is used underneath the screen braiding instead of the inner sheath.
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
Refer to Appendix T7 for the UNITRONIC® colour codes

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.7 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
**UNITRONIC® 100**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter
**UNITRONIC® 100 CY**
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

**Protective conductor**
Green-yellow

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® 100** | | | | |
| 0028009 | 2 x 0,14 | 3 | 2.8 | 12 |
| 0028010 | 3 x 0,14 | 3.2 | 4.2 | 17 |
| 0028012 | 5 x 0,14 | 3.7 | 7 | 22 |
| 0028014 | 7 x 0,14 | 4 | 9.8 | 27 |
| 0028015 | 10 x 0,14 | 5 | 14 | 41 |
| 0028019 | 24 x 0,14 | 7.2 | 33.6 | 94 |
| 0028025 | 52 x 0,14 | 10 | 72.8 | 198 |
| 0028030 | 3 x 0,25 | 3.8 | 7.5 | 21 |
| 0028031 | 7 x 0,25 | 4.9 | 17.5 | 48 |
| 0028032 | 10 x 0,25 | 6.4 | 25 | 77 |
| 0028033 | 14 x 0,25 | 6.9 | 35 | 95 |
| 0028034 | 16 x 0,25 | 7.3 | 40 | 112 |
| 0028035 | 21 x 0,25 | 8.5 | 52.5 | 139 |
| 0028036 | 24 x 0,25 | 9 | 60 | 163 |
| 0028037 | 27 x 0,25 | 9.2 | 67.5 | 171 |
| 0028038 | 30 x 0,25 | 9.9 | 75 | 187 |
| 0028039 | 36 x 0,25 | 10.7 | 90 | 235 |
| 0028040 | 40 x 0,25 | 11.6 | 100 | 266 |
| 0028042 | 52 x 0,25 | 12.5 | 130 | 343 |
| 0028044 | 61 x 0,25 | 13.3 | 152.5 | 398 |
| 0028047 | 3 x 0,34 | 4.2 | 10.5 | 33 |
| 0028048 | 7 x 0,34 | 5.5 | 22.8 | 62 |
| 0028051 | 16 x 0,34 | 8.3 | 54.4 | 131 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® 100 CY** | | | | |
| 0034006 | 2 x 0,14 | 3.7 | 12 | 20 |
| 0034007 | 3 x 0,14 | 3.9 | 13 | 28 |
| 0034008 | 4 x 0,14 | 4.1 | 14.3 | 33 |
| 0034009 | 5 x 0,14 | 4.4 | 15.5 | 38 |
| 0034010 | 7 x 0,14 | 4.7 | 20.3 | 49 |
| 0034011 | 10 x 0,14 | 5.7 | 34.3 | 66 |
| 0034012 | 14 x 0,14 | 6.3 | 32 | 80 |
| 0034013 | 16 x 0,14 | 6.6 | 40.9 | 90 |
| 0034016 | 27 x 0,14 | 8.1 | 70.6 | 148 |
| 0031031 | 3 x 0,25 | 5.4 | 20.2 | 48 |
| 0031066 | 4 x 0,25 | 5.7 | 24 | 61 |
| 0031067 | 5 x 0,25 | 6.3 | 29 | 72 |
| 0031032 | 7 x 0,25 | 6.7 | 37.6 | 82 |
| 0031033 | 10 x 0,25 | 8.2 | 48.8 | 129 |
| 0031034 | 14 x 0,25 | 8.7 | 64.6 | 147 |
| 0031068 | 2 x 0,34 | 5.6 | 20 | 45 |
| 0031048 | 3 x 0,34 | 5.8 | 24.1 | 62 |
| 0031069 | 4 x 0,34 | 6.4 | 29 | 65 |
| 0031070 | 5 x 0,34 | 6.9 | 42 | 95 |
| 0031049 | 7 x 0,34 | 7.3 | 50 | 106 |
| 0031050 | 10 x 0,34 | 9 | 67.7 | 167 |
| 0031052 | 16 x 0,34 | 10.5 | 95 | 219 |
| 0031060 | 52 x 0,34 | 17.6 | 336 | 629 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100




**Info**

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Space-saving installation due to small cable diameters
- Multifunctional application possibilities
- Depending on the quantity, the outer sheath can also be produced in other colours to match your application needs

## Application range

- UNITRONIC® LiYY is also used as a control and signal cable in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms
- Occasional flexing

## Product features

- Despite the large number of cores, LiYY data cables have small outer diameters
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYY** | | | | |
| 0028202 | 2 x 0.14 | 3.2 | 2.7 | 13.2 |
| 0028203 | 3 x 0.14 | 3.4 | 4.05 | 16 |
| 0028204 | 4 x 0.14 | 3.6 | 5.4 | 18.9 |
| 0028205 | 5 x 0.14 | 3.9 | 6.72 | 22.2 |
| 0028207 | 7 x 0.14 | 4.2 | 9.45 | 28.4 |
| 0028208 | 8 x 0.14 | 4.9 | 10.2 | 35.2 |
| 0028210 | 10 x 0.14 | 5.2 | 13.5 | 41.2 |
| 0028212 | 12 x 0.14 | 5.6 | 16.2 | 48.4 |
| 0028214 | 14 x 0.14 | 5.8 | 18.9 | 52.9 |
| 0028216 | 16 x 0.14 | 6.1 | 21.6 | 59.1 |
| 0028220 | 20 x 0.14 | 7 | 27 | 70.8 |
| 0028225 | 25 x 0.14 | 7.8 | 33.6 | 87.2 |
| 0028236 | 36 x 0.14 | 8.6 | 48.6 | 126.8 |
| 0028237 | 37 x 0.14 | 8.9 | 49.7 | 118 |
| 0028240 | 40 x 0.14 | 9.3 | 54 | 139.1 |
| 0028250 | 50 x 0.14 | 10.4 | 67.5 | 170.9 |
| 0028256 | 56 x 0.14 | 10.7 | 78.4 | 187 |
| 0028302 | 2 x 0.25 | 3.8 | 4.8 | 18 |
| 0028303 | 3 x 0.25 | 4 | 7.2 | 22 |
| 0028304 | 4 x 0.25 | 4.3 | 9.6 | 26.2 |
| 0028305 | 5 x 0.25 | 4.7 | 12 | 31 |
| 0028306 | 6 x 0.25 | 5.1 | 14.4 | 39 |
| 0028307 | 7 x 0.25 | 5.1 | 16.8 | 42 |
| 0028308 | 8 x 0.25 | 6.2 | 19.2 | 49.2 |
| 0028310 | 10 x 0.25 | 6.8 | 24 | 58 |
| 0028312 | 12 x 0.25 | 7 | 28.8 | 67 |
| 0028314 | 14 x 0.25 | 7.3 | 33.6 | 75.3 |
| 0028316 | 16 x 0.25 | 7.7 | 38.4 | 84.3 |
| 0028318 | 18 x 0.25 | 8.1 | 43.2 | 93 |
| 0028320 | 20 x 0.25 | 8.6 | 48 | 102 |
| 0028325 | 25 x 0.25 | 9.6 | 60 | 134 |
| 0028330 | 30 x 0.25 | 10.3 | 72 | 155 |
| 0028332 | 32 x 0.25 | 10.7 | 76.8 | 164 |
| 0028336 | 36 x 0.25 | 11.1 | 86.4 | 182.2 |
| 0028337 | 37 x 0.25 | 11.4 | 88.8 | 185 |
| 0028340 | 40 x 0.25 | 12 | 96.1 | 200 |
| 0028350 | 50 x 0.25 | 12.9 | 120 | 257.1 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| 0028402 | 2 x 0.34 | 4.2 | 6.6 | 25 |
| 0028403 | 3 x 0.34 | 4.4 | 9.9 | 31 |
| 0028404 | 4 x 0.34 | 4.8 | 13.1 | 43.2 |
| 0028405 | 5 x 0.34 | 5.5 | 16.5 | 53.8 |
| 0028406 | 6 x 0.34 | 5.9 | 19.6 | 55 |
| 0028407 | 7 x 0.34 | 5.9 | 22.8 | 62 |
| 0028408 | 8 x 0.34 | 7.1 | 26.1 | 73.1 |
| 0028410 | 10 x 0.34 | 7.6 | 32.6 | 82 |
| 0028412 | 12 x 0.34 | 7.8 | 39.1 | 102 |
| 0028414 | 14 x 0.34 | 8.2 | 45.7 | 109 |
| 0028416 | 16 x 0.34 | 8.7 | 52 | 127 |
| 0028420 | 20 x 0.34 | 9.6 | 65.2 | 159.3 |
| 0028421 | 21 x 0.34 | 10.4 | 68.6 | 167 |
| 0028425 | 25 x 0.34 | 11.2 | 81.6 | 190 |
| 0028430 | 30 x 0.34 | 11.6 | 98 | 226 |
| 0028436 | 36 x 0.34 | 12.5 | 118 | 284 |
| 0028440 | 40 x 0.34 | 13.5 | 131 | 317 |
| 0028450 | 50 x 0.34 | 15 | 163 | 407 |
| 0028502 | 2 x 0.50 | 4.7 | 9.6 | 30 |
| 0028503 | 3 x 0.50 | 5 | 14.4 | 39 |
| 0028504 | 4 x 0.50 | 5.6 | 19.2 | 49 |
| 0028505 | 5 x 0.50 | 6.1 | 24 | 65 |
| 0028507 | 7 x 0.50 | 6.9 | 33.6 | 82 |
| 0028508 | 8 x 0.50 | 8 | 38.4 | 90 |
| 0028510 | 10 x 0.50 | 8.6 | 48 | 117 |
| 0028512 | 12 x 0.50 | 8.9 | 58 | 133 |
| 0028516 | 16 x 0.50 | 10.2 | 77 | 170 |
| 0028520 | 20 x 0.50 | 11.4 | 96 | 214 |
| 0028525 | 25 x 0.50 | 12.7 | 120 | 265 |
| 0028530 | 30 x 0.50 | 13.2 | 144 | 304 |
| 0028540 | 40 x 0.50 | 15.8 | 192 | 392 |
| 0028602 | 2 x 0.75 | 5.1 | 14.4 | 48 |
| 0028603 | 3 x 0.75 | 5.6 | 21.6 | 57 |
| 0028604 | 4 x 0.75 | 6.1 | 28.8 | 69 |
| 0028605 | 5 x 0.75 | 6.9 | 36 | 78 |
| 0028607 | 7 x 0.75 | 7.5 | 50 | 112 |
| 0028608 | 8 x 0.75 | 8.7 | 58 | 126 |
| 0028610 | 10 x 0.75 | 9.4 | 72 | 149 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| 0028612 | 12 x 0.75 | 10.1 | 86 | 176 |
| 0028616 | 16 x 0.75 | 11.2 | 115 | 218 |
| 0028620 | 20 x 0.75 | 12.4 | 144 | 274 |
| 0028625 | 25 x 0.75 | 14 | 180 | 320 |
| 0028702 | 2 x 1.00 | 5.6 | 19.2 | 55 |
| 0028703 | 3 x 1.00 | 5.9 | 29 | 70 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| 0028704 | 4 x 1.00 | 6.4 | 38.4 | 79 |
| 0028705 | 5 x 1.00 | 7.3 | 48 | 98 |
| 0028802 | 2 x 1.50 | 6.2 | 29 | 74 |
| 0028803 | 3 x 1.50 | 6.8 | 43 | 89 |
| 0028804 | 4 x 1.50 | 7.4 | 58 | 105 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY

Screened data transmission cable with colour code acc. to DIN 47100




**Info**

- CPR: Article number choice under www.lapp.com

## Benefits

- Overall braid minimises electrical interference
- Multifunctional application possibilities

## Application range

- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Dry or damp rooms

## Product features

- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYCY** | | | | |
| 0034302 | 2 x 0.14 | 3.9 | 12 | 20 |
| 0034303 | 3 x 0.14 | 4.1 | 13 | 28 |
| 0034304 | 4 x 0.14 | 4.3 | 14.3 | 33 |
| 0034305 | 5 x 0.14 | 4.6 | 15.5 | 38 |
| 0034306 | 6 x 0.14 | 4.9 | 18.2 | 38 |
| 0034307 | 7 x 0.14 | 4.9 | 19 | 49 |
| 0034308 | 8 x 0.14 | 5.8 | 21.2 | 56 |
| 0034310 | 10 x 0.14 | 6.1 | 28.5 | 66 |
| 0034312 | 12 x 0.14 | 6.3 | 30.4 | 78 |
| 0034314 | 14 x 0.14 | 6.7 | 32 | 80 |
| 0034315 | 15 x 0.14 | 6.9 | 37.8 | 86 |
| 0034316 | 16 x 0.14 | 7 | 43 | 90 |
| 0034318 | 18 x 0.14 | 7.3 | 48.8 | 95 |
| 0034320 | 20 x 0.14 | 7.7 | 53.9 | 100 |
| 0034321 | 21 x 0.14 | 7.9 | 55.5 | 105 |
| 0034324 | 24 x 0.14 | 8.3 | 61 | 112 |
| 0034325 | 25 x 0.14 | 8.5 | 63 | 120 |
| 0034328 | 28 x 0.14 | 8.5 | 66.1 | 141 |
| 0034330 | 30 x 0.14 | 8.7 | 69 | 155 |
| 0034336 | 36 x 0.14 | 9.3 | 83 | 170 |
| 0034340 | 40 x 0.14 | 10.4 | 87.5 | 178 |
| 0034344 | 44 x 0.14 | 10.7 | 110.5 | 185 |
| 0034350 | 50 x 0.14 | 11.1 | 122.5 | 195 |
| 0034402 | 2 x 0.25 | 4.5 | 16 | 32 |
| 0034403 | 3 x 0.25 | 4.7 | 21 | 37 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| 0034404 | 4 x 0.25 | 5 | 24 | 41.3 |
| 0034405 | 5 x 0.25 | 5.6 | 29 | 51.2 |
| 0034406 | 6 x 0.25 | 6 | 30 | 58 |
| 0034407 | 7 x 0.25 | 6 | 37 | 65 |
| 0034408 | 8 x 0.25 | 7.1 | 42 | 73 |
| 0034410 | 10 x 0.25 | 7.5 | 46 | 82 |
| 0034412 | 12 x 0.25 | 7.7 | 53 | 98 |
| 0034414 | 14 x 0.25 | 8 | 59 | 99 |
| 0034415 | 15 x 0.25 | 8.3 | 61 | 111 |
| 0034416 | 16 x 0.25 | 8.4 | 64 | 119 |
| 0034418 | 18 x 0.25 | 8.8 | 83 | 125 |
| 0034420 | 20 x 0.25 | 9.3 | 88 | 136 |
| 0034421 | 21 x 0.25 | 9.6 | 93 | 161 |
| 0034425 | 25 x 0.25 | 10.7 | 114 | 172 |
| 0034428 | 28 x 0.25 | 10.8 | 126 | 181.1 |
| 0034432 | 32 x 0.25 | 11.4 | 138 | 203 |
| 0034436 | 36 x 0.25 | 11.8 | 148 | 220 |
| 0034440 | 40 x 0.25 | 12.7 | 157 | 248 |
| 0034450 | 50 x 0.25 | 13.8 | 178 | 318 |
| 0034461 | 61 x 0.25 | 15 | 205 | 365.2 |
| 0034502 | 2 x 0.34 | 4.9 | 21 | 37 |
| 0034503 | 3 x 0.34 | 5.1 | 27 | 42 |
| 0034504 | 4 x 0.34 | 5.7 | 28 | 52 |
| 0034505 | 5 x 0.34 | 6.2 | 30 | 60 |
| 0034506 | 6 x 0.34 | 6.8 | 45 | 64 |
| 0034507 | 7 x 0.34 | 6.8 | 48 | 75 |
| 0034508 | 8 x 0.34 | 7.8 | 52 | 94 |
| 0034510 | 10 x 0.34 | 8.3 | 74 | 105 |
| 0034512 | 12 x 0.34 | 8.5 | 80 | 123 |
| 0034514 | 14 x 0.34 | 8.9 | 86 | 154 |
| 0034515 | 15 x 0.34 | 9.2 | 90 | 155 |
| 0034516 | 16 x 0.34 | 9.4 | 94 | 160 |
| 0034518 | 18 x 0.34 | 10.2 | 103 | 173 |
| 0034520 | 20 x 0.34 | 10.7 | 112 | 192 |
| 0034521 | 21 x 0.34 | 11.1 | 116 | 199.2 |
| 0034525 | 25 x 0.34 | 11.9 | 135 | 259 |
| 0034528 | 28 x 0.34 | 12 | 153 | 280 |
| 0034530 | 30 x 0.34 | 12.3 | 159 | 291.1 |
| 0034532 | 32 x 0.34 | 13 | 165 | 305 |
| 0034536 | 36 x 0.34 | 13.4 | 179 | 331 |
| 0034540 | 40 x 0.34 | 14.8 | 200 | 365 |
| 0034550 | 50 x 0.34 | 15.9 | 235 | 431 |
| 0034602 | 2 x 0.50 | 5.6 | 29 | 47 |
| 0034603 | 3 x 0.50 | 5.9 | 38 | 55 |
| 0034604 | 4 x 0.50 | 6.3 | 43 | 70 |
| 0034605 | 5 x 0.50 | 7 | 51 | 90 |
| 0034606 | 6 x 0.50 | 7.6 | 59 | 104 |
| 0034607 | 7 x 0.50 | 7.6 | 65 | 112 |
| 0034608 | 8 x 0.50 | 8.7 | 70 | 120 |
| 0034610 | 10 x 0.50 | 9.3 | 88 | 139 |
| 0034612 | 12 x 0.50 | 9.6 | 99 | 177 |
| 0034618 | 18 x 0.50 | 11.8 | 134 | 239 |
| 0034620 | 20 x 0.50 | 12.1 | 149 | 276 |
| 0034625 | 25 x 0.50 | 13.7 | 211 | 352 |
| 0034630 | 30 x 0.50 | 14.5 | 230 | 397 |
| 0034702 | 2 x 0.75 | 6 | 38 | 53 |
| 0034703 | 3 x 0.75 | 6.3 | 49 | 65 |
| 0034704 | 4 x 0.75 | 7 | 58 | 79 |
| 0034705 | 5 x 0.75 | 7.6 | 67 | 109 |
| 0034707 | 7 x 0.75 | 8.2 | 100 | 156 |
| 0034710 | 10 x 0.75 | 10.5 | 130 | 187 |
| 0034712 | 12 x 0.75 | 10.8 | 154 | 218 |
| 0034718 | 18 x 0.75 | 13 | 195 | 327 |
| 0034725 | 25 x 0.75 | 15.3 | 280 | 454 |
| 0034730 | 30 x 0.75 | 15.8 | 312 | 486 |
| 0034802 | 2 x 1.00 | 6.3 | 43 | 72 |
| 0034803 | 3 x 1.00 | 6.8 | 56 | 90 |
| 0034804 | 4 x 1.00 | 7.3 | 68 | 109 |
| 0034805 | 5 x 1.00 | 8 | 79 | 126 |
| 0034807 | 7 x 1.00 | 8.6 | 118 | 171 |
| 0034810 | 10 x 1.00 | 11.1 | 140 | 228 |
| 0034812 | 12 x 1.00 | 11.4 | 168 | 259 |
| 0034818 | 18 x 1.00 | 13.4 | 252 | 389 |
| 0034825 | 25 x 1.00 | 16.2 | 335 | 517 |
| 0034902 | 2 x 1.50 | 7.1 | 58 | 90 |
| 0034903 | 3 x 1.50 | 7.5 | 74 | 115 |
| 0034904 | 4 x 1.50 | 8.1 | 108 | 129 |
| 0034905 | 5 x 1.50 | 8.8 | 129 | 176 |
| 0034907 | 7 x 1.50 | 9.5 | 164 | 220 |
| 0034912 | 12 x 1.50 | 12.7 | 254 | 376 |
| 0034918 | 18 x 1.50 | 15.3 | 350 | 519 |
| 0034925 | 25 x 1.50 | 17.9 | 550 | 901 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs

**Info**

- TP = twisted pair
- CPR: Article number choice under www.lapp.com




## Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Electronic devices tend to leave little room for installing cables, meaning short travel distances and small bending radii are required. This cable ideally meets these requirements.
- Dry or damp rooms

## Product features

- Twisted in pairs to reduce decoupling. As a result, additional screening is often not required.
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® LiYY (TP)** | | | | |
| 0035101 | 2 x 2 x 0.14 | 4.5 | 5.4 | 25.5 |
| 0035102 | 3 x 2 x 0.14 | 5 | 8 | 32 |
| 0035103 | 4 x 2 x 0.14 | 5.6 | 10.7 | 38.5 |
| 0035104 | 5 x 2 x 0.14 | 5.8 | 13.4 | 45.5 |
| 0035105 | 6 x 2 x 0.14 | 6.3 | 16.1 | 51 |
| 0035108 | 10 x 2 x 0.14 | 8.1 | 26.9 | 77.5 |
| 0035110 | 12 x 2 x 0.14 | 8.3 | 32.3 | 94.5 |
| 0035113 | 16 x 2 x 0.14 | 9.2 | 43 | 110.5 |
| 0035160 | 2 x 2 x 0.25 | 5.7 | 9.6 | 38 |
| 0035161 | 3 x 2 x 0.25 | 6.3 | 14.4 | 48 |
| 0035162 | 4 x 2 x 0.25 | 7 | 19.2 | 59 |
| 0035163 | 6 x 2 x 0.25 | 7.9 | 28.8 | 80 |
| 0035164 | 8 x 2 x 0.25 | 9.3 | 38.4 | 98 |
| 0035170 | 2 x 2 x 0.5 | 7.3 | 19.2 | 72 |
| 0035171 | 3 x 2 x 0.5 | 8.1 | 28.8 | 83 |
| 0035172 | 4 x 2 x 0.5 | 8.8 | 38.4 | 115 |
| 0035174 | 8 x 2 x 0.5 | 12.3 | 76.8 | 206 |
| 0035175 | 10 x 2 x 0.5 | 13.3 | 96 | 247 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs




**Info**

- TP = twisted pair
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

## Application range

- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms

## Product features

- Good protection against capacitive interference from electric fields (e.g. power cable)
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® LiYCY (TP)** | | | | |
| 0035131 | 2 x 2 x 0.14 | 5.3 | 18.5 | 39 |
| 0035141 | 3 x 2 x 0.14 | 5.8 | 23 | 48 |
| 0035132 | 4 x 2 x 0.14 | 6.2 | 26.6 | 54 |
| 0035133 | 6 x 2 x 0.14 | 7.1 | 48.5 | 85 |
| 0035150 | 8 x 2 x 0.14 | 8.2 | 53.7 | 97 |
| 0035134 | 10 x 2 x 0.14 | 8.7 | 59 | 110 |
| 0035135 | 12 x 2 x 0.14 | 8.9 | 66 | 142 |
| 0035136 | 16 x 2 x 0.14 | 10.2 | 79 | 154 |
| 0035142 | 20 x 2 x 0.14 | 11.3 | 97 | 184 |
| 0035137 | 25 x 2 x 0.14 | 12.5 | 113 | 238 |
| 0035800 | 2 x 2 x 0.25 | 6.3 | 28 | 54 |
| 0035801 | 3 x 2 x 0.25 | 7.1 | 39.6 | 68.5 |
| 0035802 | 4 x 2 x 0.25 | 7.6 | 44.9 | 81 |
| 0035803 | 6 x 2 x 0.25 | 8.5 | 69.5 | 115 |
| 0035804 | 8 x 2 x 0.25 | 10.3 | 76.9 | 130 |
| 0035805 | 10 x 2 x 0.25 | 11 | 102 | 158 |
| 0035806 | 12 x 2 x 0.25 | 11.3 | 120 | 190 |
| 0035807 | 16 x 2 x 0.25 | 12.5 | 146.5 | 238 |

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0035808 | 25 x 2 x 0.25 | 16.1 | 205 | 344 |
| 0035810 | 2 x 2 x 0.50 | 7.9 | 48.1 | 93 |
| 0035811 | 3 x 2 x 0.50 | 8.7 | 73.7 | 116 |
| 0035812 | 4 x 2 x 0.50 | 9.4 | 82 | 127 |
| 0035813 | 6 x 2 x 0.50 | 11.1 | 110 | 198 |
| 0035814 | 8 x 2 x 0.50 | 13.1 | 139 | 259 |
| 0035816 | 12 x 2 x 0.50 | 14.9 | 198.3 | 354 |
| 0035817 | 16 x 2 x 0.50 | 16.5 | 240 | 459 |
| 0035820 | 2 x 2 x 0.75 | 8.5 | 58 | 106 |
| 0035821 | 3 x 2 x 0.75 | 9.4 | 84 | 140 |
| 0035822 | 4 x 2 x 0.75 | 10.7 | 108 | 179 |
| 0035827 | 5 x 2 x 0.75 | 11.1 | 126 | 215 |
| 0035823 | 6 x 2 x 0.75 | 12.1 | 146 | 246 |
| 0035824 | 8 x 2 x 0.75 | 14.7 | 180 | 305 |
| 0035825 | 12 x 2 x 0.75 | 16.2 | 261 | 456 |
| 0035830 | 2 x 2 x 1.00 | 9 | 84 | 142 |
| 0035831 | 3 x 2 x 1.00 | 10 | 96 | 173 |
| 0035832 | 4 x 2 x 1.00 | 11.3 | 121 | 212 |
| 0035836 | 5 x 2 x 1.00 | 11.8 | 161 | 266 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYY BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use




**Info**

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Numerous dimensions available for wide range of applications
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
0.14 mm²: 1200 V
≥ 0.25 mm²: 1500 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030200 | 2 x 0.14 | 3.2 | 2.7 | 13 |
| 1030201 | 3 x 0.14 | 3.4 | 4.05 | 16 |
| 1030202 | 4 x 0.14 | 3.6 | 5.4 | 18 |
| 1030203 | 5 x 0.14 | 3.9 | 6.72 | 22 |
| 1030204 | 7 x 0.14 | 4.2 | 9.45 | 28 |
| 1030205 | 8 x 0.14 | 4.9 | 10.2 | 35 |
| 1030206 | 10 x 0.14 | 5.2 | 13.5 | 41 |
| 1030207 | 12 x 0.14 | 5.6 | 16.2 | 48 |
| 1030208 | 14 x 0.14 | 5.8 | 18.9 | 52 |
| 1030209 | 16 x 0.14 | 6.1 | 21.6 | 59 |
| 1030210 | 20 x 0.14 | 7 | 27 | 70 |
| 1030211 | 25 x 0.14 | 7.8 | 33.6 | 87 |
| 1030212 | 36 x 0.14 | 8.6 | 48.6 | 126 |
| 1030213 | 37 x 0.14 | 8.9 | 49.7 | 118 |
| 1030214 | 40 x 0.14 | 9.3 | 54 | 139 |
| 1030215 | 50 x 0.14 | 10.4 | 67.5 | 170 |
| 1030217 | 2 x 0.25 | 3.8 | 4.8 | 18 |
| 1030218 | 3 x 0.25 | 4 | 7.2 | 22 |
| 1030219 | 4 x 0.25 | 4.3 | 9.6 | 26 |
| 1030220 | 5 x 0.25 | 4.7 | 12 | 31 |
| 1030221 | 6 x 0.25 | 5.1 | 14.4 | 42 |
| 1030222 | 7 x 0.25 | 5.1 | 16.8 | 42 |
| 1030223 | 8 x 0.25 | 6.2 | 19.2 | 49 |
| 1030224 | 10 x 0.25 | 6.8 | 24 | 58 |
| 1030225 | 12 x 0.25 | 7 | 28.8 | 67 |
| 1030226 | 14 x 0.25 | 7.3 | 33.6 | 75 |
| 1030227 | 16 x 0.25 | 7.7 | 38.4 | 84 |
| 1030228 | 18 x 0.25 | 8.1 | 43.2 | 93 |
| 1030229 | 20 x 0.25 | 8.6 | 48 | 102 |
| 1030231 | 30 x 0.25 | 10.3 | 72 | 155 |
| 1030232 | 32 x 0.25 | 10.7 | 76.8 | 164 |
| 1030233 | 36 x 0.25 | 11.1 | 86.4 | 182 |
| 1030234 | 37 x 0.25 | 11.4 | 88.8 | 185 |
| 1030235 | 40 x 0.25 | 12 | 96.1 | 200 |
| 1030236 | 50 x 0.25 | 12.9 | 120 | 257 |
| 1030237 | 2 x 0.34 | 4.2 | 6.6 | 25 |
| 1030238 | 3 x 0.34 | 4.4 | 9.9 | 31 |
| 1030239 | 4 x 0.34 | 4.8 | 13.1 | 43 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030240 | 5 x 0.34 | 5.5 | 16.5 | 53 |
| 1030241 | 6 x 0.34 | 5.9 | 19.6 | 53 |
| 1030242 | 7 x 0.34 | 5.9 | 22.8 | 62 |
| 1030243 | 8 x 0.34 | 7.1 | 26.1 | 73 |
| 1030244 | 10 x 0.34 | 7.6 | 32.6 | 82 |
| 1030245 | 12 x 0.34 | 7.8 | 39.1 | 102 |
| 1030246 | 14 x 0.34 | 8.2 | 45.7 | 109 |
| 1030247 | 16 x 0.34 | 8.7 | 52 | 127 |
| 1030248 | 20 x 0.34 | 9.6 | 65.2 | 159 |
| 1030249 | 21 x 0.34 | 10.4 | 68.6 | 167 |
| 1030250 | 25 x 0.34 | 11.2 | 81.6 | 190 |
| 1030251 | 30 x 0.34 | 11.6 | 98 | 226 |
| 1030252 | 36 x 0.34 | 12.5 | 118 | 284 |
| 1030253 | 40 x 0.34 | 13.5 | 131 | 317 |
| 1030254 | 50 x 0.34 | 1 | 163 | 407 |
| 1030255 | 2 x 0.5 | 4.7 | 9.6 | 30 |
| 1030256 | 3 x 0.5 | 5 | 14.4 | 39 |
| 1030257 | 4 x 0.5 | 5.6 | 19.2 | 49 |
| 1030258 | 5 x 0.5 | 6.1 | 24 | 65 |
| 1030259 | 7 x 0.5 | 6.9 | 33.6 | 82 |
| 1030260 | 8 x 0.5 | 8 | 38.4 | 90 |
| 1030261 | 10 x 0.5 | 8.6 | 48 | 117 |
| 1030262 | 12 x 0.5 | 8.9 | 58 | 133 |
| 1030263 | 16 x 0.5 | 10.2 | 77 | 170 |
| 1030264 | 20 x 0.5 | 11.4 | 96 | 214 |
| 1030265 | 25 x 0.5 | 12.7 | 120 | 265 |
| 1030266 | 30 x 0.5 | 13.2 | 144 | 304 |
| 1030267 | 40 x 0.5 | 15.8 | 192 | 392 |
| 1030268 | 2 x 0.75 | 5.1 | 14.4 | 48 |
| 1030269 | 3 x 0.75 | 5.6 | 21.6 | 57 |
| 1030270 | 4 x 0.75 | 6.1 | 28.8 | 69 |
| 1030271 | 5 x 0.75 | 6.9 | 36 | 78 |
| 1030272 | 7 x 0.75 | 7.5 | 50 | 112 |
| 1030273 | 8 x 0.75 | 8.7 | 58 | 126 |
| 1030274 | 10 x 0.75 | 9.4 | 72 | 149 |
| 1030275 | 12 x 0.75 | 10.1 | 86 | 176 |
| 1030276 | 16 x 0.75 | 11.2 | 115 | 218 |
| 1030277 | 20 x 0.75 | 12.4 | 144 | 274 |
| 1030278 | 25 x 0.75 | 14 | 180 | 320 |
| 1030279 | 2 x 1 | 5.6 | 19.2 | 55 |
| 1030280 | 3 x 1 | 5.9 | 29 | 70 |
| 1030281 | 4 x 1 | 6.4 | 38.4 | 79 |
| 1030282 | 5 x 1 | 7.3 | 48 | 98 |
| 1030283 | 2 x 1.5 | 6.2 | 29 | 74 |
| 1030284 | 3 x 1.5 | 6.8 | 43 | 89 |
| 1030285 | 4 x 1.5 | 7.4 | 58 | 105 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use, screened

**Info**

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com



## Benefits

- Numerous dimensions available for wide range of applications
- Compact design enables small outer diameters despite high number of cores
- Resistant to electromagnetic interference thanks to copper braided screening with a high degree of coverage
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine wire stranded of bare copper wires

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030450 | 2 x 0.14 | 3.9 | 12 | 20 |
| 1030451 | 3 x 0.14 | 4.1 | 13 | 28 |
| 1030452 | 4 x 0.14 | 4.3 | 14.3 | 33 |
| 1030453 | 5 x 0.14 | 4.6 | 15.5 | 38 |
| 1030454 | 6 x 0.14 | 4.9 | 18.2 | 38 |
| 1030455 | 7 x 0.14 | 4.9 | 19 | 49 |
| 1030456 | 8 x 0.14 | 5.8 | 21.2 | 56 |
| 1030457 | 10 x 0.14 | 6.1 | 28.5 | 66 |
| 1030458 | 12 x 0.14 | 6.3 | 30.4 | 78 |
| 1030459 | 14 x 0.14 | 6.7 | 32 | 80 |
| 1030460 | 15 x 0.14 | 6.9 | 37.8 | 86 |
| 1030461 | 16 x 0.14 | 7 | 43 | 90 |
| 1030462 | 18 x 0.14 | 7.3 | 48.8 | 104 |
| 1030463 | 20 x 0.14 | 7.7 | 53.9 | 116 |
| 1030464 | 21 x 0.14 | 7.9 | 55.5 | 121 |
| 1030466 | 25 x 0.14 | 8.5 | 63 | 149 |
| 1030467 | 28 x 0.14 | 8.5 | 66.1 | 153 |
| 1030468 | 30 x 0.14 | 8.7 | 69 | 158 |
| 1030469 | 36 x 0.14 | 9.3 | 83 | 183 |
| 1030470 | 40 x 0.14 | 10.4 | 87.5 | 210 |
| 1030471 | 44 x 0.14 | 10.7 | 110.5 | 225 |
| 1030472 | 50 x 0.14 | 11.1 | 122.5 | 195 |
| 1030473 | 2 x 0.25 | 4.5 | 16 | 32 |
| 1030474 | 3 x 0.25 | 4.7 | 21 | 37 |
| 1030475 | 4 x 0.25 | 5 | 24 | 41 |
| 1030476 | 5 x 0.25 | 5.6 | 29 | 51 |
| 1030477 | 6 x 0.25 | 6 | 30 | 58 |
| 1030478 | 7 x 0.25 | 6 | 37 | 60 |
| 1030479 | 8 x 0.25 | 7.1 | 42 | 73 |
| 1030480 | 10 x 0.25 | 7.5 | 46 | 82 |
| 1030481 | 12 x 0.25 | 7.7 | 53 | 98 |
| 1030482 | 14 x 0.25 | 8 | 59 | 99 |
| 1030483 | 15 x 0.25 | 8.3 | 61 | 111 |
| 1030484 | 16 x 0.25 | 8.4 | 64 | 124 |
| 1030485 | 18 x 0.25 | 8.8 | 83 | 143 |
| 1030486 | 20 x 0.25 | 9.3 | 88 | 136 |
| 1030487 | 21 x 0.25 | 9.6 | 93 | 161 |
| 1030488 | 25 x 0.25 | 10.7 | 114 | 172 |
| 1030489 | 28 x 0.25 | 10.8 | 126 | 181 |
| 1030490 | 32 x 0.25 | 11.4 | 138 | 203 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030491 | 36 x 0.25 | 11.8 | 148 | 220 |
| 1030492 | 40 x 0.25 | 12.7 | 157 | 248 |
| 1030493 | 50 x 0.25 | 13.8 | 178 | 318 |
| 1030494 | 61 x 0.25 | 15 | 205 | 365 |
| 1030495 | 2 x 0.34 | 4.9 | 21 | 37 |
| 1030496 | 3 x 0.34 | 5.1 | 27 | 42 |
| 1030497 | 4 x 0.34 | 5.7 | 28 | 52 |
| 1030498 | 5 x 0.34 | 6.2 | 30 | 66 |
| 1030499 | 6 x 0.34 | 6.8 | 45 | 64 |
| 1030500 | 7 x 0.34 | 6.8 | 48 | 76 |
| 1030501 | 8 x 0.34 | 7.8 | 52 | 94 |
| 1030502 | 10 x 0.34 | 8.3 | 74 | 105 |
| 1030503 | 12 x 0.34 | 8.5 | 80 | 123 |
| 1030504 | 14 x 0.34 | 8.9 | 86 | 154 |
| 1030505 | 15 x 0.34 | 9.2 | 90 | 155 |
| 1030506 | 16 x 0.34 | 9.4 | 94 | 160 |
| 1030507 | 18 x 0.34 | 10.2 | 103 | 173 |
| 1030508 | 20 x 0.34 | 10.7 | 112 | 192 |
| 1030509 | 21 x 0.34 | 11.1 | 116 | 199 |
| 1030510 | 25 x 0.34 | 11.9 | 135 | 259 |
| 1030511 | 28 x 0.34 | 12 | 153 | 280 |
| 1030512 | 30 x 0.34 | 12.3 | 159 | 291 |
| 1030513 | 32 x 0.34 | 13 | 165 | 305 |
| 1030514 | 36 x 0.34 | 13.4 | 179 | 331 |
| 1030515 | 40 x 0.34 | 14.8 | 200 | 365 |
| 1030516 | 50 x 0.34 | 15.9 | 235 | 431 |
| 1030517 | 2 x 0.5 | 5.6 | 29 | 47 |
| 1030518 | 3 x 0.5 | 5.9 | 38 | 55 |
| 1030519 | 4 x 0.5 | 6.3 | 43 | 70 |
| 1030520 | 5 x 0.5 | 7 | 51 | 79 |
| 1030521 | 6 x 0.5 | 7.6 | 59 | 90 |
| 1030522 | 7 x 0.5 | 7.6 | 65 | 99 |
| 1030523 | 8 x 0.5 | 8.7 | 70 | 135 |
| 1030524 | 10 x 0.5 | 9.3 | 88 | 139 |
| 1030525 | 12 x 0.5 | 9.6 | 99 | 177 |
| 1030526 | 18 x 0.5 | 11.8 | 134 | 239 |
| 1030527 | 20 x 0.5 | 12.1 | 149 | 276 |
| 1030528 | 25 x 0.5 | 13.7 | 211 | 352 |
| 1030529 | 30 x 0.5 | 14.5 | 230 | 397 |
| 1030530 | 2 x 0.75 | 6 | 38 | 53 |
| 1030531 | 3 x 0.75 | 6.3 | 49 | 65 |
| 1030532 | 4 x 0.75 | 7 | 58 | 79 |
| 1030533 | 5 x 0.75 | 7.6 | 67 | 109 |
| 1030534 | 7 x 0.75 | 8.2 | 100 | 112 |
| 1030535 | 10 x 0.75 | 10.5 | 130 | 187 |
| 1030536 | 12 x 0.75 | 10.8 | 154 | 218 |
| 1030537 | 18 x 0.75 | 13 | 195 | 327 |
| 1030538 | 25 x 0.75 | 15.3 | 280 | 454 |
| 1030539 | 30 x 0.75 | 15.8 | 312 | 486 |
| 1030540 | 2 x 1 | 6.3 | 43 | 72 |
| 1030541 | 3 x 1 | 6.8 | 56 | 90 |
| 1030542 | 4 x 1 | 7.3 | 68 | 109 |
| 1030543 | 5 x 1 | 8 | 79 | 126 |
| 1030544 | 7 x 1 | 8.6 | 118 | 162 |
| 1030545 | 10 x 1 | 11.1 | 140 | 228 |
| 1030546 | 12 x 1 | 11.4 | 168 | 259 |
| 1030547 | 18 x 1 | 13.4 | 252 | 389 |
| 1030548 | 25 x 1 | 16.2 | 335 | 517 |
| 1030549 | 2 x 1.5 | 7.1 | 58 | 90 |
| 1030550 | 3 x 1.5 | 7.5 | 74 | 115 |
| 1030551 | 4 x 1.5 | 8.1 | 108 | 129 |
| 1030552 | 5 x 1.5 | 8.8 | 129 | 176 |
| 1030553 | 7 x 1.5 | 9.5 | 164 | 220 |
| 1030554 | 12 x 1.5 | 12.7 | 254 | 376 |
| 1030555 | 18 x 1.5 | 15.3 | 350 | 519 |
| 1030556 | 25 x 1.5 | 17.9 | 550 | 901 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYY (TP) BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use



## Info

- The classic for multi-functional use
- TP = Twisted pair
- CPR: Article number choice under www.lapp.com

## Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine wire stranded of bare copper wires

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030400 | 2 x 2 x 0.14 | 4.5 | 5.4 | 25 |
| 1030401 | 3 x 2 x 0.14 | 5 | 8 | 32 |
| 1030402 | 4 x 2 x 0.14 | 5.6 | 10.7 | 38 |
| 1030403 | 5 x 2 x 0.14 | 5.8 | 13.4 | 45 |
| 1030404 | 6 x 2 x 0.14 | 6.3 | 16.1 | 51 |
| 1030405 | 10 x 2 x 0.14 | 8.1 | 26.9 | 77 |
| 1030407 | 16 x 2 x 0.14 | 9.2 | 43 | 110 |
| 1030408 | 2 x 2 x 0.25 | 5.7 | 9.6 | 38 |
| 1030409 | 3 x 2 x 0.25 | 6.3 | 14.4 | 48 |
| 1030410 | 4 x 2 x 0.25 | 7 | 19.2 | 59 |
| 1030411 | 6 x 2 x 0.25 | 7.9 | 28.8 | 80 |
| 1030412 | 8 x 2 x 0.25 | 9.3 | 38.4 | 98 |
| 1030413 | 2 x 2 x 0.5 | 7.3 | 19.2 | 72 |
| 1030414 | 3 x 2 x 0.5 | 8.1 | 28.8 | 83 |
| 1030415 | 4 x 2 x 0.5 | 8.8 | 38.4 | 115 |
| 1030416 | 8 x 2 x 0.5 | 12.3 | 76.8 | 206 |
| 1030417 | 10 x 2 x 0.5 | 13.3 | 96 | 247 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY (TP) BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use, screened




**Info**

- The classic for multi-functional use
- TP = Twisted pair
- CPR: Article number choice under www.lapp.com

## Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths
- Resistant to electromagnetic interference thanks to copper braided screening with a high degree of coverage
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine wire stranded of bare copper wires

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1030600 | 2 x 2 x 0.14 | 5.3 | 18.5 | 39 |
| 1030601 | 4 x 2 x 0.14 | 6.2 | 26.6 | 54 |
| 1030602 | 6 x 2 x 0.14 | 7.1 | 48.5 | 81 |
| 1030603 | 10 x 2 x 0.14 | 8.7 | 59 | 110 |
| 1030604 | 12 x 2 x 0.14 | 8.9 | 66 | 142 |
| 1030605 | 16 x 2 x 0.14 | 10.2 | 79 | 154 |
| 1030606 | 25 x 2 x 0.14 | 12.5 | 113 | 238 |
| 1030607 | 3 x 2 x 0.14 | 5.8 | 23 | 48 |
| 1030608 | 2 x 2 x 0.14 | 11.3 | 97 | 184 |
| 1030609 | 8 x 2 x 0.14 | 8.2 | 53.7 | 97 |
| 1030610 | 2 x 2 x 0.25 | 6.3 | 28 | 51 |
| 1030611 | 3 x 2 x 0.25 | 7.1 | 39.6 | 68 |
| 1030612 | 4 x 2 x 0.25 | 7.6 | 44.9 | 81 |
| 1030613 | 6 x 2 x 0.25 | 8.5 | 69.5 | 115 |
| 1030614 | 8 x 2 x 0.25 | 10.3 | 76.9 | 130 |
| 1030615 | 10 x 2 x 0.25 | 11 | 102 | 158 |
| 1030616 | 12 x 2 x 0.25 | 11.3 | 120 | 190 |
| 1030617 | 16 x 2 x 0.25 | 12.5 | 146.5 | 238 |
| 1030618 | 25 x 2 x 0.25 | 16.1 | 205 | 344 |
| 1030619 | 2 x 2 x 0.5 | 7.9 | 48.1 | 93 |
| 1030620 | 3 x 2 x 0.5 | 8.7 | 73.7 | 116 |
| 1030621 | 4 x 2 x 0.5 | 9.4 | 82 | 127 |
| 1030622 | 6 x 2 x 0.5 | 11.1 | 110 | 198 |
| 1030623 | 8 x 2 x 0.5 | 13.1 | 139 | 259 |
| 1030624 | 12 x 2 x 0.5 | 14.9 | 198.3 | 354 |
| 1030625 | 16 x 2 x 0.5 | 16.5 | 240 | 459 |
| 1030626 | 2 x 2 x 0.75 | 8.5 | 58 | 106 |
| 1030627 | 3 x 2 x 0.75 | 9.4 | 84 | 140 |
| 1030628 | 4 x 2 x 0.75 | 10.7 | 108 | 169 |
| 1030629 | 6 x 2 x 0.75 | 12.1 | 146 | 246 |
| 1030630 | 8 x 2 x 0.75 | 14.7 | 180 | 290 |
| 1030631 | 12 x 2 x 0.75 | 16.2 | 261 | 456 |
| 1030632 | 5 x 2 x 0.75 | 11.1 | 126 | 215 |
| 1030633 | 2 x 2 x 1 | 9 | 84 | 142 |
| 1030634 | 3 x 2 x 1 | 10 | 96 | 173 |
| 1030635 | 4 x 2 x 1 | 11.3 | 121 | 212 |
| 1030636 | 5 x 2 x 1 | 11.8 | 161 | 266 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® EB CY (TP)

Screened data transmission cable with twisted pairs and blue outer sheath




**Info**

- Hazard protection type -i- is required where there is a risk of explosion
- CPR: Article number choice under www.lapp.com

## Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Reliable data transmission in intrinsically safe circuits
- In EMC-sensitive environments (electromagnetic compatibility)

## Product features

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C approx. 100 nF/km
C/S approx. 140 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Strand, fine-wire in accordance with IEC 60228 Cl. 5

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Test voltage**
2500 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® EB CY (TP)** | | | | |
| 0012620 | 2 x 2 x 0.75 | 8.7 | 58 | 106 |
| 0012621 | 3 x 2 x 0.75 | 9.6 | 84 | 140 |
| 0012622 | 4 x 2 x 0.75 | 10.9 | 108 | 179 |
| 0012624 | 6 x 2 x 0.75 | 12.3 | 146 | 246 |
| 0012626 | 10 x 2 x 0.75 | 16.1 | 220 | 392 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY-CY

Screened data transmission cable with individually screened cores




## Benefits

- Overall braid minimises electrical interference
- Individually screened cores minimise crosstalk between cables routed in parallel

## Application range

- When a lossless transmission of data has to be guaranteed in fields with strong interference, cables with individually-screened cores and an additional overall screening are used
- Dry or damp rooms

## Product features

- Wire-screen can be used as outer conductor
- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding for each core
- Inner sheath made of PVC over each screened core
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
Approx. 230 nF/km

**Inductivity**
Approx. 0.2 mH/km

**Conductor stranding**
Stranded conductor, fine-wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYCY-CY** | | | | |
| 0032302 | 2 x 0.25 | 6.9 | 41.5 | 69 |
| 0032303 | 3 x 0.25 | 7.2 | 53 | 106 |
| 0032304 | 4 x 0.25 | 7.8 | 65 | 130 |
| 0032305 | 5 x 0.25 | 8.5 | 78 | 161 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® CY PiDY (TP)

Screened data transmission cable with copper-wrapped twisted pairs

**Info**

- PiDY = Pairs with copper wire wrapping and PVC sheath




## Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Individually screened pairs and the overall braid minimise electrical interference

## Application range

- Cable should be used in areas with high levels of electromagnetic interferences
- Data processing, process control systems, machining centres, security systems and electronics
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- For fixed installation and flexible use
- Dry or damp rooms

## Product features

- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Cores twisted into pairs
- Copper wrapping over pairs
- Inner sheath made of PVC over screened pairs
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded conductor, fine-wire

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Loop resistance**
< 160 Ohm/km

**Characteristic impedance**
Approx. 65 Ohm

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® CY PiDY (TP)** | | | | |
| 0034250 | 2 x 2 x 0.25 | 9.3 | 59.6 | 112 |
| 0034251 | 3 x 2 x 0.25 | 9.8 | 72.7 | 136 |
| 0034252 | 4 x 2 x 0.25 | 10.7 | 88.2 | 168 |
| 0034253 | 5 x 2 x 0.25 | 11.7 | 103.8 | 201 |
| 0034254 | 6 x 2 x 0.25 | 13.1 | 125.7 | 244 |
| 0034256 | 8 x 2 x 0.25 | 15.7 | 161 | 325 |
| 0034257 | 10 x 2 x 0.25 | 16.9 | 186.8 | 342 |
| 0034258 | 12 x 2 x 0.25 | 17.4 | 239.5 | 416 |
| 0034259 | 16 x 2 x 0.25 | 19.3 | 316.7 | 542 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092




## Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

## Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

## Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

## Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey/ RAL 7001

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
2 cores: black, transparent
3 cores: black, red, transparent

**Mutual capacitance**
C/C approx. 90 nF/km
C/S approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Characteristic impedance**
Approx. 95 Ohm

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of conductors and AWG size | Conductor cross-section (mm²) | Core insulation material | Outer sheath material | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|---|---|---|
| **UNITRONIC® ST** | | | | | | |
| 0033000 | 2 x AWG 20/7 | 0.52 | PE | PVC | 5.2 | 17.2 |
| 0033001 | 3 x AWG 20/7 | 0.52 | PE | PVC | 5.3 | 23 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYD 11Y

Data transmission cable with copper wrapping and PUR outer sheath




## Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

## Application range

- Intended for use in industrial environments, where cables should have excellent mechanical and chemical resistance.
- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Can be used in dry or damp rooms
- Outdoor use is possible within the indicated operating temperature range

## Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion
- Low-adhesive surface
- Good UV-resistance
- Flame retardant according to IEC 60332-2-2
- Spiral versions with similar properties are also availabe: "UNITRONIC® SPIRAL"

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Wrapped with bare copper wires
- Outer sheath made of PUR
  Outer sheath colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 140 nF/km
C/S approx. 150 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYD 11Y** | | | | |
| 0033202 | 2 x 0.14 | 4.1 | 9.6 | 20 |
| 0033203 | 3 x 0.14 | 4.3 | 11 | 25 |
| 0033204 | 4 x 0.14 | 4.5 | 12 | 27 |
| 0033205 | 5 x 0.14 | 4.8 | 14.4 | 33 |
| 0033206 | 6 x 0.14 | 5.5 | 17.6 | 38 |
| 0033207 | 7 x 0.14 | 5.9 | 21.5 | 41 |
| 0033212 | 12 x 0.14 | 7.2 | 33.2 | 62 |
| 0033218 | 18 x 0.14 | 8 | 44.2 | 83 |
| 0033302 | 2 x 0.25 | 4.7 | 11.8 | 25 |
| 0033303 | 3 x 0.25 | 5.3 | 15.6 | 31 |
| 0033304 | 4 x 0.25 | 5.6 | 18.2 | 36 |
| 0033305 | 5 x 0.25 | 6 | 21.4 | 42 |
| 0033306 | 6 x 0.25 | 6.8 | 26.1 | 49 |
| 0033307 | 7 x 0.25 | 7.3 | 27.8 | 53 |
| 0033312 | 12 x 0.25 | 8.4 | 48.1 | 81 |
| 0033318 | 18 x 0.25 | 9.7 | 69 | 117 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® PUR CP

Screened data transmission cable with PUR outer sheath for harsh conditions




## Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference

## Application range

- Further development of the UNITRONIC® range for harsher ambient conditions where robust and screened cables in small dimensions are required.

## Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® PUR CP** | | | | |
| 0032801 | 3 x 0.25 | 4.7 | 21 | 40 |
| 0032802 | 4 x 0.25 | 5 | 24 | 44 |
| 0032803 | 5 x 0.25 | 5.6 | 29 | 55 |
| 0032804 | 7 x 0.25 | 6 | 37 | 68 |
| 0032805 | 10 x 0.25 | 7.5 | 46 | 85 |
| 0032806 | 12 x 0.25 | 7.7 | 59 | 91 |
| 0032812 | 4 x 0.34 | 5.7 | 28 | 49 |
| 0032813 | 5 x 0.34 | 6.2 | 30 | 60 |
| 0032821 | 3 x 0.50 | 5.9 | 38 | 70 |
| 0032822 | 4 x 0.50 | 6.3 | 43 | 80 |
| 0032824 | 7 x 0.50 | 7.6 | 65 | 115 |
| 0032830 | 2 x 0.75 | 6 | 38 | 67 |
| 0032836 | 12 x 0.75 | 10.8 | 154 | 225 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® PUR CP (TP)

Screened data transmission cable with PUR outer sheath and twisted pairs for harsh conditions

**Info**

- TP = twisted pair




## Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- For harsh environmental conditions where robust and screened cables with small dimensions are necessary

## Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® PUR CP (TP)** | | | | |
| 0032850 | 2 x 2 x 0.25 | 6.3 | 28 | 54 |
| 0032851 | 3 x 2 x 0.25 | 7.1 | 40 | 66 |
| 0032852 | 4 x 2 x 0.25 | 7.6 | 45 | 81 |
| 0032854 | 6 x 2 x 0.25 | 8.5 | 70 | 115 |
| 0032860 | 2 x 2 x 0.5 | 7.9 | 48 | 93 |
| 0032861 | 3 x 2 x 0.5 | 8.7 | 74 | 129 |
| 0032862 | 4 x 2 x 0.5 | 9.4 | 82 | 146 |
| 0032864 | 6 x 2 x 0.5 | 11.1 | 110 | 198 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## UNITRONIC® Li2YCY (TP)

Screened data transmission cable with PE core insulation, 7-wire strands and twisted pairs




**Info**
- Cables for RS485/RS422

## UNITRONIC® Li2YCY (TP) fine-wire

Screened data transmission cable with PE core insulation, fine wire strands and twisted pairs




**Info**
- Cables for RS485/RS422

## UNITRONIC® Li2YCYv (TP)

Screened data transmission cable with PE core insulation, reinforced outer sheath and twisted pairs




**Info**
- Cables for RS485/RS422

### Benefits
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range
- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable,for transmission of low, sensitive signals and high bit rates
- **UNITRONIC® Li2YCYv (TP)** with its reinforced, nominal/ minimum average wall thickness of at least 1.8 mm of the black outer sheath (Yv) is designed for indoor and outdoor use as well as for applications where a reinforced outer sheath may turn out to be advantageous

### Product features
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals
- Based on VDE 0812

### Product Make-up

**UNITRONIC® Li2YCY (TP)**
- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

**UNITRONIC® Li2YCY (TP) fine-wire**
- Conductors: Finely stranded bare copper
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

**UNITRONIC® Li2YCYv (TP)**
- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Wall thickness of the outer sheath is increased ("Yv")
- Outer sheath colour: black (RAL 9005)

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
At 800 Hz: max. 60 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
**UNITRONIC® Li2YCY (TP)**
Stranded conductor, based on VDE 0881, 7-wire
**UNITRONIC® Li2YCY (TP) fine-wire**
Stranded conductor, fine-wire
**UNITRONIC® Li2YCYv (TP)**
Stranded conductor, based on VDE 0881, 7-wire

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Short-range crosstalk attenuation**
Up to 1 MHz min. 50 dB
Up to 10 MHz min. 40 dB

**Test voltage**
Core/core: 2000 V
Core/screen: 1000 V

**Characteristic impedance**
100 ± 15 Ohm (> 1 MHz)

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® Li2YCY (TP)** | | | | |
| 0031320 | 2 x 2 x 0,22 | 6.5 | 24.2 | 59 |
| 0031321 | 3 x 2 x 0,22 | 7.1 | 28.6 | 66 |
| 0031322 | 4 x 2 x 0,22 | 7.3 | 34.2 | 78 |
| 0031323 | 8 x 2 x 0,22 | 9.1 | 70 | 125 |
| 0031324 | 10 x 2 x 0,22 | 10.4 | 76 | 143 |
| 0031335 | 1 x 2 x 0,34 | 5.8 | 20 | 44 |
| 0031325 | 2 x 2 x 0,34 | 7.7 | 34.1 | 79 |
| 0031326 | 3 x 2 x 0,34 | 8.4 | 43 | 89 |
| 0031327 | 4 x 2 x 0,34 | 8.7 | 47 | 101 |
| 0031328 | 8 x 2 x 0,34 | 11 | 85.8 | 176 |
| 0031336 | 1 x 2 x 0,5 | 6.3 | 29 | 53 |
| 0031330 | 2 x 2 x 0,5 | 8.5 | 37 | 85 |
| 0031331 | 3 x 2 x 0,5 | 9.3 | 55 | 105 |
| 0031332 | 4 x 2 x 0,5 | 9.6 | 60 | 122 |
| 0031333 | 8 x 2 x 0,5 | 12.7 | 113.3 | 213 |
| 0031334 | 10 x 2 x 0,5 | 14.8 | 154 | 261 |
| **UNITRONIC® Li2YCY (TP) fine-wire** | | | | |
| 0031370 | 1 x 2 x 0,25 | 5.7 | 14 | 38 |
| 0031371 | 2 x 2 x 0,25 | 6.9 | 28 | 43 |
| 0031372 | 3 x 2 x 0,25 | 7.5 | 39.6 | 64 |
| 0031373 | 5 x 2 x 0,25 | 8.3 | 50 | 93 |
| **UNITRONIC® Li2YCYv (TP) black for outdoor installation 7-wire** | | | | |
| 0031350 | 2 x 2 x 0,22 | 8.1 | 24.2 | 79 |
| 0031351 | 3 x 2 x 0,22 | 8.7 | 28.6 | 93 |
| 0031352 | 4 x 2 x 0,22 | 8.9 | 34.2 | 100 |
| 0031353 | 8 x 2 x 0,22 | 10.7 | 70 | 156 |
| 0031354 | 10 x 2 x 0,22 | 12 | 76 | 185 |
| 0031365 | 1 x 2 x 0,34 | 7.4 | 20 | 69 |
| 0031355 | 2 x 2 x 0,34 | 9.3 | 34.1 | 102 |
| 0031356 | 3 x 2 x 0,34 | 10 | 43 | 117 |
| 0031357 | 4 x 2 x 0,34 | 10.3 | 52.8 | 130 |
| 0031358 | 8 x 2 x 0,34 | 12.6 | 85.8 | 206 |
| 0031366 | 1 x 2 x 0,5 | 7.9 | 29 | 79 |
| 0031360 | 2 x 2 x 0,5 | 10.1 | 37 | 120 |
| 0031361 | 3 x 2 x 0,5 | 10.9 | 55 | 142 |
| 0031362 | 4 x 2 x 0,5 | 11.2 | 60 | 160 |
| 0031363 | 8 x 2 x 0,5 | 13.9 | 113.3 | 251 |
| 0031364 | 10 x 2 x 0,5 | 16 | 148 | 303 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® Li2YCY PiMF

Screened data transmission cable with PE core insulation and pairs in metalfoil




## Benefits

- Data transmission cable with low capacitance, pair screening and overall copper braiding
- Particularly suitable for wiring data systems and controls in large industrial plants
- Individually screened pairs and the overall braid minimise electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- For enhanced requirements in near-end cross-talk attenuation and high electrical interference in the circuits
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- For measurement value transmission and serial 2-wire interfaces
- Intended for limited flexible use, and for fixed installation in dry or damp interiors

## Product features

- Flame-retardant according IEC 60332-1-2

## Product Make-up

- 7-wire or fine-wire (from 1 mm²) strands made of bare copper wires
- Core insulation made of polyethylene (PE)
- Cores twisted into pairs
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire for each pair
- Bare copper screen braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Info

- Metal foil screened pairs

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
0.22 mm²-0.5 mm²:
according to DIN 47100, see table T9
1.0 mm²:
a-core: white, b-core: black

**Mutual capacitance**
At 800 Hz:
0.22 mm²: max. 70 nF/km
0.34 mm²: max. 70 nF/km
0.5 mm²: max. 75 nF/km
1.0 mm²: max. 85 nF/km

**Inductivity**
Approx. 0.4 mH/km

**Conductor stranding**
Stranded conductor, based on VDE 0881, 7-wire

**Minimum bending radius**
Occasional flexing: 20 x outer diameter
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 1000 V

**Characteristic impedance**
approx. 85 Ohm (> 1 MHz)

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® Li2YCY PiMF** | | | | |
| **7-wire** | | | | |
| 0034040 | 2 x 2 x 0,22 | 7.7 | 33 | 75.4 |
| 0034041 | 3 x 2 x 0,22 | 8.1 | 42 | 86 |
| 0034042 | 4 x 2 x 0,22 | 8.7 | 50 | 99 |
| 0034043 | 8 x 2 x 0,22 | 10.9 | 85 | 161.4 |
| 0034044 | 10 x 2 x 0,22 | 12 | 100 | 186.4 |
| 0034045 | 2 x 2 x 0,34 | 9 | 43 | 70 |
| 0034046 | 3 x 2 x 0,34 | 9.4 | 55 | 85 |
| 0034047 | 4 x 2 x 0,34 | 9.8 | 64 | 103 |
| 0034048 | 8 x 2 x 0,34 | 12.9 | 127 | 191 |
| 0034060 | 2 x 2 x 0,5 | 9.9 | 51 | 96 |
| 0034061 | 3 x 2 x 0,5 | 10.4 | 66 | 116 |
| 0034062 | 4 x 2 x 0,5 | 11.3 | 71 | 141 |
| 0034063 | 5 x 2 x 0,5 | 11.8 | 92 | 180 |
| 0034064 | 8 x 2 x 0,5 | 14.5 | 153 | 271 |
| 0034065 | 10 x 2 x 0,5 | 16.6 | 182 | 327 |
| **Fine wire** | | | | |
| 0034070 | 2 x 2 x 1 | 11.7 | 82 | 126 |
| 0034071 | 3 x 2 x 1 | 11.8 | 109 | 196 |
| 0034072 | 4 x 2 x 1 | 12.7 | 133 | 220 |
| 0034073 | 10 x 2 x 1 | 19.7 | 326 | 492 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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ECOLAB

# UNITRONIC® ROBUST

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

**Info**

- Excellent weather resistance
- Good chemical resistance




## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special TPE
- Outer sheath colour: Black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 60 nF/km

**Specific insulation resistance**
> 20 GOhm x cm

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
At 0.14 mm²: 1200 V

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® ROBUST** | | | | |
| 1032000 | 2 x 0.14 | 3.2 | 2.8 | 15 |
| 1032001 | 3 x 0.14 | 3.4 | 4.2 | 17 |
| 1032002 | 4 x 0.14 | 3.6 | 5.6 | 21 |
| 1032003 | 5 x 0.14 | 3.9 | 7 | 25 |
| 1032004 | 7 x 0.14 | 4.2 | 9.8 | 30 |
| 1032005 | 8 x 0.14 | 4.9 | 11.2 | 40 |
| 1032006 | 10 x 0.14 | 5.2 | 14 | 41 |
| 1032007 | 12 x 0.14 | 5.6 | 16.8 | 50 |
| 1032009 | 16 x 0.14 | 6.1 | 22.4 | 63 |
| 1032011 | 25 x 0.14 | 7.7 | 35 | 95 |
| 1032012 | 2 x 0.25 | 3.8 | 4.8 | 21 |
| 1032013 | 3 x 0.25 | 4 | 7.2 | 25 |
| 1032014 | 4 x 0.25 | 4.3 | 9.6 | 31 |
| 1032015 | 5 x 0.25 | 4.7 | 12 | 38 |
| 1032016 | 7 x 0.25 | 5.1 | 16.8 | 47 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1032017 | 8 x 0.25 | 6.2 | 19.2 | 66 |
| 1032018 | 10 x 0.25 | 6.8 | 24 | 71 |
| 1032019 | 12 x 0.25 | 7 | 28.8 | 81 |
| 1032021 | 16 x 0.25 | 7.7 | 38.4 | 104 |
| 1032024 | 25 x 0.25 | 9.5 | 60 | 151 |
| 1032025 | 2 x 0.34 | 4.2 | 6.5 | 29 |
| 1032026 | 3 x 0.34 | 4.4 | 9.8 | 32 |
| 1032027 | 4 x 0.34 | 4.8 | 13.1 | 41 |
| 1032028 | 5 x 0.34 | 5.5 | 16.3 | 52 |
| 1032030 | 7 x 0.34 | 5.9 | 22.9 | 65 |
| 1032031 | 8 x 0.34 | 7.1 | 26.1 | 90 |
| 1032032 | 10 x 0.34 | 7.6 | 32.6 | 93 |
| 1032033 | 12 x 0.34 | 7.8 | 39.2 | 107 |
| 1032035 | 16 x 0.34 | 8.7 | 52.2 | 138 |
| 1032038 | 25 x 0.34 | 11.2 | 81.6 | 213 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® ROBUST C

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media




**Info**

- Excellent weather resistance
- Good chemical resistance

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special TPE
- Outer sheath colour: Black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 60 nF/km
C/S approx. 100 nF/km

**Specific insulation resistance**
> 20 GOhm x cm

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
At 0.14 mm²: 1200 V

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® ROBUST C** | | | | |
| 1032050 | 2 x 0.14 | 3.9 | 9.3 | 25 |
| 1032051 | 3 x 0.14 | 4.1 | 10.8 | 28 |
| 1032052 | 4 x 0.14 | 4.3 | 13.5 | 34 |
| 1032053 | 5 x 0.14 | 4.6 | 15 | 38 |
| 1032055 | 7 x 0.14 | 4.9 | 19 | 46 |
| 1032056 | 8 x 0.14 | 5.8 | 22 | 60 |
| 1032057 | 10 x 0.14 | 6.1 | 25.8 | 63 |
| 1032058 | 12 x 0.14 | 6.3 | 28.9 | 70 |
| 1032061 | 25 x 0.14 | 8.4 | 56.1 | 128 |
| 1032062 | 2 x 0.25 | 4.5 | 12.7 | 33 |
| 1032063 | 3 x 0.25 | 4.7 | 16.3 | 40 |
| 1032064 | 4 x 0.25 | 5 | 18.8 | 46 |
| 1032065 | 5 x 0.25 | 5.6 | 22.5 | 57 |
| 1032067 | 7 x 0.25 | 6 | 28.6 | 69 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1032068 | 8 x 0.25 | 7.1 | 33.6 | 92 |
| 1032069 | 10 x 0.25 | 7.5 | 42.8 | 101 |
| 1032070 | 12 x 0.25 | 7.7 | 47.7 | 111 |
| 1032073 | 25 x 0.25 | 10.6 | 86.5 | 202 |
| 1032074 | 2 x 0.34 | 4.9 | 15.7 | 44 |
| 1032075 | 3 x 0.34 | 5.1 | 20.4 | 54 |
| 1032076 | 4 x 0.34 | 5.7 | 23.6 | 66 |
| 1032077 | 5 x 0.34 | 6.2 | 28.2 | 78 |
| 1032079 | 7 x 0.34 | 6.8 | 36 | 95 |
| 1032080 | 8 x 0.34 | 7.8 | 45.3 | 127 |
| 1032081 | 10 x 0.34 | 8.3 | 53.9 | 137 |
| 1032082 | 12 x 0.34 | 8.5 | 60.7 | 152 |
| 1032084 | 16 x 0.34 | 9.4 | 77.9 | 191 |
| 1032086 | 25 x 0.34 | 11.9 | 115.7 | 288 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ECOLAB

# UNITRONIC® ROBUST C (TP)

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

**Info**

- Excellent weather resistance
- Good chemical resistance




## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special TPE
  Outer sheath colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 60 nF/km
C/S approx. 100 nF/km

**Specific insulation resistance**
> 20 GOhm x cm

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
At 0.14 mm²: 1200 V

**Temperature range**
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® ROBUST C (TP)** | | | | |
| 1032100 | 2 x 2 x 0.14 | 5.3 | 16.1 | 31 |
| 1032101 | 3 x 2 x 0.14 | 5.8 | 19 | 38 |
| 1032102 | 4 x 2 x 0.14 | 6.2 | 23.1 | 46 |
| 1032103 | 5 x 2 x 0.14 | 6.4 | 27.2 | 54 |
| 1032104 | 6 x 2 x 0.14 | 7.1 | 31.3 | 63 |
| 1032105 | 8 x 2 x 0.14 | 8.2 | 43.4 | 90 |
| 1032106 | 10 x 2 x 0.14 | 8.7 | 50.9 | 93 |
| 1032107 | 12 x 2 x 0.14 | 8.9 | 56.6 | 102 |
| 1032108 | 2 x 2 x 0.25 | 6.3 | 22.7 | 43 |
| 1032109 | 3 x 2 x 0.25 | 7.1 | 28.9 | 56 |
| 1032110 | 4 x 2 x 0.25 | 7.6 | 38.3 | 72 |
| 1032111 | 5 x 2 x 0.25 | 7.9 | 45.1 | 85 |
| 1032112 | 6 x 2 x 0.25 | 8.5 | 48.7 | 96 |
| 1032113 | 8 x 2 x 0.25 | 10.3 | 64.3 | 135 |
| 1032114 | 2 x 2 x 0.34 | 7.1 | 27.6 | 56 |
| 1032115 | 3 x 2 x 0.34 | 7.8 | 38.8 | 74 |
| 1032116 | 4 x 2 x 0.34 | 8.4 | 47.5 | 90 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1032117 | 5 x 2 x 0.34 | 8.8 | 58.2 | 110 |
| 1032118 | 1 x 2 x 0.5 | 5.6 | 20.1 | 37 |
| 1032119 | 2 x 2 x 0.5 | 7.9 | 40.3 | 72 |
| 1032120 | 3 x 2 x 0.5 | 8.7 | 51.7 | 91 |
| 1032121 | 4 x 2 x 0.5 | 9.4 | 64.1 | 112 |
| 1032122 | 5 x 2 x 0.5 | 10.3 | 76.6 | 141 |
| 1032123 | 6 x 2 x 0.5 | 11.1 | 91.7 | 170 |
| 1032124 | 8 x 2 x 0.5 | 13.1 | 123.2 | 238 |
| 1032125 | 10 x 2 x 0.5 | 14.5 | 146.4 | 247 |
| 1032126 | 2 x 2 x 0.75 | 8.5 | 48.4 | 84 |
| 1032127 | 3 x 2 x 0.75 | 9.4 | 68.9 | 114 |
| 1032128 | 4 x 2 x 0.75 | 10.7 | 86.2 | 149 |
| 1032129 | 6 x 2 x 0.75 | 12.1 | 131.9 | 225 |
| 1032130 | 8 x 2 x 0.75 | 14.7 | 168.2 | 315 |
| 1032131 | 2 x 2 x 1.0 | 9 | 64.1 | 98 |
| 1032132 | 3 x 2 x 1.0 | 10.4 | 83.5 | 135 |
| 1032133 | 4 x 2 x 1.0 | 11.3 | 105.7 | 168 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiHH

Halogen-free data transmission cable with colour code acc. to DIN 47100




**Info**

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Small outer diameters despite a high number of cores

## Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- Dry or damp rooms

## Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
Approx. 80 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Test voltage**
1200 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® LiHH** | | | | |
| 0037104 | 6 x 0.14 | 4.4 | 8.1 | 25 |
| 0037120 | 2 x 0.25 | 4 | 4.8 | 22 |
| 0037121 | 3 x 0.25 | 4.2 | 7.2 | 25 |
| 0037122 | 4 x 0.25 | 4.5 | 9.6 | 28 |
| 0037124 | 6 x 0.25 | 5.3 | 14.4 | 39 |
| 0037125 | 7 x 0.25 | 5.3 | 16.8 | 42 |
| 0037126 | 8 x 0.25 | 6.4 | 19.2 | 50 |
| 0037128 | 12 x 0.25 | 7.2 | 28.8 | 67 |
| 0037140 | 2 x 0.34 | 4.4 | 6.5 | 28 |
| 0037141 | 3 x 0.34 | 4.6 | 9.8 | 30 |
| 0037142 | 4 x 0.34 | 5 | 13.1 | 40 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0037143 | 5 x 0.34 | 5.7 | 16.3 | 44 |
| 0037147 | 12 x 0.34 | 8 | 39.2 | 97 |
| 0037150 | 2 x 0.5 | 4.9 | 9.6 | 31 |
| 0037151 | 3 x 0.5 | 5.2 | 14.4 | 37 |
| 0037152 | 4 x 0.5 | 5.8 | 19.2 | 45 |
| 0037153 | 5 x 0.5 | 6.3 | 24 | 58 |
| 0037154 | 7 x 0.5 | 7.1 | 33.6 | 72 |
| 0037160 | 2 x 0.75 | 5.3 | 14.4 | 41 |
| 0037162 | 4 x 0.75 | 6.3 | 28.8 | 60 |
| 0037165 | 12 x 0.75 | 10.4 | 86.4 | 165 |
| 0037171 | 3 x 1.0 | 6.1 | 28.8 | 57 |
| 0037172 | 4 x 1.0 | 6.6 | 38.4 | 67 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100




## Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

## Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference

## Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

## Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 80 nF/km
C/S approx. 120 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, fine-wire
0.34 mm²: 7-wire

**Minimum bending radius**
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Test voltage**
1200 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® LiHCH** | | | | |
| 0037302 | 2 x 0.14 | 4.1 | 12 | 22 |
| 0037304 | 4 x 0.14 | 4.5 | 15.9 | 29 |
| 0037308 | 8 x 0.14 | 6 | 26 | 41 |
| 0037312 | 12 x 0.14 | 6.5 | 30.4 | 78 |
| 0037325 | 25 x 0.14 | 8.7 | 63 | 149 |
| 0037402 | 2 x 0.25 | 4.7 | 15 | 25 |
| 0037403 | 3 x 0.25 | 4.9 | 18 | 30 |
| 0037404 | 4 x 0.25 | 5.2 | 22 | 35 |
| 0037406 | 6 x 0.25 | 6.2 | 30 | 49 |
| 0037407 | 7 x 0.25 | 6.2 | 32 | 52 |
| 0037408 | 8 x 0.25 | 7.3 | 35 | 58 |
| 0037410 | 10 x 0.25 | 7.7 | 42 | 81 |
| 0037425 | 25 x 0.25 | 10.9 | 114 | 172 |
| 0037502 | 2 x 0.34 | 5.1 | 17 | 30 |
| 0037503 | 3 x 0.34 | 5.3 | 21 | 35 |
| 0037504 | 4 x 0.34 | 5.9 | 25 | 42 |
| 0037507 | 7 x 0.34 | 7 | 42 | 73 |
| 0037508 | 8 x 0.34 | 8 | 45 | 84 |
| 0037510 | 10 x 0.34 | 8.5 | 63 | 101 |
| 0037516 | 16 x 0.34 | 9.6 | 94 | 160 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0037525 | 25 x 0.34 | 12.1 | 144 | 259 |
| 0037602 | 2 x 0.5 | 5.8 | 29 | 38 |
| 0037603 | 3 x 0.5 | 6.1 | 35 | 47 |
| 0037604 | 4 x 0.5 | 6.5 | 45 | 67 |
| 0037605 | 5 x 0.5 | 7.2 | 50 | 76 |
| 0037606 | 6 x 0.5 | 7.8 | 59 | 84 |
| 0037607 | 7 x 0.5 | 7.8 | 68 | 91 |
| 0037608 | 8 x 0.5 | 8.9 | 75 | 135 |
| 0037610 | 10 x 0.5 | 9.5 | 93 | 160 |
| 0037612 | 12 x 0.5 | 9.8 | 99 | 177 |
| 0037618 | 18 x 0.5 | 11.7 | 134 | 239 |
| 0037702 | 2 x 0.75 | 6.2 | 35 | 45 |
| 0037703 | 3 x 0.75 | 6.5 | 46 | 69 |
| 0037704 | 4 x 0.75 | 7.2 | 56 | 80 |
| 0037802 | 2 x 1.0 | 6.5 | 43 | 72 |
| 0037803 | 3 x 1.0 | 7 | 56 | 90 |
| 0037804 | 4 x 1.0 | 7.5 | 68 | 109 |
| 0037807 | 7 x 1.0 | 8.8 | 118 | 171 |
| 0037902 | 2 x 1.5 | 7.3 | 58 | 90 |
| 0037903 | 3 x 1.5 | 7.7 | 74 | 115 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® LiHCH (TP)

Screened halogen-free data transmission cable with colour code acc. to DIN 47100 and twisted pairs




**Info**

- TP = twisted pair
- CPR: Article number choice under www.lapp.com

## Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

## Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**
C/C approx. 80 nF/km
C/S approx. 120 nF/km

**Coupling**
At 1 kHz: approx. 300 pF/100 m

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine copper wire strands

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Test voltage**
1200 V

**Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® LiHCH (TP)** | | | | |
| 0038302 | 2 x 2 x 0.14 | 5.5 | 18.5 | 39 |
| 0038303 | 3 x 2 x 0.14 | 6 | 23 | 48 |
| 0038304 | 4 x 2 x 0.14 | 6.4 | 26.6 | 54 |
| 0038308 | 8 x 2 x 0.14 | 8.4 | 53.7 | 97 |
| 0038312 | 12 x 2 x 0.14 | 9.1 | 66 | 142 |
| 0038316 | 16 x 2 x 0.14 | 10.4 | 79 | 154 |
| 0038325 | 25 x 2 x 0.14 | 12.7 | 113 | 238 |
| 0038402 | 2 x 2 x 0.25 | 6.5 | 28 | 54 |
| 0038403 | 3 x 2 x 0.25 | 7.3 | 39.6 | 66 |
| 0038404 | 4 x 2 x 0.25 | 7.8 | 44.9 | 81 |
| 0038406 | 6 x 2 x 0.25 | 8.7 | 69.5 | 115 |
| 0038408 | 8 x 2 x 0.25 | 10.5 | 76.9 | 130 |
| 0038412 | 12 x 2 x 0.25 | 11.5 | 120 | 190 |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0038416 | 16 x 2 x 0.25 | 12.7 | 146.5 | 238 |
| 0038602 | 2 x 2 x 0.5 | 8.1 | 48.1 | 93 |
| 0038603 | 3 x 2 x 0.5 | 8.9 | 73.7 | 129 |
| 0038604 | 4 x 2 x 0.5 | 9.6 | 82 | 146 |
| 0038606 | 6 x 2 x 0.5 | 11.3 | 110 | 198 |
| 0038608 | 8 x 2 x 0.5 | 13.3 | 139 | 259 |
| 0038612 | 12 x 2 x 0.5 | 15.1 | 198.3 | 354 |
| 0038616 | 16 x 2 x 0.5 | 16.7 | 240 | 459 |
| 0038702 | 2 x 2 x 0.75 | 8.7 | 58 | 106 |
| 0038704 | 4 x 2 x 0.75 | 10.9 | 108 | 179 |
| 0038708 | 8 x 2 x 0.75 | 14.9 | 180 | 305 |
| 0038802 | 2 x 2 x 1.0 | 9.2 | 84 | 142 |
| 0038803 | 3 x 2 x 1.0 | 10.6 | 96 | 173 |
| 0038804 | 4 x 2 x 1.0 | 11.5 | 121 | 212 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYY A

Data transmission cable with colour code acc. to DIN 47100 - UL/CSA recognized




**Info**

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

## Benefits

- For various applications

## Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

## Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

## Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

## Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Conductor stranding**
AWG conductor sizes, 7 or 19 wires

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x Outer diameter

**Nominal voltage**
UL/CSA: 300 V

**Test voltage**
1500 V

**Temperature range**
Occasional flexing: -5°C up to +70°C (UL: +80 °C)
Fixed installation (IEC): -40°C to +80°C
UL: max. +80°C

| Article number | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYY A** | | | | |
| 0022403 | 3 x AWG26/7 | 3.8 | 4.2 | 18 |
| 0022404 | 4 x AWG26/7 | 4 | 5.6 | 23 |
| 0022405 | 5 x AWG26/7 | 4.3 | 7 | 25 |
| 0022408 | 8 x AWG26/7 | 5.1 | 11.2 | 34 |
| 0022412 | 12 x AWG26/7 | 5.8 | 16.8 | 47 |
| 0022416 | 16 x AWG26/7 | 6.3 | 22.4 | 58 |
| 0022421 | 21 x AWG26/7 | 7 | 29.4 | 63 |
| 0022502 | 2 x AWG24/7 | 4 | 4.6 | 20 |
| 0022505 | 5 x AWG24/7 | 4.8 | 11.5 | 32 |
| 0022508 | 8 x AWG24/7 | 5.7 | 18.4 | 46 |
| 0022512 | 12 x AWG24/7 | 6.6 | 27.6 | 64 |
| 0022602 | 2 x AWG22/7 | 4.8 | 6.8 | 32.8 |
| 0022603 | 3 x AWG22/7 | 5 | 10.2 | 35 |
| 0022604 | 4 x AWG22/7 | 5.4 | 13.6 | 45.9 |
| 0022605 | 5 x AWG22/7 | 5.9 | 17 | 55.8 |
| 0022607 | 7 x AWG22/7 | 6.4 | 23.3 | 68.9 |
| 0022608 | 8 x AWG22/7 | 6.9 | 27.2 | 75.5 |
| 0022612 | 12 x AWG22/7 | 8.2 | 40.8 | 103 |
| 0022616 | 16 x AWG22/7 | 9.1 | 54.4 | 131.2 |
| 0022624 | 24 x AWG22/7 | 11.6 | 81.6 | 190 |
| 0022632 | 2 x AWG20/7 | 5.3 | 11.2 | 40 |
| 0022642 | 2 x AWG19/19 | 5.6 | 15 | 48 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY A

Screened data transmission cable with colour code acc. to DIN 47100 UL/CSA recognized




**Info**

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

## Benefits

- Overall braid minimises electrical interference

## Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

## Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

## Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

## Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Conductor stranding**
AWG conductor sizes, 7 or 19 wires

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
UL/CSA: 300 V

**Test voltage**
1500 V

**Temperature range**
Occasional flexing: -5°C up to +70°C (UL: +80 °C)
Fixed installation (IEC): -40°C to +80°C
UL: max. +80°C

| Article number | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYCY A** | | | | |
| 0044602 | 2 x AWG26/7 | 4.3 | 15.6 | 25 |
| 0044604 | 4 x AWG26/7 | 4.7 | 18 | 30 |
| 0044652 | 2 x AWG24/7 | 4.7 | 17.6 | 29 |
| 0044655 | 5 x AWG24/7 | 5.5 | 28.5 | 44 |
| 0044658 | 8 x AWG24/7 | 6.4 | 31.1 | 61 |
| 0044662 | 12 x AWG24/7 | 7.3 | 51.8 | 96 |
| 0044702 | 2 x AWG22/7 | 5.5 | 17.6 | 44 |
| 0044703 | 3 x AWG22/7 | 5.7 | 21.2 | 49 |
| 0044704 | 4 x AWG22/7 | 6.1 | 27.3 | 59 |
| 0044705 | 5 x AWG22/7 | 6.6 | 30.8 | 63 |
| 0044707 | 7 x AWG22/7 | 7.1 | 46.4 | 87 |
| 0044712 | 12 x AWG22/7 | 8.9 | 66.8 | 120 |
| 0044716 | 16 x AWG22/7 | 9.8 | 83.9 | 145 |
| 0044721 | 21 x AWG22/7 | 11.3 | 109.4 | 204 |
| 0044732 | 2 x AWG20/7 | 6 | 24.4 | 41 |
| 0044733 | 3 x AWG20/7 | 6.3 | 29.9 | 47 |
| 0044735 | 5 x AWG20/7 | 7.3 | 49.2 | 91 |
| 0044738 | 8 x AWG20/7 | 9.1 | 70.8 | 102 |
| 0044746 | 2 x AWG19/19 | 6.3 | 27.9 | 66 |
| 0044850 | 7 x AWG18/19 | 8.9 | 93.2 | 160.8 |
| 0044851 | 10 x AWG18/19 | 11.5 | 130.9 | 200 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LiYCY (TP) A

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs - UL/CSA recognized

**Info**

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request




## Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- For the North American market
- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.

## Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

## Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

## Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100 without colour repetition, refer to Appendix T9

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
UL/CSA: 300 V

**Test voltage**
1500 V

**Temperature range**
Occasional flexing: -5 °C up to +70 °C (UL: +80 °C)
Fixed installation (IEC): -40 °C to +80 °C
UL: max. +80 °C

| Article number | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® LiYCY (TP) A** | | | | |
| 0066202 | 2 x 2 x AWG26/7 | 5.5 | 18 | 38 |
| 0066204 | 4 x 2 x AWG26/7 | 6.4 | 24 | 58 |
| 0066205 | 5 x 2 x AWG26/7 | 6.6 | 30 | 58 |
| 0066208 | 8 x 2 x AWG26/7 | 7.9 | 53 | 85 |
| 0066210 | 10 x 2 x AWG26/7 | 8.7 | 55 | 106 |
| 0066212 | 12 x 2 x AWG26/7 | 8.9 | 64 | 113 |
| 0066216 | 16 x 2 x AWG26/7 | 10.2 | 87 | 149 |
| 0066232 | 2 x 2 x AWG24/7 | 6.1 | 24.5 | 50 |
| 0066233 | 3 x 2 x AWG24/7 | 6.7 | 28.9 | 62 |
| 0066234 | 4 x 2 x AWG24/7 | 7.2 | 33.5 | 70 |
| 0066235 | 5 x 2 x AWG24/7 | 7.5 | 46.3 | 91 |
| 0066238 | 2 x 2 x AWG22/7 | 7.4 | 38 | 71 |
| 0066239 | 3 x 2 x AWG22/7 | 8.1 | 45.1 | 95 |
| 0066240 | 4 x 2 x AWG22/7 | 8.8 | 54.6 | 102 |
| 0066242 | 2 x 2 x AWG20/7 | 8.2 | 49.7 | 93 |
| 0066243 | 3 x 2 x AWG20/7 | 9.1 | 60.1 | 102 |
| 0066244 | 4 x 2 x AWG20/7 | 10.2 | 78.7 | 120 |
| 0066219 | 5 x 2 x AWG20/7 | 10.7 | 88.9 | 156 |
| 0066220 | 6 x 2 x AWG20/7 | 11.6 | 100.6 | 184 |
| 0066262 | 2 x 2 x AWG19/19 | 8.7 | 65.2 | 140 |
| 0066221 | 3 x 2 x AWG19/19 | 10 | 69.2 | 145 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed




## Info

- Designation of shielded version: Formerly "UNITRONIC® 300 CY", now "UNITRONIC® 300 S"
- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 60 conductors producible/ With non-standard color code, e.g., green-yellow grounding conductor, up to 100 cores

## Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

## Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross sections 18 AWG and 16 AWG is normatively permitted in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

## Product features

- Oil-resistant according to UL OIL RES I
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG + 16 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG + 16 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG + 16 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC compound
- UNITRONIC® 300 S: with overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC
- Color of the outer jacket: Dark gray (similar to RAL 7005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
refer to Appendix T9

**Conductor stranding**
Fine wire

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
During installation: 4 x cable diameter
Screened: 6 x outer diameter

**Nominal voltage**
according to UL: 300 V
IEC: not for power transmission

**Test voltage**
1500 V

**Temperature range**
Occasional flexing/ North America: -25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

| Article number | Article designation | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® 300** | | | | | |
| 301602 | UNITRONIC® 300 | 2 x AWG16 | 6.7 | 25 | 83 |
| 301802 | UNITRONIC® 300 | 2 x AWG18 | 6.1 | 18.3 | 61 |
| 302006 | UNITRONIC® 300 | 6 x AWG20 | 7.5 | 29.5 | 97 |
| 302015 | UNITRONIC® 300 | 15 x AWG20 | 11.5 | 73.7 | 178 |
| 302020 | UNITRONIC® 300 | 20 x AWG20 | 12.6 | 98.1 | 259 |
| 302025 | UNITRONIC® 300 | 25 x AWG20 | 14.1 | 122.6 | 354 |
| 302204 | UNITRONIC® 300 | 4 x AWG22 | 5 | 13.7 | 33 |
| 302210 | UNITRONIC® 300 | 10 x AWG22 | 7 | 34.9 | 67 |
| 302215 | UNITRONIC® 300 | 15 x AWG22 | 7.9 | 51.3 | 91 |
| 302220 | UNITRONIC® 300 | 20 x AWG22 | 9 | 68.5 | 116 |
| 302225 | UNITRONIC® 300 | 25 x AWG22 | 10.5 | 85.6 | 180 |
| 302410 | UNITRONIC® 300 | 10 x AWG24 | 6.4 | 21.4 | 51 |
| **UNITRONIC® 300 S** | | | | | |
| 301602S | UNITRONIC® 300 S | 2 x AWG16 | 7.6 | 50.6 | 101 |
| 301606S | UNITRONIC® 300 S | 6 x AWG16 | 9.9 | 105.7 | 210 |
| 301802S | UNITRONIC® 300 S | 2 x AWG18 | 6.8 | 37.2 | 75 |
| 301803S | UNITRONIC® 300 S | 3 x AWG18 | 7.3 | 49.1 | 85 |
| 301804S | UNITRONIC® 300 S | 4 x AWG18 | 7.9 | 59.6 | 104 |
| 301825S | UNITRONIC® 300 S | 25 x AWG18 | 16.8 | 278.4 | 448 |
| 302002S | UNITRONIC® 300 S | 2 x AWG20 | 6.3 | 28.3 | 60 |
| 302004S | UNITRONIC® 300 S | 4 x AWG20 | 7.3 | 40.2 | 88 |
| 302006S | UNITRONIC® 300 S | 6 x AWG20 | 8.4 | 55.1 | 119 |
| 302206S | UNITRONIC® 300 S | 6 x AWG22 | 6.4 | 35.7 | 68 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® 300 STP

Screened control and signal cables with small cross sections and twisted pairs - UL/CSA listed

**Info**

- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 37 pairs producible/ With non-standard color code, e.g., with green-yellow grounding conductor, up to 50 pairs




## Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross-section 18 AWG in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

## Product features

- Oil-resistant according to UL OIL RES I

## Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC
- TP structure
- Overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC, dark gray (similar to RAL 7005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
Pair 1: black, red
Pair 2: black, white
Pair 3: black, green
Pair 4: black, blue
Pair 5: black, yellow
Pair 6: black, brown
Exception single-paired, 24-22 AWG: black, white

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Nominal voltage**
according to UL: 300 V
IEC: not for power transmission

**Test voltage**
1500 V

**Temperature range**
Occasional flexing/ North America: -25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

| Article number | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® 300 STP** | | | | |
| 302402STP | 2 x 2 x 24 AWG | 6.5 | 25.5 | 59 |
| 302403STP | 3 x 2 x 24 AWG | 6.8 | 31.1 | 65 |
| 302406STP | 6 x 2 x 24 AWG | 8.7 | 49.7 | 106 |
| 302201STP | 1 x 2 x 22 AWG | 5.1 | 19.1 | 39 |
| 302203STP | 3 x 2 x 22 AWG | 7.7 | 38.2 | 71 |
| 302206STP | 6 x 2 x 22 AWG | 9.6 | 70 | 125 |
| 302002STP | 2 x 2 x 20 AWG | 9.4 | 47.7 | 128 |
| 302003STP | 3 x 2 x 20 AWG | 10.5 | 68.2 | 161 |
| 302006STP | 6 x 2 x 20 AWG | 13.3 | 106.5 | 321 |
| 301801STP | 1 x 2 x 18 AWG | 6.8 | 37.8 | 106 |
| 301802STP | 2 x 2 x 18 AWG | 10.7 | 66.2 | 122 |
| 301806STP | 6 x 2 x 18 AWG | 14.6 | 153.1 | 324 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD

Highly flexible cable for cable chain use




## Benefits

- Well-proven and reliable
- Optimized cable construction for cable chain use
- Cost-effective solution

## Application range

- Automated production processes require data transmission cables that offer high flexibility and durability
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

## Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for more than 3 million bending/unbending cycles in cable chain applications

## Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C: approx. 100 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire

**Minimum bending radius**
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

**Test voltage**
1500 V

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® FD** | | | | |
| 0027841 | 3 x 0.14 | 3.9 | 4.2 | 26 |
| 0027842 | 4 x 0.14 | 4.2 | 5.6 | 31 |
| 0027843 | 5 x 0.14 | 4.5 | 7 | 35 |
| 0027844 | 7 x 0.14 | 5.1 | 9.8 | 50 |
| 0027845 | 10 x 0.14 | 6.1 | 14 | 63 |
| 0027846 | 14 x 0.14 | 6.2 | 19.6 | 77 |
| 0027847 | 18 x 0.14 | 6.8 | 25.2 | 91 |
| 0027848 | 25 x 0.14 | 8.3 | 35 | 125 |
| 0027855 | 2 x 0.25 | 4.3 | 5 | 27 |
| 0027856 | 3 x 0.25 | 4.5 | 7.5 | 33 |
| 0027857 | 4 x 0.25 | 4.9 | 10 | 40 |
| 0027858 | 5 x 0.25 | 5.3 | 12.5 | 45 |
| 0027859 | 7 x 0.25 | 6.1 | 17.5 | 59 |
| 0027860 | 10 x 0.25 | 7.4 | 25 | 75 |
| 0027861 | 14 x 0.25 | 7.5 | 35 | 108 |
| 0027863 | 18 x 0.25 | 8.5 | 45 | 130 |
| 0027865 | 25 x 0.25 | 10.4 | 62.5 | 178 |
| 0027870 | 2 x 0.34 | 4.7 | 6.8 | 30 |
| 0027871 | 3 x 0.34 | 5 | 10.2 | 43 |
| 0027872 | 4 x 0.34 | 5.4 | 13.6 | 57 |
| 0027873 | 5 x 0.34 | 5.9 | 17 | 65 |
| 0027874 | 7 x 0.34 | 6.8 | 23.8 | 85 |
| 0027875 | 10 x 0.34 | 8.5 | 34 | 117 |
| 0027876 | 14 x 0.34 | 8.6 | 47.6 | 151 |
| 0027877 | 18 x 0.34 | 9.7 | 61.2 | 182 |
| 0027878 | 25 x 0.34 | 11.9 | 85 | 250 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD CY

Screened highly flexible data transmission cable with PVC outer sheath for cable chain use




## Benefits

- Well-proven and reliable
- Optimized cable construction for cable chain use
- Cost-effective solution
- Overall braid minimises electrical interference

## Application range

- Automated production processes require data transmission cables that offer high flexibility and durability, as well as excellent screening
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

## Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for more than 3 million bending/unbending cycles in cable chain applications

## Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m
- For use in cable chains: Please comply with assembly guideline Appendix T3

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C approx. 110 nF/km
C/S: approx. 110 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 4 x Outer diameter

**Test voltage**
1500 V

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® FD CY** | | | | |
| 0027411 | 3 x 0.14 | 4.5 | 14.1 | 37 |
| 0027412 | 4 x 0.14 | 4.8 | 15.5 | 42 |
| 0027413 | 5 x 0.14 | 5.1 | 18.3 | 47 |
| 0027414 | 7 x 0.14 | 5.7 | 27.6 | 55 |
| 0027416 | 10 x 0.14 | 6.7 | 39.3 | 63 |
| 0027418 | 14 x 0.14 | 6.8 | 45.3 | 96 |
| 0027420 | 18 x 0.14 | 7.4 | 54.1 | 105 |
| 0027422 | 25 x 0.14 | 8.9 | 68.4 | 163 |
| 0027425 | 2 x 0.25 | 4.9 | 14.9 | 39 |
| 0027426 | 3 x 0.25 | 5.1 | 18.8 | 46 |
| 0027427 | 4 x 0.25 | 5.5 | 21.3 | 53 |
| 0027428 | 5 x 0.25 | 5.9 | 31 | 71 |
| 0027429 | 7 x 0.25 | 6.7 | 39.6 | 75 |
| 0027431 | 10 x 0.25 | 8.2 | 53.9 | 100 |
| 0027434 | 14 x 0.25 | 8.3 | 64.2 | 120 |
| 0027436 | 18 x 0.25 | 9.1 | 78.4 | 167 |
| 0027438 | 25 x 0.25 | 11 | 101 | 221 |
| 0027440 | 2 x 0.34 | 5.3 | 16.1 | 47 |
| 0027441 | 3 x 0.34 | 5.6 | 28.7 | 55 |
| 0027442 | 4 x 0.34 | 6 | 35.7 | 76 |
| 0027443 | 5 x 0.34 | 6.5 | 39.1 | 80 |
| 0027444 | 7 x 0.34 | 7.4 | 52.7 | 104 |
| 0027446 | 10 x 0.34 | 9.1 | 67.4 | 115 |
| 0027448 | 14 x 0.34 | 9.2 | 85.3 | 132 |
| 0027450 | 18 x 0.34 | 10.3 | 99.7 | 225 |
| 0027452 | 25 x 0.34 | 12.5 | 155 | 327 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD Li2YCY (TP) A BE

Shielded, low-capacitance, twisted-pair PE/PVC data cable for cable chain/cable carrier, UL AWM for USA+CAN




## Technical data

**Core identification code**
**UNITRONIC® FD Li2YCY (TP) A BE:**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Fine wire
From 0.5 mm²: Finest wire/Conductor class 6 acc. to IEC 60228

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Loop resistance**
Ohmic (DC) and loop/bidirectional @ 20 °C
0.14 mm² (26 AWG): 276.0 Ω/km;
0.25 mm² (24 AWG): 158.0 Ω/km;
0.34 mm² (22 AWG): 110.8 Ω/km;
0.5 mm² (21 AWG): 78.0 Ω/km;
0.75 mm² (19 AWG): 52.0 Ω/km;
1 mm² (18 AWG): 39.0 Ω/km

**Temperature range**
Flexing:
VDE: -5 °C to 70 °C
UL AWM: -5 °C to 80 °C
Stationary use:
VDE: -40 °C to 70 °C
UL AWM: -5 °C to 80 °C

## Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in cable chain/cable carrier in the USA, on the basis of NFPA 79, Section 12.9.2

## Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

## Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside cable chain/cable carrier
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

## Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A B**E**: DIN 47100, refer to Appendix T9

## Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

## Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance PE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: black (similar to RAL 9005)

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **UNITRONIC® FD Li2YCY (TP) A BE** | | | | |
| 0031377 | 1 x 2 x 0.14 | 4.3 | 11.2 | 23 |
| 0031378 | 2 x 2 x 0.14 | 5.9 | 19.4 | 42 |
| 0031379 | 3 x 2 x 0.14 | 6.2 | 23.4 | 47 |
| 0031380 | 4 x 2 x 0.14 | 6.7 | 27.1 | 57 |
| 0031381 | 5 x 2 x 0.14 | 7.3 | 37.4 | 68 |
| 0031382 | 6 x 2 x 0.14 | 7.5 | 49.4 | 86 |
| 0031383 | 8 x 2 x 0.14 | 8.8 | 54.8 | 109 |
| 0031384 | 10 x 2 x 0.14 | 10.1 | 60.1 | 120 |
| 0031385 | 12 x 2 x 0.14 | 9.8 | 61.6 | 150 |
| 0031386 | 1 x 2 x 0.25 | 4.7 | 14.9 | 27 |
| 0031387 | 2 x 2 x 0.25 | 6.6 | 32 | 57 |
| 0031388 | 3 x 2 x 0.25 | 7 | 38.4 | 72 |
| 0031389 | 4 x 2 x 0.25 | 7.6 | 43.2 | 85 |
| 0031390 | 5 x 2 x 0.25 | 8.5 | 51.5 | 92 |
| 0031391 | 6 x 2 x 0.25 | 8.8 | 71.8 | 114 |
| 0031392 | 8 x 2 x 0.25 | 10.3 | 74.4 | 145 |
| 0031393 | 10 x 2 x 0.25 | 11.8 | 90 | 182 |
| 0031394 | 14 x 2 x 0.25 | 12 | 111.2 | 213 |
| 0031395 | 25 x 2 x 0.25 | 16.3 | 310 | 310 |
| 0031396 | 1 x 2 x 0.34 | 5.1 | 18.1 | 36 |
| 0031397 | 2 x 2 x 0.34 | 7.3 | 41 | 69 |
| 0031398 | 3 x 2 x 0.34 | 8 | 52 | 93 |
| 0031399 | 4 x 2 x 0.34 | 8.7 | 59 | 106 |
| 0031400 | 5 x 2 x 0.34 | 9.7 | 67 | 136 |
| 0031401 | 6 x 2 x 0.34 | 10 | 86.2 | 165 |

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| 0031402 | 8 x 2 x 0.34 | 11.8 | 107.5 | 221 |
| 0031403 | 10 x 2 x 0.34 | 13.7 | 131.1 | 274 |
| 0031404 | 1 x 2 x 0.50 | 5.5 | 23 | 47 |
| 0031405 | 2 x 2 x 0.50 | 8.3 | 50 | 99 |
| 0031406 | 3 x 2 x 0.50 | 8.8 | 71.8 | 120 |
| 0031407 | 4 x 2 x 0.50 | 9.8 | 74.4 | 130 |
| 0031408 | 5 x 2 x 0.50 | 10.7 | 84.5 | 164 |
| 0031409 | 6 x 2 x 0.50 | 11.3 | 99.6 | 182 |
| 0031410 | 8 x 2 x 0.50 | 13.2 | 144.3 | 278 |
| 0031411 | 10 x 2 x 0.50 | 15.2 | 176 | 325 |
| 0031412 | 14 x 2 x 0.50 | 15.5 | 215.4 | 401 |
| 0031413 | 1 x 2 x 0.75 | 5.9 | 35 | 61 |
| 0031414 | 2 x 2 x 0.75 | 9 | 60 | 104 |
| 0031415 | 3 x 2 x 0.75 | 9.8 | 85.7 | 148 |
| 0031416 | 4 x 2 x 0.75 | 10.7 | 93.6 | 167 |
| 0031417 | 5 x 2 x 0.75 | 11.9 | 115 | 202 |
| 0031418 | 6 x 2 x 0.75 | 12.3 | 130.4 | 233 |
| 0031419 | 8 x 2 x 0.75 | 14.7 | 192.2 | 330 |
| 0031420 | 10 x 2 x 0.75 | 16.7 | 258 | 390 |
| 0031421 | 14 x 2 x 0.75 | 17 | 316.6 | 515 |
| 0031422 | 1 x 2 x 1.00 | 6.3 | 42 | 71 |
| 0031423 | 2 x 2 x 1.00 | 9.9 | 73 | 126 |
| 0031424 | 3 x 2 x 1.00 | 10.5 | 93.6 | 167 |
| 0031425 | 4 x 2 x 1.00 | 11.8 | 117.8 | 213 |
| 0031426 | 5 x 2 x 1.00 | 13.1 | 139 | 247 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD P plus A

Highly flexible data cable with PUR jacket and AWM certification for US & Canadian use




## Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

## Benefits

- Well-proven and reliable
- Wide temperature range for applications in harsh climatic environments
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

## Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Suitable for use in measuring, control and regulating circuits
- Cable chain use - in case of horizontal installation travel distances up to 100 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

## Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Flame retardance ratings: IEC 60332-1-2, FT2 (Horizontal flame test)
- Halogen-free, has low capacitance and is flexible down to -40°C
- Oil-resistant
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant

## Norm references / Approvals

- Based on VDE 0812
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C approx. 60 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire

**Minimum bending radius**
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

**Test voltage**
1500 V

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C
cRUus AWM: max. +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® FD P plus A** | | | | |
| 0028647 | 2 x 0.14 | 3.7 | 2.8 | 20 |
| 0028650 | 3 x 0.14 | 3.9 | 4.1 | 25 |
| 0028651 | 4 x 0.14 | 4.2 | 5.6 | 30 |
| 0028652 | 5 x 0.14 | 4.5 | 7 | 34 |
| 0028677 | 6 x 0.14 | 4.8 | 8.4 | 42 |
| 0028653 | 7 x 0.14 | 5.1 | 9.8 | 48 |
| 0028654 | 10 x 0.14 | 6.1 | 14 | 60 |
| 0028678 | 12 x 0.14 | 5.9 | 16.8 | 67 |
| 0028656 | 18 x 0.14 | 6.8 | 25.2 | 87 |
| 0028657 | 25 x 0.14 | 8.3 | 35 | 120 |
| 0028658 | 2 x 0.25 | 4.1 | 5 | 27 |
| 0028659 | 3 x 0.25 | 4.3 | 7.5 | 32 |
| 0028660 | 4 x 0.25 | 4.7 | 10 | 35 |
| 0028661 | 5 x 0.25 | 5 | 12.5 | 49 |
| 0028679 | 6 x 0.25 | 5.4 | 15 | 55 |
| 0028662 | 7 x 0.25 | 5.8 | 17.5 | 43 |
| 0028663 | 10 x 0.25 | 7 | 25 | 72 |
| 0028680 | 12 x 0.25 | 6.7 | 30 | 87 |
| 0028664 | 14 x 0.25 | 7.1 | 35 | 73 |
| 0028665 | 18 x 0.25 | 8 | 45 | 104 |
| 0028666 | 25 x 0.25 | 9.8 | 62.5 | 133 |
| 0028667 | 2 x 0.34 | 4.5 | 6.8 | 33 |
| 0028668 | 3 x 0.34 | 4.8 | 10.2 | 39 |
| 0028669 | 4 x 0.34 | 5.2 | 13.6 | 41 |
| 0028670 | 5 x 0.34 | 5.6 | 17 | 44 |
| 0028671 | 7 x 0.34 | 6.5 | 23.8 | 55 |
| 0028672 | 10 x 0.34 | 8 | 34 | 85 |
| 0028673 | 14 x 0.34 | 8.2 | 47.6 | 94 |
| 0028674 | 18 x 0.34 | 9 | 61.2 | 131 |
| 0028675 | 25 x 0.34 | 11 | 85 | 200 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD CP plus A

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-approved




## Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

## Benefits

- Wide temperature range for applications in harsh climatic environments
- Overall braid minimises electrical interference
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

## Application range

- Suitable for use in measuring, control and regulating circuits
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 5 up to 10 million bending/unbending cycles (constant flex) in cable chain

## Norm references / Approvals

- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
C/C approx. 60 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 500 V

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® FD CP plus A** | | | | |
| 11139600 | 3 X 0.14 | 4.5 | 14.1 | 36 |
| 11139601 | 4 X 0.14 | 4.8 | 15.5 | 40 |
| 11139602 | 5 X 0.14 | 5.1 | 18.3 | 45 |
| 11139603 | 7 X 0.14 | 5.7 | 27.8 | 67 |
| 11139604 | 10 X 0.14 | 6.7 | 39.3 | 87 |
| 11139605 | 14 X 0.14 | 6.8 | 45.3 | 62 |
| 11139606 | 18 X 0.14 | 7.4 | 54.1 | 74 |
| 11139607 | 25 X 0.14 | 8.9 | 68.4 | 157 |
| 11139608 | 2 X 0.25 | 4.7 | 14.9 | 38 |
| 11139609 | 3 X 0.25 | 4.9 | 18.8 | 45 |
| 11139610 | 4 X 0.25 | 5.3 | 21.3 | 52 |
| 11139611 | 5 X 0.25 | 5.6 | 31 | 69 |
| 11139612 | 7 X 0.25 | 6.4 | 39.6 | 76 |
| 11139613 | 10 X 0.25 | 7.6 | 53.9 | 98 |
| 11139614 | 14 X 0.25 | 7.9 | 64.2 | 120 |
| 11139615 | 18 X 0.25 | 8.6 | 78.4 | 142 |
| 11139616 | 25 X 0.25 | 10.4 | 101 | 213 |
| 11139617 | 2 X 0.34 | 5.1 | 18.1 | 40 |
| 11139618 | 3 X 0.34 | 5.4 | 28.7 | 61 |
| 11139619 | 4 X 0.34 | 5.8 | 35.7 | 60 |
| 11139620 | 5 X 0.34 | 6.2 | 39.1 | 70 |
| 11139621 | 7 X 0.34 | 7.1 | 52.7 | 103 |
| 11139622 | 10 X 0.34 | 8.6 | 67.4 | 148 |
| 11139623 | 14 X 0.34 | 8.8 | 85.8 | 166 |
| 11139624 | 18 X 0.34 | 9.8 | 99.7 | 190 |
| 11139625 | 25 X 0.34 | 11.8 | 155 | 260 |
| 11139626 | 2 X 0.14 | 4.3 | 11.2 | 33 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® FD CP (TP) plus A

Screened highly flexible data transmission cable with PUR outer sheath and twisted pairs - UL/CSA-approved




## Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

## Benefits

- Wide temperature range for applications in harsh climatic environments
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

## Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

## Norm references / Approvals

- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin TP structure
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
DIN 47100, refer to Appendix T9

**Mutual capacitance**
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Stranded, extra-fine wire
From 0.5 mm²: extra-fine wire
according to IEC 60228 class 6

**Torsion movement in WTG**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 500 V

**Temperature range**
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® FD CP (TP) plus A** | | | | |
| 11139499 | 8 x 2 x 0.34 | 11.8 mm | 107.300 kg/km | 221 |
| 11139501 | 2 x 2 x 0.14 | 5.9 mm | 19.400 kg/km | 42 |
| 11139502 | 3 x 2 x 0.14 | 6.2 mm | 23.400 kg/km | 47 |
| 11139503 | 4 x 2 x 0.14 | 6.7 mm | 27.100 kg/km | 57 |
| 11139504 | 5 x 2 x 0.14 | 7.3 mm | 37.400 kg/km | 68 |
| 11139505 | 6 x 2 x 0.14 | 7.5 mm | 49.400 kg/km | 86 |
| 11139506 | 8 x 2 x 0.14 | 8.8 mm | 54.800 kg/km | 109 |
| 11139507 | 10 x 2 x 0.14 | 10.1 mm | 60.100 kg/km | 120 |
| 11139508 | 2 x 2 x 0.25 | 6.6 mm | 32.000 kg/km | 57 |
| 11139509 | 3 x 2 x 0.25 | 7 mm | 38.400 kg/km | 72 |
| 11139510 | 4 x 2 x 0.25 | 7.6 mm | 43.200 kg/km | 85 |
| 11139511 | 5 x 2 x 0.25 | 8.5 mm | 51.500 kg/km | 92 |
| 11139512 | 6 x 2 x 0.25 | 8.8 mm | 71.800 kg/km | 91 |
| 11139513 | 8 x 2 x 0.25 | 10.3 mm | 74.400 kg/km | 145 |
| 11139514 | 10 x 2 x 0.25 | 11.8 mm | 90.000 kg/km | 182 |
| 11139515 | 14 x 2 x 0.25 | 12 mm | 111.200 kg/km | 213 |
| 11139516 | 2 x 2 x 0.34 | 7.3 mm | 41.000 kg/km | 69 |
| 11139517 | 3 x 2 x 0.34 | 8 mm | 52.000 kg/km | 93 |
| 11139518 | 4 x 2 x 0.34 | 8.7 mm | 59.000 kg/km | 106 |
| 11139519 | 6 x 2 x 0.34 | 10 mm | 86.200 kg/km | 165 |
| 11139520 | 10 x 2 x 0.34 | 13.7 mm | 131.100 kg/km | 274 |
| 11139521 | 2 x 2 x 0.5 | 8.3 mm | 50.000 kg/km | 99 |

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 11139522 | 3 x 2 x 0.5 | 8.8 mm | 71.800 kg/km | 120 |
| 11139523 | 4 x 2 x 0.5 | 9.8 mm | 74.400 kg/km | 148 |
| 11139524 | 5 x 2 x 0.5 | 10.7 mm | 84.500 kg/km | 168 |
| 11139525 | 6 x 2 x 0.5 | 11.3 mm | 99.600 kg/km | 182 |
| 11139526 | 8 x 2 x 0.5 | 13.2 mm | 144.300 kg/km | 278 |
| 11139527 | 10 x 2 x 0.5 | 15.2 mm | 176.000 kg/km | 325 |
| 11139528 | 14 x 2 x 0.5 | 15.5 mm | 215.400 kg/km | 401 |
| 11139529 | 2 x 2 x 0.75 | 9 mm | 60.000 kg/km | 104 |
| 11139530 | 3 x 2 x 0.75 | 9.8 mm | 85.700 kg/km | 148 |
| 11139531 | 4 x 2 x 0.75 | 10.7 mm | 93.600 kg/km | 167 |
| 11139532 | 6 x 2 x 0.75 | 12.3 mm | 130.400 kg/km | 233 |
| 11139533 | 8 x 2 x 0.75 | 14.7 mm | 192.200 kg/km | 330 |
| 11139534 | 10 x 2 x 0.75 | 16.7 mm | 258.000 kg/km | 390 |
| 11139535 | 14 x 2 x 0.75 | 17 mm | 316.600 kg/km | 515 |
| 11139536 | 1 x 2 x 1 | 6.3 mm | 42.000 kg/km | 71 |
| 11139537 | 2 x 2 x 1 | 9.9 mm | 73.000 kg/km | 126 |
| 11139538 | 3 x 2 x 1 | 10.5 mm | 93.600 kg/km | 167 |
| 11139539 | 4 x 2 x 1 | 11.8 mm | 117.800 kg/km | 213 |
| 11139540 | 5 x 2 x 1 | 13.1 mm | 139.000 kg/km | 247 |
| 11139541 | 1 x 2 x 0.34 | 5.1 mm | 20.000 kg/km | 36 |
| 11139542 | 1 x 2 x 0.5 | 5.5 mm | 22.000 kg/km | 47 |
| 11139543 | 1 x 2 x 0.75 | 5.9 mm | 34.000 kg/km | 61 |
| 11139544 | 1 x 2 x 0.25 | 4.7 mm | 14.000 kg/km | 32 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® RE-2Y(ST)Yv S

Instrumentation cable with reinforced outer sheath




## Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

## Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous

## Product features

- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- In the style of EN 50288-7

## Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Foil wrapping, static screening made of aluminium-laminated plastic film with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

## Info

- CPR: Article number choice under www.lapp.com

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.
Three-way version: black, white, red

**Mutual capacitance**
(guideline values at 800 Hz):
C/C: 0.5 mm²: max. 75 nF/km
(guideline values at 800 Hz):
C/C: 1.3 mm²: max. 100 nF/km

**Conductor resistance**
0.5 mm²: max. 39.2 ohm/km
1.3 mm²: max. 14.3 ohm/km

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

**Short-range crosstalk attenuation**
At 60 kHz: min. 0.88 dB/km

**Test voltage**
Core/core: 2000 V
Core/screen: 1000 V

**Characteristic impedance**
approx. 100 ohms

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

| Article number | Dimension and cross section in mm² | Outer sheath colour | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 0032413 | 4 X 2 X 0,5 | black | 11.1 | 50 | 148 |
| 1032401 | 2 X 2 X 0,5 | blue | 8.5 | 30 | 100 |
| 1032412 | 2 X 2 X 0,5 | black | 8.5 | 30 | 100 |
| 1032423 | 2 X 2 X 1,3 | blue | 10.2 | 62 | 160 |
| 1032431 | 2 X 2 X 1,3 | black | 10.2 | 62 | 160 |
| 1032440 | 1 X 2 X 0,5 | blue | 7.2 | 15 | 74 |
| 1032446 | 1 X 2 X 0,5 | black | 7.2 | 15 | 74 |
| 1032447 | 10 X 2 X 0,5 | black | 15.8 | 110 | 295 |
| 1032449 | 20 X 2 X 0,5 | black | 20 | 210 | 445 |
| 1032450 | 36 X 2 X 0,5 | black | 25.2 | 370 | 720 |
| 1032451 | 48 X 2 X 0,5 | black | 28.7 | 490 | 899 |
| 1032452 | 1 X 2 X 1,3 | blue | 8.4 | 31 | 107 |
| 1032453 | 4 X 2 X 1,3 | blue | 12.9 | 114 | 235 |
| 1032456 | 24 X 2 X 1,3 | blue | 25.2 | 684 | 978 |
| 1032457 | 1 X 2 X 1,3 | black | 8.4 | 31 | 107 |
| 1032458 | 4 X 2 X 1,3 | black | 12.9 | 114 | 235 |
| 1032459 | 8 X 2 X 1,3 | black | 16.4 | 218 | 387 |
| 1032460 | 12 X 2 X 1,3 | black | 18.2 | 322 | 524 |
| 1032461 | 24 X 2 X 1,3 | black | 25.2 | 684 | 978 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# UNITRONIC® RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil




**Info**

- CPR: Article number choice under www.lapp.com

## Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

## Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

## Product features

- Computer cable with screened pairs and reinforced outer sheath
- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- In the style of EN 50288-7

## Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pair screening made of aluminium-laminated plastic foil with bare copper drain wire, PiMF marking using numbered foil, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

**Core identification code**
a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.

**Mutual capacitance**
(at 800 Hz max):
C/C: 0.5 mm²: 75 nF/km
(at 800 Hz max):
C/C: 1.3 mm²: 100 nF/km

**Inductivity**
max. 0.75 mH/km

**Conductor resistance**
0.5 mm²: max. 39.2 ohm/km
1.3 mm²: max. 14.2 ohm/km

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

**Short-range crosstalk attenuation**
At 60 kHz: min. 1.02 dB/km

**Test voltage**
Core/core: 2000 V
Core/screen: 600 V

**Characteristic impedance**
approx. 100 ohms

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

| Article number | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **RE-2Y(ST)Yv PiMF 0.5 mm² blue** | | | | |
| 0032438 | 2 x 2 x 0,50 | 10 | 35 | 128 |
| 0032442 | 12 x 2 x 0,50 | 16.7 | 161 | 325 |
| **0.5 mm² black** | | | | |
| 0032448 | 2 x 2 x 0,50 | 10 | 35 | 128 |
| 0032449 | 4 x 2 x 0,50 | 11.6 | 60 | 170 |
| 0032450 | 8 x 2 x 0,50 | 14.4 | 121 | 261 |
| 0032451 | 10 x 2 x 0,50 | 15.9 | 136 | 285 |
| 0032453 | 16 x 2 x 0,50 | 19.1 | 212 | 430 |
| **1.3 mm² blue** | | | | |
| 0032458 | 2 x 2 x 1,30 | 12.4 | 68 | 184 |
| **1.3 mm² black** | | | | |
| 0032464 | 2 x 2 x 1,30 | 12.4 | 68 | 184 |
| 0032465 | 4 x 2 x 1,30 | 14.2 | 124 | 269 |
| 0032466 | 8 x 2 x 1,30 | 18.5 | 239 | 442 |
| 0032467 | 12 x 2 x 1,30 | 22.2 | 353 | 593 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# JE-Y(ST)Y...BD

Static screened installation cable for industrial electronics

**Info**

- In accordance with DIN VDE 0815




# JE-Y(ST)Y...BD EB

Static screened installation cable for industrial electronics

**Info**

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion




## Benefits

- Perfect for cost-effective installation, e.g. connections with insulation displacement technology (IDC).
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Connection cable for fixed installation in industrial control systems, as required in measurement, control, signalling and data applications
- Industrial electronics
- For fixed installation on and under plaster, in dry and damp rooms

## Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-Y(ST)Y...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

## Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-Y(ST)Y...BD

## Product Make-up

**JE-Y(ST)Y...BD**

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

**JE-Y(ST)Y...BD EB**

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

**Core identification code**
according to VDE 0815,
refer to Appendix T10

**Mutual capacitance**
max. 100 nF/km

**Coupling**
approx. 200 pF/100 m

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Single-wire (solid conductor)
0.8 mm: 0.50 mm²

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Test voltage**
**JE-Y(ST)Y...BD**
Core/core: 500 V
Core/screen: 2000 V
**JE-Y(ST)Y...BD EB**
Core/Core: 1000 V
Core/screen: 2000 V

**Loop resistance**
max. 73.2 Ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of cores and cable diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **JE-Y(ST)Y...BD** | | | | |
| 0034190 | 2 x 2 x 0.8 | 6 | 25 | 60 |
| 0034191 | 4 x 2 x 0.8 | 8.5 | 45 | 96 |
| 0034192 | 8 x 2 x 0.8 | 11 | 85 | 158 |
| 0034193 | 12 x 2 x 0.8 | 13 | 126 | 225 |
| 0034194 | 16 x 2 x 0.8 | 14.5 | 166 | 290 |
| 0034195 | 20 x 2 x 0.8 | 16 | 206 | 350 |
| 0034197 | 40 x 2 x 0.8 | 22 | 407 | 660 |
| **JE-Y(ST)Y...BD EB, blue outer sheath** | | | | |
| 0034120 | 2 x 2 x 0.8 | 6 | 25 | 60 |
| 0034121 | 4 x 2 x 0.8 | 8.5 | 45 | 100 |
| 0034122 | 8 x 2 x 0.8 | 11 | 85 | 165 |
| 0034123 | 12 x 2 x 0.8 | 13 | 126 | 240 |
| 0034125 | 20 x 2 x 0.8 | 16 | 206 | 360 |
| 0034126 | 32 x 2 x 0.8 | 20 | 327 | 555 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# JE-LiYCY...BD

Screened data transmission cable for industrial electronics




**Info**

- In accordance with DIN VDE 0815

# JE-LiYCY...BD EB

Screened data transmission cable for industrial electronics




**Info**

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion

## Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- This cable is also used as a pulse and data transmission cable
- JE-LiYCY...BD has also proved to be an efficient connection cable for telephone systems, e.g. paging and intercom systems.
- For fixed installation on and under plaster, in dry and damp rooms

## Product features

- The 2-pair version (2 x 2 x 0.5) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-LiYCY...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

## Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-LiYCY...BD

## Product Make-up

**JE-LiYCY...BD**

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

**JE-LiYCY...BD EB**

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

**Core identification code**
according to VDE 0815, refer to Appendix T10

**Mutual capacitance**
max. 100 nF/km

**Coupling**
approx. 200 pF/100 m

**Inductivity**
approx. 0.65 mH/km

**Conductor stranding**
Multi-wire, 7 x 0.3mm

**Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 5 x outer diameter

**Test voltage**
**JE-LiYCY...BD**
Core/core: 500 V
Core/screen: 2000 V
**JE-LiYCY...BD EB**
Core/Core: 1000 V
Core/screen: 2000 V

**Loop resistance**
max. 78.4 ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **JE-LiYCY...BD** | | | | |
| 0034200 | 2 x 2 x 0.5 | 6.6 | 51 | 70 |
| 0034201 | 4 x 2 x 0.5 | 8.5 | 87 | 155 |
| 0034202 | 8 x 2 x 0.5 | 11.7 | 144 | 260 |
| 0034208 | 12 x 2 x 0.5 | 12.8 | 195 | 340 |
| 0034203 | 16 x 2 x 0.5 | 13.9 | 249 | 430 |
| 0034210 | 20 x 2 x 0.5 | 15.1 | 298 | 495 |
| 0034204 | 24 x 2 x 0.5 | 16.4 | 348 | 605 |
| 0034212 | 32 x 2 x 0.5 | 21 | 441 | 738 |
| **JE-LiYCY...BD EB, blue outer sheath** | | | | |
| 0034220 | 2 x 2 x 0.5 | 6.6 | 51 | 95 |
| 0034221 | 4 x 2 x 0.5 | 8.5 | 87 | 155 |
| 0034222 | 8 x 2 x 0.5 | 11.7 | 144 | 260 |
| 0034223 | 12 x 2 x 0.5 | 12.8 | 193 | 340 |
| 0034224 | 16 x 2 x 0.5 | 13.9 | 249 | 430 |
| 0034225 | 20 x 2 x 0.5 | 15.1 | 298 | 495 |
| 0034226 | 24 x 2 x 0.5 | 16.6 | 348 | 605 |
| 0034227 | 32 x 2 x 0.5 | 21 | 441 | 738 |
| 0034228 | 40 x 2 x 0.5 | 21.7 | 531 | 845 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
MAXI-TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POLISCREEN

Static screened data transmission cable




## Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

## Product features

- (St) = Aluminium-laminated plastic foil screen with drain wire
  Drain wire = copper conductor that allows to easily connect screen
  C = Braid shielding made of tinned copper wires
  2Y = PE
  02Y = Foam PE
  Y = PVC
  9Y = PP

## Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements

| Article number | Description | Outer Ø (mm) | Copper Index (kg/km) | Cable Weight (kg/km) |
|---|---|---|---|---|
| **Video, audio, data communication in harsh environment, IIoT, factory or process automation etc.** | | | | |
| 2311091493 | POLISCREEN 03105A 02Y(St)CY 1PR22awg | 7,5 | 20,50 | 69,0 |
| 2311091494 | POLISCREEN 03105AH 02Y(St)CH 1PR22awg | 7,5 | 20,50 | 70,0 |
| 2311091240 | POLISCREEN 03106A 02Y(St)CY 1PR22awg+1C | 7,6 | 26,00 | 72,0 |
| 2311091495 | POLISCREEN 03106AH 02Y(St)CH 1PR22awg+1C | 7,6 | 26,00 | 73,0 |
| 2311091324 | POLISCREEN 03107A 02Y(St)CY 2PR22awg | 8,9 | 32,00 | 90,0 |
| 2311091213 | POLISCREEN 03107AH 02Y(St)CH 2PR22awg | 8,9 | 32,00 | 91,0 |
| **Panel wiring, LV analogic signals (4-20 mA, 0-10 V); LV digital control (24 V); line level audio; computer communication** | | | | |
| 2311091542 | POLISCREEN 08471 YY 1PR16awg | 6,8 | 27,50 | 68,0 |
| 2311091543 | POLISCREEN 08723 9YPiMFY 2PR22awg | 5,0 | 23,04 | 32,0 |
| 2311091544 | POLISCREEN 08760 2Y(St)Y 1PR18awg | 5,5 | 22,00 | 40,0 |
| 2311091485 | POLISCREEN 08760H 2Y(St)H 1PR18awg | 5,5 | 22,00 | 46,0 |
| 2311091545 | POLISCREEN 08761 2Y(St)Y 1PR22awg | 4,5 | 10,50 | 28,0 |
| 2311091546 | POLISCREEN 08762 2Y(St)Y 1PR20awg | 5,0 | 17,50 | 38,0 |
| 2311091241 | POLISCREEN 08772 2Y(ST)Y 3x20awg | 5,7 | 23,00 | 47,0 |
| 2311091547 | POLISCREEN 08777 9YPiMFY 3PR22awg | 6,9 | 23,00 | 59,0 |
| 2311091486 | POLISCREEN 09402 srYPiMFY 2PR20awg | 7,9 | 27,00 | 75,0 |
| **Panel wiring, up to 600 V analogic signals ; up to 600 V digital control ; line level audio; voice communications** | | | | |
| 2311091483 | POLISCREEN 08719 2Y(St)Y 1PR16awg | 8,0 | 36,00 | 80,0 |
| **Telephone cables;LV analogic signals (4-20 mA, 0-10 V); LV control (24 V); voice communications** | | | | |
| 2311091484 | POLISCREEN 08741 YY 2PR22awg | 5,9 | 14,00 | 40,0 |
| **RS-232 Applications; Computer Communications; LV Analogic Signals (4-20 mA, 0-10 V); LV Digital Control (24 V); Line Level Audio; Panel Wiring** | | | | |
| 2311091487 | POLISCREEN 09501 srY(St)Y 1PR24awg | 4,0 | 7,0 | 23,0 |
| 2311091488 | POLISCREEN 09502 srY(St)Y 2PR24awg | 5,5 | 11,5 | 41,0 |
| 2311091489 | POLISCREEN 09504 srY(St)Y 4PR24awg | 6,6 | 21,0 | 54,0 |
| 2311091490 | POLISCREEN 09536 srY(St)Y 6x24awg | 5,3 | 16,0 | 39,0 |
| **RS-232 Applications; Computer Communications; LV Analogic Signals (4-20 mA, 0-10 V); LV Digital Control (24 V); Line Level Audio; Panel Wiring** | | | | |
| 2311091487 | POLISCREEN 09501 srY(St)Y 1PR24awg | 4,0 | 7,00 | 23,0 |
| 2311091488 | POLISCREEN 09502 srY(St)Y 2PR24awg | 5,5 | 11,50 | 41,0 |
| 2311091489 | POLISCREEN 09504 srY(St)Y 4PR24awg | 6,6 | 21,00 | 54,0 |
| 2311091490 | POLISCREEN 09536 srY(St)Y 6x24awg | 5,3 | 16,00 | 39,0 |
| **RS-422 applications; computer communications; LV analogic signals (4-20 mA, 0-10 V); LV digital control (24 V); digital audio; panel wiring** | | | | |
| 2311091491 | POLISCREEN 09729 02YPiMFY 2PR24awg | 6,8 | 13,50 | 50,0 |
| 2311091492 | POLISCREEN 09730 02YPiMFY 3PR24awg | 8,5 | 20,50 | 71,0 |
| **RS-485 serial communication , comprising of PLCs, VFDs, HMIs, motors, RTU, SCADA in noisy environments over long distance, etc. Computer communications; LV Analogic Signals (4-20 mA, 0-10 V); LV Digital Control (24 V); Line Level Audio; Panel Wiring** | | | | |
| 2311091548 | POLISCREEN 09841 2Y(St)CY 1PR24awg | 5,9 | 18,50 | 46,0 |
| 2311091496 | POLISCREEN 09841H 2Y(St)CH 1PR24awg | 5,9 | 18,50 | 47,0 |
| 2311091549 | POLISCREEN 09842 2Y(St)CY 2PR24awg | 8,3 | 30,00 | 83,0 |
| 2311091446 | POLISCREEN 09842BK 2Y(St)CY 2PR24awg BK | 8,3 | 30,00 | 83,0 |
| 2311091497 | POLISCREEN 09842H 2Y(St)CH 2PR24awg | 8,3 | 30,00 | 85,0 |
| 2311091498 | POLISCREEN 09842O 2Y(St)C2Y 2PR24awg OUT | 8,3 | 30,00 | 68,0 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.


LAPP KABEL STUTTGART UNITRONIC® SENSOR FD LiF9YC11Y
LAPP KABEL STUTTGART UNITRONIC® SENSOR LiFY11Y

# J-Y(ST)Y...LG Fire Alarm Cable

Installation cable in accordance with DIN VDE 0815 PVC; Shielded; Flexible



## Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

## Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms
- The PVC outer sheath is somewhat oil-resistant

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

**Core identification code**
according to VDE 0815, refer to Appendix T10

**Coupling**
(800 Hz): K1: 80% ≤ 300 pF/100m

**Conductor cross-section in**
0.8 mm: 0.50 mm²
**Cable attenuation/attenuation**
0.8 mm: 1.1 dB/km

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 800 V
Core/screen: 800 V

**Loop resistance**
0.8 mm: max. 73.2 ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 1708001 | 1 x 2 x 0,8 | 6 | 11 | 26 |
| 1708002 | 2 x 2 x 0,8 | 7 | 21 | 60 |
| 1708004 | 4 x 2 x 0,8 | 9 | 41 | 100 |
| 1708010 | 10 x 2 x 0,8 | 13.5 | 102 | 220 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# J-Y(ST)Y...LG Indoor Cable

Installation cable in accordance with DIN VDE 0815




## Benefits

- Indoor telephone cables transmit analogue or digital signals
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

## Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- In news and communication applications, the following connections can be installed: telephone, telefax, telex, standard modems for postal services; burglar and fire alarm systems (cf. fire alarm cables); communication and paging systems; access control, time and data control systems
- Can be used in dry and wet interiors for fixed installation on and under plaster

## Product features

- The 2-paired versions = star quad cable design
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- In accordance with DIN VDE 0815 type J-Y(ST)Y...LG

## Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

**Core identification code**
according to VDE 0815, refer to Appendix T10

**Coupling**
(800 Hz): K1: 80% ≤ 300 pF/100m

**Conductor cross-section in**
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

**Cable attenuation/attenuation**
0.6 mm: 1.7 dB/km
0.8 mm: 1.1 dB/km

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 800 V
Core/screen: 800 V

**Loop resistance**
0.6 mm: max. 130 ohm/km
0.8 mm: max. 73.2 ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **J-Y(ST)Y...LG copper conductor 0.6 mm** | | | | |
| 1591301 | 2 | 5.5 | 13 | 40 |
| 1591302 | 3 | 6.3 | 18 | 50 |
| 1591303 | 4 | 6.7 | 24 | 60 |
| 1591304 | 5 | 7.2 | 30 | 70 |
| 1591305 | 6 | 7.5 | 35 | 80 |
| 1591306 | 8 | 8 | 46 | 90 |
| 1591307 | 10 | 9 | 58 | 110 |
| 1591308 | 12 | 9.5 | 71 | 130 |
| 1591310 | 16 | 10.5 | 93 | 160 |
| 1591311 | 20 | 11 | 116 | 190 |
| 1591312 | 24 | 11.5 | 139 | 220 |
| 1591313 | 30 | 13 | 172 | 280 |
| 1591315 | 50 | 17 | 286 | 430 |
| 1591318 | 100 | 23 | 568 | 850 |

| Article number | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **J-Y(ST)Y...LG copper conductor 0.8 mm** | | | | |
| 1591500 | 1 | 6 | 11 | 40 |
| 1591501 | 2 | 7 | 21 | 60 |
| 1591502 | 3 | 8.5 | 31 | 80 |
| 1591503 | 4 | 9 | 41 | 100 |
| 1591505 | 6 | 10.5 | 62 | 140 |
| 1591506 | 8 | 11.5 | 82 | 170 |
| 1591507 | 10 | 13 | 102 | 220 |
| 1591508 | 12 | 14 | 123 | 250 |
| 1591511 | 20 | 16.5 | 204 | 380 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# J-H(ST)H...BD Fire Alarm Cable

Installation cable; VDE 0815; Halogen-free compound; Shielded; Fixed Installation



## Benefits

- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire
- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

## Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

**Core identification code**
according to VDE 0815, refer to Appendix T10

**Coupling**
max. 200 pF/100 m (at 800 Hz)

**Conductor cross-section in**
0.8 mm: 0.50 mm²
**Cable attenuation/attenuation**
0.8 mm: 1.1 dB/km

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Test voltage**
Core/core: 800 V
Core/screen: 800 V

**Loop resistance**
0.8 mm: max. 73.2 ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 30017798 | 2 x 2 x 0,8 | 7 | 25 | 50 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# J-H(ST)H...BD

Telephone cable; VDE 0815; Halogen-free compound; Shielded; Flexible



## Benefits

- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire
- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

## Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

**Core identification code**
according to VDE 0815,
refer to Appendix T10

**Coupling**
max. 200 pF/100 m (at 800 Hz)

**Conductor cross-section in**
0.8 mm: 0.50 mm²
**Cable attenuation/attenuation**
0.8 mm: 1.1 dB/km

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Test voltage**
Core/core: 800 V
Core/screen: 800 V

**Loop resistance**
0.8 mm: max. 73.2 ohm/km

**Temperature range**
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 30017787 | 2 x 2 x 0,8 | 7 | 25 | 77 |
| 30017788 | 4 x 2 x 0,8 | 9.2 | 45 | 135 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# A-2Y(L)2Y...ST III BD Telephone Outdoor Cable



# A-2YF(L)2Y...ST III BD Outdoor Cable



## Application range

- External cables for telecommunication and data processing systems
- Do not install cables that are meant to be placed in ducts or for direct burial in areas exposed to fire hazards

## Product features

- Outer sheath colour: black (RAL 9005)
- UV-resistant and laterally watertight
- Filled version (A-2YF(L)2Y...ST III BD) is addionally longitudinal watertight

## Norm references / Approvals

- In accordance with DIN VDE 0816

## Product Make-up

**A-2Y(L)2Y...ST III BD Telephone Outdoor Cable**

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- 5 star-quads are twisted into each basic unit, which is then twisted together with the main unit to form the cable core
- Paper tape wrapping
- Laminated sheath with aluminium-coated plastic tape, PE outer sheath

**A-2YF(L)2Y...ST III BD Outdoor Cable**

- Similar to A-2Y(L)2Y, but with petroleum-jelly filling, laminated sheath made of aluminium-coated plastic tape, and black PE outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

**Core identification code**
According to VDE 0816, refer to Appendix T10

**Mutual capacitance**
At 800 Hz: max. 52 nF/km

**Coupling**
K1: 98 % <400 pF/300 m
K9-12: 98 % < 100 pF/300 m

**Conductor cross-section in**
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

**Cable attenuation/attenuation**
**A-2Y(L)2Y...ST III BD Telephone Outdoor Cable**
At 800 Hz 0.6 mm: approx. 1.04 dB/km
At 800 Hz 0.8 mm: approx. 0.78 dB/km
**A-2YF(L)2Y...ST III BD Outdoor Cable**
At 800 Hz 0.6 mm: approx. 1.0 dB/km
At 800 Hz 0.8 mm: approx. 0.8 dB/km

**Minimum bending radius**
10 x outer diameter

**Test voltage**
Core/core: 500 V
Core/screen: 2000 V

**Loop resistance**
0.6 mm: 130 ohm/km
0.8 mm: 73.2 ohm/km

**Temperature range**
During installation: -20 °C to +50 °C
After installation: ≤ +70 °C

| Article number | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|
| **A-2Y(L)2Y...STIII BD copper conductor 0.6 mm** | | | | |
| 1591050 | 2 | 8.1 | 11 | 80 |
| 1591052 | 6 | 10.3 | 34 | 130 |
| 1591053 | 10 | 11.5 | 57 | 165 |
| **A-2Y(L)2Y...ST III BD copper conductor 0.8 mm** | | | | |
| 1591150 | 2 | 8.6 | 20 | 100 |
| 1591151 | 4 | 10.9 | 40 | 160 |
| 1591152 | 6 | 11.5 | 60 | 175 |
| 1591153 | 10 | 13.5 | 101 | 235 |
| 1591154 | 20 | 17.3 | 201 | 390 |
| **A-2YF(L)2Y...ST III BD copper conductor 0.6 mm** | | | | |
| 1591028 | 2 | 8.3 | 11 | 67 |
| 1591029 | 4 | 10.4 | 23 | 104 |
| 1591030 | 6 | 11 | 34 | 130 |
| 1591031 | 10 | 12.5 | 57 | 180 |
| 1591032 | 20 | 16 | 113 | 300 |
| 1591033 | 30 | 19 | 170 | 420 |
| 1591035 | 50 | 22.3 | 283 | 620 |
| 1591037 | 100 | 30.5 | 565 | 1225 |
| **A-2YF(L)2Y...ST III BD copper conductor 0.8 mm** | | | | |
| 1591217 | 2 | 8.8 | 20 | 83 |
| 1591218 | 4 | 11.2 | 40 | 134 |
| 1591221 | 6 | 12 | 60 | 180 |
| 1591222 | 10 | 14 | 101 | 250 |
| 1591223 | 20 | 19.1 | 201 | 460 |
| 1591224 | 30 | 22 | 302 | 630 |
| 1591225 | 40 | 24 | 402 | 800 |
| 1591226 | 50 | 26 | 503 | 975 |
| 1591228 | 100 | 36 | 1005 | 1900 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Coaxial - RG




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

**Dielectric constant**
- Polyethylene (PE) 2.3-
Polyethylene, hollow (PE-ho) 1.5-
Polytetrafluoroethylene (PTFE) 2.1

**Minimum bending radius**
Fixed installation: 6 x outer diameter

**Specifications and approvals**
Similar to MIL-DTL17 H

**Temperature range**
Fixed installation: PE outer sheath:
-40°C to +80°C
Fixed installation: PVC outer sheath:
-40°C to +80°C
Fixed installation: fluoroplastic
-55°C to +250°C

## Benefits

- Coaxial cables allow distortion-free and low-attenuation transmission of signals with a high bandwidth.
- High frequencies

## Application range

- For applications with limited movements and for fixed installation in dry or damp interiors and outdoors
- For radio and computer systems, as well as all applications related to commercial radio-frequency technology and electronics

## Product features

- Flame-retardant

## Product Make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

| Article number | Article designation | Characteristic impedance in ohm | Capacity pF/m | Attenuation approx. dB/100 m at 200 MHz/400 MHz | Propagation rate (%) | Operating voltage 50 Hz eff. kV | Test voltage (kV) | Inner conductor material | Internal Ø | Dielectric material | Dielectric Ø | Outer conductor material | Outer cable sheath | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Characteristic impedance: 50 ohm** | | | | | | | | | | | | | | | | |
| 2170000 | RG-58 C/U | 50 +/- 2 Ω | 101 | 24 / 33 | 66 | 2 | 5 | CuLivz | 0.9 | PE | 2.95 | Cvz | PVC | 4.95 | 19.1 | 38 |
| 2170001 | RG-174 A/U | 50 +/- 2 Ω | 101 | 40 / 59 | 66 | 1.5 | 2 | StCuLibl | 0.48 | PE | 1.52 | Cvz | PVC | 2.80 | 5.4 | 12 |
| 2170002 | RG-178 B/U | 50 +/- 2 Ω | 95 | 63 / 93 | 70 | 0.7 | 2 | StCuLivs | 0.3 | PTFE | 0.86 | Cvs | FEP | 1.91 | 4.4 | 9 |
| 2170003 | RG-188 A/U | 50 +/- 2 Ω | 95 | 47 / 56 | 70 | 1.5 | 2 | StCuLivs | 0.51 | PTFE | 1.52 | Cvs | PTFE | 2.76 | 8.3 | 17.5 |
| 2170005 | RG-213 /U | 50 +/- 2 Ω | 101 | 10 / 15 | 66 | 5 | 10 | CuLibl | 2.25 | PE | 7.25 | Cbl | PVC | 10.30 | 75.8 | 157 |
| 2170006 | RG-214 /U | 50 +/- 2 Ω | 101 | 9 / 14 | 66 | 5 | 10 | CuLivs | 2.25 | PE | 7.25 | CvsCvs | PVC | 10.80 | 117.8 | 207 |
| 2170007 | RG-223 /U | 50 +/- 2 Ω | 101 | 23 / 34 | 66 | 2 | 3 | CuMvs | 0.89 | PE | 2.95 | CvsCvs | PVC | 5.50 | 38.5 | 60 |
| **Characteristic impedance: 75 ohm** | | | | | | | | | | | | | | | | |
| 2170016 | RG-6 A/U | 75 +/- 3 Ω | 67 | 14 / 20 | 66 | 2 | 5 | StCuMbl | 0.72 | PE | 4.7 | Cbl | PVC | 8.40 | 72 | 120 |
| 2170009 | RG-11 A/U | 75 +/- 3 Ω | 67 | 11 / 16 | 66 | 5 | 10 | CuLivz | 1.2 | PE | 7.3 | Cbl | PVC | 10.30 | 55.5 | 140 |
| 2170011 | RG-11 A/U outdoor | 75 +/- 3 Ω | 67 | 11 / 16 | 66 | 5 | 10 | CuLivz | 1.2 | PE | 7.3 | Cbl | PVC | 12.10 | 55.5 | 170 |
| 2170012 | RG-59 B/U | 75 +/- 3 Ω | 67 | 16.5/23 | 66 | 1.7 | 7 | StCuMbl | 0.6 | PE | 3.7 | Cbl | PVC | 6.15 | 25 | 57 |
| 2170010 | RG-187 A/U | 75 +/- 3 Ω | 65 | 47 / 56 | 70 | 1.5 | 2 | StCuLivs | 0.31 | PTFE | 1.52 | Cvs | PTFE | 2.80 | 7.3 | 17 |
| **Characteristic impedance: 100 Ohm** | | | | | | | | | | | | | | | | |
| 2170008 | RG-62 A/U | 93 +/- 5 Ω | 43 | 15 / 19 | 75 | 0.8 | 2 | StCuMbl | 0.65 | PE hollow | 3.7 | Cbl | PVC | 6.15 | 26 | 52 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Multi coaxial cabels RG 59 B/U




## Benefits

- In extended systems, the use of the RG 59 B/U multi-coaxial cable as a screened supply cable prevents an accumulation of individual cables running in parallel over long distances.
- This saves installation costs and provides greater mechanical protection for the each sensitive cable.

## Product features

- Multi-coaxial cables provide an easier installation than individual installation

## Product Make-up

- 2 x single coaxial cables type RG 59 B/U
- Twin cable
- PVC sheath
- Colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

**Based on**
Similar to MIL specification MIL-DTL17 H

**Minimum bending radius**
Fixed installation: 15 x outer diameter

**Temperature range**
Fixed installation: -40°C to +80°C

| Article number | Number of single cables x RG type | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Characteristic impedance: 75 ohm** | | | | |
| 2170056 | 2 x RG 59 B/U | 6.5 x 13.0 | 50 | 116 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Coaxial cabels RGB

**Info**

- Connecting Cable for Colour Monitors




## Benefits

- Low attenuation ensures a longer transmission distance
- Transmission of the red (R), green (G) and blue (B) colour signals

## Application range

- Colour monitor cable for PCs and CAD workstations, process visualisation
- For fixed installation in rooms (RGB CY..x Kx 0.4/1.8)
- For highly flexible applications in cable chains (energy supply chains) and continuously moving machine components (RGB-FD..x Kx 0.6L/2.4)

## Product Make-up

- Conductor: tinned-copper wire
- Dielectric: cellular polyolefin
- Outer conductor: copper braiding or tinned-copper wire wrapping
- Red (R), green (G), blue (B) elements - for RGB 5 x Kx 0.4/1.8 red, green, blue, white, black
- PVC outer sheath
  FD Version with PUR outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

**Mutual capacitance**
60 nF/km

**Minimum bending radius**
15 x outer diameter

**Characteristic impedance**
75 Ohm

**Temperature range**
-10 °C to +80 °C
Occasional flexing: -5°C to +70°C

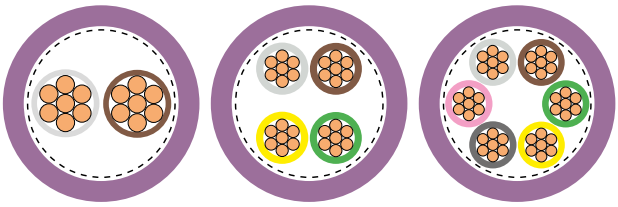
| Article number | Article designation | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **Fixed Installation** | | | | |
| 0034245 | RGB CY 3 x Kx 0,4/1,8 + 3 x 0,25 | 8.0 | 51 | 97 |
| 0034246 | RGB DY 5 x Kx 0,4/1,8 | 9.7 | 60 | 132 |
| **Flexible and highly flexible applications** | | | | |
| 0034247 | RGB-FD 3 x Kx 0,6L/2,4 | 10.8 | 29 | 100 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS LD

Flexible buscable with PVC outer sheath, for use in different bussystems



2170203 2170204 2170205

**Info**

- LD is a LAPP abbreviation for long distance

## Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

## Application range

- For fixed installation
  Maximum electromagnetic screening
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

## Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m

## Norm references / Approvals

- UNITRONIC® BUS LD A:
  UL versions with certification:
  UL/CSA type CMX acc. to UL 444
  and CSA C22.2 no. 214-02
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation: PE
- Colour code DIN 47100
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
Flexible use: 10 x outer diameter

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 186 ohm/km

**Minimum bending radius**
Fixed installation: 8 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
100 - 120 Ohm

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -5°C to +70°C

| Article number | Article designation | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **for fixed installation** | | | | | |
| 2170203 | UNITRONIC® BUS LD | 1 x 2 x 0,22 | 5.7 | 18 | 37 |
| 2170204 | UNITRONIC® BUS LD | 2 x 2 x 0,22 | 7.1 | 28 | 45 |
| 2170205 | UNITRONIC® BUS LD | 3 x 2 x 0,22 | 7.2 | 37 | 72 |
| **For fixed installation - UL/CSA CMX certification** | | | | | |
| 2170803 | UNITRONIC® BUS LD A | 1 x 2 x 0,22 | 5.7 | 18 | 39 |

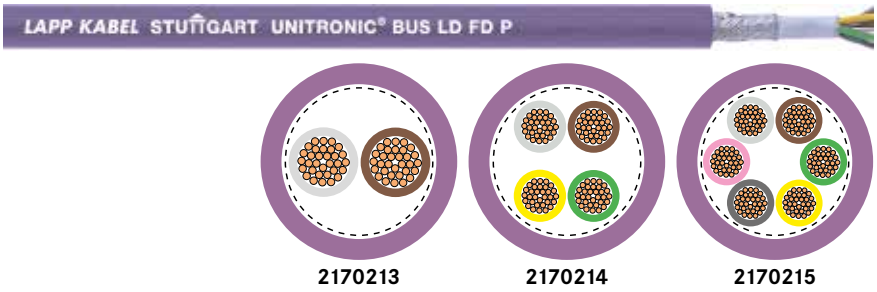
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS LD FD P

Highly flexible buscable with PUR outer sheath, for use in different bussystems

**Info**

- LD is a LAPP abbreviation for long distance




2170213 2170214 2170215

## Benefits

- Suitable for multiple Bus systems based on RS485 / RS422
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Under consideration of the temperature range also suitable for outdoor use

## Application range

- For highly flexible applications (cable chains, moving machine parts)
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)

## Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m
- UV-resistant (but colour may change after some time)

## Norm references / Approvals

- UNITRONIC® BUS LD FD P A: UL versions with certification: UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according IEC 60332-1-2

## Product Make-up

- Extra-fine wire strand made of bare copper
- Colour code DIN 47100
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz) max. 60 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 159.8 ohm/km

**Minimum bending radius**
Fixed installation: 6 x core diameter
One bend at end of core: 3 x cable diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
100 - 120 Ohm

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

| Article number | Article designation | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **For highly flexible applications** | | | | | |
| 2170213 | UNITRONIC® BUS LD FD P | 1 x 2 x 0,25 | 6 | 18 | 39 |
| 2170214 | UNITRONIC® BUS LD FD P | 2 x 2 x 0,25 | 7.9 | 33 | 65 |
| 2170215 | UNITRONIC® BUS LD FD P | 3 x 2 x 0,25 | 8 | 39 | 77 |
| **For highly flexible applications - with UL/CSA CMX certification** | | | | | |
| 2170813 | UNITRONIC® BUS LD FD P A | 1 x 2 x 0,25 | 6.2 | 18 | 39 |
| 2170814 | UNITRONIC® BUS LD FD P A | 2 x 2 x 0,25 | 8.3 | 33 | 65 |
| 2170815 | UNITRONIC® BUS LD FD P A | 3 x 2 x 0,25 | 8.4 | 39 | 77 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS ASI

AS-INTERFACE cables for networking systems in the field




**Info**

- "LD" = Long Distance

## Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- The rubber versions are halogen-free

## Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants

## Product features

- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal)
- The conductor is contacted by "piercing technology" within the ASI modules
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables)

## Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC A version with UL/CSA (CMX) certification
- UL/CSA version: CMG c(UL)us or (UL)CL2 or AWM 300V FT4 certified

## Product Make-up

- Conductor: fine-wire tinned-copper strands
- Core insulation: blue and brown
- Outer sheath:
  rubber (G), halogenfree
  thermoplastic elastomers (TPE)
  PVC
- Outer sheath: yellow (RAL 1023), black (RAL 9005), red (RAL 3000)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
Yellow: 300 V (not for power applications)
Black: 300 V (not for power applications)
Red: 300 V

**Conductor resistance**
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

**Minimum bending radius**
Fixed installation: 12 mm
Flexible use 24 mm

**Test voltage**
Core/core: 2000 V

**Temperature range**
Dependent on outer sheath material:
PVC: -30°C to +90°C
Other materials: -40°C to +85°C
During installation:
PVC -20 °C to +90 °C
Other materials:
-30 °C to +85 °C

| Article number | Article designation | Outer sheath colour | Application | Number of cores and mm² per conductor | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **Rubber/EPDM** | | | | | | |
| 2170228 | UNITRONIC® BUS ASI (G) | yellow | Data and power transmission | 2 x 1,5 | 29 | 85 |
| 2170229 | UNITRONIC® BUS ASI (G) | black | Transmission of 30 V DC auxiliary power | 2 x 1,5 | 29 | 85 |
| 21700230 | UNITRONIC® BUS ASI (G) | grey | Transmission of 48 V DC auxiliary power | 2 x 1,5 | 29 | 67 |
| 2170371 | UNITRONIC® BUS ASI LD (G) | yellow | Data and power transmission | 2 x 2,5 | 48 | 85 |
| 2170372 | UNITRONIC® BUS ASI LD (G) | black | Transmission of 30 V DC auxiliary power | 2 x 2,5 | 48 | 85 |
| 21700373 | UNITRONIC® BUS ASI LD (G) | grey | Transmission of 48 V DC auxiliary power | 2 x 2,5 | 48 | 85 |
| **TPE** | | | | | | |
| 2170230 | UNITRONIC® BUS ASI (TPE) | yellow | Data and power transmission | 2 x 1,5 | 29 | 64 |
| 2170231 | UNITRONIC® BUS ASI (TPE) | black | Transmission of 30 V DC auxiliary power | 2 x 1,5 | 29 | 64 |
| 2170232 | UNITRONIC® BUS ASI (TPE) | red | Transmission of 230 V AC auxiliary power | 2 x 1,5 | 29 | 64 |
| **PVC UL/CSA** | | | | | | |
| 2170842 | UNITRONIC® BUS ASI (PVC) A | yellow | Data and power transmission | 2 x 1,5 | 29 | 70 |
| 2170843 | UNITRONIC® BUS ASI (PVC) A | black | Transmission of 30 V DC auxiliary power | 2 x 1,5 | 29 | 70 |
| 2170844 | UNITRONIC® BUS ASI (PVC) A | red | Transmission of 230 V AC auxiliary power | 2 x 1,5 | 29 | 70 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS ASI FD

High flexible AS-INTERFACE cables for networking systems in the field

**Info**

- "FD" = suitable for cable chains
- "LD" = Long Distance




## Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (cable chains, moving machine parts)
- High oil-resistance

## Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring

## Product features

- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal)
- The conductor is contacted by "piercing technology" within the ASI modules
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables)

## Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549 and 10586

## Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: halogen-free compound
- Outer sheath: TPE PUR
- Outer sheath: yellow (RAL 1023), black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
300 V (not for power applications)

**Conductor resistance**
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

**Minimum bending radius**
Fixed installation: 12 mm
Flexing without fixing: 24 mm
Flexing with fixing: 60 mm (15 x D)

**Test voltage**
Core/core: 2000 V

**Temperature range**
Fixed installation:
-40°C to +80°C (TPE +105°C)
Flexing without fixing:
-30 °C to +70 °C (TPE +105 °C)

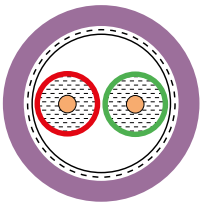
| Article number | Article designation | Outer sheath colour | Application | Number of cores and mm² per conductor | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **For highly flexible applications (cable chains, moving machine parts)** | | | | | | |
| 2170357 | UNITRONIC® BUS ASI FD P FRNC | yellow | Data and power transmission | 2 x 1,5 | 29 | 64 |
| 2170358 | UNITRONIC® BUS ASI FD P FRNC | black | Transmission of 30 V DC auxiliary power | 2 x 1,5 | 29 | 64 |
| 21700359 | UNITRONIC® BUS ASI FD P FRNC | grey | Transmission of 48 V DC auxiliary power | 2 x 1,5 | 29 | 64 |
| 2170317 | UNITRONIC® BUS ASI LD FD P | yellow | Data and power transmission | 2 x 2,5 | 48 | 74 |
| 2170318 | UNITRONIC® BUS ASI LD FD P | black | Transmission of 30 V DC auxiliary power | 2 x 2,5 | 48 | 74 |
| 21700319 | UNITRONIC® BUS ASI LD FD P GY | grey | Transmission of 48 V DC auxiliary power | 2 x 2,5 | 48 | 74 |
| **For high flexible application - TPE UL/CSA (AWM)** | | | | | | |
| 2170830 | UNITRONIC® BUS ASI FD (TPE) A | yellow | Data and power transmission | 2 x 1,5 | 29 | 64 |
| 2170831 | UNITRONIC® BUS ASI FD (TPE) A | black | Transmission of 30 V DC auxiliary power | 2 x 1,5 | 29 | 64 |
| 21700832 | UNITRONIC® BUS ASI FD (TPE) A | grey | Transmission of 48 V DC auxiliary power | 2 x 1,5 | 29 | 64 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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# UNITRONIC® BUS PB TRAY

PROFIBUS cable with PLTC-ER approval for unprotected use on cable trays



2170856

**Info**

- PLTC-ER (power limited tray cable - epxosed run)

## Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

## Application range

- For fixed installation or applications with occasional movements
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m
- UV-resistant UL SUN RES
- Flame retardant acc. UL 1685 - FT4 (vertical tray)

## Norm references / Approvals

- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

## Product Make-up

- Bare copper wire, 0,64 mm diameter
- Core colours: red, green
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC inner sheath and outer sheath
- Colour: violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(1 kHz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Impedance**
150 +/- 15 Ohm

**Conductor resistance**
(loop): max. 110 ohm/km

**Minimum bending radius**
Fixed installation: 8 x outer diameter

**Test voltage**
Core/core: 2000 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS PB TRAY** | | | | | |
| 2170856 | UNITRONIC® BUS PB TRAY | 1x2x0,64 | 8.4 | 26 | 82 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS PB

PROFIBUS cables for fixed applications

**Info**

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA certifications
- CPR: Article number choice under www.lapp.com




## Application range

- For fixed installation
  Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

## Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

## Product Make-up

- FC: Fast Connect cable design
- P: Polyurethane
  H: Halogen-free
- PE: polyethylene outer sheath, black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 186 Ohm/km.
see also datasheet

**Minimum bending radius**
Fixed installation: see data sheet

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
150 ± 15 Ohm

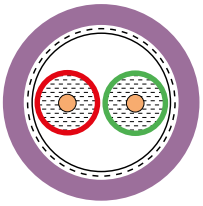
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Conventional cable makeup** | | | | | |
| 2170220 | UNITRONIC® BUS PB | 1 x 2 x 0.64 | 8 | 30.1 | 74 |
| 2170233 | UNITRONIC® PB PE | 1 x 2 x 0.64 | 8 | 30.1 | 57 |
| 2170226 | UNITRONIC® BUS PB H 7-W | 1 x 2 x 0.64 | 8 | 30.1 | 55 |
| 2170225 | UNITRONIC® BUS PB COMBI 7-W | 1 x 2 x 0,64 Ø + 3 x 1,0 mm² | 9.8 | 59 | 92 |
| **Conventional cable makeup - UL/CSA CMX certification** | | | | | |
| 2170219 | UNITRONIC® BUS PB A | 1 x 2 x 0.64 | 8 | 30.1 | 57 |
| **Conventional cable makeup - UL/CSA CMG certification** | | | | | |
| 2170824 | UNITRONIC® BUS PB 7-W A | 1 x 2 x 0.64 | 8 | 30.1 | 55 |
| **Fast Connect** | | | | | |
| 2170333 | UNITRONIC® BUS PB PE FC | 1 x 2 x 0.64 | 8 | 26 | 67 |
| **Fast Connect - UL/CSA CMX certification** | | | | | |
| 2170330 | UNITRONIC® BUS PB P FC | 1 x 2 x 0.64 | 8 | 26 | 71 |
| **Fast Connect cable makeup - UL/CSA CMG certification** | | | | | |
| 2170820 | UNITRONIC® BUS PB FC | 1 x 2 x 0.64 | 8 | 26 | 84 |
| 2170826 | UNITRONIC® BUS PB 7-W FC | 1 x 2 x 0.64 | 8 | 26 | 67 |
| 2170326 | UNITRONIC® BUS PB-H FC | 1 x 2 x 0.64 | 8 | 26 | 72 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB ROBUST

PROFIBUS cable - resistant to a wide range of chemical media



2170620

**Info**

- Excellent weather resistance
- Good chemical resistance

## Benefits

- Robust PROFIBUS cable for use under harsh environmental conditions

## Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- Fixed Installation

## Product features

- Significantly extended use and application areas, water and chemical resistance for use in industrial conditions.
- High resistance to tensides, soaps etc.
- UV-resistant
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: Specially formulated TPE, violet (RAL 4001)
- With conventional cable design

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(1 kHz): approx. 28.5 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 75 mm

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
-40°C to +80°C

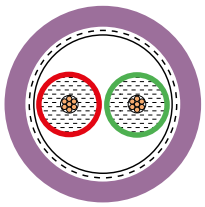
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **for fixed installation** | | | | | |
| 2170620 | UNITRONIC® BUS PB ROBUST | 1 x 2 x 0.64 | 8 | 26 | 55 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB 105

PROFIBUS cable with an extended temperature range up to +105°C



2170630

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
Approx. 28.5 nF/km

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 45 mm once
Flexing: 65 mm

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
-30°C to +105°C

## Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

## Product features

- High temperature resistance
- Flame-retardant according IEC 60332-1-2
- Oil-resistant

## Product Make-up

- Stranded conductor, 7-wire, bare
- Conductor diameter: 0,64 mm (AWG24)
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, violet (RAL 4001)

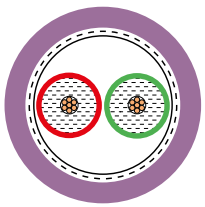
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS PB 105** | | | | | |
| 2170630 | UNITRONIC® BUS PB 105 | 1 x 2 x 0.64 | 8 | 30.1 | 72 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS PB 105 plus

PROFIBUS cable with an extended temperature range up to +105°C; short term +120°C



2170635

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 45 mm once
Flexing: 65 mm

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V eff.

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
Fixed installation: -40°C to +105°C
Short-term: up to +120 °C

## Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

## Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas

## Product features

- Permanent load up to +105°C, temporary load +120°C

## Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)

## Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: polypropylene (PP)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE, violet (RAL 4001)

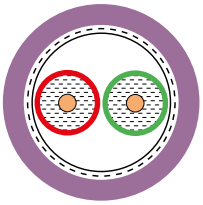
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® BUS PB 105 plus** | | | | |
| 2170635 | UNITRONIC® BUS PB 105 plus | 1x2x0,64 | 8 | 30.1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS PB HEAT 180

PROFIBUS cable with an extended temperature range up to +180°C



3031981

## Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

## Application range

- Fixed Installation
- For use in high temperature areas with up to 180 °C

## Product features

- High oil-resistance

## Product Make-up

- Solid and bare copper conductor
- Wire insulation Fluorethylen
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: FEP, violet (RAL 4001)

## Suitable connectors

- Sub-D Bus-Connectors

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
approx. 28 nF / km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Repeated: 7 x Outer Diameter
Single: 5 x Outer Diameter

**Test voltage**
3600 V DC (3 sec.)

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
-50 to +180°C

| Article number | Article designation | Number of pairs and conductor diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® BUS PB HEAT 180** | | | | |
| 3031981 | UNITRONIC® BUS PB HEAT 180 | 1 x 2 x 0,64 | 21.7 | 64.1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
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# UNITRONIC® BUS PB FRNC FC

FRNC PROFIBUS cable UL/CSA certified




**Info**

- FRNC = Flame Retardant Non Corrosive
  - Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
  - Minimisation of damage to buildings and production facilities
  - Safety for staff and in areas with high density of people

## Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Fast Connect (FC) cable design

## Application range

- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

## Product features

- Halogen-free
- Vertical Tray Flame Test according to UL 1685
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- UL/CSA-certified

## Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Inner sheath, screening foil and braiding
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Certifications**
UL/CSA (CM)

**Mutual capacitance**
Approx. 28.5 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
80 mm

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
-30°C to +80°C

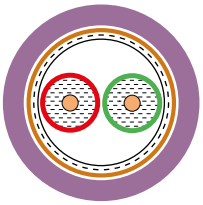
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Fixed Installation** | | | | | |
| 2170996 | UNITRONIC® BUS PB FRNC FC | 1 x 2 x 0.64 | 8 | 30.1 | 74 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB ARM

Armored PROFIBUS cable for use in harsh industrial environments



2170247

## Benefits

- EMC-optimised design

## Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- Flame-retardant according IEC 60332-1-2
- UV-resistant

## Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally Outer sheath: PVC, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 7.5 x outer diameter
Fixed installation: 3.5 x cable diameter once

**Test voltage**
3600 V DC (3 sec.)

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
-40°C to +70°C

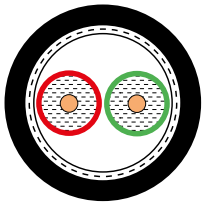
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS PB ARM** | | | | | |
| 2170247 | UNITRONIC® BUS PB ARM | 1 x 2 x 0.65 | 11.1 | 86.9 | 131 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB Yv

PROFIBUS cable with reinforced PVC outer sheath for outdoor/direct burial use



2170223

## Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- Reinforced outer sheath made of PVC

## Product Make-up

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: reinforced PVC, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 75 mm once
Fixed installation: 150 mm

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

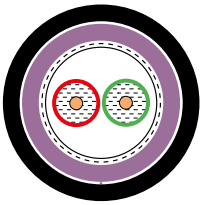
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Suitable for outdoor use and direct burial** | | | | | |
| 2170223 | UNITRONIC® BUS PB Yv | 1 x 2 x 0.64 | 9.4 | 30.1 | 106 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB YY

PROFIBUS cable with double PVC outer sheath for outdoor/direct burial use - Fast Connect cable make up



2170236

## Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- Double PVC outer sheath

## Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.4 mm
- Outer sheath, PVC, black RAL (9005), outer diameter: 9.5 mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 75 mm once
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

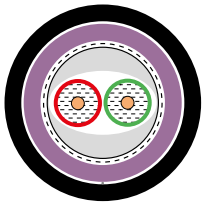
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Suitable for outdoor use and direct burial** | | | | | |
| 2170236 | UNITRONIC® BUS PB YY | 1 x 2 x 0.64 | 9.5 | 30.1 | 87 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB BURIAL FC

PROFIBUS cable with double outer sheath for outdoor/direct burial use



2170323

## Benefits

- Fast Connect (FC) cable design
- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- Second PE outer sheath

## Product Make-up

- Solid and bare copper conductor
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 8.0 mm
- Outer sheath, PE, black RAL (9005), outer diameter: 10.8 mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 3.5 x cable diameter once
Fixed installation: 7.5 x outer diameter

**Test voltage**
3600 V DC (3 sec.)

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
-40 °C to +60 °C

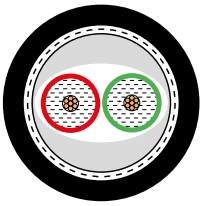
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Suitable for outdoor use and direct burial** | | | | | |
| 2170323 | UNITRONIC® BUS PB BURIAL FC | 1 x 2 x 0.64 | 10.8 | 26 | 115 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB Y 7-W FC BK

UV-resistant PROFIBUS cable for outdoor applications



2170310

## Benefits

- Fast Connect (FC) cable design
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- UV-resistant and weather-resistant
- Resistant to acids, alkalis and certain oils at room temperature

## Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, black RAL (9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

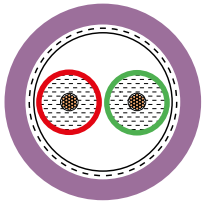
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS PB Y 7-W FC BK** | | | | | |
| 2170310 | UNITRONIC® BUS PB Y 7-W FC BK | 1 x 2 x 0.64 | 7.8 | 30.1 | 80 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS PB FD P

Halogenfree, highly flexible PROFIBUS cable



2170222

## Benefits

- Due double screening it is suitable for installation in electromagnetically demanding areas
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Torsion movement in WTG (wind turbine generator)**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
65 mm

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

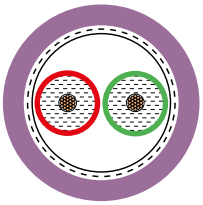
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **For highly flexible applications (e.g. cable chains) - conventional cable assembly** | | | | | |
| 2170222 | UNITRONIC® BUS PB FD P | 1 x 2 x 0.64 | 8 | 30.1 | 64 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB FD P A

Halogenfree, highly flexible PROFIBUS cable - UL/CSA certified



2170822

**Info**

- A for Advanced
  here: UL and CSA certifications

## Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

## Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

## Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Torsion movement in WTG (wind turbine generator)**
TW-0 & TW-2, refer to Appendix T0

**Minimum bending radius**
65 mm

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

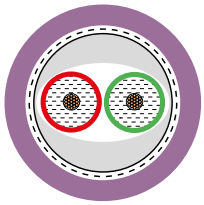
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Highly flexible application** | | | | | |
| 2170822 | UNITRONIC® BUS PB FD P A | 1 x 2 x 0.64 | 8 | 30.1 | 58 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB FD P FC

Halogenfree, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified



2170322

## Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)

## Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

## Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Flexing: 15 x outer diameter

**Test voltage**
3600 V DC (3 sec.)

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Highly flexible application** | | | | | |
| 2170322 | UNITRONIC® BUS PB FD P FC | 1 x 2 x 0.64 | 8 | 26 | 79 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB FD FRNC FC

Flame retardant, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified




## Benefits

- Fast Connect (FC) system
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

## Product features

- Halogen-free
- Oil-resistant
- Vertical Tray Flame Test according to UL 1685
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- The cable is UL/CSA-certified (CM)

## Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
nom. 28 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

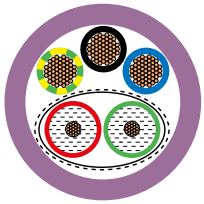
| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|---|
| **UNITRONIC® BUS PB FD FRNC FC** | | | | |
| 2170997 | UNITRONIC® BUS PB FD FRNC FC | 1x2x0,64 | 8 | 26 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB FD P COMBI

Highly flexible, halogenfree PROFIBUS HYBRID cables

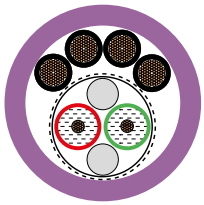


2170227

# UNITRONIC® BUS PB FD P HYBRID



2170495

## Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (cable chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according IEC 60332-1-2

## Product Make-up

**UNITRONIC® BUS PB FD P COMBI**

- Fine-wire, bare copper strand
- 1x2x0.64: red, green
  3x1.0 (AWG18): grenn/yellow, black, blue
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

**UNITRONIC® BUS PB FD P HYBRID**

- Fine-wire, bare copper strand
- 1x2x0.64 : red, green
  4 x 1.5 (AWG16): black with white numbers
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications) 100 V

**UNITRONIC® BUS PB FD P HYBRID**
Flexing: 15 x outer diameter

**Test voltage**
**UNITRONIC® BUS PB FD P COMBI**
Core/core: 600 V
**UNITRONIC® BUS PB FD P HYBRID**
Core/core: 600 V
Core/screen: 600 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
**UNITRONIC® BUS PB FD P COMBI**
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C
**UNITRONIC® BUS PB FD P HYBRID**
Flexing: -30°C to +60°C
Fixed installation: -40°C to +70°C

| Article number | Article designation | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS PB FD P COMBI** | | | | | |
| 2170227 | UNITRONIC® BUS PB FD P COMBI | 1 x 2 x 0.64 Ø + 3 x 1.0 mm² | 10.1 | 59 | 125 |
| **UNITRONIC® BUS PB FD P HYBRID** | | | | | |
| 2170495 | UNITRONIC® BUS PB FD P HYBRID | 1 x 2 x 0.64 Ø + 4 x 1.5 mm² | 11.3 | 89 | 148 |

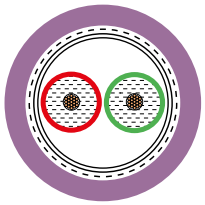
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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DALI-2 DUNITRONIC BUS

# UNITRONIC® BUS PB TORSION

Flame retardant, highly flexible PROFIBUS cable for torsion load



2170332

## Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- TORSION: for torsional stress, e.g. robot application; ± 180° per 1 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- Certification: UL type CMX in accordance with UL 444

## Product Make-up

- Stranded bare copper wire
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
(not for power applications)
300 V

**Torsion movement in WTG (wind turbine generator)**
Max. torsion load
± 180°/m

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

**Test voltage**
3600 V DC (3 sec.)

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Operating temperature: -25°C to 75°C
Storage temp.: -40°C to 80°C

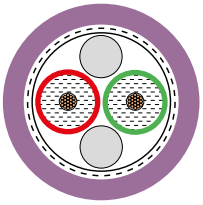
| Article number | Article designation | Number of cores and mm² per conductor | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|---|
| **Highly flexible application** | | | | | | |
| 2170332 | UNITRONIC® BUS PB TORSION | 1 x 2 x 0.38 | 1 x 2 x 0.38 | 8 | 31 | 66 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS PB FESTOON

PROFIBUS cable for cable trolley applications



2170331

## Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

## Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

## Product features

- FESTOON: for cable trolley (festoon)
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

## Norm references / Approvals

- With UL/CSA certification (CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

## Product Make-up

- Outer sheath: special PVC compound

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz): max. 30 nF/km

**Peak operating voltage**
600 V (not for power applications)

**Minimum bending radius**
Flexing: 70 mm
Fixed installation: 30 mm once

**Test voltage**
Core/core: 2000 V

**Characteristic impedance**
150 ± 15 Ohm

**Temperature range**
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

| Article number | Article designation | Number of cores and mm² per conductor | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|---|
| **Highly flexible application** | | | | | | |
| 2170331 | UNITRONIC® BUS PB Festoon | 1 x 2 x 0.64 | 1 x 2 x 0.64 | 8 | 26 | 64 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

**Info**

- Optional with LED diagnostic
- M12, REPEATER and ATEX version
- Versions with 2nd Sub-D interface




**21700507**




**21700503**



**LED**
**21700530**
**21700529**




**21700520**



**21700505**

## Benefits

- Easy connection with tried-and-tested M12 / screw terminal technology
- Sensor/ ac
- Terminating resistor (integrated) can be switched
- REPEATER version: Regeneration of data signal (slope, power and mark-to-space ratio)
- ATEX version: For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)

## Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA / REPEATER 100 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected
- REPEATER version: Easy extension of the PROFIBUS network:
  - up to 3 repeaters
  - 1 additional PROFIBUS segment
  - galvanic isolation

## Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560
- ATEX version: DIN EN 60079-0:2006, DIN 60079-15:2005 (category 3G zone 2)

## Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- For cable outer diameter: 5 8 mm / M12 B-coded cordsets
- LED Version indicate: bus operation - (green) station transmission - (blue) terminating resistor "on" - (orange)

## Suitable cables

- UNITRONIC® BUS PB
- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**
54 mm x 40 mm x 17 mm - 35°
64 mm x 40 mm x 17 mm - 90°
68 mm x 40 mm x 17 mm - 180°
70 mm x 40 mm x 17 mm - M12
(LxWxH)

**Connection type**
Screwing
M12

**Protection rating**
IP 20

**Terminating resistor**
150 Ω

**Interfaces**
Sub-D socket, 9-pin
Terminal blocks up to 1.0 mm² /M12
B-coded

**Permissble ambient conditions**
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C

| Article number | Article designation | Version | PG-Interface | Diagnostic LEDs | PU |
|---|---|---|---|---|---|
| **35° cable outlet** | | | | | |
| 21700507 | ED-PB-35 | | no | no | 1 |
| 21700506 | ED-PB-35-PG | | yes | no | 1 |
| **90° cable outlet** | | | | | |
| 21700504 | ED-PB-90 | | no | no | 1 |
| 21700503 | ED-PB-90-PG | | yes | no | 1 |
| 21700530 | ED-PB-90-LED | | no | yes | 1 |
| 21700529 | ED-PB-90-PG-LED | | yes | yes | 1 |
| 21700541 | ED-PB-90-RP-PG | REPEATER | yes | yes | 1 |
| **180° (AX) cable outlet** | | | | | |
| 21700505 | ED-PB-AX | | no | no | 1 |

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# EPIC® DATA PB Sub-D FC

PROFIBUS Connectors Fast Connect




21700513




21700502



LED
21700547
21700546




21700544

**Info**

- New innovative insulation displacement terminals suitable for solid and flexible conductors (90° and 180° versions )
- Versions with 2nd Sub-D interface
- Optional with LED diagnostic

## Benefits

- Quick installation with Fast Connect ('FC') technology
- Sensor/ ac
- No loose parts
- Visual bus connection control
- Terminating resistor (integrated) can be switched

## Product features

- Fully compatible with market standard
- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected

## Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560

## Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Max. cable outer diameter: 8 mm
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- LED Version indicate:
  bus operation - (green)
  station transmission - (blue)
  terminating resistor "on" - (orange)

## Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP

## Suitable tools

- FC STRIP stripping tool
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**
95 mm x 70 mm x 17 mm - 35°
72 mm x 40 mm x 17 mm - 90°
70 mm x 35 mm x 17 mm - 180°
(LxWxH)

**Connection type**
Fast Connect

**Protection rating**
IP 20

**Terminating resistor**
150 Ω

**Interfaces**
Sub-D socket, 9-pin
PROFIBUS FC standard cable,
Ø 0.64 mm

**Permissble ambient conditions**
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C

| Article number | Article designation | PG-Interface | Diagnostic LEDs | PU |
|---|---|---|---|---|
| **90° cable outlet for solid/ 7-/ 19-wire stranded conductor** | | | | |
| 21700502 | ED-PB-90-FC | no | no | 1 |
| 21700501 | ED-PB-90-PG-FC | yes | no | 1 |
| 21700547 | ED-PB-90-LED-FC | no | yes | 1 |
| 21700546 | ED-PB-90-PG-LED-FC | yes | yes | 1 |
| **180° (AX) cable outlet for solid/ 7-/ 19-wire stranded conductor** | | | | |
| 21700544 | ED-PB-AX-FC | no | no | 1 |

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# EPIC® DATA PB Sub-D PRO

PROFIBUS Connectors full-metall M12 connection /spring type connection

**Info**

- For high mechanical stress
- High EMC protection



21700563



21700562



21700565

## Benefits

- Optimum EMC protection
- Robust housing material for harsh environments
- No loose parts
- Cost-efficient due to quick installation (Plug & Play)
- Terminating resistor (integrated) can be switched

## Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Max. transmission rate 12 Mbit/s possible
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)

## Norm references / Approvals

- IEC 61158, IEC 61784

## Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- With additional Sub-D port for programming/diagnostic 'PG' (35° and 90° version)
- With EMC connector protection (PG port)
- M12 version: 5-pin connector, M12 B-coded

## Suitable cables

- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12]

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**
see technical data sheet

**Connection type**
M12 or
Internal spring type terminal

**Protection rating**
IP 30

**Terminating resistor**
150 Ω

**Interfaces**
Sub-D socket, 9-pin
Spring terminal for solid conductors / M12 B-coded
0,08 - 0,5 mm² (AWG28 - AWG14)
Cable diameter: 8 - 9 mm

**Permissble ambient conditions**
Operating temperature:
-20°C to +70°C

| Article number | Article designation | Connection type | PG-Interface | PU |
|---|---|---|---|---|
| **EPIC® DATA PB Sub-D PRO** | | | | |
| 21700563 | ED-PB-AX-M12-PRO | M12 | no | 1 |
| 21700561 | ED-PB-35-PG-M12-PRO | M12 | yes | 1 |
| 21700562 | ED-PB-90-PG-M12-PRO | M12 | yes | 1 |
| **180° (AX) cable outlet** | | | | |
| 21700566 | ED-PB-AX-M12-PRO | Internal spring type | no | 1 |
| **35° cable outlet** | | | | |
| 21700564 | ED-PB-35-PG-ST-PRO | Internal spring type | yes | 1 |
| **90° cable outlet** | | | | |
| 21700565 | ED-PB-90-PG-ST-PRO | Internal spring type | yes | 1 |

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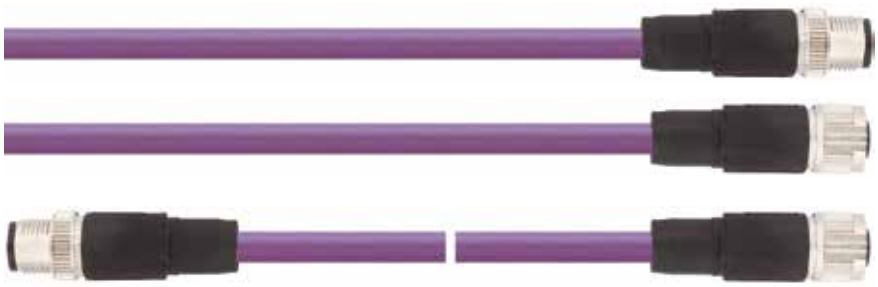
# UNITRONIC® BUS PB M12 | M12-M12

PROFIBUS cable: M12 plug/socket on free conductor end

PROFIBUS Cable: M12 connector on M12 socket

**Info**

- Other types are available at www.lapp.com or on request



## Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Application range

- Mechanical and plant engineering

## Product features

- 2-core PROFIBUS cable, shielded
- Connector M12, B-coded with quick locking system
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

## Product Make-up

- Core cross section: 0.25 mm²
- Core colours: red, green
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 7.8 mm
- Shielded version
- Shielding is conducted over the knurl

## Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA PB M12
- EPIC® DATA PB M12/M12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -30°C to +80°C
Cable chain application ≤ 70 °C

**Coding**
B - inverse

**Rated current (A)**
4 A

| Article number | Article designation | Length (m) | Number of pins | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug** | | | | | | |
| 22260767 | AB-PB-M12MS-2,0PUR | 2 | 2 | straight | 250 | 1 |
| 22260768 | AB-PB-M12MS-5,0PUR | 5 | 2 | straight | 250 | 1 |
| 22260769 | AB-PB-M12MS-10,0PUR | 10 | 2 | straight | 250 | 1 |
| 22260956 | AB-PB-M12MA-2,0PUR | 2 | 2 | angled | 250 | 1 |
| **Socket** | | | | | | |
| 22260770 | AB-PB-2,0PUR-M12FS | 2 | 2 | straight | 250 | 1 |
| 22260771 | AB-PB-5,0PUR-M12FS | 5 | 2 | straight | 250 | 1 |
| 22260772 | AB-PB-10,0PUR-M12FS | 10 | 2 | straight | 250 | 1 |
| **Plug on socket** | | | | | | |
| 22260955 | AB-PB-M12MS-0,2PUR-M12FS | 0.2 | 2 | straight-straight | 250 | 1 |
| 22260773 | AB-PB-M12MS-0,3PUR-M12FS | 0.3 | 2 | straight-straight | 250 | 1 |
| 22260774 | AB-PB-M12MS-1,0PUR-M12FS | 1 | 2 | straight-straight | 250 | 1 |
| 22260775 | AB-PB-M12MS-2,0PUR-M12FS | 2 | 2 | straight-straight | 250 | 1 |
| 22260869 | AB-PB-M12MS-3,0PUR-M12FS | 3 | 2 | straight-straight | 250 | 1 |
| 22260776 | AB-PB-M12MS-5,0PUR-M12FS | 5 | 2 | straight-straight | 250 | 1 |
| 22260777 | AB-PB-M12MS-10,0PUR-M12FS | 10 | 2 | straight-straight | 250 | 1 |
| 22260907 | AB-PB-M12MS-15,0PUR-M12FS | 15 | 2 | straight-straight | 250 | 1 |
| 22260908 | AB-PB-M12MS-20,0PUR-M12FS | 20 | 2 | straight-straight | 250 | 1 |
| 22260079 | AB-PB-M12MA-5,0PUR-M12FA | 5 | 2 | angled-angled | 250 | 1 |
| 22260904 | AB-PB-M12MA-10,0PUR-M12FA | 10 | 2 | angled-angled | 250 | 1 |
| 22260905 | AB-PB-M12MA-15,0PUR-M12FA | 15 | 2 | angled-angled | 250 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA PB M12

Field mountable M12 BUS-connectors, shielded for PROFIBUS



## Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

## Product features

- Screened version
- Connector M12, B-coded
- PG9- / PG11-thread
- Screw connection

## Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP
- UNITRONIC® BUS PB M12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket -40°C to +85°C

**Coding**
B - inverse (PROFIBUS)

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Conductor cross-section (mm²) | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug, straight** | | | | | | |
| 22260653 | AB-C5-M12MSB-PG9-SH-AU | 5 | 0.25 - 0.75 | 6.0 - 8.5 | 60 | 1 |
| 22262078 | AB-C5-M12MSB-PG11-SH-AU | 5 | 0.25 - 0.75 | 8.0 - 10.0 | 60 | 1 |
| **Socket, straight** | | | | | | |
| 22260646 | AB-C5-M12FSB-PG9-SH-AU | 5 | 0.25 - 0.75 | 6.0 - 8.5 | 60 | 1 |
| 22260889 | AB-C5-M12FSB-PG11-SH-AU | 5 | 0.25 - 0.75 | 8.0 - 10.0 | 60 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA PB M12/M12

PROFIBUS M12 control cabinet feed-through, shielded



22262021

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

**Material**
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket
-25 °C to +85 °C

**Coding**
B - inverse (PROFIBUS)

**Rated current (A)**
4 A

### Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

### Application range

- Mechanical and plant engineering

### Product features

- For PROFIBUS applications
- Bipolar/screw mounting

### Product Make-up

- 5-pin control cabinet feed-through, M12 B-coded
- M12 plug on M12 socket
- Screened version

### Suitable cables

- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12

### Suitable connectors

- EPIC® DATA PB M12 352

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Control cabinet feed through** | | | | |
| 22262021 | AB-C5-DSI-M12MSB-M12FSB-M16-SH | 5 | 60 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA PB TR M12

M12 Terminating resistor for PROFIBUS



22260722



22261001

**Info**

- Fully suitable for industrial use

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description:
Terminal resistor

**Protection rating**
IP65/IP67 (plug)
IP 67 (socket)

**Ambient temperature (operation)**
-25 °C to +90 °C (plug)
-40 °C to +85 °C (socket)

**Contact material**
CuSn

**Coding**
B - inverse (PROFIBUS)

**Rated current (A)**
4 A

### Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

### Application range

- Mechanical and plant engineering

### Product features

- 150 Ω terminating resistor for PROFIBUS

### Product Make-up

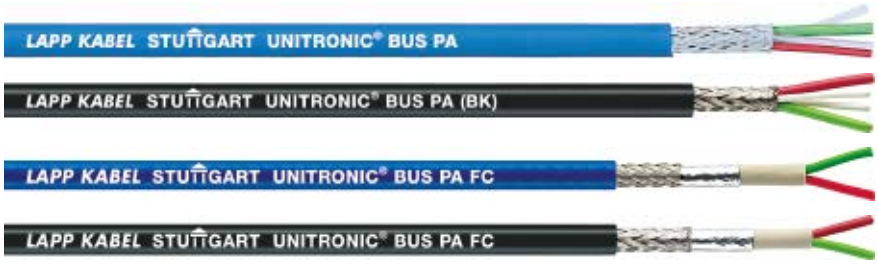
- Straight connector M12 with integrated termination resistor
- Straight connector M12, with integrated termination resistor, shielded

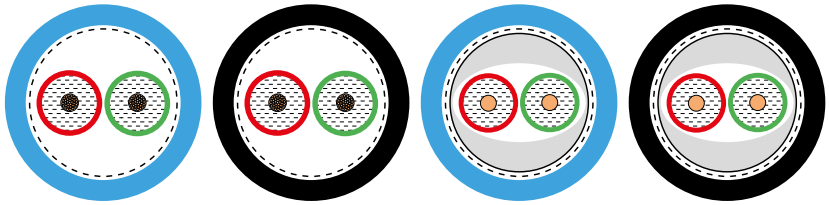
| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Plug, unshielded (terminating resistor)** | | | | |
| 22260722 | AB-C4-M12MS-PB-TR | 4 | 60 | 5 |
| **Socket, shielded (terminating resistor)** | | | | |
| 22261001 | AB-C5-M12FS-PB-TR-SH | 4 | 32 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS PA

PROFIBUS cables for applications in manufacturing and process automation



2170234 2170235 2170334 2170335

**Info**

- PA = Process Automation
- Variant with UL/CSA CMG

## Benefits

- FC (Fast Connect) version is oil and UV-resistant

## Application range

- Process-automation application for connecting sensors and actuators - including areas with risks of explosion.
- Fixed Installation

## Product features

- Bit rate = 31.25 kbit/s. Transmission technology RS485 also possible but bit rate is limited to 1.5 Mbit/s
- Maximum cable length is dependent on several factors (e.g. supply voltage, current demand).
- Technical Data: refer to the overview on "UNITRONIC® Bus Cables"
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- PROFIBUS® PA is standardised in EN 50170 as PROFIBUS® DP and PROFIBUS® FMS
- Transmission technology for PROFIBUS-PA in accordance with international standard IEC 61158-2
- FC variant with UL/CSA certification (CMG / PLTC)

## Product Make-up

- UNITRONIC® BUS PA
  Stranded conductor
  Copper braiding
  Outer sheath: PVC, blue, (RAL 5015)
  intrinsically safe area, black (RAL 9005)
- UNITRONIC® BUS PA FC
  Bare copper wire
  Fast Connect inner sheath
  Cu-Geflecht
  Puter sheath: PVC, blue (RAL 5015), black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 44 ohm/km

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
100 ± 20 Ohm

**Temperature range**
Fixed installation: -30°C to +80°C
During installation: -5°C to +50°C

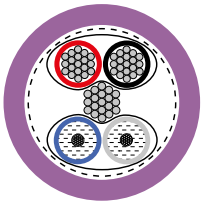
| Article number | Article designation | Number of pairs and cable diameter per conductor in mm | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Conventional cable makeup** | | | | | |
| 2170234 | UNITRONIC® BUS PA (BU) | 1 x 2 x 1,3 | 8 | 45 | 84 |
| 2170235 | UNITRONIC® BUS PA (BK) | 1 x 2 x 1,3 | 8 | 45 | 84 |
| **Fast Connect cable makeup - UL/CSA CMG certification** | | | | | |
| 2170334 | UNITRONIC® BUS PA FC (BU) | 1 x 2 x 1.00 | 8 | 45.5 | 103 |
| 2170335 | UNITRONIC® BUS PA FC (BK) | 1 x 2 x 1.00 | 8 | 45.5 | 103 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of Siemens AG
Armoured
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® DeviceNet THICK + THIN

DeviceNet Buscable based on the CAN technology



**2170340/2170341/2170342/2170343**

## Application range

- Fixed Installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

## Product features

- Resistant to oils
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- FRNC Version: Halogene free and flame retardant
- Refer to data sheet for more details

## Norm references / Approvals

- CMG UL/CSA certification 75°C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd certification

## Product Make-up

- Tinned copper wire
- Core insulation: foam skin
- Tinned-copper braiding with drain wire
- Outer sheath: FRNC or PVC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
Data pair: light blue + white
Power supply: red + black

**Mutual capacitance**
(800 Hz): max. 39.8 nF/km

**Peak operating voltage**
300 V (not for power applications)

**Conductor resistance**
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km

**Minimum bending radius**
Fixed installation: 15 x outer diameter

**Test voltage**
Core/core: 2000 V

**Characteristic impedance**
120 ohm

**Temperature range**
Fixed installation: -25°C to +80°C

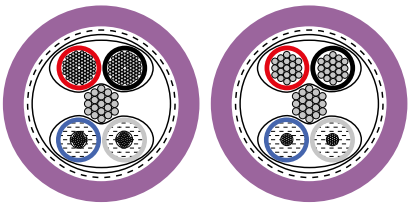
| Article number | Article designation | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|
| **Halogen-free** | | | | | |
| 2170340 | UNITRONIC® BUS DN THICK FRNC | 1x2xAWG18 + 1x2xAWG15 | 12.2 | 82.8 | 195 |
| 2170341 | UNITRONIC® BUS DN THIN FRNC | 1x2xAWG24 + 1x2xAWG22 | 6.9 | 33.4 | 69.5 |
| **PVC** | | | | | |
| 2170342 | UNITRONIC® BUS DN THICK Y | 1x2xAWG18 + 1x2xAWG15 | 12.2 | 88.4 | 192 |
| 2170343 | UNITRONIC® BUS DN THIN Y | 1x2xAWG24 + 1x2xAWG22 | 6.9 | 33.4 | 66.9 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® DeviceNet FD THICK+THIN

High flexible DeviceNet Buscable based on the CAN technology



**2170344/2170346** **2170345/2170347**

## Application range

- For highly flexible applications
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

## Product features

- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details
- PUR (P) Version: Halogene free
  PVC (Y) Version: Flame retardant (UL FT4)
- UV-resistant (but colour may change after some time)

## Norm references / Approvals

- PUR: UL/CSA-certified (CMX)
- PVC: UL/CSA CMG 75°C FT4 Sun Res Oil Res, at 2170346 also PLTC

## Product Make-up

- Core insulation: PE
- Outer sheath of Polyurethan (PUR) or Polyvinylchlorid (PVC)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Core identification code**
Data pair: light blue + white
Power supply: red + black

**Mutual capacitance**
(800 Hz): max. 39.8 nF/km

**Peak operating voltage**
300 V (not for power applications)

**Conductor resistance**
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km

**Minimum bending radius**
Fixed installation: 7.5 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 2000 V

**Characteristic impedance**
120 ohm

**Temperature range**
PUR: -40°C to +80°C
PVC: -10°C to +80°C

| Article number | Article designation | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|
| **PUR** | | | | | |
| 2170344 | UNITRONIC® BUS DN THICK FD P | 1x2xAWG18 + 1x2xAWG15 | 12.2 | 94 | 184 |
| 2170345 | UNITRONIC® BUS DN THIN FD P | 1x2xAWG24 + 1x2xAWG22 | 6.9 | 33.4 | 67.7 |
| **PVC** | | | | | |
| 2170346 | UNITRONIC® BUS DN THICK FD Y | 1x2xAWG18 + 1x2xAWG15 | 12.2 | 94 | 195 |
| 2170347 | UNITRONIC® BUS DN THIN FD Y | 1x2xAWG24 + 1x 2xAWG22 | 6.9 | 33.4 | 69.8 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS CAN

CAN Buscables for fixed installation - UL/SCA certified



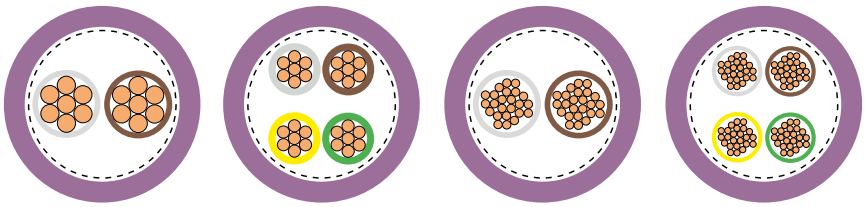

**Info**

- CAN = Controller Area Network

# UNITRONIC® BUS CAN FD P

CAN Buscables for high flexible application - UL/SCA certified



2170260/2170263/ 2170266 | 2170261/2170264/ 2170267 | 2170269/2170272/ 2170275 | 2170270/2170273/ 2170276

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz) max. 40 nF/km

**Peak operating voltage**
**UNITRONIC® BUS CAN**
(not for power applications) 250 V
**UNITRONIC® BUS CAN FD P**
250 V (not for power transmission)

**Conductor resistance**
**UNITRONIC® BUS CAN**
(loop): max. 186 ohm/km
**UNITRONIC® BUS CAN FD P**
(loop): max. 159.8 ohm/km

**Minimum bending radius**
**UNITRONIC® BUS CAN**
Fixed installation: 8 x outer diameter
**UNITRONIC® BUS CAN FD P**
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
120 ohm

**Temperature range**
**UNITRONIC® BUS CAN**
Fixed installation: -30°C to +80°C
Flexing: -5°C to +70°C
**UNITRONIC® BUS CAN FD P**
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

## Application range

**UNITRONIC® BUS CAN**
- Fixed Installation

**UNITRONIC® BUS CAN FD P**
- For highly flexible applications

## Product features

**UNITRONIC® BUS CAN**
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

**UNITRONIC® BUS CAN FD P**
- Halogen-free
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

## Product Make-up

**UNITRONIC® BUS CAN**
- 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
  0.75: bare stranded conductor, fine-wire
- Core insulation: foam skin
- Colour-coded in accordance with DIN 47100
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

**UNITRONIC® BUS CAN FD P**
- Stranded bare conductor
- Core insulation: foam skin
- Copper braid
- Outer sheath: PUR, violet (RAL 4001)
- UV-resistant (but colour may change after some time)

| Article number | Article designation | Number of pairs/conductor cross section (mm²) | Outer diameter [mm] | Conductor resistance | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **for fixed installation** | | | | | | |
| 2170260 | UNITRONIC® BUS CAN | 1 x 2 x 0,22 | 5.7 | 186 | 16.7 | 42 |
| 2170261 | UNITRONIC® BUS CAN | 2 x 2 x 0,22 | 7.6 | 186 | 34.8 | 68 |
| 2170263 | UNITRONIC® BUS CAN | 1 x 2 x 0,34 | 6.8 | 115 | 25 | 55 |
| 2170264 | UNITRONIC® BUS CAN | 2 x 2 x 0,34 | 8.5 | 115 | 46.4 | 88 |
| 2170266 | UNITRONIC® BUS CAN | 1 x 2 x 0,5 | 7.5 | 78 | 41.6 | 90 |
| 2170267 | UNITRONIC® BUS CAN | 2 x 2 x 0,5 | 9.6 | 78 | 59.4 | 106 |
| 2170269 | UNITRONIC® BUS CAN | 1 x 2 x 0,75 | 8.7 | 52 | 52.7 | 108 |
| 2170270 | UNITRONIC® BUS CAN | 2 x 2 x 0,75 | 11.5 | 52 | 80.6 | 142 |
| **For highly flexible applications (cable chains, moving machine parts)** | | | | | | |
| 2170272 | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,25 | 6.4 | 159.8 | 24 | 40 |
| 2170273 | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,25 | 8.4 | 159.8 | 33 | 65 |
| 2170275 | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,34 | 6.8 | 122 | 32.8 | 60 |
| 2170276 | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,34 | 9.6 | 122 | 52.4 | 88 |
| 2170278 | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,5 | 8 | 72.8 | 41.9 | 74 |
| 2170279 | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,5 | 10.1 | 72.8 | 59.4 | 100 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS CAN TRAY

CAN Bus cable with PLTC-ER approval - for open wiring between cable trays and industrial machines




**Info**

- CAN = Controller Area Network

## Benefits

- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

## Application range

- Fixed Installation

## Product features

- Maximum bit rate: 1 Mbit/s for 40 m segment length
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- UV-resistant UL SUN RES
- Oil-resistant according to UL OIL RES I
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

## Norm references / Approvals

- Standardised internationally in ISO 11898
- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foam skin
- Inner sheath: PVC
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz) max. 40 nF/km

**Peak operating voltage**
(not for power applications) 250 V
Rated voltage: 600 V (UL)

**Conductor resistance**
(loop): max. 110,8 ohm/km

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 2000 V

**Characteristic impedance**
120 ohm

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

| Article number | Article designation | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|
| **UNITRONIC® BUS CAN TRAY** | | | | | |
| 2170857 | UNITRONIC® BUS CAN TRAY | 2 x 2 x 0,34 | 7.5 | 35 | 81 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® BUS CAN BURIAL

CAN bus cable with double outer sheath for outdoor/direct burial use

**Info**

- Suitable for direct burial




## Benefits

- Suitable for CAN communication according to ISO 11898
- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Rugged, UV-resistant and weatherproof
- Diameter of inner sheath suitable for common connectors

## Application range

- Useable for CAN based communication systems like CANopen
- Suitable for direct burial
- For outdoor applications
- For fixed installation or applications with occasional movements

## Product Make-up

- Copper stranded 7x0,32
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.1 mm
- Outer sheath: PE, black RAL (9005), outer diameter: 9.0 mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(1 kHz): max. 40 nF/km

**Peak operating voltage**
300 V (not for power applications)

**Conductor resistance**
(Loop): max. 74 Ohm /km

**Minimum bending radius**
Flexible use: 8 x Outer Diameter
Fixed Installation: 4 x Outer Diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
120 ohm

**Temperature range**
Fixed installation: -40°C to +80°C

| Article number | Article designation | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|
| **UNITRONIC® BUS CAN BURIAL** | | | | | |
| 2170500 | UNITRONIC® BUS CAN BURIAL 4x1x0,5 | 4 x 1 x 0,5 | 9 | 41.8 | 91 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS HEAT 6722

CAN bus cable for utility vehicles




**Info**

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01

## Benefits

- Star-quad stranding, thus less space requirement and weight
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis

## Application range

- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- For fixed, occassionally flexible and protected use inside of utility vehicles

## Product features

- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Temperature class B on the basis of ISO 6722-1
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Standardised internationally in ISO 11898

## Product Make-up

- Stranded bare conductor
- PUR outer sheath
- Colour: black
- UV-resistant (but colour may change after some time)
- Screening: wrapped with braided copper wires

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
40 nF/km (800 Hz)

**Peak operating voltage**
250 V (not for power transmission)

**Conductor resistance**
(loop): max. 159.8 ohm/km

**Minimum bending radius**
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
120 ohm

**Temperature range**
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

| Article number | Article designation | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---|---|---|---|---|---|
| **UNITRONIC® BUS HEAT 6722** | | | | | |
| 2170385 | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,25 | 6.45 | 26 | 46 |
| 2170386 | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,34 | 7.54 | 33 | 61 |
| 2170387 | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,5 | 8.36 | 41 | 70 |
| 2170388 | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,75 | 9.79 | 59 | 95 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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# UNITRONIC® TRAIN

Bus cables - MVB and WTB - Electron beam cross-linked for high requirements in railway applications

**Info**

- Small outer diameters for maximum saving of space and weight
- Extremely low attenuation ≤ 5 MHz




## Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire
- EMC-optimised design

## Application range

- The communication systems WTB (wire train bus) and MVB (multifunction vehicle bus) make up the so-called TCN (train communication network)
- UNITRONIC® TRAIN bus cables are designed for use in TCN acc. IEC 61375
  MVB according IEC 61375-3-1
  WTB according IEC 61375-2-1
- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Also applicable within oily environments and areas with increased ambient temperature

## Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

## Norm references / Approvals

- EN 45545-2 HL1, HL2, HL3
- EN 50264-1

## Product Make-up

- Stranded tinned 19-wire conductor
- Core insulation: Based on Polyolefin
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 1000 V

**Characteristic impedance**
120 ohm (±10%)

**Temperature range**
Fixed installation:
-45°C to +90°C
Occasional flexing: -35°C up to +90°C

| Article number | Article designation | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|---|
| **Cables for MVB** | | | | |
| 2173000 | UNITRONIC® TRAIN MVB 1x2x0,5 | 1x2x0,5 | 7.6 | 29 |
| 2173001 | UNITRONIC® TRAIN MVB 1x2x0,5+1x0,5 | 1x2x0,5+1x0,5 | 7.6 | 34 |
| 2173002 | UNITRONIC® TRAIN MVB 2x2x0,5 | 2x2x0,5 | 8.3 | 40 |
| 2173003 | UNITRONIC® TRAIN MVB 2x2x0,5+4x0,25 | 2x2x0,5+4x0,25 | 8.3 | 50 |
| **Cables for WTB** | | | | |
| 2173004 | UNITRONIC® TRAIN WTB 1x2x0,75 | 1x2x0,75 | 8.4 | 41 |

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# EPIC® DATA CAN Sub-D

CAN Bus-Connectors with screw connection




**21700537** **21700536** **21700536** **21700538**

## Benefits

- Terminating resistor (integrated) can be switched
- Sensor/ ac
- No loose parts
- With additional 24 V DC output to supply external devices (90° version only)

## Product features

- Max. transmission rate 1 Mbit/s possible
- Terminating resistor "ON" - the outbound bus cable is disconnected
- The integrated, connectable terminating resistor
  enable the CAN-Bus to be terminated or connected through
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

## Norm references / Approvals

- UL File No. E331560

## Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Screw connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- For cable outer diameter: 5 - 8 mm

## Suitable cables

- Bus system CAN / DeviceNet

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**
60 mm x 40 mm x 17 mm - 90°
67,5 mm x 35 mm x 17 mm - 180°
(LxWxH)

**Connection type**
Screwing

**Protection rating**
IP 20

**Terminating resistor**
120 Ω

**Interfaces**
CAN bus station:
D-Sub socket, 9-pin
CAN bus cable:
6 terminal blocks for wires up to 0.8 mm²

**Permissble ambient conditions**
Operating temperature:
-25°C to +85°C
*The max. temperature for UL is 60 °C

| Article number | Article designation | Cable outlet | PG-Interface | PU |
|---|---|---|---|---|
| **Sub-D connector** | | | | |
| 21700537 | ED-CAN-90 | 90° | no | 1 |
| 21700536 | ED-CAN-90-PG | 90° | yes | 1 |
| 21700538 | ED-CAN-AX | 180° axial | no | 1 |

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

# EPIC® DATA CAN Sub-D PRO

CAN Bus-Connectors full-metall

**Info**

- High EMC protection
- For cable diameters up to 10 mm



21700590



21700591

## Benefits

- High flexibility by extended cable clamping range
- Cost-saving due to quick and easy installation
- Robust housing material for harsh environments
- For EMC critical environments

## Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Bus termination is integrated
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

## Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- External cable clamp connection ( 7 - 10 mm)
- 90° version: With additional Sub-D port for programming/diagnostic ('PG')
- 90° version: PG port with undetachable EMC Sub-D protection

## Suitable cables

- UNITRONIC® DeviceNet THICK + THIN
- UNITRONIC® BUS CAN
- UNITRONIC® DeviceNet FD THICK+THIN
- UNITRONIC® BUS CAN FD P
- UNITRONIC® BUS CAN TRAY
- UNITRONIC® BUS HEAT 6722
- UNITRONIC® BUS CAN BURIAL

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**
63 x 45 x 18 - 90°
81 x 36 x 15 - 180°
(LxWxH)

**Connection type**
Screwing

**Protection rating**
IP 30

**Terminating resistor**
120 Ω

**Interfaces**
CAN-Bus station:
D-SUB socket, 9-pin
CAN-Bus cable:
- srew terminals for wires 0.14 - 0.5 mm²

**Permissble ambient conditions**
Operating temperature:
-20°C to +70°C

| Article number | Article designation | Cable outlet | PG-Interface | PU |
|---|---|---|---|---|
| **Sub-D connector** | | | | |
| 21700590 | ED-CAN-90-PG-PRO | 90° | yes | 1 |
| 21700591 | ED-CAN-AX-PRO | 180° axial | no | 1 |

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# UNITRONIC® BUS CAN M12 | M12-M12

DeviceNet/CANopen Cable: M12 plug/socket on free conductor end
DeviceNet/CANopen Cable: M12 connector on M12 socket



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Robust design

## Application range

- Mechanical and plant engineering

## Product features

- 5-core DeviceNet/CANopen cable, shielded
- M12 connector, A-coded with quick-locking system
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

## Product Make-up

- Signal line: 2 x 0.25 mm²
  Power supply: 2 x 0.34 mm²
  Drain wire: 1 x 0.34 mm²
- Core colours: red/black, blue/white
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 6.7 mm
- Shielded version

## Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA CAN M12
- EPIC® DATA CAN M12/M12
- EPIC® DATA CAN TR M12
- EPIC® DATA CAN M12T
- EPIC® DATA CAN CCR

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +70°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Length (m) | Number of pins | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug** | | | | | | |
| 22260789 | AB-DN-M12MS-2,0PUR | 2 | 5 | straight | 60 | 1 |
| 22260790 | AB-DN-M12MS-5,0PUR | 5 | 5 | straight | 60 | 1 |
| 22260791 | AB-DN-M12MS-10,0PUR | 10 | 5 | straight | 60 | 1 |
| 22262004 | AB-DN-M12MA-2,0PUR | 2 | 5 | angled | 60 | 1 |
| **Socket** | | | | | | |
| 22260792 | AB-DN-2,0PUR-M12FS | 2 | 5 | straight | 60 | 1 |
| 22260793 | AB-DN-5,0PUR-M12FS | 5 | 5 | straight | 60 | 1 |
| 22260794 | AB-DN-10,0PUR-M12FS | 10 | 5 | straight | 60 | 1 |
| **Plug on socket** | | | | | | |
| 22260795 | AB-DN-M12MS-0,3PUR-M12FS | 0.3 | 5 | straight-straight | 60 | 1 |
| 22260796 | AB-DN-M12MS-1,0PUR-M12FS | 1 | 5 | straight-straight | 60 | 1 |
| 22260797 | AB-DN-M12MS-2,0PUR-M12FS | 2 | 5 | straight-straight | 60 | 1 |
| 22260798 | AB-DN-M12MS-5,0PUR-M12FS | 5 | 5 | straight-straight | 60 | 1 |
| 22260799 | AB-DN-M12MS-10,0PUR-M12FS | 10 | 5 | straight-straight | 60 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA CAN M12

Field mountable M12 BUS-connectors shielded for DeviceNet/CANopen

## Technical data

**Connection type**
Screwing

**Material**
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket -40°C to +85°C

**Coding**
A - Standard
(CANopen/DeviceNet/CC-Link)

**Rated current (A)**
4 A



22260135



22260136

## Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

## Product Make-up

- M12 plug, 5-pins, A-coded
- Screw connection
- PG9 thread
- Screened version

| Article number | Article designation | Design | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **Plug, straight** | | | | | | | |
| 22260135 | AB-C5-M12MS-PG9-SH | screw | 5 | 0.25 - 0.75 | 6.0 - 8.0 | 60 | 1 |
| **Socket, straight** | | | | | | | |
| 22260136 | AB-C5-M12FS-PG9-SH | screw | 5 | 0.25 - 0.75 | 6.0 - 8.0 | 60 | 1 |

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# EPIC® DATA CAN M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling

## Technical data

**Material**
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket
-25°C to +85°C

**Coding**
A - Standard
(CANopen/DeviceNet/CC-Link)

**Rated current (A)**
4 A



22262020

## Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

## Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

## Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Control cabinet feed through** | | | | |
| 22262020 | AB-C5-DSI-M12MS-M12FS-M16-SH | 5 | 24 | 1 |

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# EPIC® DATA CAN TR M12

M12 Terminating resistor for DeviceNet/CANopen



**22260766**

**Info**

- Fully suitable for industrial use

## Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

## Application range

- Mechanical and plant engineering

## Product features

- 120 Ω terminating resistor for DeviceNet/CANopen

## Product Make-up

- Straight connector M12 with integrated termination resistor

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description: Terminal resistor

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
-25°C to +90°C

**Contact material**
CuSn

**Coding**
A - Standard (CANopen/DeviceNet)

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Plug, unshielded (terminating resistor)** | | | | |
| 22260766 | AB-C5-M12MS-DN-TR | 5 | 60 | 5 |

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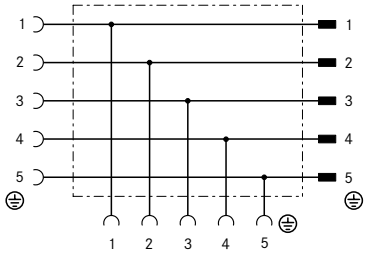
DeviceNet CANopen

# EPIC® DATA CAN M12T

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling



222607656




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description: Passive sensor-actuator interface

**Material**
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C

**Coding**
A - Standard
(CANopen/DeviceNet/CC-Link)

**Rated current (A)**
4 A

## Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

## Product features

- For CANopen/DeviceNet applications
- PWIS-free

## Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **T distributor** | | | | |
| 22260765 | AB-C5-M12T-2XM12FS DN | 5 | 60 | 5 |

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DeviceNet CANopen

# EPIC® DATA CAN CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables



21700641

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002925
ETIM 5.0/6.0 Class-Description: Sensor-actuator adapting connector

**Material**
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
-40°C to +85°C

**Rated current (A)**
4 A

## Benefits

- Time-saving assembly with IDC connection technology
- Optimum EMC protection with 360 ° shielding

## Application range

- To extend existing cable systems
- Repairkit for damaged cables

## Product features

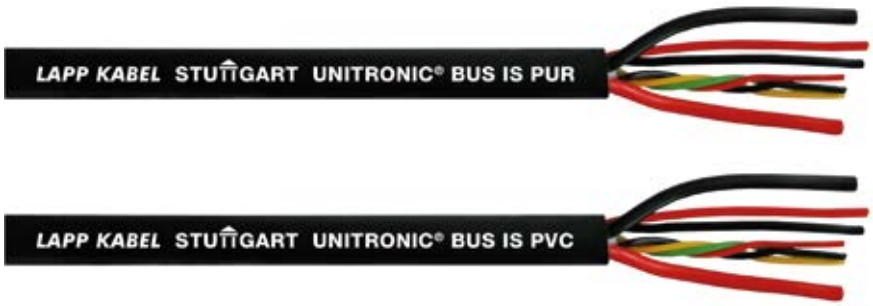
- 5-pin cable coupler round
- Screened version

| Article number | Article designation | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Cable coupler round** | | | | | | |
| 21700641 | AB-C5-CCR-SH | 5 | 0.14 - 0.50 | 5.0 - 9.7 | 60 | 1 |

DeviceNet is a registered trademark of ODVA / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS IS

ISOBUS cables for use in agricultural vehicles




**Info**

- Lapp cable is member of the AEF - Agricultural Industry Electronics Foundation

## Benefits

- Cable according ISOBUS standard (ISO 11783-2) for use in agricultural vehicles.
- HYBRID: cable for data transmission + power supply

## Application range

- For outdoor applications
- Connection cable between tractor and pulled machinery

## Product features

- Flame-retardant according to IEC standard 60332-1
- UV-resistant
- Resistant against oil, benzine and diesel
- PUR (Polyurethane) Version with increased robustness

## Norm references / Approvals

- ISO 11783-2:2012

## Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- 4x 0,5 mm² (red, yellow, black, green)
  2x 2,5 mm² (red, black)
  2x 6 mm² (red, black)
- Outer sheath: PUR and PVC, black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
60 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
0,5 mm - 2,5 mm² core / core = 1,5 kV;
6 - 10 mm² core / core = 2,5 kV

**Characteristic impedance**
Characteristic impedance: 75 ohm

**Temperature range**
PUR: -40°C to +85°C
PVC: -30°C to +85°C

| Article number | Article designation | Number of cores/pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) |
|---|---|---|---|---|
| **PUR** | | | | |
| 2170561 | UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5 | 2x6+2x2,5+1x4x0,5 | 15.6 | 182.4 |
| **PVC** | | | | |
| 2170560 | UNITRONIC® BUS IS PVC | 2x6+2x2,5+1x4x0,5 | 15.6 | 182.4 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS FF

FOUNDATION Fieldbus cable for use in Process Automation - UL-verified




## Benefits

- Cables meet the requirements of ISA/SP50 and the FOUNDATION™ field bus for the cable type A.

## Application range

- FOUNDATION™ Fieldbus is used in intrinsically safe areas, especially in the field of Process Automation
- Fixed Installation

## Product features

- UV-resistant
- Extended temperature range

## Norm references / Approvals

- With UL/CSA certification (CMG/PLTC)

## Product Make-up

- 2-core, not armoured, with device ground
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground
- Outer sheath: PVC, yellow
  Armoured Version: PVC, yellow and blue

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
300 V

**Conductor resistance**
≤ 24 Ohm/km

**Minimum bending radius**
15 x outer diameter

**Test voltage**
1500 V

**Characteristic impedance**
100 ± 20 Ohm at 31.25 kHz

**Temperature range**
-40 °C or -25 °C to +105 °C, see data sheet

| Article number | Article designation | Number of pairs and cable diameter | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS FF** | | | | | |
| 2170350 | UNITRONIC® BUS FF 3 | 1x2x1.1 + 1x1.1 Ø | 7.9 | 48.3 | 93 |
| **PVC - Armoured** | | | | | |
| 2170351 | UNITRONIC® BUS FF 3 ARM (YE) | 1x2x1.1 + 1x1.1 Ø | 12.3 | 125 | 182 |
| 2170353 | UNITRONIC® BUS FF 3 ARM (BU) | 1x2x1.1 + 1x1.1 Ø | 12.3 | 125 | 182 |
| **PVC** | | | | | |
| 2170352 | UNITRONIC® BUS FF 2 | 1 x 2 x 1.1 | 7.9 | 39.7 | 82 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Foundation™ is a trademark of the Fieldbus Foundation
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS CC

CC-Link bus cable for fixed installation - UL-verified




**Info**

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

## Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.
- This CC-Link® bus cable has successfully passed the CC-Link® Conformance Test in Japan.

## Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- Fixed installation of the CC-Link® network

## Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- SUN RES acc. to UL 1581

## Norm references / Approvals

- CM UL/CSA certification 75°C or PLTC Sun Res

## Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, red (RAL 3000)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
300 V

**Conductor resistance**
11 ohm/1,000 ft. (305 m) at 20°C

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 8 x outer diameter

**Test voltage**
2000 V

**Characteristic impedance**
110 ohm at 1 MHz

**Temperature range**
-40°C to +70°C

| Article number | Article designation | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS CC** | | | | | |
| 2170360 | UNITRONIC® BUS CC | 3 x 1 x AWG20 | 7.7 | 38.8 | 76.6 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS CC FD P FRNC

CC-Link bus cable for high fleible applications - UL-verified




**Info**

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

## Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.

## Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- For highly flexible applications (cable chains, moving machine parts)

## Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- AWM 20233 80 °C 300V

## Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Inner sheath: FRNC
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, red (RAL 3000)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Certifications**
UL AWM Style 20233

**Peak operating voltage**
300 V

**Conductor resistance**
11 ohm/1,000 ft. (305 m) at 20°C

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Moved: 10 x outer diameter

**Test voltage**
2000 V

**Characteristic impedance**
110 ohm at 1 MHz

**Temperature range**
-40°C to +80°C

| Article number | Article designation | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **UNITRONIC® BUS CC FD P FRNC** | | | | | |
| 2170370 | UNITRONIC® BUS CC FD P FRNC | 3 x 1 x AWG20 | 8.5 | 39.9 | 84 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
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# UNITRONIC® BUS SAFETY

SafetyBUS cables for transmission of safety-oriented datas




## Benefits

- For serial transmission of safety-oriented data

## Application range

- UNITRONIC® BUS SAEFTY - fixed Installation
  UNITRONIC® BUS SAEFTY FD P - highly flexible applications
- For systems such as SafetyBUS p®, based on the well-known CAN bus system

## Product features

- The stated bit rates result in the following cable lengths (maximum) for a bus segment:
- 500 kbit/s = max.100 m
- 250 kbit/s = max. 250 m
- 125 kbit/s = max. 500 m
- 50 kbit/s = max. 1,000 m

## Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Bare stranded copper wires
- Core insulation: foam skin
- Tin-plated copper wire braiding
- Outer sheath: halogen-free, flame-retardant compound
- Outer sheath: yellow

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Certifications**
Version UNITRONIC® BUS SAFETY FC: AWM Style 2464 (80°C 300 V)

**Mutual capacitance**
(800 Hz): max. 45 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 52 ohm/km

**Minimum bending radius**
Fixed installation:
5 x outer diameter

**Test voltage**
Core/core: 3000 V
Core/core: 1500 V (FD- version)

**Characteristic impedance**
120 ohm

**Temperature range**
UNITRONIC BUS SAFETY:
Fixed installation: -30°C to +80°C
UNITRONIC BUS SAFETY FD P:
Fixed installation -40°C to +80°C
Moved: -30 to +80°C

| Article number | Article designation | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Fixed Installation** | | | | | |
| 2170295 | UNITRONIC® BUS SAFETY | 3 x 0.75 | 7.6 | 49 | 68 |
| **For highly flexible applications** | | | | | |
| 2170885 | UNITRONIC® BUS SAFETY FD P | 3 x 0.75 | 7.8 | 49 | 68 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SafetyBUS p® is a registered trademark of Pilz GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS IBS

INTERBUS cables for different applications




## Benefits

- Applications:
  fixed Installation,
  high flexible use,
  outdoor use/direct burial

## Application range

- Remote bus/ installation remote bus cable

## Product features

- **UNITRONIC® BUS IBS**
  fixed installation
  **UNITRONIC® BUS IBS Combi**
  with power supply
  **UNITRONIC® BUS IBS A**
  UL-verified
- **UNITRONIC® BUS Yv**
  outdoor use/ direct burial
  **UNITRONIC® BUS Yv Combi**
  with power supply
- **UNITRONIC® BUS IBS FD P**
  fixed installation
  **UNITRONIC® BUS IBS FD P Combi**
  with power supply
  **UNITRONIC® BUS IBS FD P Combi A**
  UL-verified

## Norm references / Approvals

- Refer to data sheet for more details
- According to DIN EN 61158

## Product Make-up

- See data sheet

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
see data sheet

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1500 V rms

**Characteristic impedance**
100 Ohm

**Temperature range**
**UNITRONIC® BUS IBS**
fixed installation: -30°C to +80°C
flexing: -5°C to +70°C
**UNITRONIC® BUS IBS FD P**
fixed installation: -40°C to +80°C
flexing: -5°C to +70°C
**UNITRONIC® BUS IBS Yv**
Fest verlegt: -40°C to +70°C

| Article number | Article designation | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Fixed Installation** | | | | | |
| 2170206 | UNITRONIC® BUS IBS | 3 x 2 x 0.22 | 7.2 | 37 | 72 |
| 2170208 | UNITRONIC® BUS IBS P COMBI | 3 x 2 x 0,22 + 3 x 1,0 | 7.9 | 60 | 85 |
| **Fixed installation - suitable for outdoor use and direct burial** | | | | | |
| 2170207 | UNITRONIC® BUS IBS Yv COMBI | 3 x 2 x 0.22 | 9.3 | 37 | 94 |
| 2170217 | UNITRONIC® BUS IBS Yv COMBI | 3 x 2 x 0,22 + 3 x 1,0 | 9.4 | 60 | 128 |
| **For fixed installation - UL CMX certification** | | | | | |
| 2170209 | UNITRONIC® BUS IBS A | 3 x 2 x 0.22 | 7.2 | 37 | 72 |
| **For highly flexible applications** | | | | | |
| 2170216 | UNITRONIC® BUS IBS FD P | 3 x 2 x 0.25 | 7.9 | 39 | 64 |
| **Highly flexible applications - with UL (CMX) certification** | | | | | |
| 2170818 | UNITRONIC® BUS IBS FD P COMBI A | 3 x 2 x 0,25 + 3 x 1,0 | 7.9 | 62 | 92 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® BUS EIB / KNX




**Info**

- EIB / European Installation Bus
- KNX/communication in building management
- CPR: Article number choice under www.lapp.com

## Application range

- The product is designed for use in building management, e.g. for decentralised control of lighting, heating, air-conditioning, ventilation, energy management, blinds, time management, locking systems etc.
- The cable can be laid on or under plaster; in pipes, cable ducts; in dry, damp or wet environments.
- EIB installation mainly consists of sensors/command-transmitters (e.g. light barriers, switches, thermostats, infrared, wind meters, timers), and actuators (e.g. engines, heaters, ventilators, lights, blinds).
- KNX technology was formed from the merging of three established European bus standards: EIP, EHS (household appliances and consumer electronics) and Batibus (heating/ventilation/air conditioning)

## Product features

- Serial data transmission
- EIB cable has been tested at 4 kV (1 min.) in a water bath

## Product Make-up

- Screened installation cable based on type J-Y(ST)Y according to DIN VDE 0815
- **UNITRONIC® BUS EIB**
  Bare solid copper wire
  2x2x0,8: red and black, white and yellow
  Core insulation: PVC
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)
- **UNITRONIC® BUS EIBCOMBI**
  Bare solid copper wire
  Core insulation: PVC
  2x2x0,8: red and black, white and yellow
  3x1,5: brown, blue, green/yellow
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Mutual capacitance**
(800 Hz) max. 100 nF/km

**Peak operating voltage**
(not for power applications) 250 V

**Conductor resistance**
(loop): max. 73.2 ohm/km

**Minimum bending radius**
Fixed installation:
5 x outer diameter

**Test voltage**
Core/core: 4000 V

**Temperature range**
Fixed installation: -30°C to +70°C

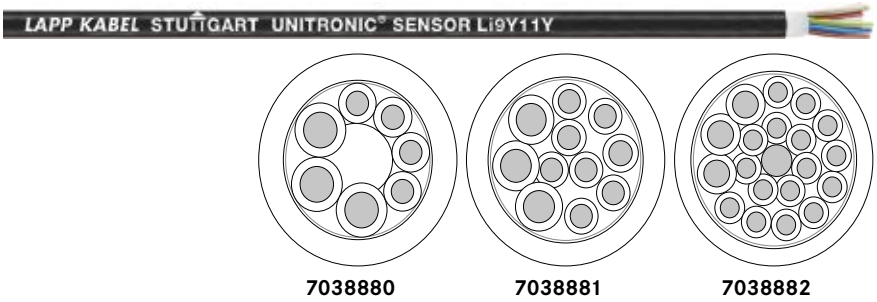
| Article number | Article designation | Number of pairs and mm or mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/m) |
|---|---|---|---|---|---|
| **PVC** | | | | | |
| 2170240 | UNITRONIC® BUS EIB | 2 x 2 x 0.8 | 6.6 | 21 | 54 |
| 2170242 | UNITRONIC® BUS EIB COMBI | 2 x 2 x 0,8 mm + 3 x 1,5 mm² | 12.7 | 64 | 128 |
| **Halogen-free** | | | | | |
| 2170241 | UNITRONIC® BUS EIB H | 2 x 2 x 0.8 | 6.6 | 21 | 54 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR master cable

**Info**

- Customised construction can be supported




7038880 7038881 7038882

## Benefits

- Cost efficient and rational wiring for S/A boxes with detachable master cable connection
- Can be used universally for S/A installations

## Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

## Product features

- Cores for Power Supply: 3 x 0.75 mm² and 3 x 1.0 mm²
- Cores for Signalling cable: 4 x 0.34 mm², 8 x 0.5 mm², 16 x 0.5 mm²
- Suitable for cable chain
- Halogen-free according to VDE 0472-815
- Flame-retardant according to UL 1581 FT-2

## Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)
- UL-AWM-Style 21233 (80 °C / 1000 V)

## Product Make-up

- Fine-wire, bare copper strand
- Single wire diameter:
  0.34 mm² = (43 x 0.10 mm)
  0.5mm² = (19 x 0.18 mm)
  0.75 mm² = (21 x 0.205 mm)
  1.0 mm² = (55 x 0.15 mm)
- Core insulation: PP
- Outer sheath: PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Conductor stranding**
Stranded conductor, fine-wire

**Minimum bending radius**
Flexing: 10 x outer diameter

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C

| Article number | Article designation | Dimensions (mm²) | Outer diameter [mm] | Core/outer sheath material | Copper index [kg/km] |
|---|---|---|---|---|---|
| **UNITRONIC® SENSOR COMBI** | | | | | |
| 7038880 | Li9Y11Y | 3 x 0.75 + 4 x 0.34 | 6.6 | PP/PUR | 34.5 |
| 7038881 | Li9Y11Y | 3 x 1.0 + 8 x 0.5 | 8.4 | PP/PUR | 67.2 |
| 7038882 | Li9Y11Y | 3 x 1.0 + 16 x 0.5 | 9.8 | PP/PUR | 105.6 |
| 68000963 | Li9Y11Y | 3G0,75 + 16x0,34 | 10.6 | PP/PUR | 8.1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil 100m
Cables are printed
Other variations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

# UNITRONIC® SENSOR

Flexible cable for sensor/actuator cabling




**Info**

- Easy cable preperation
- UL recognized (LifYY A)

## Benefits

- Easy installation (through cable trays, tubes, cabinets)
- Easy stripping and processing
- Space-saving due to compact dimensions

## Application range

- Automation technology
- Sensor/ actuator cabling

## Product features

- Core colour code in accordance with DIN EN 50044
- Black version: UV-resistant
- For higher mechanical stress (LifY 11Y/ Desina)

## Norm references / Approvals

- UL recognized (LifYY A)

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PVC
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- DESINA 4x0,34: bn, wh, bu, bk
- Outer sheath: PVC or PUR
- Sheath colour: black (RAL 9005)
- DESINA yellow (RAL 1021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Peak operating voltage**
300 V (not for power applications)

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

**Temperature range**
PVC/PVC:
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C
PVC/PUR:
Fixed installation: -30°C to +80°C
Flexing: -10°C to +80°C

| Article number | Article designation | Dimensions (mm²) | Outer diameter [mm] | Core/outer sheath material | Colour | UL | Copper index [kg/km] |
|---|---|---|---|---|---|---|---|
| **UNITRONIC® SENSOR PVC** | | | | | | | |
| 7038898 | LifYY | 3x0.25 | 3.8 | PVC/PVC | black | | 7.5 |
| 7038899 | LifYY | 4x0.25 | 4.2 | PVC/PVC | black | | 10.2 |
| 7038900 | LifYY | 3 x 0.34 | 4.1 | PVC/PVC | black | | 9.8 |
| 7038901 | LifYY | 4 x 0.34 | 4.4 | PVC/PVC | black | | 13 |
| 7038902 | LifYY | 5 x 0.34 | 4.8 | PVC/PVC | black | | 16 |
| **UNITRONIC® SENSOR PVC UL** | | | | | | | |
| 7038903 | LifYY A | 3x0.25 | 4.3 | PVC/PVC | black | yes | 7.5 |
| 7038904 | LifYY A | 4x0.25 | 4.6 | PVC/PVC | black | yes | 10.2 |
| 7038905 | LifYY A | 3 x 0.34 | 4.4 | PVC/PVC | black | yes | 9.8 |
| 7038906 | LifYY A | 4 x 0.34 | 4.8 | PVC/PVC | black | yes | 13 |
| 7038907 | LifYY A | 5 x 0.34 | 5.2 | PVC/PVC | black | yes | 16 |
| **UNITRONIC® SENSOR PVC/PUR** | | | | | | | |
| 7038861 | LifY 11Y | 4 x 0.34 | 4.8 | PVC/PUR | black | | 13.1 |
| 7038862 | LifY 11Y | 5 x 0.25 | 4.9 | PVC/PUR | black | | 12 |
| 0040434 | DESINA | 4 x 0.34 | 5.2 | PVC/PUR | yellow | | 13.5 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR FD

High flexible cable for sensor/actuator cabling for use in cable chain, halogen-free

**Info**

- For increased mechanical stress and harsh operating conditions




## Benefits

- Designs for highly flexible use
- Abrasion-resistant
- Wear-resistant
- Space-saving due to compact dimensions

## Application range

- Automation technology
- Sensor/ actuator cabling
- Mechanical and plant engineering
- Assembly and production lines

## Product features

- UV-resistant
- Halogen-free according to VDE 0472-815
- Flame-retardant according to IEC 60332-2-2, UL 1581 FT-2
- Suitable for cable chain
- Designed for 4 million alternating bending cycles and travel distances up to 10 m

## Norm references / Approvals

- UL AWM Style 20549

## Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PP
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
  8-pin: bn, wh, gn, ye, gy, pk, bu, rd
- Outer sheath: PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

**Peak operating voltage**
300 V (not for power applications)

**Conductor stranding**
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Temperature range**
Occasional flexing: -25°C to +80°C
Fixed installation: -40°C to +80°C

| Article number | Article designation | Dimensions (mm²) | Outer diameter [mm] | Core/outer sheath material | Colour | Copper index [kg/km] |
|---|---|---|---|---|---|---|
| **UNITRONIC® SENSOR FD** | | | | | | |
| 7038867 | Lif9Y11Y | 5 x 0.25 | 4.7 | PP/PUR | black | 12 |
| 7038868 | Lif9Y11Y | 8 x 0.25 | 5.9 | PP/PUR | black | 19 |
| 7038864 | Lif9Y11Y | 3 x 0.34 | 4.6 | PP/PUR | black | 9.8 |
| 7038865 | Lif9Y11Y | 4 x 0.34 | 4.7 | PP/PUR | black | 13 |
| **UNITRONIC® SENSOR FD - optimized** | | | | | | |
| 7038889 | Lif9Y11Y | 3x0.25 | 3.6 | PP/PUR | black | 7.5 |
| 7038890 | Lif9Y11Y | 4x0.25 | 3.8 | PP/PUR | black | 10.2 |
| 7038893 | Lif9Y11Y | 5 x 0.34 | 4.5 | PP/PUR | black | 16 |
| **UNITRONIC® SENSOR FD screened** | | | | | | |
| 7038885 | Lif9YC11Y | 3 x 0.34 | 4.3 | PP/PUR | black | 19.1 |
| 7038886 | Lif9YC11Y | 4 x 0.34 | 4.6 | PP/PUR | black | 23.5 |
| 7038887 | Lif9YC11Y | 5 x 0.34 | 5 | PP/PUR | black | 27.5 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® ROBUST S/A FD

High flexible, halogen-free sensor/actuator cable - resistant to a wide range of chemical media




**Info**

- Good chemical resistance
- Excellent weather resistance
- Flexible at low temperatures

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant against organic oils, emulsions, greases and waxes based on organic, animal or synthetic
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Good resistance to ammonia compounds and bio-gases

## Application range

- Automation technology
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Suitable for cable chain
- Torsion-resistant
- Halogen-free

## Norm references / Approvals

- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

## Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PE
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- Outer sheath made of special TPE
- Color of the outer jacket: Black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

**Core identification code**
acc. to EN 60947-5-2

**Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

**Temperature range**
Flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

| Article number | Article designation | Dimensions (mm²) | Outer diameter [mm] | Colour | Copper index [kg/km] |
|---|---|---|---|---|---|
| **UNITRONIC® ROBUST S/A FD** | | | | | |
| 7038897 | UNITRONIC® ROBUST S/A FD 4x0,25 | 4x0.25 | 4.9 | black | 10.2 |
| 7038895 | UNITRONIC® ROBUST S/A FD 3x0,34 | 3 x 0.34 | 5 | black | 9.8 |
| 7038894 | UNITRONIC® ROBUST S/A FD 4x0,34 | 4 x 0.34 | 5.4 | black | 13.1 |
| 7038896 | UNITRONIC® ROBUST S/A FD 5x0,34 | 5 x 0.34 | 5.9 | black | 16 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR M8

M8 plug/socket on free conductor end



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **3-pin** | | | | | | | |
| **Plug** | | | | | | | |
| 22260204 | AB-C3-M8MS-2,0PUR | 3 | 2 | straight | no | 60 | 1 |
| 22260205 | AB-C3-M8MS-5,0PUR | 3 | 5 | straight | no | 60 | 1 |
| 22260218 | AB-C3-M8MS-10,0PUR | 3 | 10 | straight | no | 60 | 1 |
| 22260053 | AB-C3-M8MA-2,0PUR | 3 | 2 | angled | no | 60 | 1 |
| 22260987 | AB-C3-M8MA-5,0PUR | 3 | 5 | angled | no | 60 | 1 |
| 22260055 | AB-C3-M8MA-10,0PUR | 3 | 10 | angled | no | 60 | 1 |
| **Socket** | | | | | | | |
| 22260202 | AB-C3-2,0PUR-M8FS | 3 | 2 | straight | no | 60 | 1 |
| 22260200 | AB-C3-5,0PUR-M8FS | 3 | 5 | straight | no | 60 | 1 |
| 22260219 | AB-C3-10,0PUR-M8FS | 3 | 10 | straight | no | 60 | 1 |
| 22260203 | AB-C3-2,0PUR-M8FA | 3 | 2 | angled | no | 60 | 1 |
| 22260201 | AB-C3-5,0PUR-M8FA | 3 | 5 | angled | no | 60 | 1 |
| 22260220 | AB-C3-10,0PUR-M8FA | 3 | 10 | angled | no | 60 | 1 |
| 22260275 | AB-C3-2,0PUR-M8FA-2L | 3 | 2 | angled | 2 LEDs | 24 | 1 |
| 22260276 | AB-C3-5,0PUR-M8FA-2L | 3 | 5 | angled | 2 LEDs | 24 | 1 |
| 22260277 | AB-C3-10,0PUR-M8FA-2L | 3 | 10 | angled | 2 LEDs | 24 | 1 |
| **4-pin** | | | | | | | |
| **Plug** | | | | | | | |
| 22260300 | AB-C4-M8MS-2,0PUR | 4 | 2 | straight | no | 30 | 1 |
| 22260308 | AB-C4-M8MS-5,0PUR | 4 | 5 | straight | no | 30 | 1 |
| 22260318 | AB-C4-M8MS-10,0PUR | 4 | 10 | straight | no | 30 | 1 |
| 22260056 | AB-C4-M8MA-2,0PUR | 4 | 2 | angled | no | 30 | 1 |
| 22260057 | AB-C4-M8MA-5,0PUR | 4 | 5 | angled | no | 30 | 1 |
| 22260058 | AB-C4-M8MA-10,0PUR | 4 | 10 | angled | no | 30 | 1 |
| **Socket** | | | | | | | |
| 22260309 | AB-C4- 2,0PUR-M8FS | 4 | 2 | straight | no | 30 | 1 |
| 22260310 | AB-C4- 5,0PUR-M8FS | 4 | 5 | straight | no | 30 | 1 |
| 22260317 | AB-C4-10,0PUR-M8FS | 4 | 10 | straight | no | 30 | 1 |
| 22260311 | AB-C4- 2,0PUR-M8FA | 4 | 2 | angled | no | 30 | 1 |
| 22260312 | AB-C4- 5,0PUR-M8FA | 4 | 5 | angled | no | 30 | 1 |
| 22260319 | AB-C4-10,0PUR-M8FA | 4 | 10 | angled | no | 30 | 1 |

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Photographs and graphics are not to scale and do not represent detailed images of the respective products. / UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M8-M8

M8 plug on M8 socket



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **Plug on socket** | | | | | | | |
| **3-pin** | | | | | | | |
| 22260206 | AB-C3-M8MS-0,3PUR-M8FS | 3 | 0.3 | straight-straight | no | 60 | 1 |
| 22260207 | AB-C3-M8MS-0,6PUR-M8FS | 3 | 0.6 | straight-straight | no | 60 | 1 |
| 22260208 | AB-C3-M8MS-1,0PUR-M8FS | 3 | 1 | straight-straight | no | 60 | 1 |
| 22260209 | AB-C3-M8MS-2,0PUR-M8FS | 3 | 2 | straight-straight | no | 60 | 1 |
| 22260210 | AB-C3-M8MS-0,3PUR-M8FA | 3 | 0.3 | straight-angled | no | 60 | 1 |
| 22260211 | AB-C3-M8MS-0,6PUR-M8FA | 3 | 0.6 | straight-angled | no | 60 | 1 |
| 22260212 | AB-C3-M8MS-1,0PUR-M8FA | 3 | 1 | straight-angled | no | 60 | 1 |
| 22260213 | AB-C3-M8MS-2,0PUR-M8FA | 3 | 2 | straight-angled | no | 60 | 1 |
| 22260214 | AB-C3-M8MS-0,3PUR-M8FA-2L | 3 | 0.3 | straight-angled | 2 LEDs | 24 | 1 |
| 22260215 | AB-C3-M8MS-0,6PUR-M8FA-2L | 3 | 0.6 | straight-angled | 2 LEDs | 24 | 1 |
| 22260216 | AB-C3-M8MS-1,0PUR-M8FA-2L | 3 | 1 | straight-angled | 2 LEDs | 24 | 1 |
| 22260217 | AB-C3-M8MS-2,0PUR-M8FA-2L | 3 | 2 | straight-angled | 2 LEDs | 24 | 1 |

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No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M8-M12

M8 plug on M12 socket

**Info**

- Other types are available at www.lapp.com or on request



## Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
- Outer sheath: PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **3-pin** | | | | | | | |
| 22260241 | AB-C3-M8MS-0,3PUR-M12FS | 3 | 0.3 | straight-straight | no | 60 | 1 |
| 22260242 | AB-C3-M8MS-0,6PUR-M12FS | 3 | 0.6 | straight-straight | no | 60 | 1 |
| 22260243 | AB-C3-M8MS-1,0PUR-M12FS | 3 | 1 | straight-straight | no | 60 | 1 |
| 22260244 | AB-C3-M8MS-2,0PUR-M12FS | 3 | 2 | straight-straight | no | 60 | 1 |
| 22260245 | AB-C3-M8MS-0,3PUR-M12FA | 3 | 0.3 | straight-angled | no | 60 | 1 |
| 22260246 | AB-C3-M8MS-0,6PUR-M12FA | 3 | 0.6 | straight-angled | no | 60 | 1 |
| 22260247 | AB-C3-M8MS-1,0PUR-M12FA | 3 | 1 | straight-angled | no | 60 | 1 |
| 22260248 | AB-C3-M8MS-2,0PUR-M12FA | 3 | 2 | straight-angled | no | 60 | 1 |
| 22260271 | AB-C3-M8MS-0,3PUR-M12FA-2L | 3 | 0.3 | straight-angled | 2 LEDs | 24 | 1 |
| 22260272 | AB-C3-M8MS-0,6PUR-M12FA-2L | 3 | 0.6 | straight-angled | 2 LEDs | 24 | 1 |
| 22260273 | AB-C3-M8MS-1,0PUR-M12FA-2L | 3 | 1 | straight-angled | 2 LEDs | 24 | 1 |
| 22260274 | AB-C3-M8MS-2,0PUR-M12FA-2L | 3 | 2 | straight-angled | 2 LEDs | 24 | 1 |

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No copper surcharge.
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UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR PVC M8

M8 plug/socket on free conductor end



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Application range

- For medium mechanical stress in dry conditions

## Product features

- Partly oil and chemical resistant
- PWIS-free
- Including tag carrier

## Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

## Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PVC, black

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -25°C to +80°C
Flexing -5°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **3-pin** | | | | | | |
| **Plug** | | | | | | |
| 22260847 | AB-C3-M8MS-2,0PVC | 3 | 2 | straight | 60 | 1 |
| 22260665 | AB-C3-M8MS-5,0PVC | 3 | 5 | straight | 60 | 1 |
| 22260848 | AB-C3-M8MS-10,0PVC | 3 | 10 | straight | 60 | 1 |
| **Socket** | | | | | | |
| 22262093 | AB-C3-2,0PVC-M8FA | 3 | 2 | angled | 60 | 1 |
| 22262081 | AB-C3-5,0PVC-M8FA | 3 | 5 | angled | 60 | 1 |
| 22260370 | AB-C3-10,0PVC-M8FA | 3 | 10 | angled | 60 | 1 |
| **4-pin** | | | | | | |
| **Plug** | | | | | | |
| 22262105 | AB-C4-M8MS-2,0PVC | 4 | 2 | straight | 30 | 1 |
| 22262106 | AB-C4-M8MS-5,0PVC | 4 | 5 | straight | 30 | 1 |
| 22262107 | AB-C4-M8MS-10,0PVC | 4 | 10 | straight | 30 | 1 |
| **Socket** | | | | | | |
| 22260846 | AB-C4-2,0PVC-M8FA | 4 | 2 | angled | 30 | 1 |
| 22260845 | AB-C4-5,0PVC-M8FA | 4 | 5 | angled | 30 | 1 |
| 22260844 | AB-C4-10,0PVC-M8FA | 4 | 10 | angled | 30 | 1 |

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No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# EPIC® SENSOR M8

Field mountable connectors M8



## Benefits

- Easy connection with proven srew clamp connection
- For creating of individual cable lengths
- Quick and easy on-site assembly
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology

## Product features

- 3 and 4-pin version
- Version with piercing, insulation displacement contacts (IDC) or screw connection
- PWIS-free

## Suitable cables

- UNITRONIC® SENSOR
- UNITRONIC® SENSOR FD
- UNITRONIC® ROBUST S/A FD

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: Au (gold)

**Protection rating**
IP 65/IP 67 (IDC)
IP 68 (piercing)
IP 67 (screw)

**Ambient temperature (operation)**
Plug/socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Connection type | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **Plug, straight** | | | | | | | |
| 22260993 | AB-C3-M8MS-F0,25 | 3 | IDC | 0.08 - 0.25 | 2.5 - 5 | 60 | 1 |
| 22260985 | AB-C3-M8MS-F0,5 | 3 | IDC | 0.25 - 0.5 | 2.5 - 5 | 60 | 1 |
| 22260043 | AB-C4-M8MS-F0,25 | 4 | IDC | 0.08 - 0.25 | 2.5 - 5 | 30 | 1 |
| 22260044 | AB-C4-M8MS-F0,5 | 4 | IDC | 0.25 - 0.5 | 2.5 - 5 | 30 | 1 |
| 22260122 | AB-C3-M8MS-P | 3 | Piercing | 0.14 - 0.38 | 3 - 5 | 60 | 1 |
| 22260123 | AB-C4-M8MS-P | 4 | Piercing | 0.14 - 0.38 | 3 - 5 | 30 | 1 |
| 22260120 | AB-C3-M8MS | 3 | screw | 0.14 - 0.5 | 3.5 - 5 | 60 | 1 |
| 22260121 | AB-C4-M8MS | 4 | screw | 0.14 - 0.5 | 3.5 - 5 | 30 | 1 |
| **Plug, straight shielded** | | | | | | | |
| 22262025 | AB-C3-M8MS-M-0,34-SH | 3 | screw | 0.14 - 0.5 | 3.5 - 5.5 | 60 | 1 |
| 22262027 | AB-C4-M8MS-M-0,34-SH | 4 | screw | 0.14 - 0.5 | 3.5 - 5 | 30 | 1 |
| **Plug, angled** | | | | | | | |
| 22262110 | AB-C3-M8MA | 3 | screw | 0.14 - 0.5 | 3.5 - 5 | 60 | 1 |
| 22262111 | AB-C4-M8MA | 4 | screw | 0.14 - 0.5 | 3.5 - 5 | 30 | 1 |
| **Socket, straight** | | | | | | | |
| 22260994 | AB-C3-M8FS-F0,25 | 3 | IDC | 0.08 - 0.25 | 2.5 - 5 | 60 | 1 |
| 22260986 | AB-C3-M8FS-F0,5 | 3 | IDC | 0.25 - 0.5 | 2.5 - 5 | 60 | 1 |
| 22260045 | AB-C4-M8FS-F0,25 | 4 | IDC | 0.08 - 0.25 | 2.5 - 5 | 30 | 1 |
| 22260046 | AB-C4-M8FS-F0,5 | 4 | IDC | 0.25 - 0.5 | 2.5 - 5 | 30 | 1 |
| 22260124 | AB-C3-M8FS-P | 3 | Piercing | 0.14 - 0.38 | 3 - 5 | 60 | 1 |
| 22260119 | AB-C4-M8FS-P | 4 | Piercing | 0.14 - 0.38 | 3 - 5 | 30 | 1 |
| 22260125 | AB-C3-M8FS | 3 | screw | 0.14 - 0.5 | 3.5 - 5 | 60 | 1 |
| 22260126 | AB-C4-M8FS | 4 | screw | 0.14 - 0.5 | 3.5 - 5 | 30 | 1 |
| **Socket, straight shielded** | | | | | | | |
| 22262026 | AB-C3-M8FS-M-0,34-SH | 3 | screw | 0.14 - 0.5 | 3.5 - 5.5 | 60 | 1 |
| 22262028 | AB-C4-M8FS-M-0,34-SH | 4 | screw | 0.14 - 0.5 | 3.5 - 5.5 | 30 | 1 |
| **Socket, angled** | | | | | | | |
| 22262112 | AB-C3-M8FA | 3 | screw | 0.14 - 0.5 | 3.5 - 5 | 60 | 1 |
| 22262113 | AB-C4-M8FA | 4 | screw | 0.14 - 0.5 | 3.5 - 5 | 30 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SENSOR Flush-type M8



## Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)

## Application range

- Connection of enclosures and cabinets

## Product features

- M8 fastening thread
- Designs for front mounting
- PWIS-free

## Product Make-up

- TPE single strands, l = 0.5 m
- Core cross section: 0.25 mm²

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

**Material**
Contact: CuSn
Contact surface: Ag

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket
-25 °C to +85 °C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Panel-mount connector male** | | | | |
| 22260100 | AB-C3-M8MS-0,5 | 3 | 60 | 1 |
| 22260101 | AB-C4-M8MS-0,5 | 4 | 30 | 1 |
| **Panel-mount connector female** | | | | |
| 22260102 | AB-C3-M8FS-0,5 | 3 | 60 | 1 |
| 22260103 | AB-C4-M8FS-0,5 | 4 | 30 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR M12 open-ended Cordsets

**Info**

- Other types are available at www.lapp.com or on request



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP 65/IP 67/IP 68

**Ambient temperature (operation)**
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A
2 A (8-pin)

| | | 3-pins | | 4-pins | | 5-pins | | 8-pins | |
|---|---|---|---|---|---|---|---|---|---|
| | | straight | angled | straight | angled | straight | angled | straight | angled |
| **Product** | **Length** | **Article number** | | | | | | | |
| **Plug, unshielded** | 2.0m | 22260221 | 22260223 | 22260320 | 22260301 | 22260400 | 22260402 | 22260091 | 22260094 |
| | 5.0m | 22260222 | 22260224 | 22260321 | 22260302 | 22260401 | 22260403 | 22260092 | 22260095 |
| | 10.0m | 22260249 | 22260256 | 22260342 | 22260303 | 22260414 | 22260417 | 22260093 | 22260096 |
| **Socket, unshielded** | 2.0m | 22260257 | 22260258 | 22260322 | 22260324 | 22260404 | 22260406 | 22260726 | 22260141 |
| | 5.0m | 22260250 | 22260259 | 22260323 | 22260325 | 22260405 | 22260407 | 22260728 | 22260615 |
| | 10.0m | 22260251 | 22260260 | 22260343 | 22260341 | 22260415 | 22260418 | 22260729 | 22260616 |
| **Socket with LEDs, unshielded** | 2.0m | 22260252 | 22260253 | 22260344 | 22260326 | On request | 22260408 | --- | --- |
| | 5.0m | 22260265 | 22260254 | 22260345 | 22260327 | | 22260409 | | |
| | 10.0m | 22260266 | 22260255 | 22260346 | 22260340 | | 22260416 | | |
| **Plug, shielded** | 2.0m | 22260453 | On request | 22260459 | On request | 22260465 | 22261004 | On request | On request |
| | 5.0m | 22260454 | | 22260460 | | 22260466 | 22261005 | | |
| | 10.0m | 22260455 | | 22260461 | | 22260467 | On request | | |
| **Socket, shielded** | 2.0m | 22260450 | 22260074 | 22260456 | 22260074 | 22260462 | 22260946 | On request | On request |
| | 5.0m | 22260451 | 22260675 | 22260457 | 22260675 | 22260463 | 22260714 | 22260863 | 22260859 |
| | 10.0m | 22260452 | 22260680 | 22260458 | 22260680 | 22260464 | 22260991 | 22262001 | On request |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M12 Cordsets



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP 65/IP 67/IP 68

**Ambient temperature (operation)**
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A
2 A (8-pin)

| | | Plug | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 3-pins | | 4-pins | | 5-pins | | 8-pins | |
| | | straight | angled | straight | angled | straight | angled | straight | angled |
| **Socket** | **Length** | **Article number** | | | | | | | |
| **straight** | 0.3m | 22260233 | On request | 22260328 | 22260304 | 22260410 | On request | 22260097 | On request |
| | 0.6m | 22260234 | | 22260329 | 22260305 | 22260411 | | 22260098 | |
| | 1.0m | 22260235 | | 22260330 | 22260306 | 22260412 | | 22260099 | |
| | 2.0m | 22260236 | | 22260331 | 22260307 | 22260413 | | 22260042 | |
| **angled** | 0.3m | 22260237 | On request | 22260332 | On request | 22260063 | On request | 22260137 | On request |
| | 0.6m | 22260238 | | 22260333 | 22260692 | 22260064 | | 22260138 | |
| | 1.0m | 22260239 | | 22260334 | 22260965 | 22260065 | | 22260139 | |
| | 2.0m | 22260240 | | 22260335 | 22260693 | 22260066 | | 22260140 | |
| **angled, LEDs** | 0.3m | 22260261 | On request | 22260336 | On request | 22260067 | On request | --- | --- |
| | 0.6m | 22260262 | | 22260337 | | 22260068 | | | |
| | 1.0m | 22260263 | | 22260338 | | 22260069 | | | |
| | 2.0m | 22260264 | | 22260339 | | 22260070 | | | |

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UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M12-M8

M12 plug on M8 socket

**Info**

- Other types are available at www.lapp.com or on request



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

## Application range

- For increased mechanical stress and harsh operating conditions

## Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

## Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

## Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Length (m) | Design | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug on socket** | | | | | | |
| **3-pin** | | | | | | |
| 22260225 | AB-C3-M12MS-0,3PUR-M8FS | 0.3 | straight-straight | no | 60 | 1 |
| 22260226 | AB-C3-M12MS-0,6PUR-M8FS | 0.6 | straight-straight | no | 60 | 1 |
| 22260227 | AB-C3-M12MS-1,0PUR-M8FS | 1 | straight-straight | no | 60 | 1 |
| 22260228 | AB-C3-M12MS-2,0PUR-M8FS | 2 | straight-straight | no | 60 | 1 |
| 22260229 | AB-C3-M12MS-0,3PUR-M8FA | 0.3 | straight-angled | no | 60 | 1 |
| 22260230 | AB-C3-M12MS-0,6PUR-M8FA | 0.6 | straight-angled | no | 60 | 1 |
| 22260231 | AB-C3-M12MS-1,0PUR-M8FA | 1 | straight-angled | no | 60 | 1 |
| 22260232 | AB-C3-M12MS-2,0PUR-M8FA | 2 | straight-angled | no | 60 | 1 |
| 22260267 | AB-C3-M12MS-0,3PUR-M8FA-2L | 0.3 | straight-angled | 2 LEDs | 24 | 1 |
| 22260268 | AB-C3-M12MS-0,6PUR-M8FA-2L | 0.6 | straight-angled | 2 LEDs | 24 | 1 |
| 22260269 | AB-C3-M12MS-1,0PUR-M8FA-2L | 1 | straight-angled | 2 LEDs | 24 | 1 |
| 22260270 | AB-C3-M12MS-2,0PUR-M8FA-2L | 2 | straight-angled | 2 LEDs | 24 | 1 |
| **4-pin** | | | | | | |
| 22260347 | AB-C4-M12MS-0,3PUR-M8FS | 0.3 | straight-straight | no | 30 | 1 |
| 22260349 | AB-C4-M12MS-0,6PUR-M8FS | 0.6 | straight-straight | no | 30 | 1 |
| 22260350 | AB-C4-M12MS-1,0PUR-M8FS | 1 | straight-straight | no | 30 | 1 |
| 22260348 | AB-C4-M12MS-2,0PUR-M8FS | 2 | straight-straight | no | 30 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# EPIC® POWER M12L-M12L

M12 plug on M12 socket



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Ready-made connection assemblies to save time during installation
- Proven cable successfully tested for over 5 million bending cycles in cable chains and >2 million torsion cycle
- able design allows rotations with torsion angles of up to ± 180°/m
- Connectors are mechanically robust, insensitive to shock and vibration and therefore extremely reliable, thanks to the double overmoulding
- The mechanical L coding of the connector face prevents incorrect plugging with the mating connector

## Application range

- For connecting the power supply of devices and machines with higher voltages and currents
- The cable design allows flexible, continuously flexing use in moving machine parts and in the cable chain
- Also suitable as the power supply in the PROFINET network (M12L is regarded as a standardised power interface)
- Can be used in dry, damp or wet interiors
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

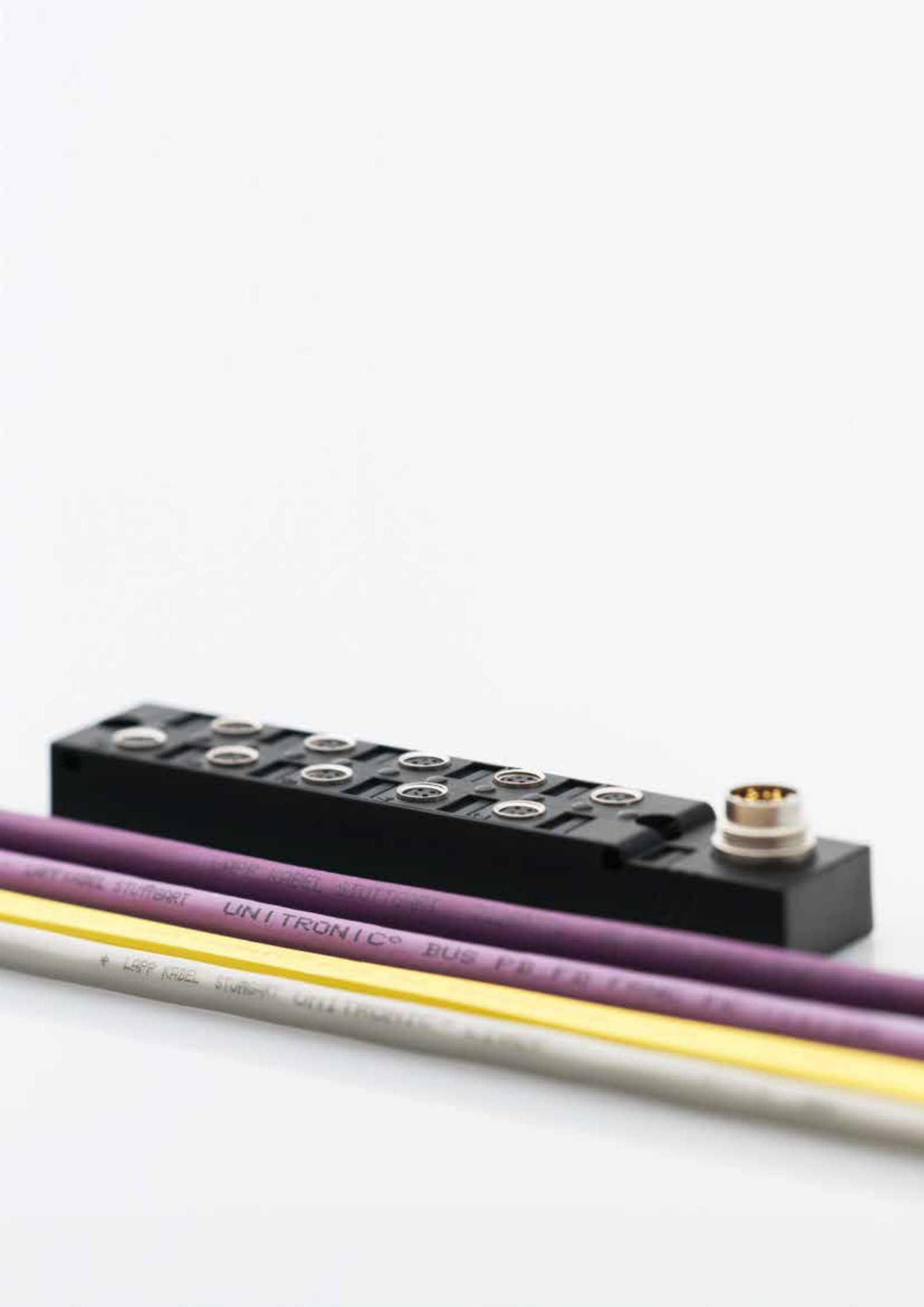
## Technical data

**Classification**
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

**Protection rating**
IP65/IP67

| Article number | Article designation | Length [mm] | Weight (kg/km) |
|---|---|---|---|
| 44424060 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-0.3 | 0.3 | 0.077 |
| 44424061 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-1 | 1 | 0.001 |
| 44424062 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-1.5 | 1.5 | 0.276 |
| 44424063 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-2 | 2 | 0.36 |
| 44424064 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-3 | 3 | 0.525 |
| 44424065 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-3.5 | 3.5 | 0.611 |
| 44424066 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-5 | 5 | 0.835 |
| 44424067 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-7.5 | 7.5 | 1.242 |
| 44424068 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-10 | 10 | 1.67 |
| 44424069 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-15 | 15 | 2.49 |
| 44424070 | EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-20 | 20 | 3.32 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.


UNITRONIC®

# UNITRONIC® SENSOR PVC M12 | M12-M12

M12 plug/socket on M12 plug/socket/free conductor end



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance
- Integrated vibration protection (mechanical lock-in)

## Application range

- For medium mechanical stress in dry conditions

## Product features

- Partly oil and chemical resistant
- Including tag carrier
- PWIS-free

## Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

## Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
- Outer sheath: PVC, black

## Suitable tools

- DATA STRIP stripping tool

## Info

- Other types are available at www.lapp.com or on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **3-pin** | | | | | | |
| **Socket** | | | | | | |
| 22260080 | AB-C3-2,0PVC-M12FS | 3 | 2 | straight | 250 | 1 |
| 22260663 | AB-C3-5,0PVC-M12FS | 3 | 5 | straight | 250 | 1 |
| 22260081 | AB-C3-10,0PVC-M12FS | 3 | 10 | straight | 250 | 1 |
| 22262095 | AB-C3-2,0PVC-M12FA | 3 | 2 | angled | 250 | 1 |
| 22260661 | AB-C3-5,0PVC-M12FA | 3 | 5 | angled | 250 | 1 |
| 22262083 | AB-C3-10,0PVC-M12FA | 3 | 10 | angled | 250 | 1 |
| **Plug on socket** | | | | | | |
| 22262096 | AB-C3-M12MS-2,0PVC-M12FA | 3 | 2 | straight-angled | 250 | 1 |
| 22262097 | AB-C3-M12MS-5,0PVC-M12FA | 3 | 5 | straight-angled | 250 | 1 |
| 22262098 | AB-C3-M12MS-10,0PVC-M12FA | 3 | 10 | straight-angled | 250 | 1 |
| **4-pin** | | | | | | |
| **Socket** | | | | | | |
| 22260688 | AB-C4- 2,0PVC-M12FS | 4 | 2 | straight | 250 | 1 |
| 22260689 | AB-C4-5,0PVC-M12FS | 4 | 5 | straight | 250 | 1 |
| 22260685 | AB-C4-10,0PVC-M12FS | 4 | 10 | straight | 250 | 1 |
| 22260841 | AB-C4- 2,0PVC-M12FA | 4 | 2 | angled | 250 | 1 |
| 22260678 | AB-C4-5,0PVC-M12FA | 4 | 5 | angled | 250 | 1 |
| 22260683 | AB-C4-10,0PVC-M12FA | 4 | 10 | angled | 250 | 1 |
| **Plug on socket** | | | | | | |
| 22260832 | AB-C4-M12MS-2,0PVC-M12FA | 4 | 2 | straight-angled | 250 | 1 |
| 22260705 | AB-C4-M12MS-5,0PVC-M12FA | 4 | 5 | straight-angled | 250 | 1 |
| 22260833 | AB-C4-M12MS-10,0PVC-M12FA | 4 | 10 | straight-angled | 250 | 1 |
| **5-pin** | | | | | | |
| **Socket** | | | | | | |
| 22262099 | AB-C5-2,0PVC-M12FS | 5 | 2 | straight | 60 | 1 |
| 22262100 | AB-C5-5,0PVC-M12FS | 5 | 5 | straight | 60 | 1 |
| 22262101 | AB-C5-10,0PVC-M12FS | 5 | 10 | straight | 60 | 1 |
| **Plug on socket** | | | | | | |
| 22262102 | AB-C5-M12MS-2,0PVC-M12FA | 5 | 2 | straight-angled | 60 | 1 |
| 22262103 | AB-C5-M12MS-5,0PVC-M12FA | 5 | 5 | straight-angled | 60 | 1 |
| 22262104 | AB-C5-M12MS-10,0PVC-M12FA | 5 | 10 | straight-angled | 60 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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# UNITRONIC® SENSOR HD M12

S/A cable: Hygienic Design for Food&Beverage

**Info**

- IP69 for high-pressure cleaning
- - 40 °C to + 105 °C



## Benefits

- Hygienic Design for ideal cleaning results
- Guaranteed density by meeting the highest protection class
- Stainless steel knurl to ensure protection against corrosion
- Bright colors to detect contamination quickly

## Application range

- Food production and packaging machinery
- Freezing plants, cold storage
- Washdown area with frequent contact with cleaning agents

## Product features

- Suitable for cable chain
- 4-pin plug/socket M12 on free conductor end

## Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America

## Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: TPE halogen-free, grey (similar to RAL 7035)

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Stainless steel (V4A)
Gripping body: PP

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67/IP68/IP69

**Ambient temperature (operation)**
Fixed installation -40°C to +105°C
Flexing -25°C to +105°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug** | | | | | | |
| 22262040 | AB-C4-M12MS-2,0TPE-HD | 4 | 2 | straight | 250 | 1 |
| 22262041 | AB-C4-M12MS-5,0TPE-HD | 4 | 5 | straight | 250 | 1 |
| 22262060 | AB-C4-M12MS-7,5TPE-HD | 4 | 7.5 | straight | 250 | 1 |
| 22262042 | AB-C4-M12MS-10,0TPE-HD | 4 | 10 | straight | 250 | 1 |
| 22262061 | AB-C4-M12MS-15,0TPE-HD | 4 | 15 | straight | 250 | 1 |
| **Socket** | | | | | | |
| 22262043 | AB-C4-2,0TPE-M12FS-HD | 4 | 2 | straight | 250 | 1 |
| 22262044 | AB-C4-5,0TPE-M12FS-HD | 4 | 5 | straight | 250 | 1 |
| 22262062 | AB-C4-7,5TPE-M12FS-HD | 4 | 7.5 | straight | 250 | 1 |
| 22262045 | AB-C4-10,0TPE-M12FS-HD | 4 | 10 | straight | 250 | 1 |
| 22262063 | AB-C4-15,0TPE-M12FS-HD | 4 | 15 | straight | 250 | 1 |
| 22262046 | AB-C4-2,0TPE-M12FA-HD | 4 | 2 | angled | 250 | 1 |
| 22262047 | AB-C4-5,0TPE-M12FA-HD | 4 | 5 | angled | 250 | 1 |
| 22262064 | AB-C4-7,5TPE-M12FA-HD | 4 | 7.5 | angled | 250 | 1 |
| 22262048 | AB-C4-10,0TPE-M12FA-HD | 4 | 10 | angled | 250 | 1 |
| 22262065 | AB-C4-15,0TPE-M12FA-HD | 4 | 15 | angled | 250 | 1 |
| **Plug on socket** | | | | | | |
| 22262184 | AB-C4-M12MS-0,3TPE-M12FS-HD | 4 | 0.3 | straight-straight | 250 | 1 |
| 22262185 | AB-C4-M12MS-0,6TPE-M12FS-HD | 4 | 0.6 | straight-straight | 250 | 1 |
| 22262180 | AB-C4-M12MS-1,0TPE-M12FS-HD | 4 | 1 | straight-straight | 250 | 1 |
| 22262181 | AB-C4-M12MS-2,0TPE-M12FS-HD | 4 | 2 | straight-straight | 250 | 1 |
| 22262182 | AB-C4-M12MS-5,0TPE-M12FS-HD | 4 | 5 | straight-straight | 250 | 1 |
| 22262183 | AB-C4-M12MS-10,0TPE-M12FS-HD | 4 | 10 | straight-straight | 250 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SENSOR M12

Field mountable connectors M12





## Benefits

- For creating of individual cable lengths
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology
- Easy connection with proven srew clamp connection

## Product features

- 4, 5 and 8-pin version
- Screened and non-screened version
- Screw connection or insulation displacement contacts (IDC)
- PWIS-free

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: CuSnZn

**Protection rating**
IP 65/IP 67 (IDC)
IP 67 (screw)

**Ambient temperature (operation)**
Plug/socket
-25°C to +80°C (IDC)
-40°C to +85°C (screw)

**Coding**
A-standard

**Rated current (A)**
4 A
2 A (8-pin)

| Article number | Article designation | Number of pins | Connection type | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|---|
| **Plug, straight** | | | | | | | |
| 22260132 | AB-C4-M12MS-F0,34 | 4 | IDC | 0.14 - 0.34 | 3.5 - 6 | 125 | 1 |
| 22260134 | AB-C4-M12MS-F0,75 | 4 | IDC | 0.34 - 0.75 | 4 - 8 | 250 | 1 |
| 22260649 | AB-C4-M12MS-PG7 | 4 | screw | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22260995 | AB-C4-M12MS-PG9 | 4 | screw | 0.25 - 0.75 | 6 - 8 | 250 | 1 |
| 22260129 | AB-C5-M12MS-PG7 | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |
| 22260651 | AB-C5-M12MS-PG9 | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22260996 | AB-C5-M12MS-PG9-SKINTOP® | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| **Plug, straight shielded** | | | | | | | |
| 22260135 | AB-C5-M12MS-PG9-SH | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22260825 | AB-C8-M12MS-PG9-SH | 8 | screw | 0.25 - 0.75 | 6 - 8 | 30 | 1 |
| **Plug, angled** | | | | | | | |
| 22260647 | AB-C4-M12MA-PG7 | 4 | screw | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22260130 | AB-C5-M12MA-PG7 | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |
| 22260648 | AB-C5-M12MA-PG9 | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22262023 | AB-C5-M12MA-PG9-SKINTOP® | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| **Plug angled, shielded** | | | | | | | |
| 22262108 | AB-C5-M12MA-PG7-SH | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |
| **Socket, straight** | | | | | | | |
| 22260131 | AB-C4-M12FS-F0,34 | 4 | IDC | 0.14 - 0.34 | 3.5 - 6 | 125 | 1 |
| 22260133 | AB-C4-M12FS-F0,75 | 4 | IDC | 0.34 - 0.75 | 4 - 8 | 250 | 1 |
| 22260640 | AB-C4-M12FS-PG7 | 4 | screw | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22260641 | AB-C4-M12FS-PG9 | 4 | screw | 0.25 - 0.75 | 6 - 8 | 250 | 1 |
| 22260127 | AB-C5-M12FS-PG7 | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |
| 22260644 | AB-C5-M12FS-PG9 | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22260997 | AB-C5-M12FS-PG9-SKINTOP® | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| **Socket, straight shielded** | | | | | | | |
| 22260136 | AB-C5-M12FS-PG9-SH | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22260826 | AB-C8-M12FS-PG9-SH | 8 | screw | 0.25 - 0.75 | 6 - 8 | 30 | 1 |
| **Socket, angled** | | | | | | | |
| 22260636 | AB-C4-M12FA-PG7 | 4 | screw | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22260128 | AB-C5-M12FA-PG7 | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |
| 22260638 | AB-C5-M12FA-PG9 | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| 22262024 | AB-C5-M12FA-PG9-SKINTOP® | 5 | screw | 0.25 - 0.75 | 6 - 8 | 60 | 1 |
| **Socket angled, shielded** | | | | | | | |
| 22262109 | AB-C5-M12FA-PG7-SH | 5 | screw | 0.25 - 0.75 | 4 - 6 | 60 | 1 |

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# EPIC® SENSOR M12 V4A

Field mountable connectors M12 for Food & Beverage/ Outdoor



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: Au (gold)
Knurl: Stainless steel (V4A)

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket -40°C to +85°C

**Coding**
A-standard

**Rated current (A)**
4 A

## Benefits

- Stainless steel knurl to ensure protection against corrosion
- Quick and easy on-site assembly
- For creating of individual cable lengths
- Space-saving due to compact dimensions
- Easy connection with proven srew clamp connection

## Application range

- Automation systems
- Conveyor and transport systems
- Food production and packaging machinery
- Version SKINTOP® for Outdoor applications

## Product features

- 4-pin connector
- Screw connection
- PWIS-free

| Article number | Article designation | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Plug, straight** | | | | | | |
| 22262049 | AB-C4-M12MS-PG7-VA | 4 | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22262123 | AB-C4-M12MS-PG7-VA-SKINTOP | 4 | 0.25 - 0.75 | 4.0 - 6.5 | 250 | 1 |
| **Socket, straight** | | | | | | |
| 22262050 | AB-C4-M12FS-PG7-VA | 4 | 0.25 - 0.75 | 4 - 6 | 250 | 1 |
| 22262124 | AB-C4-M12FS-PG7-VA-SKINTOP | 4 | 0.25 - 0.75 | 4.0 - 6.5 | 250 | 1 |
| **Socket angled** | | | | | | |
| 22262051 | AB-C4-M12FA-PG7-VA | 4 | 0.25 - 0.75 | 4 - 6 | 250 | 1 |

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DeviceNet CANopen

# EPIC® SENSOR M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling



22262020

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

**Material**
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket
-25°C to +85°C

**Coding**
A - Standard
(CANopen/DeviceNet/CC-Link)

**Rated current (A)**
4 A

## Benefits

- Plug & Play for flexible connection solutions
- M12 connector on both sides

## Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

## Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

| Article number | Article designation | Number of pins | Rated voltage (V) | PU |
|---|---|---|---|---|
| **Control cabinet feed through** | | | | |
| 22262020 | AB-C5-DSI-M12MS-M12FS-M16-SH | 5 | 24 | 1 |

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# EPIC® SENSOR M12A screw connection

Field mountable connectors M12







## Benefits

- High stability thanks to impact-resistant polyamide
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs and with different pole configurations

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Typical application areas are sensors and actuators at field level
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

**Protection rating**
IP 67

**Ambient temperature (operation)**
-25°C to +85°C

**Coding**
A-standard

| Article number | Article designation | Number of pins | Connection type | Design |
|---|---|---|---|---|
| 381166318 | EPIC® SENSOR M12A F6 3 SR1220 4-8 | 3 | Plug | Straight |
| 381166319 | EPIC® SENSOR M12A F6 4 SR1220 4-8 | 4 | Plug | Straight |
| 381166320 | EPIC® SENSOR M12A F6 5 SR1220 4-8 | 5 | Plug | Straight |
| 381166321 | EPIC® SENSOR M12A F6 8 SR1220 4-8 | 8 | Plug | Straight |
| 381166325 | EPIC® SENSOR M12A D6 3 SR1220 4-8 | 3 | Socket | Straight |
| 381166326 | EPIC® SENSOR M12A D6 4 SR1220 4-8 | 4 | Socket | Straight |
| 381166327 | EPIC® SENSOR M12A D6 5 SR1220 4-8 | 5 | Socket | Straight |
| 381166328 | EPIC® SENSOR M12A D6 8 SR1220 4-8 | 8 | Socket | Straight |
| 381166332 | EPIC® SENSOR M12A F1 3 SR1220 4-8 | 3 | Plug | Straight |
| 381166333 | EPIC® SENSOR M12A F1 4 SR1220 4-8 | 4 | Plug | Angled |
| 381166335 | EPIC® SENSOR M12A F1 5 SR1220 4-8 | 5 | Plug | Angled |
| 381166337 | EPIC® SENSOR M12A F1 8 SR1220 4-8 | 8 | Plug | Angled |
| 381166338 | EPIC® SENSOR M12A D7 3 SR1220 4-8 | 3 | Socket | Angled |
| 381166339 | EPIC® SENSOR M12A D7 4 SR1220 4-8 | 4 | Socket | Angled |
| 381166341 | EPIC® SENSOR M12A D7 5 SR1220 4-8 | 5 | Socket | Angled |
| 381166343 | EPIC® SENSOR M12A D7 8 SR1220 4-8 | 8 | Socket | Angled |

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# EPIC® SENSOR M12A solder termination

Field mountable connectors M12







## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

**Protection rating**
IP 67

**Ambient temperature (operation)**
-25 °C to +85 °C

**Coding**
A-standard

## Benefits

- High stability thanks to impact-resistant polyamide
- Solder termination is easy to implement, and creates a plug connection that is resistant to shock and vibrations
- When connected, protection class IP 67 can be achieved
- Available in different designs

## Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Typical application areas are sensors and actuators at field level
- Good oil and chemical resistance

| Article number | Article designation | Number of pins | Connection type | Design |
|---|---|---|---|---|
| 381166322 | EPIC® SENSOR M12A F6 12 SL1220 4-8 | 12 | Plug | Straight |
| 381166329 | EPIC® SENSOR M12A D6 12 SL1220 4-8 | 12 | Plug | Straight |

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# EPIC® SENSOR M12B screw termination

Field mountable connectors M12







## Benefits

- High stability thanks to impact-resistant polyamide
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs

## Application range

- For fieldbus communication in PROFIBUS®-based networks
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

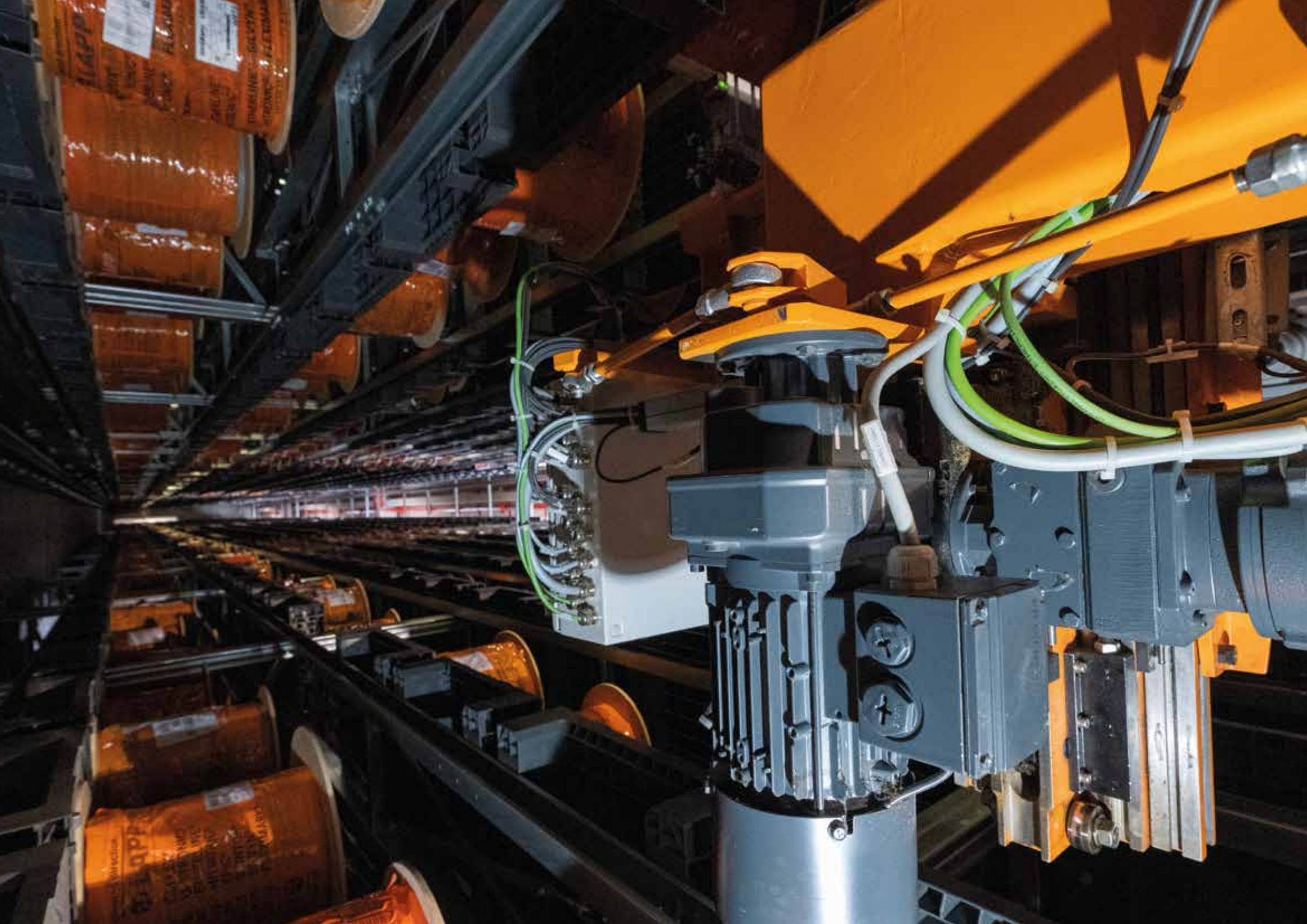
**Protection rating**
IP 67

**Ambient temperature (operation)**
-25°C to +85°C

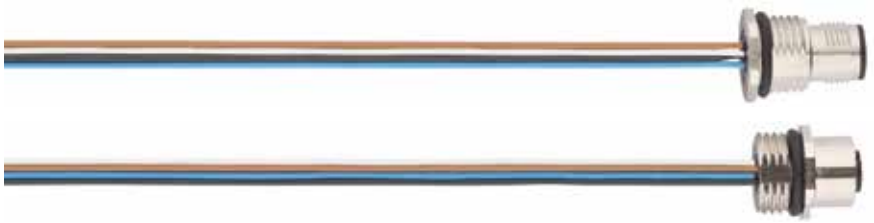
**Coding**
B-standard

| Article number | Article designation | Number of pins | Connection type | Design |
|---|---|---|---|---|
| 381166323 | EPIC® SENSOR M12B F6 5 SR1220 4-8 | 5 | Plug | Straight |
| 381166330 | EPIC® SENSOR M12B D6 5 SR1220 4-8 | 5 | Socket | Straight |
| 381166336 | EPIC® SENSOR M12B F1 5 SR1220 4-8 | 5 | Plug | Angled |
| 381166342 | EPIC® SENSOR M12B D7 5 SR1220 4-8 | 5 | Socket | Angled |

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# EPIC® SENSOR Flush-type M12



## Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Outside plugable with M12 connection, inside housing connected with fixed wires

## Application range

- Connection of enclosures and cabinets

## Product features

- With M12, M16 or PG9 fastening thread
- Designs for front and rear wall-mounting
- M12 connector, A-coded with quick-locking system
- PWIS-free
- Rear wall-mounting versions inclusive fitting nut

## Norm references / Approvals

- UL File Number: E249137

## Product Make-up

- TPE single strands, l = 0.5 m
- Wire cross-section: 0,34 mm²

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector chassis

**Material**
Contact: CuZn
Contact surface: Au (gold)

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket
-25°C to +85°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Fastening thread | Rated voltage (V) | PU |
|---|---|---|---|---|---|
| **Plug for front-mounting** | | | | | |
| 22260108 | AB-C4-M12MS-M16-0,5 | 4 | M16 | 250 | 1 |
| 22260106 | AB-C5-M12MS-M16-0,5 | 5 | M16 | 60 | 1 |
| 22260083 | AB-C4-M12MS-M16-PO-0,5 | 4 | M16 positionable | 250 | 1 |
| 22260084 | AB-C5-M12MS-M16-PO-0,5 | 5 | M16 positionable | 60 | 1 |
| 22260113 | AB-C4-M12MS-PG9-0,5 | 4 | PG9 | 250 | 1 |
| 22260112 | AB-C5-M12MS-PG9-0,5 | 5 | PG9 | 60 | 1 |
| 22260087 | AB-C4-M12MS-PG9-PO-0,5 | 4 | PG9 positionable | 250 | 1 |
| 22260088 | AB-C5-M12MS-PG9-PO-0,5 | 5 | PG9 positionable | 60 | 1 |
| **Plug for rear-mounting** | | | | | |
| 22260999 | AB-C4-DSI-M12MS-M12-0,5 | 4 | M12 | 250 | 1 |
| 22260117 | AB-C4-DSI-M12MS-PG9-0,5 | 4 | PG9 | 250 | 1 |
| 22260115 | AB-C5-DSI-M12MS-PG9-0,5 | 5 | PG9 | 60 | 1 |
| **Socket for front-mounting** | | | | | |
| 22260107 | AB-C4-M12FS-M16-0,5 | 4 | M16 | 250 | 1 |
| 22260105 | AB-C5-M12FS-M16-0,5 | 5 | M16 | 60 | 1 |
| 22260085 | AB-C4-M12FS-M16-PO-0,5 | 4 | M16 positionable | 250 | 1 |
| 22260086 | AB-C5-M12FS-M16-PO-0,5 | 5 | M16 positionable | 60 | 1 |
| 22260114 | AB-C4-M12FS-PG9-0,5 | 4 | PG9 | 250 | 1 |
| 22260111 | AB-C5-M12FS-PG9-0,5 | 5 | PG9 | 60 | 1 |
| 22260089 | AB-C4-M12FS-PG9-PO-0,5 | 4 | PG9 positionable | 250 | 1 |
| 22260090 | AB-C5-M12FS-PG9-PO-0,5 | 5 | PG9 positionable | 60 | 1 |
| **Socket for rear-mounting** | | | | | |
| 22260118 | AB-C4-DSI-M12FS-PG9-0,5 | 4 | PG9 | 250 | 1 |
| 22260116 | AB-C5-DSI-M12FS-PG9-0,5 | 5 | PG9 | 60 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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DeviceNet CANopen

# EPIC® SENSOR M12 T-distributor

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling

## Technical data

**Material**
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

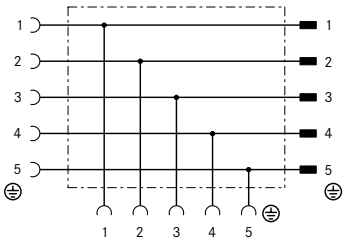
**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C

**Coding**
A - Standard
(CANopen/DeviceNet/CC-Link)

**Rated current (A)**
4 A






22260765

### Benefits
- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

### Product features
- PWIS-free

### Product Make-up
- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

| Article number | Article designation | PU |
|---|---|---|
| **T distributor** | | |
| 22260765 | AB-C5-M12T-2XM12FS DN | 5 |

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DeviceNet CANopen

# EPIC® SENSOR CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

## Technical data

**Material**
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
-40°C to +85°C

**Rated current (A)**
4 A



21700641

### Benefits
- Optimum EMC protection with 360 ° shielding
- Time-saving assembly with IDC connection technology

### Application range
- To extend existing cable systems
- Repairkit for damaged cables

### Product features
- 5-pin cable coupler round
- Screened version

| Article number | Article designation | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) |
|---|---|---|---|---|---|
| **Cable coupler round** | | | | | |
| 21700641 | AB-C5-CCR-SH | 5 | 0.14 - 0.50 | 5.0 - 9.7 | 60 |

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# UNITRONIC® SENSOR Valve

valve connector on free conductor end



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Product features

- Suitable for cable chain
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)
  With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

## Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code:
  Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:
  4.5 mm (3 pins)
  5.3 mm (5 pins)

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ag

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Valve connector -20°C to +85°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Valve connector type A (18 mm)** | | | | | | |
| 22260584 | AB-C3- 2,0PUR-A-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| 22260576 | AB-C3- 5,0PUR-A-1L-S | 3 | 5 | 1 LED | 24 | 1 |
| 22260577 | AB-C3-10,0PUR-A-1L-S | 3 | 10 | 1 LED | 24 | 1 |
| **Valve connector type A (18mm) for pressure switch** | | | | | | |
| 22260589 | AB-C5-2,0PUR-AD-2L | 5 | 2 | 2 LEDs | 24 | 1 |
| 22260590 | AB-C5-5,0PUR-AD-2L | 5 | 5 | 2 LEDs | 24 | 1 |
| 22260591 | AB-C5-10,0PUR-AD-2L | 5 | 10 | 2 LEDs | 24 | 1 |
| **Valve connector type B (10 mm)** | | | | | | |
| 22260585 | AB-C3- 2,0PUR-B-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| 22260578 | AB-C3- 5,0PUR-B-1L-S | 3 | 5 | 1 LED | 24 | 1 |
| 22260579 | AB-C3-10,0PUR-B-1L-S | 3 | 10 | 1 LED | 24 | 1 |
| **Valve connector type BI (11 mm)** | | | | | | |
| 22260586 | AB-C3- 2,0PUR-BI-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| 22260580 | AB-C3- 5,0PUR-BI-1L-S | 3 | 5 | 1 LED | 24 | 1 |
| 22260581 | AB-C3-10,0PUR-BI-1L-S | 3 | 10 | 1 LED | 24 | 1 |
| **Valve connector type C (8 mm)** | | | | | | |
| 22260587 | AB-C3- 2,0PUR-C-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| 22260582 | AB-C3- 5,0PUR-C-1L-S | 3 | 5 | 1 LED | 24 | 1 |
| 22260583 | AB-C3-10,0PUR-C-1L-S | 3 | 10 | 1 LED | 24 | 1 |
| **Valve connector type CI (9.4 mm)** | | | | | | |
| 22260588 | AB-C3- 2,0PUR-CI-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| 22260574 | AB-C3- 5,0PUR-CI-1L-S | 3 | 5 | 1 LED | 24 | 1 |
| 22260575 | AB-C3-10,0PUR-CI-1L-S | 3 | 10 | 1 LED | 24 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR Valve-M12

valve connector on straight M12 plug



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Product features

- Suitable for cable chain
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)
  With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

## Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code:
  Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:
  4.5 mm (3 pins)
  5.3 mm (5 pins)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Valve connector -20°C to +85°C
Connector/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

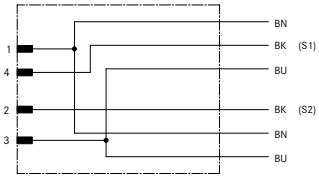
| Article number | Article designation | Number of pins | Length (m) | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Straight connector to valve connector type A (18 mm)** | | | | | | |
| 22260550 | AB-C3-M12MS-0,3PUR-A-1L-S | 3 | 0.3 | 1 LED | 24 | 1 |
| 22260551 | AB-C3-M12MS-0,6PUR-A-1L-S | 3 | 0.6 | 1 LED | 24 | 1 |
| 22260552 | AB-C3-M12MS-1,0PUR-A-1L-S | 3 | 1 | 1 LED | 24 | 1 |
| 22260553 | AB-C3-M12MS-2,0PUR-A-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| **Straight connector to valve connector type A (18mm) for pressure switch** | | | | | | |
| 22260573 | AB-C5-M12MS-0,3PUR-AD-2L | 5 | 0.3 | 2 LEDs | 24 | 1 |
| 22260572 | AB-C5-M12MS-0,6PUR-AD-2L | 5 | 0.6 | 2 LEDs | 24 | 1 |
| 22260571 | AB-C5-M12MS-1,0PUR-AD-2L | 5 | 1 | 2 LEDs | 24 | 1 |
| 22260570 | AB-C5-M12MS-2,0PUR-AD-2L | 5 | 2 | 2 LEDs | 24 | 1 |
| **Straight connector to valve connector type B (10 mm)** | | | | | | |
| 22260558 | AB-C3-M12MS-0,3PUR-B-1L-S | 3 | 0.3 | 1 LED | 24 | 1 |
| 22260559 | AB-C3-M12MS-0,6PUR-B-1L-S | 3 | 0.6 | 1 LED | 24 | 1 |
| 22260560 | AB-C3-M12MS-1,0PUR-B-1L-S | 3 | 1 | 1 LED | 24 | 1 |
| 22260561 | AB-C3-M12MS-2,0PUR-B-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| **Straight connector to valve connector type BI (11 mm)** | | | | | | |
| 22260554 | AB-C3-M12MS-0,3PUR-BI-1L-S | 3 | 0.3 | 1 LED | 24 | 1 |
| 22260555 | AB-C3-M12MS-0,6PUR-BI-1L-S | 3 | 0.6 | 1 LED | 24 | 1 |
| 22260556 | AB-C3-M12MS-1,0PUR-BI-1L-S | 3 | 1 | 1 LED | 24 | 1 |
| 22260557 | AB-C3-M12MS-2,0PUR-BI-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| **Straight connector to valve connector type C (8 mm)** | | | | | | |
| 22260566 | AB-C3-M12MS-0,3PUR-C-1L-S | 3 | 0.3 | 1 LED | 24 | 1 |
| 22260567 | AB-C3-M12MS-0,6PUR-C-1L-S | 3 | 0.6 | 1 LED | 24 | 1 |
| 22260568 | AB-C3-M12MS-1,0PUR-C-1L-S | 3 | 1 | 1 LED | 24 | 1 |
| 22260569 | AB-C3-M12MS-2,0PUR-C-1L-S | 3 | 2 | 1 LED | 24 | 1 |
| **Straight connector to valve connector type CI (9.4 mm)** | | | | | | |
| 22260562 | AB-C3-M12MS-0,3PUR-CI-1L-S | 3 | 0.3 | 1 LED | 24 | 1 |
| 22260563 | AB-C3-M12MS-0,6PUR-CI-1L-S | 3 | 0.6 | 1 LED | 24 | 1 |
| 22260564 | AB-C3-M12MS-1,0PUR-CI-1L-S | 3 | 1 | 1 LED | 24 | 1 |
| 22260565 | AB-C3-M12MS-2,0PUR-CI-1L-S | 3 | 2 | 1 LED | 24 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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# UNITRONIC® SENSOR M12Y

M12 Y plug straight on 2x free conductor end






## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions

## Product features

- 4-pin M12Y plug on free conductor end
- Including tag carrier
- PWIS-free
- Suitable for cable chain

## Product Make-up

- 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

## Suitable tools

- DATA STRIP stripping tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Length (m) | LED | Rated voltage (V) | PU |
|---|---|---|---|---|---|
| **Y plug to 2 x free conductor end** | | | | | |
| 22260500 | AB-C3-M12Y-2,0PUR | 2 | no | 250 | 1 |
| 22260513 | AB-C3-M12Y-5,0PUR | 5 | no | 250 | 1 |
| 22260526 | AB-C3-M12Y-10,0PUR | 10 | no | 250 | 1 |

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UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M12Y-M8

M12 Y plug straight on 2x M8 socket




# UNITRONIC® SENSOR M12Y-M12

M12 Y plug straight on 2x M12 socket




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67/IP68

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

**Coding**
A-standard

**Rated current (A)**
4 A

## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Product features

- 4-pin M12Y connector on 2 x M12 socket (4-pin), Pin 2+4 bridged
- 4-pin M12Y plug on 2 x M8 socket (3-pin)
- Including tag carrier
- PWIS-free
- Suitable for cable chain

## Product Make-up

- M12Y-M8: 3 x 0.25 mm²
  M12Y-M12: 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

| Article number | Article designation | Number of pins | Length (m) |
|---|---|---|---|
| 22260501 | AB-C3-M12Y-0,3PUR-M12FS-B | 3 | 0.3 |
| 22260502 | AB-C3-M12Y-0,6PUR-M12FS-B | 3 | 0.6 |
| 22260503 | AB-C3-M12Y-1,0PUR-M12FS-B | 3 | 1 |
| 22260504 | AB-C3-M12Y-2,0PUR-M12FS-B | 3 | 2 m |
| 22260505 | AB-C3-M12Y-0,3PUR-M12FA-B | 3 | 0.3 |
| 22260506 | AB-C3-M12Y-0,6PUR-M12FA-B | 3 | 0.6 |
| 22260507 | AB-C3-M12Y-1,0PUR-M12FA-B | 3 | 1 |
| 22260508 | AB-C3-M12Y-2,0PUR-M12FA-B | 3 | 2 |
| 22260509 | AB-C3-M12Y-0,3PUR-M12FA-2L-B | 3 | 0.3 |
| 22260510 | AB-C3-M12Y-0,6PUR-M12FA-2L-B | 3 | 0.6 |
| 22260511 | AB-C3-M12Y-1,0PUR-M12FA-2L-B | 3 | 1 |
| 22260512 | AB-C3-M12Y-2,0PUR-M12FA-2L-B | 3 | 2 |

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# EPIC® SENSOR M8Y | M12Y

Y distributor M8 | M12



## Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

## Product features

- Design: Plug on 2x socket
- M12 design with screw hole
- PWIS-free

## Product Make-up

- 22260600:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket, pin 2+4 bridged
- 22260601:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket
- 22260602:
  M12, 5-pin straight M12 plug on 2x 3-pin straight M8 socket, parallel distributor
- 22260603:
  M8, 4-pin M8 plug on 2x 3pin M8 socket
- 22260604:
  M8 plug on M8 socket, 3-pin parallel distributor

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C

**Coding**
A-standard

**Rated current (A)**
4 A

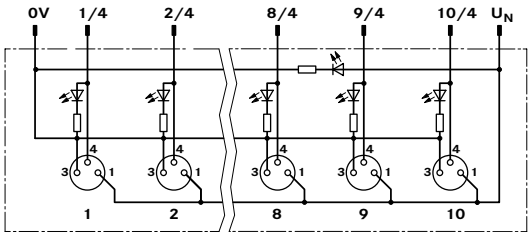
| Article number | Article designation | Rated voltage (V) | PU |
|---|---|---|---|
| **M12 Y distributor** | | | |
| 22260600 | AB-C3-M12Y-2XM12FS B E | 60 | 5 |
| 22260601 | AB-C3-M12Y-2XM12FS E | 60 | 5 |
| 22260602 | AB-C5-M12Y-2XM12FS V | 60 | 5 |
| **M8 Y distributor** | | | |
| 22260603 | AB-C3-M8Y-2XM8FS | 30 | 5 |
| 22260604 | AB-C3-M8Y-2XM8FS V | 60 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Distribution Box M8

Distribution box with M8 slots and master cable/connection M12/M16






## Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission
- There are no assembly costs as the master cable is already pre-assembled
- Suitable for cable chain

## Product features

- Single-occupied boxes
- With fixed master cable or M12/M16 socket
- LEDs indicate the operating mode of the distributor and the status of the sensors
- PWIS-free

## Norm references / Approvals

- E-File number: E75770

## Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

## Suitable cables

- M12 master cable
  8-pos. 5/10 m: 22260615/22260616
- M16 master cable
  8-pos 5/10m: 22260607/22260608
  10-pos 5/10m: 22260609/22260610
  12-pos 5/10m: 22260611/22260612
  14-pos 5/10m: 22260613/22260614

## Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description: Passive sensor-actuator interface

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
-30°C to +80°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

**Material**
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

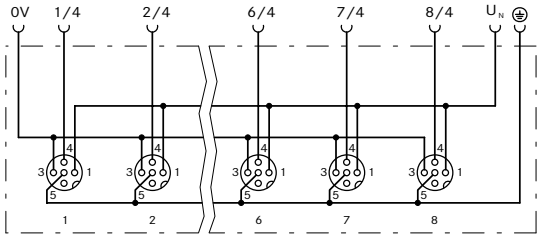
| Article number | Article designation | Connection cable (No. of poles) | Length (m) | Number of slots | Status display |
|---|---|---|---|---|---|
| **Fixed master cable** | | | | | |
| 22260028 | AB-B6-M8L-6-5,0PUR | | 5 | 6 | With LEDs |
| 22260029 | AB-B6-M8L-6-10,0PUR | | 10 | 6 | With LEDs |
| 22260030 | AB-B8-M8L-8-5,0PUR | | 5 | 8 | With LEDs |
| 22260031 | AB-B8-M8L-8-10,0PUR | | 10 | 8 | With LEDs |
| 22260032 | AB-B10-M8L-10-5,0PUR | | 5 | 10 | With LEDs |
| 22260033 | AB-B10-M8L-10-10,0PUR | | 10 | 10 | With LEDs |
| **M12 connection** | | | | | |
| 22260038 | AB-B4-M8L-4-M12 | 8 | | 4 | With LEDs |
| 22260039 | AB-B6-M8L-6-M12 | 8 | | 6 | With LEDs |
| **M16 connection** | | | | | |
| 22260034 | AB-B4-M8L-4-M16 | 8 | | 4 | With LEDs |
| 22260035 | AB-B6-M8L-6-M16 | 10 | | 6 | With LEDs |
| 22260036 | AB-B8-M8L-8-M16 | 12 | | 8 | With LEDs |
| 22260037 | AB-B10-M8L-10-M16 | 14 | | 10 | With LEDs |

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).

# Distribution Box M12

Distribution box with M12 slots and master cable/mountable/M23 connection






## Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

## Product features

- With fixed master cable, mountable or M23 socket
- Single or double-occupied sensor/actuator box
- M12 quick-locking system, optional diagnostic LEDs (PNP)
- Suitable for cable chain
- PWIS-free

## Norm references / Approvals

- E-File number: E75770

## Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

## Suitable cables

- UNITRONIC® SENSOR master cable
- M23 connection cable: 10 m: 22260852; 15 m: 22260853; 30 m: 22260959

## Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description: Passive sensor-actuator interface

**Protection rating**
IP65/IP67 (M23 connection)
IP65/IP67/IP69

**Ambient temperature (operation)**
-25°C to +75°C (M23 connection)
-30°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5 °C to +80 °C

**Max. current rating per path**
2 A

**Current rating per slot**
4 A

| Article number | Article designation | Length (m) | Number of slots | Status display |
|---|---|---|---|---|
| **Single-occupied boxes** | | | | |
| **Fixed master cable** | | | | |
| 22260010 | AB-B4-M12-4-5,0PUR | 5 | 4 | no |
| 22260011 | AB-B4-M12-4-10,0PUR | 10 | 4 | no |
| 22260014 | AB-B8-M12-8-5,0PUR | 5 | 8 | no |
| 22260015 | AB-B8-M12-8-10,0PUR | 10 | 8 | no |
| 22260018 | AB-B4-M12L-4-5,0PUR | 5 | 4 | With LEDs |
| 22260019 | AB-B4-M12L-4-10,0PUR | 10 | 4 | With LEDs |
| 22260970 | AB-B6-M12L-6-5,0PUR | 5 | 6 | With LEDs |
| 22260022 | AB-B8-M12L-8-5,0PUR | 5 | 8 | With LEDs |
| 22260023 | AB-B8-M12L-8-10,0PUR | 10 | 8 | With LEDs |
| **Field mountable** | | | | |
| 22260005 | AB-B4-M12-4-C | | 4 | no |
| 22260007 | AB-B8-M12-8-C | | 8 | no |
| 22260001 | AB-B4-M12L-4-C | | 4 | With LEDs |
| 22260003 | AB-B8-M12L-8-C | | 8 | With LEDs |
| **M23 connection** | | | | |
| 22260618 | AB-B6-6-L-M23 | | 6 | With LEDs |
| 22260619 | AB-B8-8-L-M23 | | 8 | With LEDs |
| **Double-occupied boxes** | | | | |
| **Fixed master cable** | | | | |
| 22260012 | AB-B4-M12-8-5,0PUR | 5 | 4 | no |
| 22260013 | AB-B4-M12-8-10,0PUR | 10 | 4 | no |
| 22260016 | AB-B8-M12-16-5,0PUR | 5 | 8 | no |
| 22260017 | AB-B8-M12-16-10,0PUR | 10 | 8 | no |
| 22260020 | AB-B4-M12L-8-5,0PUR | 5 | 4 | With LEDs |
| 22260021 | AB-B4-M12L-8-10,0PUR | 10 | 4 | With LEDs |
| 22260024 | AB-B8-M12L-16-5,0PUR | 5 | 8 | With LEDs |
| 22260025 | AB-B8-M12L-16-10,0PUR | 10 | 8 | With LEDs |
| **Field mountable** | | | | |
| 22260006 | AB-B4-M12-8-C | | 4 | no |
| 22260008 | AB-B8-M12-16-C | | 8 | no |
| 22260002 | AB-B4-M12L-8-C | | 4 | With LEDs |
| 22260004 | AB-B8-M12L-16-C | | 8 | With LEDs |
| **M23 connection** | | | | |
| 22260621 | AB-B8-16-M23 | | 8 | no |
| 22260620 | AB-B8-16-L-M23 | | 8 | With LEDs |

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).
UL certifications can be found in the data sheet.

# UNITRONIC® SENSOR M16

M16 socket with connected master cable



## Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- Instead of numerous individual conductors,one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

**Material**
Contact: CuZn
Contact surface: Ni/Au
Knurl: Nickel-plated brass
Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**
IP67

**Ambient temperature (operation)**
Plug/socket -25°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Connector 1 | Connector | Length (m) | Number of pins |
|---|---|---|---|---|---|
| 22260607 | AB-C8-5,0PUR-M16FA | Open end | M 16; Socket; Angled; A-coded; Number of contacts: 8 | 5 | 8 |
| 22260609 | AB-C10-5,0PUR-M16FA | Open end | M 16; Socket; Angled; A-coded; Number of contacts: 8 | 5 | 10 |
| 22260611 | AB-C12-5,0PUR-M16FA | Open end | M 16; Socket; Angled; A-coded; Number of contacts: 8 | 5 | 12 |
| 22260614 | AB-C14-10,0PUR-M16FA | Open end | M 16; Socket; Angled; A-coded; Number of contacts: 8 | 10 | 14 |

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® SENSOR M12 Power

Power cable: M12 plug/socket on free conductor



**Info**

- Other types are available at www.lapp.com or on request

## Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Customise assembly of the free conductor end

## Product features

- 4-core power cable
- M12 connector, A-coded with quick-locking system
- Including tag carrier
- Suitable for cable chain
- PWIS-free

## Product Make-up

- 4 x 0.75 mm²
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- Core insulation: PVC
- Outer sheath: PUR, black
- Outer diameter: 5.9 mm

## Suitable tools

- DATA STRIP stripping tool

## Suitable connectors

- EPIC® SENSOR M12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

**Material**
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

**Minimum bending radius**
Flexing: 10 x outer diameter

**Protection rating**
IP65/IP67

**Ambient temperature (operation)**
Plug/socket -25 °C to +90 °C
Fixed installation -25 °C to +80 °C
Flexing -5 °C to +80 °C

**Coding**
A-standard

**Rated current (A)**
4 A

| Article number | Article designation | Number of pins | Length (m) | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **Straight connector** | | | | | | |
| 22260778 | AB-PC4-M12MS-2,0PUR | 4 | 2 | straight | 250 | 1 |
| 22260779 | AB-PC4-M12MS-5,0PUR | 4 | 5 | straight | 250 | 1 |
| 22260780 | AB-PC4-M12MS-10,0PUR | 4 | 10 | straight | 250 | 1 |
| **Straight socket** | | | | | | |
| 22260781 | AB-PC4-2,0PUR-M12FS | 4 | 2 | straight | 250 | 1 |
| 22260782 | AB-PC4-5,0PUR-M12FS | 4 | 5 | straight | 250 | 1 |
| 22260783 | AB-PC4-10,0PUR-M12FS | 4 | 10 | straight | 250 | 1 |
| **Plug on socket** | | | | | | |
| 22260784 | AB-PC4-M12MS-0,3PUR-M12FS | 4 | 0.3 | straight-straight | 250 | 1 |
| 22260785 | AB-PC4-M12MS-1,0PUR-M12FS | 4 | 1 | straight-straight | 250 | 1 |
| 22260786 | AB-PC4-M12MS-2,0PUR-M12FS | 4 | 2 | straight-straight | 250 | 1 |
| 22260787 | AB-PC4-M12MS-5,0PUR-M12FS | 4 | 5 | straight-straight | 250 | 1 |
| 22260788 | AB-PC4-M12MS-10,0PUR-M12FS | 4 | 10 | straight-straight | 250 | 1 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWER M12 60V

Field mountable M12 POWER connectors

**Info**

- DC high-power connector
  - 60 VDC / 12 A



**22262010**



**22262012**



**22262011**



**22262013**

## Benefits

- Compact and standardized M12 design saves space and costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- Safety use in field environment by high protection class

## Application range

- Power Supply for small devices
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

## Product features

- Robust M12 circular connector with screw connection and knurled srew
- Screw-on terminals for different conductors

## Product Make-up

- PVC Einzellitzen, L = 0,2 m (4 x AWG16)
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- High quality gold-plated contacts
- For screw contacts: 0,75 mm² - 1,5 mm² (AWG 18 - AWG 16)

## Suitable cables

- ÖLFLEX® FD 855 P
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: Au (gold)
Knurl: Zinc die-cast, nickel-plated
Gripping body: PA

**Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket -40°C to +85°C

**Coding**
T - Power

**Rated current (A)**
12 A

| Article number | Article designation | Design | Number of pins | Cable diameter in mm | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| **EPIC® POWER M12 60V** | | | | | | |
| **Plug** | | | | | | |
| 22262010 | AB-C4-M12MST-PG11 | straight | 4 | 8.0 - 10.0 | 60 | 1 |
| 22262012 | AB-C4-M12MAT-PG11 | angled | 4 | 8.0 - 10.0 | 60 | 1 |
| **Socket** | | | | | | |
| 22262011 | AB-C4-M12FST-PG11 | straight | 4 | 8.0 - 10.0 | 60 | 1 |
| 22262013 | AB-C4-M12FAT-PG11 | angled | 4 | 8.0 - 10.0 | 60 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWER M12 60V flush-type connectors

Power cable: M12 plug/socket on free conductor



**Info**

- DC high-power connector
  - 60 VDC / 12 A

## Benefits

- Safety use in field environment by high protection class
- Compact and standardized M12 design saves space and costs
- Low voltage drop
- Fault proof connection through M12 T coding of the connector face

## Application range

- Power Supply for small devices Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

**Material**
Contact: CuZn
Contact surface: Au (gold)

**Protection rating**
IP67

**Ambient temperature (operation)**
-40 °C to +85 °C

**Coding**
T - Power

**Rated current (A)**
12 A

| Article number | Article designation | Number of pins | Length (m) | Design | Rated voltage (V) | PU |
|---|---|---|---|---|---|---|
| 22262014 | AB-C4-M12MST-M20-PO | 4 | 0,2 | M20 | 60 | 1 |
| 22262015 | AB-C4-M12FST-M20-PO | 4 | 0,2 | M20 | 60 | 1 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
M16 or M20 locknuts not included in delivery

# UNITRONIC® ACCESS SP08 IOL

IO-Link master, single protocol



**Info**

- Easy Configuration via web-interface
- MADE IN GERMANY

## Benefits

- Supports the Industrial Ethernet protocols PROFINET, EtherNet/IP, EtherCAT,
- Modbus TCP and CC-Link (article-dependent)
- IO-Link technology allows extended diagnostics of sensors and actuators through bidirectional communication, e.g. remote maintenance of devices
- Globally standardised IO-Link technology supports all common communication protocols
- Simplified commissioning and replacement of IO-Link devices thanks to automatic configuration and plug-and-play
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

## Application range

- For data transmission of input and output signals as well as IO-Link signals from sensors and actuators to an Industrial Ethernet or IoT protocol
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables and ETHERLINE® M12 patch cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -20°C to +60°C

## Technical data

**Industrial Protocols**
PROFINET
ETHERNET/IP
ETHERCAT
MODBUS TCP
CC-LINK IE
IO-Link vers. 1.1.3 (Type A)

**IoT Protocols**
(REST)

**Protection rating**
IP69K

**Ambient temperature (operation)**
-25°C to +60°C

**Supply voltage**
24 V DC (20-30VDC) (SELV/PELV)

**Digital Channels**
Digital input: 8 x M12 A-coded
16 channels, Type 1 (IEC61131-2)
Digital output: 16 (Max 2A)

**Dimension**
200 x 60 x 31mm

| Article number | Article designation | Valid Fieldbus or Ethernet System |
|---|---|---|
| 381166712 | UNITRONIC® ACCESS PN08IOLA08DIO | PROFINET,I/O-Link |
| 381166713 | UNITRONIC® ACCESS EIP08IOLA08DIO | ETHERNET/IP,I/O-Link |
| 381166714 | UNITRONIC® ACCESS EC08IOLA08DIO | EtherCAT,I/O-Link |
| 381166715 | UNITRONIC® ACCESS MTCP08IOLA08DIO | Modbus,I/O-Link |
| 381166716 | UNITRONIC® ACCESS CCL08IOLA08DIO | CC-Link IE,I/O-Link |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
Unused female connectors must be covered with protective caps (see accessoriers).

# UNITRONIC® ACCESS MP08

Multiprotocol IO-Link Master or DIO version



**Info**

- Easy Configuration via web-interface
- Security (ACHILLES-tested, Syslog)

## Benefits

- Multiprotocol combines several Industrial Ethernet and IoT-based protocols in one. This reduces the number of different devices and increases flexibility
- Multiprotocol enables a uniform and standardised system design and meets the requirements of international industries with just one device
- Support for various Industrial Ethernet protocols reduces the variety of parts in the warehouse and simplifies maintenance
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

## Application range

- For communication between decentralised sensors and actuators at field level and a programmable logic controller at control level
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables and ETHERLINE® M12 patch cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -40°C to +70°C

## Technical data

**Industrial Protocols**
PROFINET
ETHERNET/IP
ETHERCAT
MODBUS TCP
CC-LINK IE
IO-Link vers. 1.1.3 (Type A)

**IoT Protocols**
(OPC UA, MQTT, CoAP, REST)

**Protection rating**
IP65/IP67 IP69k

**Ambient temperature (operation)**
-25°C to +70°C

**Supply voltage**
24 V DC (20-30VDC) (SELV/PELV)

**Digital Channels**
Digital input: 16 PNP, Type 1 (IEC61131-2)
Digital output: 16 P-swithing (Max 2A)

**Dimension**
200 x 60 x 31mm

| Article number | Article designation | Number of ports |
|---|---|---|
| 381166717 | UNITRONIC® ACCESS MP08IOLA08DIO | 8 |
| 381166718 | UNITRONIC® ACCESS MP08DIO08DIO | 8 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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Unused female connectors must be covered with protective caps (see accessoriers).

# UNITRONIC® ACCESS HUB IO-LINK



**Info**

- Standardised interfaces
- Space-saving due to compact dimensions

## Benefits

- IO-Link technology allows extended diagnostics of sensors and actuators through bidirectional communication, e.g. remote maintenance of devices
- Simplified commissioning and replacement of IO-Link devices thanks to automatic configuration and plug-and-play
- Globally standardised IO-Link technology supports all common communication protocols
- The power supply is provided via the IO-Link Master and does not require separate cabling and power supply units, which saves costs
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

## Application range

- For connecting digital sensors and actuators to an IO-Link Master
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -40°C to +70°C

## Technical data

**Interface**
IO-Link vers. 1.1.3 (Type A)
Supported Modes: 230.4 kBaud (COM 3)
**Connections**
8 x M12 A-coded I/O connection
1 x M12 A-coded IO-Link Class A connection

**Protection rating**
IP65/IP67 IP69k

**Ambient temperature (operation)**
-40°C to +70°C

**Supply voltage**
24 V DC (20-30VDC) (SELV/PELV)
**Digital Channels**
Digital input: 16 PNP, Type 1 (IEC61131-2)
Digital output: 16 P-swithing (Max 350mA)

**Dimension**
159 x 60 x 31mm

| Article number | Article designation | Number of ports |
|---|---|---|
| 381166719 | UNITRONIC® ACCESS IOL08DIO08DIO | 8 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
Unused female connectors must be covered with protective caps (see accessoriers).



3

# ETHERLINE®

## Data communication systems for ETHERNET technology

Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e. g. PROFINET®. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

**Application range**

- Industry and building networks
- Industrial machinery and plant engineering
- Automation technology
- Control engineering

## Industrial Ethernet

**Active network components**

ETHERLINE® ACCESS NF 445
ETHERLINE® ACCESS UF 445
ETHERLINE® ACCESS PNF 446
ETHERLINE® ACCESS M 447
ETHERLINE® ACCESS U 448
ETHERLINE® ACCESS PN IP67 449
ETHERLINE® ACCESS U IP67 449
ETHERLINE® GUARD 450

## Industrial Ethernet, Cat.5 / 5e

**Cables for fixed installation**

ETHERLINE® Cat.5e 451

**Cables for flexible applications**

ETHERLINE® Cat.5e FLEX 452
ETHERLINE® EC FLEX Cat.5e 453
ETHERLINE® SERVO DQ Y Cat.5e 454

**Cables for continuous flexing applications**

ETHERLINE® EC FD Cat.5e 455
ETHERLINE® Cat.5e FD 456
ETHERLINE® FD bioP Cat.5e 457
ETHERLINE® Cat.5 FD BK 458

**Patch cables for continuous flexing applications**

ETHERLINE® H Flex Cat.5e Patch cables 459
ETHERLINE® EC FD Cat.5e Patch cables 460

## Industrial Ethernet, Cat.6

**Cables for continuous flexing applications**

ETHERLINE® CAT.6 FD 461

**Patch cables for continuous flexing applications**

ETHERLINE® FD Cat.6 Patch cables 462

## Industrial Ethernet, Cat.6$_A$

**Patch cables for flexible applications**

ETHERLINE® Cat.6$_A$ Flex Patch cables 463

**Cables for flexible applications**

ETHERLINE® Cat.6$_A$ FLEX FC 464
ETHERLINE® Cat.6$_A$ FD FC 465

## Industrial Ethernet, Cat.7

**Cables for flexible applications**

ETHERLINE® Cat.7 FLEX 466

## PROFINET, Cat.5

**Type A - Cables for fixed installation**

ETHERLINE® PN Cat.5 467

**Type B - Cables for flexible applications**

ETHERLINE® PN Cat.5 FLEX 468
ETHERLINE® Cat.5e 105 plus 469
ETHERLINE® Cat.5 FRNC HYBRID 470
ETHERLINE® MARINE FRNC FC Cat.5 471

**Type C - Cables for continuous flexing applications**

ETHERLINE® PN Cat.5e FD 472
ETHERLINE® TORSION Cat.5e 473
ETHERLINE® FESTOON PN Cat.5e 474

**Type C - Cables for special applications**

ETHERLINE® Y CAT.5e BK 475
ETHERLINE® Cat.5 ARM 476

**Type R - Cables for flexible applications**

ETHERLINE® ROBOT PN Cat.5e 477

**Type A - Patch cables for fixed installation**

ETHERLINE® PN Cat.5 Patch cables 478

**Type B - Patch cables for flexible applications**

ETHERLINE® PN Flex Cat.5 Patch cables 479

**Type C - Patch cables for continuous flexing applications**

ETHERLINE® Cat.5 ARM 480

## PROFINET, Cat.6$_A$

**Type A - Cables for fixed installation**

ETHERLINE® PN Cat.6$_A$ FC 481
ETHERLINE® PN Cat.6$_A$ 482

**Type B - Cables for flexible applications**

ETHERLINE® PN Cat.6$_A$ FLEX FC 483
ETHERLINE® PN Cat.6$_A$ FLEX 484

**Type C - Cables for continuous flexing applications**

ETHERLINE® FD CAT.6$_A$ 485
ETHERLINE® PN Cat.6$_A$ FD FC 486
ETHERLINE® TORSION Cat.6$_A$ 487

**Cabinet Cords**

ETHERLINE® Cabinet Cat.6$_A$ Patchcords 488

**Type C - Patch cables for continuous flexing applications**

ETHERLINE® TORSION Cat.6$_A$ Patch cables 489

## PROFINET, Cat.7

**Type A - Cables for fixed installation**

ETHERLINE® Cat.7 490
ETHERLINE® PN Cat.7 491

**Type B - Cables for flexible applications**

ETHERLINE® PN Cat.7 FLEX 492

**Type C - Cables for continuous flexing applications**

ETHERLINE® TORSION Cat.7 493
ETHERLINE® PN Cat.7 FD 494

## SINGLE PAIR ETHERNET

**Cables for flexible applications**

ETHERLINE® T1 FLEX 495

**Cables for continuous flexing applications**

ETHERLINE® T1 FD 496

**Ethernet-APL**

ETHERLINE® T1L - T1L FLEX 497

## Industrial Ethernet

**Industrial Ethernet for special applications**

ETHERLINE® TRAIN 498
ETHERLINE® HEAT 6722 499
ETHERLINE® FIRE 500
ETHERLINE® ROBUST 501
ETHERLINE® ROBUST FR 502

## Industrial Ethernet, Cat.6$_A$

**RJ45 Connectors**

EPIC® DATA RJ45 503
EPIC® DATA AX RJ45 Cat.6$_A$ IP68 504
Coloured Clips for ETHERLINE® Patchcords 504
EPIC® DATA RJ45F Cat.6$_A$ 505
EPIC® DATA HS RJ45F Cat.6$_A$ 505

## Industrial Ethernet, Cat.5 / 5e

**M12 Field mountable connectors and wall ducts**

EPIC® DATA M12D 506
EPIC® DATA M12X 506

## Access Kit

**Industrial Communication Kits**

ETHERLINE® ACCESS KIT PN6-RJ-1 507
ETHERLINE® ACCESS KIT PN5-RJ-1 507
ETHERLINE® ACCESS KIT PN5-M12-1 507
ETHERLINE® ACCESS KIT PN5-M12-2 508
ETHERLINE® ACCESS KIT IE5-RJ-1 508
ETHERLINE® ACCESS KIT PN5-1/ 508

## Industrial Ethernet, Accessories

**M12 Field mountable connectors and wall ducts**

EPIC® DATA FT IE 509
EPIC® DATA CCR FA 509
EPIC® DATA M12-RJ45 510

**Single Pair Ethernet connectors**

EPIC® DATA SPE-6 FA M CS1 511
EPIC® DATA SPE-6 PCB F 511

**Single Pair Ethernet patch cables**

EPIC® DATA SPE-6 PC M-M CT001 512

## Structured building cabling, Cat.5e

**Cables for fixed installation**

ETHERLINE® LAN 200 Cat.5e 514

## Structured building cabling, Cat.6

**Cables for fixed installation**

ETHERLINE® LAN 350 Cat.6 515

## Structured building cabling, Cat.6$_A$

**Cables for fixed installation**

ETHERLINE® LAN 500 Cat.6$_A$ 516

## Structured building cabling, Cat.7$_A$

**Cables for fixed installation**

ETHERLINE® LAN 1000 Cat. 7$_A$ 517
ETHERLINE® LAN 1200 Cat.7$_A$ 517
ETHERLINE® LAN 1600 Cat.7$_A$ 518

## Structured building cabling, Cat.7

**Cables for fixed installation**

UNITRONIC® LAN OUTDOOR 519

## Structured building cabling, Special applications

**Cables for flexible applications**

UNITRONIC® LAN FLEX 520

## Industrial Ethernet, Cat.6$_A$

**Patch cables for flexible applications**

ETHERLINE® LAN Cat.6$_A$ Patchcords 521

## Structured building cabling Cat.5e, Cat.6 and Cat.6$_A$

**RJ45 Connectors**

Connector RJ45 CAT.5e Hirose TM11 523
Connector RJ45 CAT.6 Hirose TM21 523
Connector RJ45 Cat.6$_A$ Hirose TM31 523
EPIC® DATA RJ45 Plug Cat.5e FM45 field m. 524

# Data communication systems for ETHERNET technology

## Overview

Ethernet is the leading standard for computer networks in office buildings. However, due to its widespread availability, reliability and performance, it is increasingly prevalent in industrial environments as well.
Our ETHERLINE® portfolio offers comprehensive solutions for your Ethernet network.
You can always rely on our high-quality products to avoid downtimes and expensive breakdowns.
LAPP places great importance on the most fitting products and strives to offer the best solution possible for your application.
Our large ETHERLINE® portfolio offers solutions for varied applications in industrial environments as well as for structured building cabling.
We offer matching field-mountable connectors and pre-assembled patch cables for your applications.
The portfolio is completed by our ETHERLINE® ACCESS products.
These robust, managed and unmanaged switches are the perfect network devices for a demanding industrial environment.
This allows us to provide you with end-to-end solutions from just one source.
Our products are thoroughly tested in our in-house laboratory to ensure that we can provide the quality that you have come to expect from us.









### ETHERLINE® – Industrial Ethernet

- Resilient cabling solutions for demanding industrial Ethernet applications
- Compliance with international standards (e.g. PROFINET®)
- Field-mountable connectors – quick assembly and reliable without special tools
- Pre-assembled patch cables with overmoulded connectors

### ETHERLINE® LAN – Structured building cabling

- Cables ranging from Cat.5e up to Cat.$7_A$
- Transmission frequencies up to 1600 MHz
- Office patch cables complying with Cat.$6_A$
- Field-mountable connectors as well as accessories

### ETHERLINE® ACCESS – Industrial communication

- Reliable and robust industrial Ethernet switches
- Easy construction of redundant networks with quick reconfiguration time of less than 20 ms
- High quality and availability of industrial networks

## Type specification according to the PROFINET® Guideline

PROFINET® is an international standard for communication systems that defines the cabling within and between production islands. The PROFINET® system specifies copper-based as well as fibre optic transmission media.
Its foundation, the 'PROFINET® Cabling and Interconnection Technology Guideline', defines three cable types for copper-based cables. These types specify the exact structure and the mechanical and electrical properties. PROFINET®-compliant cables can be distinguished by their cable marking that states the PROFINET® compliance as well as their respective cable type according to the aforementioned guideline.

| Number of pairs / Type of cable | Type A | Type B | Type C | Type R |
|---|---|---|---|---|
| **Application** | **For fixed installation** | **For flexible Installation** | **For special application** | **For robotic application** |
| 2-pair (2x2) | AWG22/1 | AWG22/7 | AWG22/1...19 | AWG22/19 |
| 4-pair (4x2) | min. AWG23/1 | min. AWG23/7 | min. AWG24/1...19 | - |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ACCESS NF

Industrial NAT router with firewall function

**Info**

- Compact design
- Tailor-made solution




**21700141**

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP20

**Temperature range**
-40°C up to +75°C

## Benefits

- Compact design with high port density
- Reduced installation effort in existing networks
- Easy Configuration via web-interface
- Space saving and industrial grade DIN rail mounting

## Application range

- Industrial networks

## Product features

- NAT (Basic NAT, NAPT) and port forwarding
- Integrated Firewall feature
- RJ45 Ports: 10/100/1000 BaseT(X)

## Norm references / Approvals

- UL 61010

| Article number | Article designation | Type | number of ports | Feature | MTBF in years |
|---|---|---|---|---|---|
| **ETHERLINE® ACCESS NF** | | | | | |
| 21700141 | ETHERLINE® ACCESS NF04T | Managed | 4 x RJ45 | NAT | >14,01 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ACCESS UF

Industrial unmanaged Ethernet switches in compact design

**Info**

- Compact design




## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP20

**Temperature range**
-25°C to +60°C

## Benefits

- Compact design with high port density
- PROFINET®enabled device (CC-A)
- Space saving and industrial grade DIN rail mounting

## Application range

- Industrial networks

## Product features

- Switches with 5, 8 and 16 ports
- RJ45 Ports: 10/100/1000 BaseT(X)

## Norm references / Approvals

- UL 61010

| Article number | Article designation | Type | number of ports | MTBF in years |
|---|---|---|---|---|
| **ETHERLINE® ACCESS UF** | | | | |
| 21700144 | ETHERLINE® ACCESS UF05T | Unmanaged | 5 x RJ45 | >35,55 |
| 21700145 | ETHERLINE® ACCESS UF08T | Unmanaged | 8 x RJ45 | >29,70 |
| 21700146 | ETHERLINE® ACCESS UF16T | Unmanaged | 16 x RJ45 | >16,62 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ACCESS PNF

Industrial PROFINET® Switches in compact design



**Info**

- Compact design
- Compatible for PROFINET® networks

## Benefits

- Compact design with high port density
- Easy Configuration via web-interface
- Space saving and industrial grade DIN rail mounting

## Application range

- Industrial application
- PROFINET®-networks (CC-B)

## Product features

- PROFINET® switches with 4, 8 and 16 ports
- PROFINET® Conformance Class B
- Prioritization of PROFINET® telegramms
- Neighbourhood detection LLDP
- RJ45 Ports: 10/100/1000 BaseT(X)

## Norm references / Approvals

- UL 61010

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP20

**Temperature range**
-40°C up to +75°C

| Article number | Article designation | Type | number of ports | Feature | MTBF in years |
|---|---|---|---|---|---|
| **ETHERLINE® ACCESS PNF** | | | | | |
| 21700140 | ETHERLINE® ACCESS PNF04T | Managed | 4 x RJ45 | for PROFINET | >15,21 |
| 21700142 | ETHERLINE® ACCESS PNF08T | Managed | 8 x RJ45 | for PROFINET | >13,09 |
| 21700143 | ETHERLINE® ACCESS PNF16T | Managed | 16 x RJ45 | for PROFINET | >9,64 |

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ACCESS M

Industrial managed Ethernet switches

**Info**

- Redundant power inputs
- Robust metal housing and DIN rail mounting
- Fanless  maintenance free



## Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

## Product features

- Simple setup of redundant networktopologies with reconfiguration time < 20 ms
- RJ45 Ports: 10/100/1000 BaseT(X)
- Packet Buffer Size: 1 Mbit
- Supported protocols: HTTPS/SSL, SSH, TACACS+, RADIUS, SNTP Client, Ethernet IP, Modbus TCP
- Redundant Power Input: 24 VDC

## Norm references / Approvals

- UL 61010
- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP 40

**Temperature range**
-40°C up to +75°C

| Article number | Article designation | Type | number of ports | Feature |
|---|---|---|---|---|
| **Managed Switches with RJ45** | | | | |
| 21700125 | ETHERLINE® ACCESS M06T-2GEN | Managed | 6 x RJ45 | |
| 21700126 | ETHERLINE® ACCESS M08T-2GEN | Managed | 8 x RJ45 | |
| **Managed Switches with SFP** | | | | |
| 21700136 | ETHERLINE® ACCESS M08T02SFP | Managed | 8 x RJ45 + 2 x SFP | SFP Port |
| 21700137 | ETHERLINE® ACCESS M08T02GSFP | Managed | 8 x RJ45 + 2 x SFP Gbit/s | SFP Port |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Accessories

- ETHERLINE® EC FD Cat.5e RJ45

# ETHERLINE® ACCESS U

Industrial unmanaged Ethernet switches



**Info**

- Redundant power inputs
- Robust metal housing and DIN rail mounting

## Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

## Product features

- RJ45 Ports: 10/100/1000 BaseT(X)
- Packet Buffer Size: min. 1Mbit
- Broadcast storm protection
- Redundant Power Input: 24 VDC

## Norm references / Approvals

- UL 61010
- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP 30

**Temperature range**
-10°C to +60°C

| Article number | Article designation | Type | number of ports | Feature |
|---|---|---|---|---|
| **Unmanged switches with RJ45** | | | | |
| 21700123 | ETHERLINE® ACCESS U05T-2GEN | Unmanaged | 5 x RJ45 | |
| 21700124 | ETHERLINE® ACCESS U08T-2GEN | Unmanaged | 8 x RJ45 | |
| 21700120 | ETHERLINE® ACCESS U16T | Unmanaged | 16 x RJ45 | |
| **Gigabit Unmanaged switches** | | | | |
| 21700129 | ETHERLINE® ACCESS U08GT | Unmanaged | 8 x RJ45 | Gigabit |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ACCESS PN IP67

Industrial Managed switch PROFINET CC-B



**Info**

- Suitable for harsh industrial environment
- PROFINET Conformance Class B

## Benefits

- With 8 ports (10/100Base-T(X)) for D-coded M12 connectors
- Particularly suitable for harsh environments thanks to protection class IP 67
- Prioritising PROFINET telegrams with real-time data
- Easy configuration and diagnosis via PROFINET or web interface
- Supports MRP (client), LLDP, DCP and SNMP, allows port mirroring, diagnostic alarms and detailed network statistics

## Application range

- For use in PROFINET networks for automation technology (“Conformance Class B„)
- For decentralised use at field level, outside of control cabinets
- Can be used in an extended temperature range from-40 °C to +75 °C

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP 67

**Temperature range**
-40°C to +75°C

| Article number | Article designation | Number of ports |
|---|---|---|
| **ETHERLINE® ACCESS PN IP67** | | |
| 21700147 | ETHERLINE® ACCESS PN08M12 | 8 |

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# ETHERLINE® ACCESS U IP67

Industrial Managed switch PROFINET CC-A



**Info**

- Suitable for harsh industrial environment
- PROFINET Conformance Class A

## Benefits

- With 8 ports (10/100Base-T(X)) for D-coded M12 connectors
- Particularly suitable for harsh environments thanks to protection class IP 67
- Ready for use quickly with minimal installation effort

## Application range

- For use in Ethernet-based networks in automation technology
- Also suitable for use in PROFINET networks (“Conformance Class A”)
- For decentralised use at field level, outside of control cabinets
- Can be used in an extended temperature range from -25°C +75°C

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP 20

**Temperature range**
-25°C +75°C

| Article number | Article designation | Number of ports |
|---|---|---|
| **ETHERLINE® ACCESS U IP67** | | |
| 21700148 | ETHERLINE® ACCESS U08M12 | 8 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® GUARD

Condition monitoring device




**21700150**

**Info**

- Feedback of the expected service life via status LED
- For use in control cabinets (protection class IP 20)
- Suitable for integration into IIoT structures via MQTT interface

## Benefits

- Increase plant availability through plannable machine downtimes. This reduces maintenance costs
- Simple commissioning with automated parameterisation (“teach-in” in just a few seconds)
- Does not require a new data cable or changes to the cable design; upgrading within the existing network structure is possible at any time
- Saves space owing to its unique and compact design
- Reliable IIoT communication thanks to the MQTT interface (for status/data evaluation, settings, WiFi configuration, updating, etc.)
- Available in two versions: cable-bound LAN version “PM03T” and wireless Wi-Fi version “PM02TWA”

## Application range

- For use in Ethernet-based networks in automation technology
- For monitoring the service life of a data cable at risk of failure (e.g. functioncritical data cable in dynamic applications)
- Suitable for data cables according to transmission standard 100BASE-TX (up to 100 Mbit/s) according to IEEE 802.3
- Also suitable for EtherCAT, EtherNet/IP and 2-pair PROFINET applications
- For use in control cabinets (protection class IP 20)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

**power supply**
DC 24 V (18-30 V DC)

**Protection rating**
IP 30

**Temperature range**
-25°C to +65°C

| Article number | Article designation | MTBF | number of ports |
|---|---|---|---|
| **LAN** | | | |
| 21700150 | ETHERLINE® GUARD PM03T | 10.9 years | 3 x RJ45 |
| **WI-FI** | | | |
| 21700151 | ETHERLINE® GUARD PM02TWA | 12.3 years | 2 x RJ45 + 1 x SMA JACK |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

c UL us EtherNet/IP

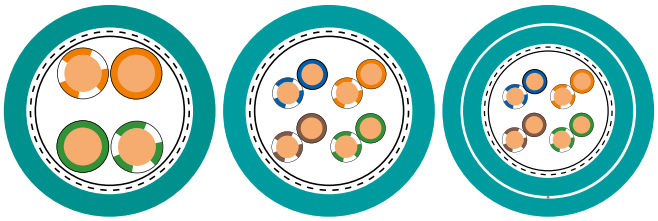
# ETHERLINE® Cat.5e

Ethernet cable Category 5e, Class D for fixed installation - verified up to 100 MHz

**Info**

- Industrial Ethernet cable
- Cat.5e



2170280/2170281 | 2170296/2170297 | 2170298

## Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

## Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- Industrial use
- Fixed Installation

## Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free outer sheath

## Norm references / Approvals

- PUR versions: UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogenfree cables: halogenfree according to IEC 60754-1, IEC 60754-2
- PUR cables: halogenfree acc. to VDE 0472-815

## Product Make-up

- Solid conductor
- Core insulation made of Polyolefine (PO)
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (similar to RAL 5021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 7.5 x outer diameter
Fixed installation: 8 x outer diameter (4 pair cable)

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -30°C to +80°C
During installation: -5°C to +50°C

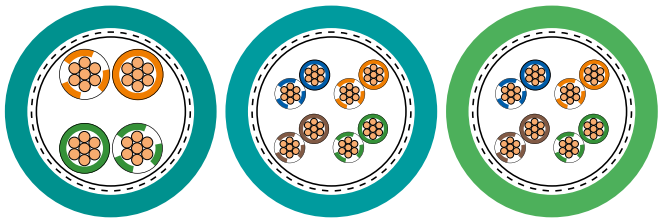
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **2-pair version** | | | | | | |
| **Halogen-free jacket** | | | | | | |
| 2170280 | ETHERLINE® H Cat.5e | 2 x 2 x AWG24/1 | 1 | 5.6 | 22 | 45 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170281 | ETHERLINE® P Cat.5e | 2 x 2 x AWG24/1 | 1 | 5.8 | 22 | 45 |
| **4-pair version** | | | | | | |
| **Halogen-free jacket** | | | | | | |
| 2170296 | ETHERLINE® H Cat.5e | 4 x 2 x AWG24/1 | 1 | 6.1 | 32 | 54 |
| 2170298 | ETHERLINE® H-H Cat.5e | 4 x 2 x AWG24/1 | 1 | 6.1 / 8.1 | 32 | 80 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170297 | ETHERLINE® P Cat.5e | 4 x 2 x AWG24/1 | 1 | 6.1 | 32 | 62 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.5e FLEX

Ethernet cable Category 5e, Class D for flexible use - verified up to 100 MHz



2170283/2170284 2170299/2170300 2170486

**Info**

- Industrial Ethernet cable
- Cat.5e
- Only for patch cable applications (max. 60 m)

## Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

## Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Only for patch cable applications (max. 60 m)

## Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion

## Norm references / Approvals

- PUR cables: halogenfree acc. to VDE 0472-815
- PVC version with UL/CSA (CMG) certification
- PUR versions: UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Halogenfree cables: halogenfree according to IEC 60754-1, IEC 60754-2

## Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of Polyolefine (PO)
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PVC, PUR or LSZH
- Colour: water blue (similar to RAL 5021)
- PVC jacket colour: green (similar to RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C
cable halogenfree compound
Fixed installation: -30°C to +80°C
flexing: -5°C to +60°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
flexing: -10°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **2-pair version** | | | | | | |
| **Halogen-free jacket** | | | | | | |
| 2170283 | ETHERLINE® H Flex Cat.5e | 2 x 2 x AWG26/7 | 1 | 5.6 | 19 | 43 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170284 | ETHERLINE® P Flex Cat.5e | 2 x 2 x AWG26/7 | 1 | 5.6 | 19 | 45 |
| **4-pair version** | | | | | | |
| **Halogen-free jacket** | | | | | | |
| 2170299 | ETHERLINE® H Flex Cat.5e | 4 x 2 x AWG26/7 | 1 | 6.1 | 25 | 48 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170300 | ETHERLINE® P Flex Cat.5e | 4 x 2 x AWG26/7 | 1 | 6.1 | 25 | 54 |
| **PVC outer sheath** | | | | | | |
| 2170486 | ETHERLINE® Y Flex Cat.5e | 4 x2 x AWG26/7 | 1 | 6.2 | 30 | 54 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

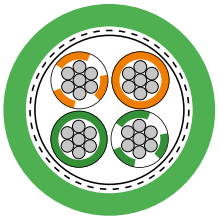
# ETHERLINE® EC FLEX Cat.5e

Flexible use

**Info**

- For EtherCAT applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)



2170430/2170431

## Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

## Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Many applications with Industrial Ethernet, i.e. fixed installation and flexible use.
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

## Product features

- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- Flame-retardant according to UL VW1/ CSA FT1

## Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PVC or PUR jacket material
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Cable with PVC jacket
Fixed installation: -30°C to +80°C
Flexing: -5°C to +50°C
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing:-30°C to +50°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC outer sheath** | | | | | | |
| 2170430 | ETHERLINE® Y EC FLEX Cat.5e | 1 x 4 x AWG26/7 | 1 | 4.8 | 20 | 32 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170431 | ETHERLINE® P EC FLEX Cat.5e | 1 x 4 x AWG26/7 | 1 | 4.8 | 20 | 31 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® SERVO DQ Y Cat.5e

Encoder cables for DRIVE-CLiQ® applications





2170938

**Info**

- Industrial Ethernet cable
- Cat.5e

## Benefits

- Compliant with the open DRIVE-CLiQ® system interface
- Reduced cabling effort thanks to an additional core pair for the power supply of the rotary encoder
- Ideal protection against electromagnetic interference thanks to copper screening braiding with a high degree of coverage
- Cat.5e performance up to 100 Mbit/s

## Application range

- For use as the servo drive supply in SIEMENS® SINAMICS-S120 drive systems
- For wiring the control unit and synchronous motor and/or rotary encoder with DRIVE-CLiQ® system interface
- For fixed installation and occasional flexing
- Can be used in dry and damp rooms
- The PVC outer sheath is resistant to acids and alkalis

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 6 x outer diameter
Occasional flexing: 15 x outer diameter

**Test voltage**
Core/core: 700 V
Core/screen: 700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -15°C to +80°C
flexing: -5°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Base material of outer sheath, shortname | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC** | | | | | | |
| 2170938 | ETHERLINE® SERVO DQ Y Cat.5e | 2x2x26/7AWG + 1x2x22/7AWG | PVC | 6.5 | 33 | 58 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

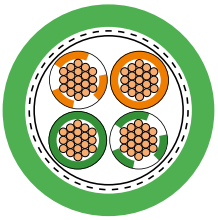
# ETHERLINE® EC FD Cat.5e

Highly flexible application

**Info**

- For EtherCAT applications
- For highly flexible industrial applications
- Cat.5e-Performance



2170433

## Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

## Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For highly flexible applications (cable chains, moving machine parts)
- Many applications with Industrial Ethernet, e.g. EtherCat, i.e. fixed installation, flexible and highly flexible use
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

## Product features

- Meets the requirements according to Cat. 5e and class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according to UL VW1/ CSA FT1
- Halogen-free according to VDE 0472-815

## Product Make-up

- Bare stranded copper wire, 26AWG
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath: PUR compound, halogen-free
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 4 x Outer diameter
Flexing: 16 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -30°C to +50°C

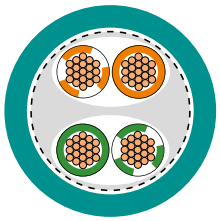
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® EC FD Cat.5e** | | | | | | |
| 2170433 | ETHERLINE® P EC FD Cat.5e | 1 x 4 x AWG26/19 | 1 | 4.8 | 20 | 36 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

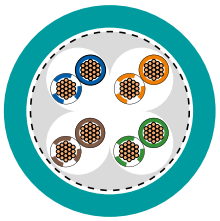
# ETHERLINE® Cat.5e FD

Ethernet cable Category 5e, Class D for use in cable chain applications - verified up to 100 MHz



2170289



2170489

**Info**

- Industrial Ethernet cable
- For highly flexible applications
- Only for patch cable applications (max. 60 m)

## Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Industrial use
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

## Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Cable chain applications

## Product features

- Premium screening against electromagnetic interference
- Halogen-free outer sheath
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

## Norm references / Approvals

- UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Halogen-free according to VDE 0472-815

## Product Make-up

- Bare stranded copper wire, 26AWG
- Inner sheath: thermoplastic elastomer, halogen-free
- 2 or 4-pair version
- Screening: wrapped with braided tinned-copper wires
- PUR outer sheath
- Colour: water blue (similar to RAL 5021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
Flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **2-pair version** | | | | | | |
| 2170289 | ETHERLINE® FD P Cat.5e | 2 x 2 x AWG26/19 | 1 | 5.9 | 20 | 48 |
| **4-pair version** | | | | | | |
| 2170489 | ETHERLINE® FD P Cat.5e | 4 x 2 x AWG26/19 | 1 | 6.3 | 27 | 56 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® FD bioP Cat.5e

Highly flexible with outer sheath made of partially bio-based plastic

**Info**

- For highly flexible industrial applications
- Cat.5e-Performance





21704891

## Benefits

- The sustainable variant with the bio-based outer sheath consists of more than 40% renewable raw materials (according to ASTM D6866). The product properties are the same as for the standard variant made of purely fossil raw materials
- The outer sheath made from partially bio-based plastic reduces dependence on fossil fuels and reduces the $CO_2$ footprint
- Fast information exchange through Ethernet technology. Cat. 5e performance up to 1000 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz
- Ideal protection against electromagnetic interference thanks to copper screening braiding with a high degree of coverage
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Halogen-free and flame-retardant materials reduce the possible hazards in the event of a fire
- Successfully tested for over 10 million bending cycles in cable chains

## Application range

- Also suitable for EtherCAT and EtherNet/IP applications
- Especially for environments where electromagnetic compatibility (EMC) is required
- Suitable for patch cable assembly up to a cable length of 60 m
- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain
- The bio-TPU outer sheath is insensitive to mineral-oil-based lubricants and resistant to many chemicals

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 6 x outer diameter
Occasional flexing: 15 x outer diameter

**Test voltage**
Core/core: 700 V
Core/screen: 700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -15°C to +80°C
flexing: -5°C to +70°C

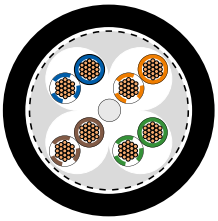
| Article number | Article designation | Number of pairs and AWG per conductor | Number of cores | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 21704891 | ETHERLINE® FD bioP Cat.5e | 4 x 2 x 26/19AWG | 8 | 27 | 56 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.5 FD BK

Ethernet cable Category 5e, Class D for installation in events - verified up to 100 MHz



CE217489

**Info**

- For highly flexible industrial applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)

## Benefits

- Additional application options thanks to suitability for outdoor use, UV-resistant
- Good flexibility - easy installation with tight space requirements
- Screened against interference
- Easy to coil for mobile use

## Application range

- IEEE 802.3: 10/100/1000Base-T IEEE 802.5: ISDN; FDDI; ATM
- Suitable for the transfer of audio signals (ETHERSOUND), light control signals (DMX over Ethernet), or for computer networking
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

## Product features

- Specifically developed for road environments
- Suitable for outdoor use, UV-resistant
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Premium screening against electromagnetic interference

## Norm references / Approvals

- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogen-free according to VDE 0472-815

## Product Make-up

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Insulation: foam skin, max. core diameter 1.0 mm
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Inner sheath: thermoplastic elastomer, halogen-free
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: halogen-free PUR, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
Flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® Cat.5 FD BK** | | | | | | |
| CE217489 | ETHERLINE® FD P BK Cat.5 | 4x2xAWG26/19 | 1 | 6.3 | 27 | 54 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Standard lengths: (100; 500; 1000) m
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

# ETHERLINE® H Flex Cat.5e Patch cables

**Info**

- Additional variants are available on request
- Based on 2170283



## Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

## Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications

## Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

## Product Make-up

- Braided conductor, 2x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flameretardant compound, 5.6mm in diameter
- Colour: water blue (based on RAL 5021)

## Technical data

**Classification**
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

**Protection rating**
M12: IP 67
RJ45: IP 20

**Temperature range**
During installation: -5°C to +60°C
Fixed installation: -30°C to +80°C

**Coding**
M12: D-Standard

| | | RJ45 | M12, plug, straight | M12, plug, angled | Open end |
|---|---|---|---|---|---|
| | **Length** | **Article number** | | | |
| **RJ45** | 1.0m | 2171091 | 2171085 | 2171878 | On request |
| | 2.0m | 2171092 | 2171086 | 2171879 | |
| | 3.0m | 2171093 | 2171087 | 2171880 | |
| | 5.0m | 2171094 | 2171088 | 2171881 | |
| **M12, plug, straight** | 1.0m | 2171085 | 2171073 | On request | 2171079 |
| | 2.0m | 2171086 | 2171074 | | 2171080 |
| | 3.0m | 2171087 | 2171075 | | 2171081 |
| | 5.0m | 2171088 | 2171076 | | 2171082 |
| **M12, plug, angled** | 1.0m | 2171878 | On request | On request | On request |
| | 2.0m | 2171879 | | | |
| | 3.0m | 2171880 | | | |
| | 5.0m | 2171881 | | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

EtherNet/IP

# ETHERLINE® EC FD Cat.5e Patch cables



**Info**

- Additional variants are available on request
- Based on 2170433

## Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

## Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications

## Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

## Product Make-up

- Braided conductor, 2x2x AWG26/19
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR, 4.8mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Protection rating**
M8: IP 67
M12: IP 67
RJ45: IP 20

**Temperature range**
During installation: -30°C to +50°C
Fixed installation: -30°C to +80°C

**Coding**
M8: A-Standard
M12: D-Standard

| | | RJ45 | M12, plug, straight | M12, plug, angled | M12, socket, straight | M8, plug, straight | M8, plug, angled | Open end |
|---|---|---|---|---|---|---|---|---|
| | Length | Article number | | | | | | |
| RJ45 | 1.0m | 2171765 | 2171751 | 2171924 | On request | 2171758 | On request | 2171772 |
| | 2.0m | 2171766 | 2171752 | 2171925 | | 2171759 | | 2171773 |
| | 5.0m | 2171768 | 2171754 | 2171927 | | 2171761 | | 2171775 |
| | 10.0m | 2171769 | 2171755 | 2171928 | | 2171762 | | 2171776 |
| M12, plug, straight | 1.0m | 2171751 | 2171779 | 2171786 | 2171737 | 2171945 | On request | 2171793 |
| | 2.0m | 2171752 | 2171780 | 2171787 | 2171738 | 2171946 | | 2171794 |
| | 5.0m | 2171754 | 2171782 | 2171789 | 2171740 | 2171948 | | 2171796 |
| | 10.0m | 2171755 | 2171783 | 2171790 | 2171741 | 2171949 | | 2171797 |
| M12, plug, angled | 1.0m | 2171924 | 2171786 | 2171907 | 2171744 | On request | On request | 2171871 |
| | 2.0m | 2171925 | 2171787 | 2171908 | 2171745 | | | 2171872 |
| | 5.0m | 2171927 | 2171789 | 2171910 | 2171748 | | | 2171874 |
| | 10.0m | 2171928 | 2171790 | 2171911 | 2171749 | | | 2171875 |
| M12, socket, straight | 1.0m | On request | 2171737 | 2171744 | 2171916 | On request | On request | On request |
| | 2.0m | | 2171738 | 2171745 | 2171917 | | | |
| | 5.0m | | 2171740 | 2171747 | 2171919 | | | |
| | 10.0m | | 2171741 | 2171748 | 2171920 | | | |
| M8, plug, straight | 1.0m | 2171758 | 2171945 | On request | On request | 2171701 | 2171719 | 2171710 |
| | 2.0m | 2171759 | 2171946 | | | 2171702 | 2171720 | 2171711 |
| | 5.0m | 2171761 | 2171948 | | | 2171704 | 2171722 | 2171713 |
| | 10.0m | 2171762 | 2171949 | | | 2171706 | 2171724 | 2171715 |
| M8, plug, angled | 1.0m | On request | On request | On request | On request | 2171719 | 2171960 | 2171728 |
| | 2.0m | | | | | 2171720 | 2171961 | 2171729 |
| | 5.0m | | | | | 2171722 | 2171963 | 2171731 |
| | 10.0m | | | | | 2171724 | 2171965 | 2171733 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

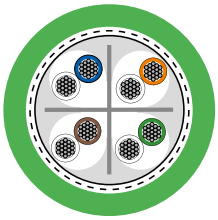
# ETHERLINE® CAT.6 FD

Ethernet cable Category 6, Class E for use in cable chain applications - verified up to 250 MHz

**Info**

- Cat.6 for cable chain



2170488

## Benefits

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Premium screening against electromagnetic interference

## Application range

- For use in cable chain and moving machinery parts in dry or damp rooms
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Plant engineering, machinery manufacturing
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

## Product features

- PUR outer sheath is resistant to most oils and hydraulic fluids
- Cat.6 for cable chain
- Min. 1 million bending cycles in the cable chain

## Norm references / Approvals

- UL/CSA type CMX (UL 444)
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

**Test voltage**
700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® CAT.6 FD** | | | | | | |
| 2170488 | ETHERLINE® CAT.6 FD | 4 x 2 x AWG26/19 | 1 | 7.8 | 31.7 | 63 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® FD Cat.6 Patch cables



**Info**

- Additional variants are available on request
- Based on 2170488

## Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

## Application range

- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

## Product features

- Meets the requirements according to Cat.6 and class E
- Suitable for cable chain applications

## Product Make-up

- Braided conductor, 4x2x AWG26/19
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 7.8mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

**Protection rating**
IP 67

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

**Coding**
M12: X-Standard

| | | M12, plug, straight | M12, socket, straight | Open end |
|---|---|---|---|---|
| | |  |  |  |  |
| | Length | Article number | | |
| M12, plug, straight  | 1.0m | 2172238 | 2172208 | 2172247 |
| | 2.0m | 2172239 | 2172209 | 2172248 |
| | 3.0m | 2172240 | 2172210 | 2172249 |
| | 5.0m | 2172241 | 2172211 | 2172250 |
| | 10.0m | 2172243 | 2172213 | 2172252 |
| M12, socket, straight  | 1.0m | 2172208 | 2172299 | 2172255 |
| | 2.0m | 2172209 | 2172300 | 2172256 |
| | 3.0m | 2172210 | 2172301 | 2172257 |
| | 5.0m | 2172211 | 2172302 | 2172258 |
| | 10.0m | 2172213 | 2172304 | 2172260 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

EtherNet/IP

# ETHERLINE® Cat.6$_A$ Flex Patch cables

**Info**

- Additional variants are available on request
- Based on 2170934



## Benefits

- Only for patch cable applications (max. 60m)
- Plug & Play for flexible connection solutions

## Application range

- Cat.6$_A$ qualified for 10Gbit/s
- M12 X-coded connectors, comp. with IEC 61076-2-109
- RJ45 connectors, comp. with IEC 60603-7-51

## Product features

- Meets the requirements according to Cat.6$_A$ and Class E$_A$

## Product Make-up

- Braided conductor, 4x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Outer sheath: PUR compound, halogenfree, 6.4mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: up from 10 x outer diameter

**Protection rating**
M12: IP 67
RJ45: IP 20

**Temperature range**
Flexing: -30°C to +80°C (M12)
Flexing: -40°C to +70°C (RJ45)

**Coding**
M12: X-Standard

| | | RJ45 | M12, plug, straight | M12, socket, straight | Open end |
|---|---|---|---|---|---|
| | |  |  |  |  |  |
| | Length | Article number | | | |
| **RJ45**  | 0.5m | 2172362 | 2172380 | 2172389 | 2172371 |
| | 1.0m | 2172363 | 2172381 | 2172390 | 2172372 |
| | 2.0m | 2172364 | 2172382 | 2172391 | 2172373 |
| | 3.0m | 2172365 | 2172383 | 2172392 | 2172374 |
| | 5.0m | 2172366 | 2172384 | 2172393 | 2172375 |
| | 10.0m | 2172368 | 2172386 | 2172395 | 2172377 |
| | 20.0m | 2172370 | 2172388 | 2172397 | 2172379 |
| **M12, plug, straight**  | 0.5m | 2172380 | 2172326 | 2172335 | 2172317 |
| | 1.0m | 2172381 | 2172327 | 2172336 | 2172318 |
| | 2.0m | 2172382 | 2172328 | 2172337 | 2172319 |
| | 3.0m | 2172383 | 2172329 | 2172338 | 2172320 |
| | 5.0m | 2172384 | 2172330 | 2172339 | 2172321 |
| | 10.0m | 2172386 | 2172332 | 2172341 | 2172323 |
| | 20.0m | 2172388 | 2172334 | 2172343 | 2172325 |
| **M12, socket, straight**  | 0.5m | 2172389 | 2172335 | 2172344 | 2172353 |
| | 1.0m | 2172390 | 2172336 | 2172345 | 2172354 |
| | 2.0m | 2172391 | 2172337 | 2172346 | 2172355 |
| | 3.0m | 2172392 | 2172338 | 2172347 | 2172356 |
| | 5.0m | 2172393 | 2172339 | 2172348 | 2172357 |
| | 10.0m | 2172395 | 2172341 | 2172350 | 2172359 |
| | 20.0m | 2172397 | 2172343 | 2172352 | 2172361 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

# ETHERLINE® Cat.6$_A$ FLEX FC

Flexible with Fast Connect design, for applications with limited space and short transmission distances





2170588

**Info**

- Cat.6$_A$ qualified for 10 Gbit/s

## Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or halogen free FRNC outer sheath

## Application range

- Also suitable for EtherCAT and EtherNet/IP applications
- The “FLEX” version with reduced conductor cross-section is suitable for applications with limited space
- For flexible use

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

**Test voltage**
2kV

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -40°C to +80°C
to 60°C according to UL AWM
Occasional flexing: -5°C to +50°C

| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **PVC** | | | | | |
| 2170588 | ETHERLINE® Cat.6$_A$ Y FLEX FC | 4 x 2 x 26/7AWG | 7.6 | 29 | 72 |
| **FRNC** | | | | | |
| 2170589 | ETHERLINE® Cat.6$_A$ FRNC FLEX FC | 4 x 2 x 26/7AWG | 7.6 | 29 | 73 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.6$_A$ FD FC

Highly flexible with Fast-Connect connection for permanently moving use in cable chain and short transmission distances

**Info**

- Cat.6$_A$ qualified for 10 Gbit/s





2170592

## Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or abrasion-resistant PU outer sheath
- Successfully tested for over 1 million bending cycles in cable chains

## Application range

- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

**Test voltage**
2kV

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -40°C to +80°C
to 60°C according to UL AWM
Occasional flexing: -5°C to +50°C

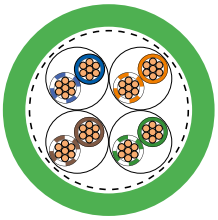
| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| 2170592 | ETHERLINE® Cat.6$_A$ P FD FC | 4 x 2 x 26/19AWG | 8.8 | 44 | 95 |
| 2170593 | ETHERLINE® Cat.6$_A$ Y FD FC | 4 x 2 x 26/19AWG | 8.8 | 44 | 105 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.7 FLEX

Ethernet cable Category 7, Class F for flexible application



2170934

**Info**

- Space-saving installation due to small cable diameters
- Cat.7 qualified for 10Gbit/s

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for up to 10 Gbit/s is 60 m
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free outer sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- Halogen-free according to VDE 0472-815
- Electrical requirements acc. to IEC 61156-6
- AWM certification for USA and Canada
- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 10 x outer diameter

**Test voltage**
Core/Core: 1000 V
Core/screen: 1000 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® Cat.7 FLEX** | | | | | | |
| 2170934 | ETHERLINE® Cat.7 FLEX | 4x2xAWG26/7 | 1 | 6.4 | 28 | 46 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

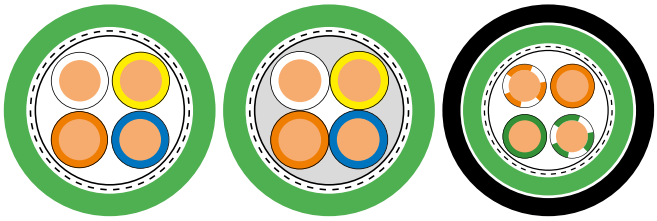
# ETHERLINE® PN Cat.5

Ethernetcable for category 5, class D for fixed installation

**Info**

- CPR: Article number choice under www.lapp.com
- For PROFINET applications type A



2170891 | 2170893/2170879 | 2170933

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- ETHERLINE® TRAY ER PN Y FC: installation in open cable trays without any conduit

## Product features

- Fixed Installation
- Cat.5-Performance
- FC: “Fast Connect” cable design
- ETHERLINE® Y FC, ETHERLINE® YY, ETHERLINE® TRAY ER PN Y FC : flame-retardant according to CSA FT-4

## Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- ETHERLINE® Y FC with PLTC approbation and AWM Style 21694
- ETHERLINE® PN Cat.5e YY with UL CMG
- ETHERLINE® PN Cat.5e Y with UL CMX
- ETHERLINE® TRAY ER PN Y FC with PLTC ER approval

## Product Make-up

- Version for outdoor use: Colour black (similar to RAL 9005)
- Solid bare copper wire AWG22
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
See data sheet

**Test voltage**
See data sheet

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
See data sheet

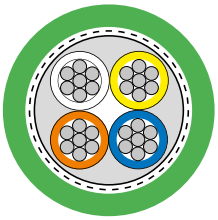
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **conventional cable assembly** | | | | | | |
| 2170891 | ETHERLINE® PN Cat.5e Y | 2 x 2 x AWG22/1 | 1.5 | 6.3 | 30.4 | 56 |
| **FC: “Fast Connect” cable design** | | | | | | |
| 2170893 | ETHERLINE® Y FC Cat.5 | 2 x 2 x AWG22/1 | 1.5 | 6.5 | 30.4 | 70 |
| 2170879 | ETHERLINE® TRAY ER PN Y FC | 2 x 2 x AWG22/1 | 1.5 | 6.5 | 30.4 | 70 |
| **Suitable for outdoor use, UV-resistant** | | | | | | |
| 2170933 | ETHERLINE® PN Cat.5e YY | 2 x 2 x AWG22/1 | 1.5 | 7.7 | 30.4 | 62 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® PN Cat.5 FLEX

Flexible use



**2170886/2170890**

**Info**

- CPR: Article number choice under www.lapp.com
- For PROFINET applications
- Flexible use

## Benefits

- For PROFINET applications type B
- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

## Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Cat.5-Performance
- FRNC Version: Halogene free and flame retardant
- Fast Connect (FC) cable design

## Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- ETHERLINE® PN Cat.5 Y FLEX FC: ECOLAB® Industry standard for innovation and efficiency in the field of professionllen cleaning and disinfection

## Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE or PP
- Star quad
- Inner sheath made of PVC or FRNC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)
- UV resistance SUN RES acc. to UL 13 §29.1
- Oil resistance acc. to EN 50290-2-22

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
FRNC cable:
fixed: 4 x outer diameter
during installation: 8 x outer diameter
PVC cable:
Fixed installation: 3 x outer diameter
Flexing: 7 x outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
cable halogenfree compound
Fixed installation: -25°C to +80°C
Moved: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
Moved: -20°C to +60°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC jacket** | | | | | | |
| 2170886 | ETHERLINE® PN Cat.5 Y FLEX FC | 2 x 2 x AWG22/7 | 1.5 | 6.5 | 31.3 | 67 |
| **FRNC outer sheath** | | | | | | |
| 2170890 | ETHERLINE® PN Cat.5e FRNC FLEX FC | 2 x 2 x AWG22/7 | 1.5 | 6.5 | 31.2 | 65 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

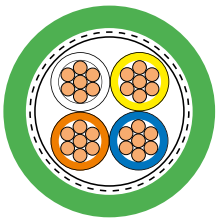
# ETHERLINE® Cat.5e 105 plus

Ethernet cable Category 5e, Class D for flexible use

**Info**

- For PROFINET applications
- Extended temperature range
- Cat.5e-Performance



2170636

## Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance
- Industrial use
- Premium screening against electromagnetic interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas
- Suitable for EtherCAT and EtherNet/IP applications
- Wiring of machines, tools, devices, appliances and control cabinets

## Product features

- Optimum EMC protection
- Permanent load up to +105°C, temporary load +120°C

## Norm references / Approvals

- Electrical requirements acc. to IEC 61156-5
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

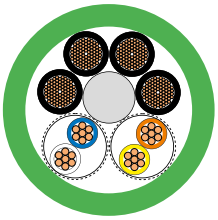
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® Cat.5e 105 plus** | | | | | | |
| 2170636 | ETHERLINE® Cat.5e 105 plus | 2x2xAWG22/7 | 1.5 | 6.2 | 30.4 | 59 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.5 FRNC HYBRID

Hybrid cable for ethernet and power transmission



2170887

**Info**

- HYBRID: cable for data transmission + power supply
- Cat.5-Performance

## Benefits

- Industrial use
- Screened against interference

## Application range

- Industrial Ethernet cable
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- HYBRID: cable for data transmission + power supply
- Robust, halogen-free outer sheath

## Norm references / Approvals

- UL AWM Style 21282
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Cores for Power Supply 4 x 1.5 mm² (AWG16)
- Data transfer: braided conductor, 7-wire, bare
- Pair screening: wrapped with foil and braided copper wires
- Twisting: data pairs and power supply pairs twisted together
- Overlapping plastic tape
- FRNC outer sheath
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Fixed installation: 5 x outer diameter
Occasional flexing: 10 x outer diameter

**Test voltage**
See data sheet

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Operation: -20 °C to +70 °C

| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **Flexible use** | | | | | |
| 2170887 | ETHERLINE® Cat.5 FRNC HYBRID | 2x2xAWG22/7 + 4x1.5 | 10.3 | 94.2 | 153 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® MARINE FRNC FC Cat.5

Flexible application

**Info**

- Certified for maritime applications
- Flexible use in conjunction with light mechanical stress





2170889

## Benefits

- Cable specially developed for maritime use with international DNV approval
- Flame-resistant, halogen free product that does not produce corrosive acids or hazardous gases in the event of a fire
- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Cat. 5 performance up to 100 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz

## Application range

- For flexible use in the PROFINET network (type B)
- Also suitable for EtherCAT and EtherNet/IP applications
- Listed as a Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays
- Suitable for light mechanical stress.
- Can be used in dry, damp or wet environments
- Suitable for outdoor use, subject to the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 3 x outer diameter
Flexing: 7.5 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
Operating temperature: -25°C to +70°C
During installation: 0 °C to +50 °C

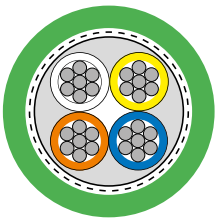
| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **ETHERLINE® MARINE FRNC FC Cat.5** | | | | | |
| 2170889 | ETHERLINE® MARINE FRNC FC Cat.5 | 2 x 2 x 22/7AWG | 6.5 | 32 | 68 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® PN Cat.5e FD

Highly flexible application



2170894

**Info**

- Highly flexible application
- For PROFINET applications
- Cat.5e-Performance

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- Cable chain applications
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Optimized cable construction for cable chain use

## Norm references / Approvals

- UL/CSA type CMX (UL 444)
- Flame-retardant according to UL VW1/CSA FT1
- Halogen-free according to VDE 0472-815

## Product Make-up

- Fine-wire strand made of tinned-copper wires
- Star quad
- Colour-coded in accordance with PROFINET for Cat.5e applications
- Inner sheath: thermoplastic copolymer (FRNC)
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
8 x outer diameter

**Test voltage**
Core/core: 700 V
Core/screen: 700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -30°C to +70°C
Flexing: -20°C to +60°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® PN Cat.5e FD** | | | | | | |
| 2170894 | ETHERLINE® FD P FC Cat.5 | 2 x 2 x AWG22/7 | 1.5 | 6.5 | 31.3 | 61 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

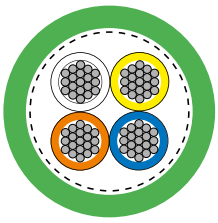
# ETHERLINE® TORSION Cat.5e

Ethernetcable category 5, class D for high flexible applications

**Info**

- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- For PROFINET applications
- Cat.5e-Performance



2170888/2170884

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre
- Outer sheath with high abrasion-resistance
- Broad usages due to halogen-free materials
- PUR outer sheath is highly resistant to mineral oils and abrasion

## Norm references / Approvals

- UL AWM (Style 21161)
- Halogen-free according to VDE 0472-815
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, tinned
- AWG 22 (19-wire)
- PE core insulation
- Star quad
- Screening: wrapped with braided tinned-copper wires
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
5 x outer diameter

**Test voltage**
700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
-40°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® TORSION Cat.5e** | | | | | | |
| 2170888/2170884 | ETHERLINE® TORSION Cat.5 | 2 x 2 x AWG22/19 | 1.5 | 6.5 | 31.3 | 52 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® FESTOON PN Cat.5e

Highly flexible application





2170936

**Info**

- Fast and easy cable preparation by FC inner sheath
- CAT.5e-Performance

## Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- UL/CSA certification according to technical data enables the product to be used in the North American marke
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- Cat. 5e performance up to 100 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz

## Application range

- Specially designed for data and signal transmission in festoon systems (festoon suspension/cable trolley)
- For highly flexible, continuously flexing use in moving machine parts and in the cable chain in the PROFINET network (type C)
- Also suitable for EtherCAT and EtherNet/IP applications

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Moved: 10 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm |
|---|---|---|---|---|
| **ETHERLINE® FESTOON PN Cat.5e** | | | | |
| 2170936 | ETHERLINE® FESTOON PN Cat.5e | 2 x 2 x AWG22/7 | 1.55 | 6.5 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

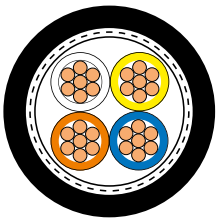
# ETHERLINE® Y CAT.5e BK

Flexible application

**Info**

- For PROFINET applications
- Cat.5-Performance



2170901

## Benefits

- UV and weather-resistant in black
- Can be used in dry or damp rooms
- Screened against interference
- Suitable for outdoor use, UV-resistant
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PVC compound TM2 acc. to EN 50363-4-1
- Resistant to acids, alkalis and certain oils at room temperature
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with PROFINET for Cat.5 applications
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC outer sheath, black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 500 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

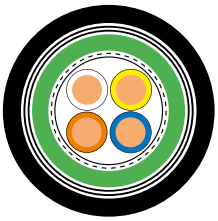
| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter [mm] | Core diameter in mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® Y Cat.5e BK** | | | | | | |
| 2170901 | ETHERLINE® Y Cat.5e BK | 2 x 2 x AWG22/7 | 6.2 | 1.5 | 30.4 | 59 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® Cat.5 ARM

Fixed Installation



2170496

## Info

- Industrial Ethernet cable
- Cat.5-Performance
- Suitable for outdoor use and direct burial

## Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- EMC-optimised design
- With armouring for improved rodent protection
- Screened against interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Application range

- Suitable for outdoor use, UV-resistant
- Suitable for direct burial
- PROFINET application Type C but for fixed installation
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- Fast Connect (FC) cable design

## Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Inner sheath made of PVC (green RAL6018)
  2 layer galvanzid steel tape
- Outer sheath made of black polyethylene (PE)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
During installation: 15 x outer diameter
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
During installation: -20°C to +60°C
Fixed installation: -40°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **Fixed Installation** | | | | | | |
| 2170496 | ETHERLINE® Cat.5 ARM | 2 x 2 x AWG22/1 | 1.5 | 6.5 / 9.3 | 30.4 | 124 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ROBOT PN Cat.5e

Ethernetcable category 5, class D for high flexible applications

**Info**

- Industrial Ethernet Cable, 2-pair, suitable for robot application
- For PROFINET applications
- Cat.5-Performance





2170941

## Benefits

- Variant “FC” with “Fast Connect” structure with inner sheath enables easy stripping and assembly of the cable
- Cable design in accordance with the PROFINET standard “Type R” for robotics applications
- Combines the essential cable chain, torsion and alternating bending properties in one cable
- Compatible with PROFINET-compliant components
- Special core stranding allows simultaneous bending and twisting (torsion angle up to ± 180° / m)
- Successfully tested for 5 million bending cycles in cable chains, 5 million torsion cycles and 1 million alternating bending cycles in the TicToc bending test
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- Low-capacitance core insulation for long transmission paths
- UL/CSA certification according to technical data enables the product to be used in the North American market

## Application range

- Especially for highly flexible, constantly flexing use under torsional stress in industrial robots and handling devices in the PROFINET network (type R)
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp and, especially, harsh and oily environments
- The PUR outer sheath withstands high mechanical loads
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 100 V (not for power applications)

**Minimum bending radius**
5 x outer diameter

**Test voltage**
2000 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed: -40 °C up to +80 °C
Continous flexing: -20 °C up to +60 °C
UL: 80 °C

| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter [mm] | Core diameter n mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® ROBOT PN Cat. 5** | | | | | | |
| 2170941 | ETHERLINE® ROBOT PN FC Cat.5e | 1 x 4 x 22/19AWG | 1.55 | 6.8 | 35.6 | 66.4 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
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# ETHERLINE® PN Cat.5 Patch cables



**Info**

- Additional variants are available on request
- Based on 2170893

## Benefits

- Non-permanent connections allow for easy change of equipment

## Application range

- For PROFINET® applications type A
- Fixed installation
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

## Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

## Product Make-up

- Solid conductor, 2x2x AWG22/1
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
During installation: 15 x outer diameter
Fixed installation: 10 x outer diameter

**Protection rating**
M12: IP 67
RJ45: IP 20

**Temperature range**
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

**Coding**
M12: D-Standard

| | | RJ45 | M12, plug, straight | M12, plug, angled | M12, socket, straight | Open end |
|---|---|---|---|---|---|---|
| | Length | Article number | | | | |
| RJ45 | 1.0m | 2171179 | 2171165 | 2171172 | On request | 2171186 |
| | 2.0m | 2171180 | 2171166 | 2171173 | | 2171187 |
| | 3.0m | 2171181 | 2171167 | 2171174 | | 2171188 |
| | 5.0m | 2171182 | 2171168 | 2171175 | | 2171189 |
| | 10.0m | 2171183 | 2171169 | 2171176 | | 2171190 |
| | 20.0m | 2171184 | 2171170 | 2171177 | | 2171191 |
| M12, plug, straight | 1.0m | 2171165 | 2171001 | 2171013 | 2171151 | 2171007 |
| | 2.0m | 2171166 | 2171002 | 2171014 | 2171152 | 2171008 |
| | 3.0m | 2171167 | 2171003 | 2171015 | 2171153 | 2171009 |
| | 5.0m | 2171168 | 2171004 | 2171016 | 2171154 | 2171010 |
| | 10.0m | 2171169 | 2171005 | 2171017 | 2171155 | 2171011 |
| | 20.0m | 2171170 | 2171006 | 2171018 | 2171156 | 2171012 |
| M12, plug, angled | 1.0m | 2171172 | 2171013 | On request | 2171158 | 2171019 |
| | 2.0m | 2171173 | 2171014 | | 2171159 | 2171020 |
| | 3.0m | 2171174 | 2171015 | | 2171160 | 2171021 |
| | 5.0m | 2171175 | 2171016 | | 2171161 | 2171022 |
| | 10.0m | 2171176 | 2171017 | | 2171162 | 2171023 |
| | 20.0m | 2171177 | 2171018 | | 2171163 | 2171024 |
| M12, socket, straight | 1.0m | On request | 2171151 | 2171158 | On request | On request |
| | 2.0m | | 2171152 | 2171159 | | |
| | 3.0m | | 2171153 | 2171160 | | |
| | 5.0m | | 2171154 | 2171161 | | |
| | 10.0m | | 2171155 | 2171162 | | |
| | 20.0m | | 2171156 | 2171163 | | |

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

## Accessories

- Coloured Clips for ETHERLINE® Patchcords

# ETHERLINE® PN Flex Cat.5 Patch cables

**Info**

- Additional variants are available on request
- Based on 2170886



## Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

## Application range

- For PROFINET® applications type B
- Flexible applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

## Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

## Product Make-up

- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

**Protection rating**
M12: IP 67
RJ45: IP 20

**Temperature range**
Flexing: -20°C to +60°C
Fixed installation: -40°C to +80°C

**Coding**
M12: D-Standard

| | | RJ45 | M12, plug, straight | M12, plug, angled | M12, socket, straight | Open end |
|---|---|---|---|---|---|---|
| | Length | Article number | | | | |
| RJ45 | 0.5m | 2171228 | 2171214 | 2171221 | 2171293 | 2171235 |
| | 1.0m | 2171229 | 2171215 | 2171222 | 2171294 | 2171236 |
| | 2.0m | 2171230 | 2171216 | 2171223 | 2171295 | 2171237 |
| | 5.0m | 2171232 | 2171218 | 2171225 | 2171297 | 2171239 |
| | 10.0m | 2171233 | 2171219 | 2171226 | On request | 2171240 |
| M12, plug, straight | 0.5m | 2171214 | 2172192 | 2172196 | 2171200 | 2172194 |
| | 1.0m | 2171215 | 2171025 | 2171037 | 2171201 | 2171031 |
| | 2.0m | 2171216 | 2171026 | 2171038 | 2171202 | 2171032 |
| | 5.0m | 2171218 | 2171028 | 2171040 | 2171204 | 2171034 |
| | 10.0m | 2171219 | 2171029 | 2171041 | 2171205 | 2171035 |
| M12, plug, angled | 0.5m | 2171221 | 2172196 | On request | On request | 2172198 |
| | 1.0m | 2171222 | 2171037 | | | 2171043 |
| | 2.0m | 2171223 | 2171038 | | | 2171044 |
| | 5.0m | 2171225 | 2171040 | | | 2171046 |
| | 10.0m | 2171226 | 2171041 | | | 2171047 |
| M12, socket, straight | 0.5m | 2171293 | 2171200 | On request | On request | On request |
| | 1.0m | 2171294 | 2171201 | | | |
| | 2.0m | 2171295 | 2171202 | | | |
| | 5.0m | 2171297 | 2171204 | | | |
| | 10.0m | On request | 2171205 | | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

## Accessories

- Coloured Clips for ETHERLINE® Patchcords

# ETHERLINE® PN FD Cat.5 Patch cables



**Info**

- Additional variants are available on request
- Based on 2170894

## Benefits

- For directly connecting two electric components
- Non-permanent connections allow for easy change of equipment

## Application range

- For PROFINET® applications type C
- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

## Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

## Norm references / Approvals

- The cable is UL/CSA-certified (CMX)

## Product Make-up

- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR , 6.5mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 8 x outer diameter
Fixed installation: 5 x outer diameter

**Protection rating**
M12: IP 67
RJ45: IP 20

**Temperature range**
Flexing: -20°C to +60°C
Fixed installation: -30°C to +70°C

**Coding**
M12: D-Standard

| | | RJ45 | M8D Patchcords fehlen | M12, plug, angled | M12, socket, straight | Open end |
|---|---|---|---|---|---|---|
| | Length | Article number | | | | |
| RJ45 | 0.5m | 2171278 | 2171264 | 2171271 | On request | 2171285 |
| | 1.0m | 2171279 | 2171265 | 2171272 | | 2171286 |
| | 2.0m | 2171280 | 2171266 | 2171273 | | 2171287 |
| | 3.0m | 2171281 | 2171267 | 2171274 | | 2171288 |
| | 5.0m | 2171282 | 2171268 | 2171275 | | 2171289 |
| | 10.0m | 2171283 | 2171269 | 2171276 | | 2171290 |
| M12, plug, straight | 0.5m | 2171264 | 2171121 | 2171122 | 2171250 | 2172201 |
| | 1.0m | 2171265 | 2171049 | 2171061 | 2171251 | 2171055 |
| | 2.0m | 2171266 | 2171050 | 2171062 | 2171252 | 2171056 |
| | 3.0m | 2171267 | 2171051 | 2171063 | 2171253 | 2171057 |
| | 5.0m | 2171268 | 2171052 | 2171064 | 2171254 | 2171058 |
| | 10.0m | 2171269 | 2171053 | 2171065 | 2171255 | 2171059 |
| M12, plug, angled | 0.5m | 2171271 | 2171122 | On request | 2171257 | 2172204 |
| | 1.0m | 2171272 | 2171061 | | 2171258 | 2171067 |
| | 2.0m | 2171273 | 2171062 | | 2171259 | 2171068 |
| | 3.0m | 2171274 | 2171063 | | 2171260 | 2171069 |
| | 5.0m | 2171275 | 2171064 | | 2171261 | 2171070 |
| | 10.0m | 2171276 | 2171065 | | 2171262 | 2171071 |
| M12, socket, straight | 0.5m | On request | 2171250 | 2171257 | On request | On request |
| | 1.0m | | 2171251 | 2171258 | | |
| | 2.0m | | 2171252 | 2171259 | | |
| | 3.0m | | 2171253 | 2171260 | | |
| | 5.0m | | 2171254 | 2171261 | | |
| | 10.0m | | 2171255 | 2171262 | | |

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

## Accessories

- Coloured Clips for ETHERLINE® Patchcords

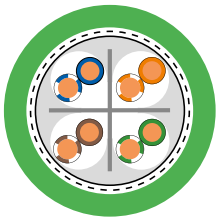
# ETHERLINE® PN Cat.6$_A$ FC

Ethernet cable Category 6$_A$, Class E$_A$ for fixed installation with FC inner sheath - verified up to 500 MHz

**Info**

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s



2170583/2170584/2170585

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- PVC version with PLTC approval and c(UL) us CMX (75 °C)
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- Solid bare copper wire AWG23
- Core insulation made of polyethylene (PE)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- Colour: green (based on RAL 6018)

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter

**Test voltage**
see data sheet

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
See data sheet

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC jacket** | | | | | | |
| 2170583 | ETHERLINE® PN CAT.6$_A$ Y FC | 4x2xAWG23/1 | 1.5 | 8.7 | 53 | 98 |
| **Halogen-free jacket** | | | | | | |
| 2170584 | ETHERLINE® PN CAT.6$_A$ FRNC FC | 4x2xAWG23/1 | 1.5 | 8.7 | 53 | 91 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170585 | ETHERLINE® PN CAT.6$_A$ P FC | 4x2xAWG23/1 | 1.5 | 8.7 | 53 | 99 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® PN Cat.6$_A$

Ethernet cable Category 6$_A$, Class E$_A$ for fixed Installation - verified up to 500 MHz





**2170464/2170465/2170466**

**Info**

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s
- CPR: Article number choice under www.lapp.com

## Benefits

- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website
- Available in 3 different sheath designs (PVC, PU, FRNC)

## Application range

- For fixed installation in the PROFINET network (type A), due to solid conductor design
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp or wet interiors
- Suitable for many applications, depending on the sheath material

## Technical data

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
core/core: 700 V
core/screen: 700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
See data sheet

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC jacket** | | | | | | |
| 2170464 | ETHERLINE® CAT.6$_A$ Y | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 98 |
| **Halogen-free jacket** | | | | | | |
| 2170466 | ETHERLINE® PN CAT.6$_A$ H | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 91 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170465 | ETHERLINE® PN CAT.6$_A$ P | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 99 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

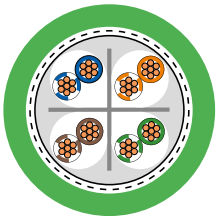
# ETHERLINE® PN Cat.6$_A$ FLEX FC

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use with FC inner sheath - verified up to 500 MHz

**Info**

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s
- Fast and easy cable preparation by FC inner sheath



2170586/2170587

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

## Product features

- CAT.6$_A$ for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath

## Norm references / Approvals

- UL c(UL)us CMX (75°C)
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Test voltage**
Core/Core: 1500 V AC
Core/Screen: 1000 V AC

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
PVC: Fixed: -30 °C up to +80 °C
Moving: -25 °C up to +70 °C
FRNC: Fixed: -25 °C up to +80 °C
Moved: -25 up to +80 °C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) |
|---|---|---|---|---|---|
| **PVC jacket** | | | | | |
| 2170586 | ETHERLINE® PN CAT.6$_A$ Y FLEX FC | 4x2xAWG23/7 | 1.5 | 8.9 | 57 |
| **Halogen-free jacket** | | | | | |
| 2170587 | ETHERLINE® PN CAT.6$_A$ FRNC FLEX FC | 4x2xAWG23/7 | 1.5 | 8.9 | 57 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® PN Cat.6$_A$ FLEX

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use - verified up to 500 MHz





2170930

**Info**

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s

## Benefits

- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or halogen free FRNC outer sheath

## Application range

- For flexible use in the PROFINET network (type B), due to stranded conductor design
- Suitable for all LAN networks and Ethernet applications up to 10GBase-T
- Can be used in dry, damp or wet environments
- Suitable for many applications, depending on the sheath material

## Norm references / Approvals

- c(UL)us Listing Type CMG 75 °C acc. to UL 444 ECOLAB certified
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)
- UL certification according to technical data enables the product to be used on the North American market

## Technical data

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
core/core: 700 V
core/screen: 700 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
See data sheet

| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index ( kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **PVC jacket** | | | | | |
| 2170930 | ETHERLINE® PN Cat.6$_A$ Y FLEX 4x2x23/7 | 4 X 2 X 23/ 7AWG | 8.8 | 48 | 92 |
| 2170931 | ETHERLINE® PN Cat.6$_A$ FRNC FLEX 4x2x23/7 | 4 X 2 X 23/ 7AWG | 8.8 | 48 | 87 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

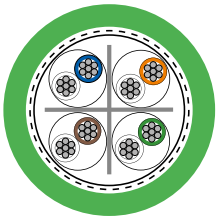
# ETHERLINE® FD CAT.6$_A$

Ethernet cable Category 6$_A$, Class EA for highly flexible use with FC inner sheath - verified up to 500 MHz

**Info**

- CAT.6$_A$ for cable chain, qualified for 10Gbit/s
- For PROFINET applications with 4 pairs



2170485/2170484

## Benefits

- For use in cable chains and moving machinery parts in dry or damp rooms
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

## Application range

- For highly flexible applications (e.g. cable chains)
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PUR version is halogen-free according to VDE 0472-815
- Oil-resistant acc. IEC 60811-2-1
- CAT.6$_A$ for cable chain, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- Min. 2.5 million bending cycles in the cable chain

## Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMG)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR/PVC
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC sheath** | | | | | | |
| 2170485 | ETHERLINE® FD CAT.6$_A$ | 4x2xAWG24/7 | 1.3 | 8.9 | 44 | 88 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170484 | ETHERLINE® FD P CAT.6$_A$ | 4x2xAWG24/7 | 1.3 | 8.9 | 44 | 90 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# ETHERLINE® PN Cat.6$_A$ FD FC

Highly flexible with Fast-Connect connection for permanently moving use in cable chain





**2170590/2170591**

**Info**

- Cat.6$_A$ qualified for 10Gbit/s

## Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or abrasion-resistant PU outer sheath
- Successfully tested for over 1 million bending cycles in cable chains

## Application range

- For highly flexible, continuously flexing use in moving machine parts and cable chains in the PROFINET network (type C), due to the extra-fine stranded conductor design
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp or wet environments
- Suitable for many applications, depending on the sheath material

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
max. 125 V (not for power appflficatfions)

**Minimum bending radius**
Fixed installation: 8 x cable diameter
Flexing: 15 x outer diameter

**Test voltage**
2kV

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed: -40°C to +80°C
Dynamic cont flex: -30°C to +50°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PUR** | | | | | | |
| 2170590 | ETHERLINE® PN Cat.6$_A$ P FD FC | 4 x 2 x AWG24/7 | 1.05 | 8.9 | 52 | 106 |
| **PVC** | | | | | | |
| 2170591 | ETHERLINE® PN Cat.6$_A$ Y FD FC | 4 x 2 x AWG24/7 | 1.05 | 8.9 | 52 | 106 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

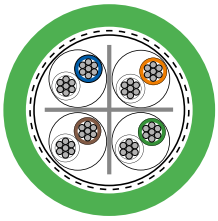
# ETHERLINE® TORSION Cat.6$_A$

Highly flexible application

## Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- Cat.6$_A$ acc. to ISO/IEC 11801
- For PROFINET applications



2170482/2170483

## Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

## Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Can be used for Industrial Ethernet in harsh industrial environments
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PUR version is halogen-free according to VDE 0472-815
- Oil-resistant acc. IEC 60811-2-1
- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173

## Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMG)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

## Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR/PVC
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Fixed installation: 8 x cable diameter
Flexing: 15 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC jacket** | | | | | | |
| 2170482 | ETHERLINE® TORSION Y CAT6$_A$ | 4 x 2 x AWG24/7 | 1.3 | 8.9 | 44 | 88 |
| **PUR outer sheath, halogen-free** | | | | | | |
| 2170483 | ETHERLINE® TORSION P CAT6$_A$ | 4 x 2 x AWG24/7 | 1.3 | 8.9 | 44 | 90 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# ETHERLINE® Cabinet Cat.6$_A$ Patchcords



**Info**

- Additional variants are available on request
- Based on 2170934

## Benefits

- Rapid information exchange at up to 10 Gbit/s over 60 m thanks to Cat.6$_A$ Ethernet
- Cable assembled on both sides saves time and eliminates the potential for errors during on-site assembly
- The narrow RJ45 connector allows use in devices with a very high port density
- Cable design allows small bending radii and is optimal for space-saving installation in confined spaces
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Durable, resistant product thanks to the outer sheath PU material that is resistant to abrasions, notches and cuts
- Halogen-free sheath compound to meet special fire safety requirements

## Application range

- For control cabinet cabling in the PROFINET network
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry rooms
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals
- Flexible use at temperatures down to -40°C

## Technical data

**Classification ETIM 5/6**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexfing: 10 x outer dfiameter
Fixed finstaflflatfion: 4 x outer dfiameter

**Protection rating**
IP20

**Temperature range**
-40°C to +70°C

| Article number | Article designation | Connector 1 | Connector 2 | Length m |
|---|---|---|---|---|
| **ETHERLINE® CABINET Cat.6$_A$ Patchcords** | | | | |
| 2170570 | ETHERLINE® PN CABINET Cat.6$_A$ 0.25 | RJ 45 Plug Straight | RJ 45 Plug Straight | 0.25 |
| 2170551 | ETHERLINE® PN CABINET Cat.6$_A$ 0.4 | RJ 45 Plug Straight | RJ 45 Plug Straight | 0.4 |
| 2170571 | ETHERLINE® PN CABINET Cat.6$_A$ 0.5 | RJ 45 Plug Straight | RJ 45 Plug Straight | 0.5 |
| 2170552 | ETHERLINE® PN CABINET Cat.6$_A$ 0.7 | RJ 45 Plug Straight | RJ 45 Plug Straight | 0.7 |
| 2170572 | ETHERLINE® PN CABINET Cat.6$_A$ 1 | RJ 45 Plug Straight | RJ 45 Plug Straight | 1 |
| 2170573 | ETHERLINE® PN CABINET Cat.6$_A$ 1.5 | RJ 45 Plug Straight | RJ 45 Plug Straight | 1.5 |
| 2170554 | ETHERLINE® PN CABINET Cat.6$_A$ 1.8 | RJ 45 Plug Straight | RJ 45 Plug Straight | 1.8 |
| 2170574 | ETHERLINE® PN CABINET Cat.6$_A$ 2 | RJ 45 Plug Straight | RJ 45 Plug Straight | 2 |
| 2170575 | ETHERLINE® PN Cabinet Cat.6$_A$ 2,5 | RJ 45 Plug Straight | RJ 45 Plug Straight | 2.5 |
| 2170576 | ETHERLINE® PN CABINET Cat.6$_A$ 3 | RJ 45 Plug Straight | RJ 45 Plug Straight | 3 |
| 2170577 | ETHERLINE® PN CABINET Cat.6$_A$ 4 | RJ 45 Plug Straight | RJ 45 Plug Straight | 4 |
| 2170578 | ETHERLINE® PN CABINET Cat.6$_A$ 5 | RJ 45 Plug Straight | RJ 45 Plug Straight | 5 |
| 2170579 | ETHERLINE® PN CABINET Cat.6$_A$ 7.5 | RJ 45 Plug Straight | RJ 45 Plug Straight | 7.5 |
| 2170579 | ETHERLINE® PN CABINET Cat.6$_A$ 10 | RJ 45 Plug Straight | RJ 45 Plug Straight | 10 |
| 2170579 | ETHERLINE® PN CABINET Cat.6$_A$ 15 | RJ 45 Plug Straight | RJ 45 Plug Straight | 15 |
| 2170579 | ETHERLINE® PN CABINET Cat.6$_A$ 20 | RJ 45 Plug Straight | RJ 45 Plug Straight | 20 |
| 21706020 | ETHERLINE® PN CABINET Cat.6$_A$ 25 | RJ 45 Plug Straight | RJ 45 Plug Straight | 25 |

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Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

## Accessories

- Coloured Clips for ETHERLINE® Patchcords

# ETHERLINE® TORSION Cat.6$_A$ Patch cables

**Info**

- Additional variants are available on request
- Based on 2170481



## Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

## Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

## Product features

- Meets the requirements according to Cat.6$_A$ and class E$_A$
- Suitable for torsion stress

## Product Make-up

- Braided conductor, 4x2x AWG24/7
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 9.4mm in diameter
- Colour: green (based on RAL 6018)

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

**Protection rating**
IP 67

**Temperature range**
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

**Coding**
M12: X-Standard

| | | M12, plug, straight | M12, socket, straight | Open end |
|---|---|---|---|---|
| | |  |  |  |  |
| | Length | Article number | | |
| M12, plug, straight  | 1.0m | 2172264 | 2172278 | 2172271 |
| | 2.0m | 2172265 | 2172279 | 2172272 |
| | 3.0m | 2172266 | 2172280 | 2172273 |
| | 5.0m | 2172267 | 2172281 | 2172274 |
| | 10.0m | 2172268 | 2172282 | 2172275 |
| M12, socket, straight  | 1.0m | 2172278 | 2172292 | 2172285 |
| | 2.0m | 2172279 | 2172293 | 2172286 |
| | 3.0m | 2172280 | 2172294 | 2172287 |
| | 5.0m | 2172281 | 2172295 | 2172288 |
| | 10.0m | 2172282 | 2172296 | 2172289 |

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

# ETHERLINE® Cat.7

Ethernet cable Category 7, Class F for fixed installation - verified up to 600 MHz





**2170474/2170476/2170475**

**Info**

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

## Benefits

- Cat. 7 performance up to 10 Gbit/s.
- For transmission of analogue and digital signals in the frequency range up to 600 MHz
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- Available with robust PVC outer sheath, abrasion-resistant PU outer sheath or halogen free FRNC outer sheat
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S /FTP)

## Application range

- For fixed installation in the PROFINET network (type A)
- For structured building cabling according to EN 50173 and ISO/IEC 11801
- Also suitable for EtherCAT and EtherNet/IP applications

## Technical data

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 10 x outer diameter

**Test voltage**
Core/core: 700 V
Core/screen: 700 V

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
PVC/FRNC: -30 °C up to +80 °C
PUR: -40°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PVC jacket** | | | | | | |
| 2170474 | ETHERLINE® CAT.7 Y | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 98 |
| **Halogen-free jacket** | | | | | | |
| 2170476 | ETHERLINE® CAT.7 H | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 91 |
| **PUR** | | | | | | |
| 2170475 | ETHERLINE® CAT.7 P | 4 x 2 x AWG22/1 | 1.5 | 8.7 | 53 | 99 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

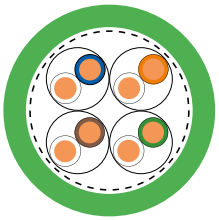
# ETHERLINE® PN Cat.7

Ethernet cable Category 7, Class F for fixed installation - verified up to 600 MHz

**Info**

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s



2170605/2170606/2170607

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free FRNC outer sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- Oil-resistant acc. IEC 60811-2-1
- PVC version (UL) CL3 ST1 SUN RES FT4 acc. to. UL 13 c(UL)us CMG 75°C acc. to. UL 444 and CSA C22.2 No. 214

## Product Make-up

- Solid bare copper wire AWG23
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V eff.

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
PVC/FRNC: -30 °C up to +80 °C
PUR: -40°C to +80°C

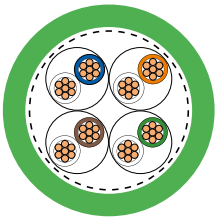
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® PN Cat.7** | | | | | | |
| 2170605 | ETHERLINE® PN CAT.7 Y A | 4 x 2 x AWG23/1 | 1.4 | 8.1 | 40 | 80 |
| 2170606 | ETHERLINE® PN CAT.7 FRNC A | 4 x 2 x AWG23/1 | 1.4 | 8.1 | 40 | 80 |
| 2170607 | ETHERLINE® PN CAT.7 P A | 4 x 2 x AWG23/1 | 1.4 | 8.1 | 40 | 80 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® PN Cat.7 FLEX

Ethernet cable Category 7, Class F for flexible application - verified up to 600 MHz



2170609/2170608

**Info**

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

## Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- FRNC Version: Halogene free and flame retardant
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- PVC version with UL CL3 ST-1 approval and CMG listing

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

**Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V eff.

**Characteristic impedance**
100 Ω ± 5 Ohm (> 1 MHz)

**Temperature range**
Fixed installation: -30°C to +80°C
Occasional flexing: -5°C to +50°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) |
|---|---|---|---|---|---|
| **ETHERLINE® PN Cat.7 FLEX** | | | | | |
| 2170609 | ETHERLINE® PN CAT.7 FRNC FLEX A | 4x2xAWG23/7 | 1.5 | 8.7 | 45 |
| 2170608 | ETHERLINE® PN CAT.7 Y FLEX A | 4x2xAWG23/7 | 1.5 | 8.7 | 45 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

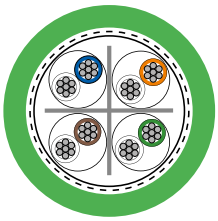
# ETHERLINE® TORSION Cat.7

Highly flexible application

**Info**

- For Torsion applications (±180°)
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s



2170481

## Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

## Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- Halogen-free according to IEC 60754-1
- Oil-resistant acc. IEC 60811-2-1
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Cable suitable for high torsion stress. Tested with up to 5 million bending cycles and a right/left movement of 180° per metre

## Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- UL/CSA-certified (CMX)
- UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2

## Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Characteristic impedance**
100 ± 5 Ohm (> 1 MHz)

**Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® TORSION Cat.7** | | | | | | |
| 2170481 | ETHERLINE® TORSION Cat.7 | 4x2xAWG24/7 | 1.4 | 9.4 | 44 | 95 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

# ETHERLINE® PN Cat.7 FD

Highly flexible application





2170487

## Info

- For PROFINET applications with 4 pairs
- For Cable chain Applications
- Cat.7 qualified for 10Gbit/s

## Benefits

- Cat. 7 performance up to 10 Gbit/s.
- For transmission of analogue and digital signals in the frequency range up to 600 MHz
- Successfully tested for over 3.0 million bending cycles in cable chains
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- Ideal protection against electromagnetic interference through pair shielding with aluminum composite foil and double overall shielding made of aluminum-clad foil and copper shielding braid with high coverage (SF/FTP)
- Fast information exchange through Ethernet technology

## Application range

- For highly flexible, continuously flexing use in moving machine parts and in the cable chain in the PROFINET network (type C)
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry and damp environments

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 100 V

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
Fixed installation: -40°C to +80°C
Flexfing: -10°C to +70°C
c(UL)us CMX: 75 °C
cRUus AWM: 80 °C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® PN Cat.7 FD** | | | | | | |
| 2170487 | ETHERLINE® PN Cat.7 FD P 4x2x24/7AWG | 4 x 2 x AWG24/7 | 1.4 | 9.4 | 44 | 98 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifi cations can be found in the data sheet.

# ETHERLINE® T1 FLEX

Single Pair Ethernet cable; Flexible; Ethernet; PROFINET® application: Type B

**Info**

- Single Pair Ethernet
- 1000BASE-T1 (IEEE 802.3bp) and other
- Flexible use






2170925

## Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Ethernet networking of the field devices enables real-time data collection and analysis as well as providing a wealth of additional information (big data) for process optimisation (e.g. predictive maintenance)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- For the transmission of analogue and digital signals in the frequency range up to 600 MHz and up to 40 m distance
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market

## Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Also available as a Power Limited Tray Cable (PLTC) variant listed according to UL for open installation on cable trays
- For fixed installation and occasional flexing
- Can be used in dry and damp rooms
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

## Technical data

**Peak operating voltage**
125V (not intended to be used in sources, such as power grids) conjunction with low impedance

**Minimum bending radius**
Fixed installation: 4 × outer diameter
Occasional flexing: 8 × outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
Fixed installation: -40 °C up to +80 °C
Occasional flexing: -10 °C up to +70 °C
UL: 75 °C acc. to UL 13 and UL 444
80 °C acc. to UL 758

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® PN Cat.7** | | | | | | |
| 2170922 | ETHERLINE® T1 PN FLEX Y 1x2x22/7AWG | 1 x 2 x AWG22/7 | 1.55 | 5.5 | 20 | 43.3 |
| 2170924 | ETHERLINE® T1 FLEX 1x2x22/7AWG | 1 x 2 x AWG22/7 | 1.6 | 5.8 | 20 | 42 |
| 2170925 | ETHERLINE® T1 FLEX Y 1x2x26/7AWG | 1 x 2 x AWG22/7 | 1.05 | 4.6 | 11.9 | 30.1 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® T1 FD

Single Pair Ethernet cable; Cable chain, Flexible; SF/UTP; PUR; Halogenfree





2170920

**Info**

- Single Pair Ethernet
- 100BASE-T1 (IEEE 802.3bw) and other
- Highly flexible

## Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to thefield level
- Ethernet networking of the field devices enables real-time data collection andanalysis as well as providing a wealth of additional information (big data) forprocess optimisation (e.g. predictive maintenance)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- Successfully tested for over 3.0 million bending cycles in cable chains
- For the transmission of analogue and digital signals in the frequency range up to 600 MHz and up to 40 m distance
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market

## Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain
- Can be used in dry, damp and, especially, harsh and oily environments
- The PUR outer sheath withstands high mechanical loads
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals

## Technical data

**Peak operating voltage**
125V (not intended to be used in sources, such as power grids) conjunction with low impedance

**Minimum bending radius**
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
Fixed installation: -40°C to +80°C
Continuos flexing: -20 °C up to +60 °C
UL: 80 °C acc. to UL 758

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® T1 FD** | | | | | | |
| 2170920 | ETHERLINE® T1 FD P 1x2x26/19AWG | 1 x 2 x AWG26/19 | 1.05 | 4.6 | 12.3 | 27.4 |

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® T1L - T1L FLEX

Shielded Ethernet APL data cable for the process industry, with Just “Fast Connected” design and UL approval

**Info**

- Industrial Ethernet cable
- For potentially explosive areas
- 10Base-T1-L according to IEEE 802.3cg





2170919

## Benefits

- Ethernet Advanced Physical Layer (Ethernet-APL) enables data transmission via Ethernet up to the field level in potentially explosive environments in the process industry
- Fast and efficient transmission of large data volumes via Ethernet at 10 Mbit/s for bridging long distances (trunk length up to 1000 m or spurs up to 200 m)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- Ethernet networking of the field devices enables real-time data collection and analysis as well as providing a wealth of additional information (big data) for process optimisation (e.g. predictive maintenance)
- Ethernet APL supports the “intrinsically safe” ignition protection type and is based on the 2-WISE (2-Wire Intrinsically Safe Ethernet) concept according to IEC TS 60079-47. This achieves an explosion-protection technology with a high level of protection
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- The “Fast Connected” structure with inner sheath enables easy stripping and assembly of the cable
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP) UL/CSA certification according to technical data enables the product to be used in the North American market

## Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- Especially suitable for long transmission distances of up to 1000 m according to IEC 61156-13
- For Single Pair Ethernet (SPE) applications 10Base-T1L according to IEEE 802.3cg
- Especially for challenging applications in the process industry
- Listed as a Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays
- For fixed installation
- Can be used in dry and damp environments
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

## Technical data

**Peak operating voltage**
125V (not intended to be used in conjunction with low impedance sources, such as power grids)

**Minimum bending radius**
Fixed installation: 4 × outer diameter
Occasional flexing: 8 × outer diameter

**Test voltage**
Core/core: 2000 V
Core/screen: 2000 V

**Characteristic impedance**
100 ± 5 Ω (>1MHz)

**Temperature range**
Fixed installation: -40°C up to +80°C
Occasional flexing: -10°C up to +70°C
UL: 80°C acc. to UL 758

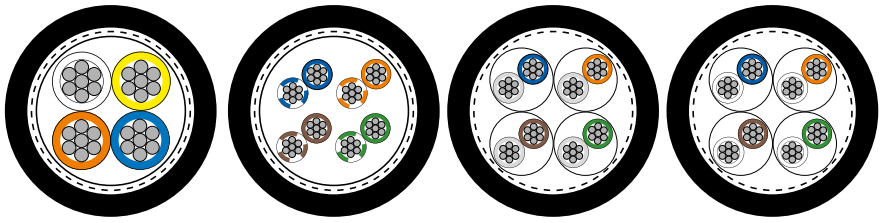
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) |
|---|---|---|---|---|---|
| **ETHERLINE® T1L** | | | | | |
| 2170918 | ETHERLINE® T1L FC Y 1x2x18/1AWG | 1 x 2 x 18/1AWG | 2.55 | 8 | 0.001 |
| **ETHERLINE® T1L FLEX** | | | | | |
| 2170919 | ETHERLINE® T1L FLEX FC Y 1x2x18/7AWG | 1 x 2 x 18/7AWG | 2.55 | 8 | 0.001 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® TRAIN

Ethernet cables according to EN 50264-3-1 Type XM for high requirements in railway applications



2170906/2170910 | 2170907 | 2170908 | 2170909

**Info**

- Meets EN 50264-3-2 type XM and EN 45545-2
- Cat.5e Performance up to 100 / 1000 MBit/s
  Cat.$6_A$ & Cat.7 qualified for 10 GBit/s

## Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire

## Application range

- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- Also applicable within oily environments and areas with increased ambient temperature

## Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

## Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- EN 50264-1
- EN 45545-2 HL1, HL2, HL3

## Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.$6_A$/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

## Technical data

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Flexing: 10 x outer diameter
Fixed installation: 8 x outer diameter

**Test voltage**
Core/core: 1000 V
Core/screen: 1000 V

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation:
-45°C to +90°C
Flexing: -35°C up to +90°C

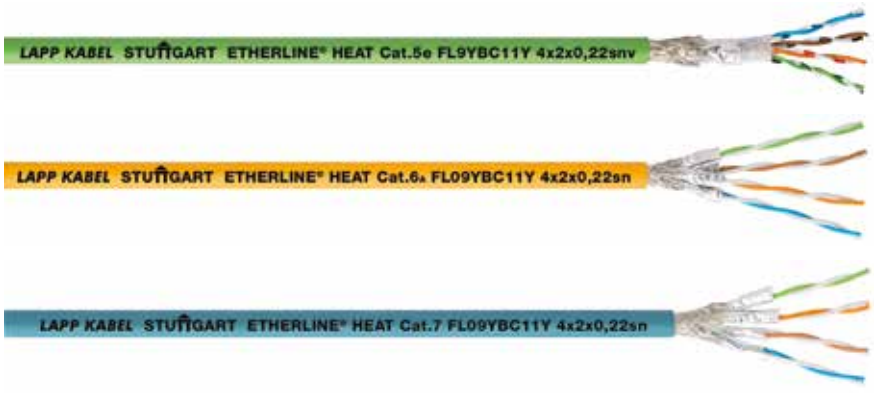
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **Cat.5e, 2-pair version** | | | | | | |
| 2170906 | ETHERLINE TRAIN FLEX Cat.5e 1x4x22/7 PE | 1x4xAWG22/7 | 1.5 | 6.5 | 30 | 62 |
| 2170910 | ETHERLINE TRAIN FLEX Cat.5e 1x4x0,5 PE | 1x4x0,5/7 | 2 | 7.6 | 41 | 83 |
| **Cat.5e, 4-pair version** | | | | | | |
| 2170907 | ETHERLINE TRAIN Cat.5e 4x2x24/7 PE | 4x2xAWG24/7 | 1.2 | 7.7 | 38 | 76 |
| **Cat.$6_A$** | | | | | | |
| 2170908 | ETHERLINE TRAIN FLEX Cat.$6_A$ 4x2x24/7 PE | 4x2xAWG24/7 | 1.4 | 8.4 | 38 | 75 |
| **Cat.7** | | | | | | |
| 2170909 | ETHERLINE TRAIN FLEX Cat.7 4x2x24/7 PE | 4x2xAWG24/7 | 1.4 | 8.4 | 43 | 75 |

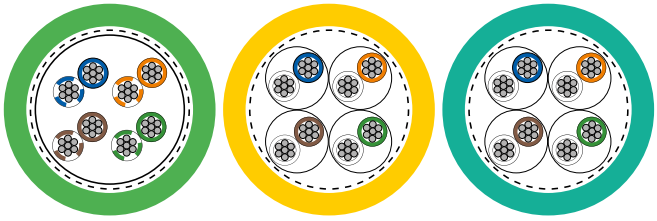
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® HEAT 6722

**Info**

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01
- For PROFINET applications



2170805 2170581 2170582

## Benefits

- Easy to strip and dismantle
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis
- Abrasion and cut-resistant, halogen-free, oil-resistant
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire

## Application range

- For flexible applications (7-wire stranded conductor)
- For fixed, flexible and protected installations inside buses
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

## Product features

- Good chemical resistance
- Flame retardant acc. to ISO 6722-1
- Temperature class B on the basis of ISO 6722-1

## Norm references / Approvals

- DIN/ISO 6722
- Electrical requirements acc. to IEC 61156-6
- Tested acc.to ECE-R 118.01
- LV 112-1, LV 212-2, LV 213-2

## Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with EIA/TIA 568A and B
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.6$_A$/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR compound, halogen-free
- Outer sheath colour:
  Cat.5e green (RAL 6018)
  Cat.6$_A$ yellow (RAL 1003)
  Cat.7 blue (RAL 5021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -40 °C to +105 °C
Flexing: -30 °C to +105 °C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® HEAT 6722** | | | | | | |
| 2170850 | ETHERLINE® Cat. 5e FL9YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 1.2 | 7.7 | 38 | 72 |
| 2170581 | ETHERLINE® Cat. 6$_A$ FL09YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 1.3 | 8.1 | 38 | 77 |
| 2170582 | ETHERLINE® Cat. 7 FL09YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 1.3 | 8.1 | 38 | 77 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

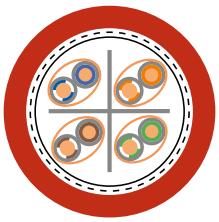
# ETHERLINE® FIRE

Industrial Ethernet cable with insulation integrity






2170905



2170913

**Info**

- Insulation integrity for at least 120 minutes in the event of fire

## Benefits

- Ensures that the cable can still transmit data during and after a fire for 120 min (according to EN50200)
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

## Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For fixed installation
- For indoor use

## Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1 & EN50267-2-1)
  - Flame-retardant (IEC 60332-1)
  - Fire retardant (IEC 60332-3-24)
  - Low smoke density (IEC 61034-2)
  - Circuit integrity (EN50200); 120 min

## Product Make-up

- Solid bare copper conductor
- Core insulation: Based on Polyolefin
- Each insulation will be wrapped with a special tape (anti-fire barrier)
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Halogen-free and flame-retardant FRNC outer sheath, colour: red (similar to RAL3000)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Peak operating voltage**
(not for power applications) 125 V

**Minimum bending radius**
Fixed installation: 15 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-5

**Temperature range**
Fixed installation: -20°C to +70°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **ETHERLINE® FIRE** | | | | | | |
| 2170905 | ETHERLINE® FIRE Cat.5e PH120 | 4 x 2 x AWG23/1 | 0.95 | 8.6 | 24 | 75 |
| 2170913 | ETHERLINE® FIRE Cat.6 PH120 | 4 x 2 x AWG22/1 | 1.5 | 10.2 | 48 | 145 |

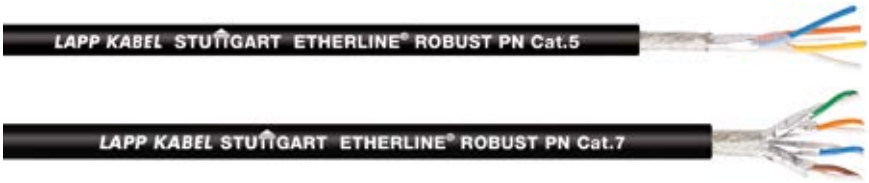
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

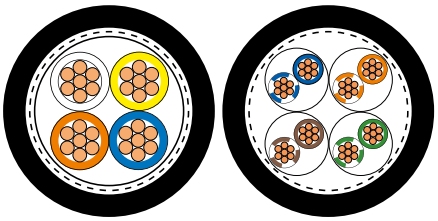
# ETHERLINE® ROBUST

Flexible use

**Info**

- For PROFINET applications
- Good chemical resistance



2170451 2170452/2170453

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic substances, oils, greases, waxes and the related emulsions
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

## Product features

- UV-resistant according to ISO 4892-2
- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone-resistant according to EN 50396
- Low smoke density according to IEC 61034-2

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Fixed installation: 8 x outer diameter
Flexing: 10 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

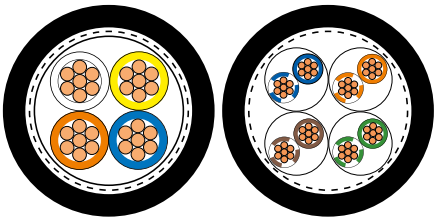
**Temperature range**
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PROFINET Cat.5e** | | | | | | |
| 2170451 | ETHERLINE® ROBUST PN Cat.5 | 2x2xAWG22/7 | 1.5 | 6.5 | 30.4 | 50 |
| **PROFINET Cat.7** | | | | | | |
| 2170452 | ETHERLINE® ROBUST PN Cat.7 | 4x2xAWG23/7 | 1.5 | 8.7 | 48 | 75 |
| **Industrial Ethernet Cat.7** | | | | | | |
| 2170453 | ETHERLINE® ROBUST Cat.7 FLEX | 4x2xAWG26/7 | 1 | 6.2 | 27 | 36 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® ROBUST FR



2170454 2170455/2170456

**Info**

- For PROFINET applications
- Flame-retardant

## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Suitable for EtherCAT and EtherNet/IP applications

## Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Flame retardance makes it suitable for indoor and outdoor installations
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.

## Norm references / Approvals

- UV-resistant according to ISO 4892-2
- Flame-retardant according IEC 60332-1-2
- Ozone-resistant according to EN 50396

## Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
Flexing: 10 x outer diameter
Fixed installation: 8 x outer diameter

**Characteristic impedance**
nom. 100 Ω acc. to IEC 61156-6

**Temperature range**
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|
| **PROFINET Cat.5e** | | | | | | |
| 2170454 | ETHERLINE® ROBUST PN FR Cat.5 | 2x2xAWG22/7 | 1.5 | 6.5 | 30.4 | 55 |
| **PROFINET Cat.7** | | | | | | |
| 2170455 | ETHERLINE® ROBUST PN FR Cat.7 | 4x2xAWG23/7 | 1.5 | 8.7 | 48 | 80 |
| **Industrial Ethernet Cat.7** | | | | | | |
| 2170456 | ETHERLINE® ROBUST FR Cat.7 FLEX | 4x2xAWG26/7 | 1 | 6.2 | 27 | 40 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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# EPIC® DATA RJ45

**Info**

- Cat.6$_A$ acc. to ISO/IEC 11801
- Colour-coded assembly aid
- Installation without tools



## Product features

- Field assembly Industrial Ethernet RJ45 connector
- Suitable for 10BASE-T / 100BASE-T / 1000BASE-T / 10GBASE-T
- Housing: zinc die-casting, grey
- 4 different angled cable outlets possible
- Suitable for use in industrial applications

## Norm references / Approvals

- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51
- UL-listed (E-File E353543)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-40°C to +85°C

| Article number | Design | Min. outer diameter (mm) | Max. outer diameter (mm) | Min. Core diameter in mm | Max. Core diameter in mm | PU | AWG solid | AWG 7-wire | AWG 19-wire |
|---|---|---|---|---|---|---|---|---|---|
| **PROFINET colour-coding (2-pairs)** | | | | | | | | | |
| 21700605 | Straight, latched | 5 | 9 | 1 | 1.6 | 10 | 24 - 22 | 27 - 22 | 22* |
| 21700651 | Straight, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | 22* |
| 21700638 | Angled, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | 22* |
| **colour-coded acc. to EIA/TIA 568A** | | | | | | | | | |
| 21700600 | Straight, latched | 5 | 9 | 1 | 1.6 | 10 | 24 - 22 | 27 - 22 | |
| 21700652 | Straight, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | |
| 21700636 | Angled, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | |
| **colour-coded acc. to EIA/TIA 568B** | | | | | | | | | |
| 21700601 | Straight, latched | 5 | 9 | 1 | 1.6 | 10 | 24 - 22 | 27 - 22 | |
| 21700653 | Straight, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | |
| 21700637 | Angled, screwed | 5.5 | 10 | 1 | 1.6 | 1 | 24 - 22 | 27 - 22 | |
| **colour-coded acc. to EIA/TIA 568A for small wire diameters** | | | | | | | | | |
| 21700615 | Straight, latched | 5 | 9 | 0.85 | 1.1 | 10 | 26 - 24 | 27 - 24 | 26* |
| 21700654 | Straight, screwed | 5.5 | 10 | 0.85 | 1.1 | 1 | 26 - 24 | 27 - 24 | 26* |
| 21700639 | Angled, screwed | 5.5 | 10 | 0.85 | 1.1 | 1 | 26 - 24 | 27 - 24 | 26* |
| **colour-coded acc. to EIA/TIA 568B for small wire diameters** | | | | | | | | | |
| 21700616 | Straight, latched | 5 | 9 | 0.85 | 1.1 | 10 | 26 - 24 | 27 - 24 | 26* |
| 21700655 | Straight, screwed | 5.5 | 10 | 0.85 | 1.1 | 1 | 26 - 24 | 27 - 24 | 26* |
| 21700640 | Angled, screwed | 5.5 | 10 | 0.85 | 1.1 | 1 | 26 - 24 | 27 - 24 | 26* |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
An approval is necessary for 19-wire cables by Lapp Group
Approved cables: 2170289, 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD, Freigegebene Leitungen: 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD, 2170888 ETHERLINE® TORSION Cat.5

# EPIC® DATA AX RJ45 Cat.6$_A$ IP68

RJ45 connector in IP68 housing






**21700630** **21700631** **21700632** **21700633**

**Info**

- Cat.6$_A$ acc. to ISO/IEC 11801
- Installation without tools

### Product features

- Housing: brass nickel plated
- Qualified for 10 Gigabit/s Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1

### Norm references / Approvals

- UL-listed (E-File E353543)
- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

**Protection rating**
IP 68

**Ambient temperature (operation)**
-40°C to +85°C
circular housing: -40°C to +85°C

| Article number | Article designation | PU |
|---|---|---|
| **Protective housing (male) containing RJ45 connector (article 21700601)** | | |
| 21700630 | ED-IE-AX-RJ45-6$_A$-B-68-FC | 1 |
| **Dust cap for Protective housing (male)** | | |
| 21700631 | ED-IE-AX-RJ45-AC-DC | 10 |
| **Protective housing (female) containing RJ45 socket (article 21700612)** | | |
| 21700632 | ED-IE-RJ45F-6$_A$-B-68-FC | 1 |
| **Dust cap for Protective housing (female)** | | |
| 21700633 | ED-IE-RJ45F-AC-DC | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Coloured Clips for ETHERLINE® Patchcords

Latch protection with colour coding; Polyoxymethylene; POM; white




**Info**

- Installation without tools
- Available in 11 different colors

### Benefits

- Extends the latch of the RJ45 plug, thereby guaranteeing a better grip
- Serves for better colour identification on Ethernet cordsets when many lines of the same colour are used (e.g. in PROFINET network)
- Available in different colours

### Application range

- For use in control cabinets
- For use with ETHERLINE® RJ45 cordsets from LAPP
- Especially for devices with a very high port density
- Especially for switches with deep inside sockets

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-40°C to +70°C

| Article number | Article designation |
|---|---|
| 2173014 | IE-AC-RJ45-CCW |
| 2173015 | IE-AC-RJ45-CCR |
| 2173016 | IE-AC-RJ45-CCB |
| 2173017 | IE-AC-RJ45-CCY |
| 2173018 | IE-AC-RJ45-CCG |
| 2173019 | IE-AC-RJ45-CCB |

| Article number | Article designation |
|---|---|
| 2173020 | IE-AC-RJ45-CCO |
| 2173021 | IE-AC-RJ45-CCV |
| 2173022 | IE-AC-RJ45-CCG |
| 2173023 | IE-AC-RJ45-CCP |
| 2173024 | IE-AC-RJ45-CCB |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA RJ45F Cat.6$_A$

RJ45 coupler

**Info**

- Cat.6$_A$ acc. to ISO/IEC 11801
- Installation without tools



## Product features

- RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit/s Ethernet
- Housing: zinc die-casting, grey
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

## Norm references / Approvals

- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51
- UL-listed (E-File E353543)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-40°C to +70°C

| Article number | Article designation | Min. outer diameter (mm) | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU |
|---|---|---|---|---|---|---|
| **RJ45 coupler acc. to T568A** | | | | | | |
| 21700611 | ED-IE-AX-RJ45F-6$_A$-A-FC | 5 | 9 | 0.9 | 1.6 | 24 |
| **RJ45 coupler acc. to T568B** | | | | | | |
| 21700612 | ED-IE-AX-RJ45F-6$_A$-B-FC | 5 | 9 | 0.9 | 1.6 | 24 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA HS RJ45F Cat.6$_A$

Rail mount adapter with RJ45 coupler

## Product features

- Plastic housing including RJ45 coupler
- Suitable for use in industrial applications
- Colour: light grey (RAL 7035)
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1

## Norm references / Approvals

- RJ45 according to IEC 60603-7-51

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-40°C to +70°C



| Article number | Article designation | PU |
|---|---|---|
| **DIN-rail adapter containing RJ45 socket acc. to T568A (article 21700611)** | | |
| 21700613 | EPIC DATA HS RJ45 F 10G A | 5 |
| **DIN-rail adapter containing RJ45 socket acc. to T568B (article 21700612)** | | |
| 21700614 | EPIC DATA HS RJ45 F 10G B | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® DATA M12D



21700647/21700648



22261016

**Info**

- Cat.5 acc. to ISO/IEC 11801
- Installation without tools

### Product features

- Field assembly Industrial Ethernet connector
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Toolfree installation, small and compact design

### Norm references / Approvals

- Cat.5 acc. to ISO/IEC 11801
- M12 D-coded acc. to IEC61076-2-101
- UL94-V0 HL3 R22/R24 according to EN 45545-2

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 67

**Ambient temperature (operation)**
-25°C to +85°C

| Article number | Article designation | Min. outer diameter (mm) | Max. outer diameter (mm) | PU | AWG solid | AWG 7-wire |
|---|---|---|---|---|---|---|
| **M12 D-coded plug, straight, colour coding acc. to PROFINET** | | | | | | |
| 21700647 | ED-IE-AX-M12D-5-PN-67-FC | 6.2 | 9.7 | 1 | 26-22 | 26-22 |
| **M12 D-coded plug, straight, colour coding acc. to TIA 568** | | | | | | |
| 21700648 | ED-IE-AX-M12D-5-67 | 5 | 6.1 | 1 | 26-22 | 26-22 |
| **M12 D-coded socket, straight, TIA 568 colour coding** | | | | | | |
| 22261016 | AB-C4-M12FSD-SH | 4 | 8 | 1 | 26-22 | 26-22 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® DATA M12X



21700602



21700621



21700622



44429476

**Info**

- Cat.$6_A$ acc. to ISO/IEC 11801
- Installation without tools

### Product features

- Field assembly Industrial Ethernet connector
- Qualified for 10 Gigabit/s Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey
- Toolfree installation, small and compact design

### Norm references / Approvals

- Cat.$6_A$ acc. to ISO/IEC 11801
- M12 X-coded acc. to IEC61076-2-109

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 67

**Ambient temperature (operation)**
-40°C to +85°C

| Article number | Article designation | Min. outer diameter (mm) | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG solid | AWG 7-wire |
|---|---|---|---|---|---|---|---|---|
| **M12 X-coded plug, straight** | | | | | | | | |
| 21700602 | ED-IE-AX-M12X-$6_A$-67-FC | 6.3 | 9.7 | 0.85 | 1.6 | 1 | 26-22 | 26-22 |
| **M12 X-coded socket, straight** | | | | | | | | |
| 21700621 | ED-IE-AX-M12XF-$6_A$-67-FC | 6.3 | 9.7 | 0.85 | 1.6 | 1 | 26-22 | 26-22 |
| **M12 X-coded socket, straight for wall mounting** | | | | | | | | |
| 21700622 | ED-IE-AX-M12XF-RM-$6_A$-67-FC | 6.3 | 9.7 | 0.85 | 1.6 | 1 | 26-22 | 26-22 |
| **M12 X-coded plug, straight** | | | | | | | | |
| 44429476 | M12X8MSC | 5.5 | 8.5 | | | 1 | 28-26 | 28-26 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT PN6-RJ-1

Cat.7 fixed installation and RJ45 Cat.$6_A$ connectors



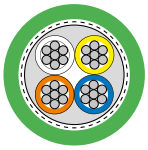


| **Cable**<br>ETHERLINE® PN Cat.7 Y | | **Connector**<br>ED-IE-AX-$6_A$-A-20-FC | |
|---|---|---|---|
| • Cat.7<br>• 4x2xAWG23/1<br>• PVC outer sheath<br>• Feste installation<br>• PROFINET® compliant | | • RJ45, for strands AWG27/7- AWG22/7<br>• Cat.$6_A$<br>• Tool-free assembly: Insulation displacement technology<br>• PROFINET® colour coding<br>• Metal housing | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170605 | 500m | 21700652 | 20 items |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT PN5-RJ-1

PROFINET® Cat.5 flexible installation and RJ45 Cat.5 connectors





| **Cable**<br>ETHERLINE® PN Cat.5 Y FLEX FC | | **Connector**<br>ED-IE-AX-5-PN-20-FC | |
|---|---|---|---|
| • Cat.5<br>• 2x2xAWG22/7<br>• PVC outer sheath<br>• Flexible installation<br>• PROFINET® compliant | | • RJ45, for strands AWG27/7-AWG22/7<br>• Cat.5<br>• Tool-free assembly: Insulation displacement technology<br>• T568A colour coding<br>• Metal housing | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170886 | 500m | 21700651 | 1 item |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT PN5-M12-1

PROFINET® Cat.5 flexible installation and M12 connectors



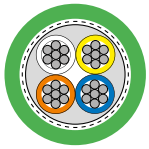


| **Cable**<br>ETHERLINE® PN Cat.5 Y FLEX FC | | **Connector**<br>ED-IE-AX-M12D-5-PN-67-FC | |
|---|---|---|---|
| • Cat.5<br>• 2x2xAWG22/7<br>• PVC outer sheath<br>• Flexible installation<br>• PROFINET® compliant | | • M12D, for strands AWG solid: 24-22 and AWG 7 wire: 26-22<br>• Cat.5<br>• Tool-free assembly: Insulation displacement technology<br>• PROFINET® colour coding | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170886 | 500m | 21700647 | 1 item |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT PN5-M12-2

PROFINET® Cat.5 highly flexible installation and M12 connectors




| Cable<br>ETHERLINE® FD P FC Cat.5 | | Connector<br>ED-IE-AX-M12D-5-PN-67-FC | |
|---|---|---|---|
| • Cat.5<br>• 2x2xAWG22/7<br>• PUR outer sheath<br>• Flexible installation<br>• PROFINET® compliant | | • M12D, for strands AWG solid: 24-22 and AWG 7 wire: 26-22<br>• Cat.5<br>• Tool-free assembly: Insulation displacement technology<br>• PROFINET® colour coding | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170894 | 500m | 21700647 | 1 item |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT IE5-RJ-1

Cat.5e flexible installation, RJ45 connector and 8 port switches



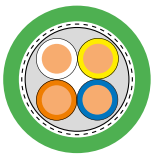


| Cable<br>ETHERLINE® Y FLEX Cat.5e | | Connector<br>ED-IE-AX-6$_A$-A-20-FC | | Active network components<br>ETHERLINE® ACCESS U08T | |
|---|---|---|---|---|---|
| • Cat.5e<br>• 4x2xAWG26/7<br>• PVC outer sheath, UL type CMX approval | | • RJ45, for strands AWG27/7-AWG22/7<br>• Cat.6$_A$<br>• Tool-free assembly: Insulation displacement technology<br>• T568A colour coding<br>• Metal housing<br>• Unmanaged switch<br>• 8 ports RJ45 (10/100 Mbit/s)<br>• Redundant power supply<br>• DIN rail assembly<br>• Metal housing<br>• Item no. Quantity Item no.<br>• Metal housing | | • Unmanaged switch<br>• 8 ports RJ45 (10/100 Mbit/s)<br>• Redundant power supply<br>• DIN rail assembly<br>• Metal housing | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170486 | 500m | 21700652 | 20 items | 21700119 | 1 item |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## ETHERLINE® ACCESS KIT PN5-1/

PROFINET® Cat.5 fixed installation and 5 port switches

| Cable<br>ETHERLINE® Y FC Cat.5 | | Connector<br>ETHERLINE® ACCESS U05T | |
|---|---|---|---|
| • Cat.5<br>• 2x2xAWG22/1<br>• PVC outer sheath, PLTC approval and AWM style 21694<br>• Fixed installation<br>• PROFINET® compliant | | • Unmanaged switch<br>• 5 ports RJ45 (10/100 Mbit/s)<br>• Redundant power supply<br>• DIN rail assembly<br>• Metal housing | |
| **Item no.** | **Quantity** | **Item no.** | **Quantity** |
| 2170893 | 500m | 21700118 | 1 item |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA FT IE

Industrial Ethernet feed through



22262022



21700617



21700618

## Product features

- Designs for front and rear wall-mounting
- M12 panel feed-throughs for direct connecting with PCB
- Can be used for Industrial Ethernet in harsh industrial environments
- Housing: zinc die-casting, grey

## Norm references / Approvals

- M12 D-coded acc. to IEC 61076-2-101
  M12 X-coded acc. to IEC 61076-2-109
- M12 D-coded: Cat.5 acc. to ISO/IEC 11801
  M12 X-coded: Cat.$6_A$ acc. to ISO/IEC 11801

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector chassis

IP **Protection rating**
IP 67

**Ambient temperature (operation)**
-25°C to +85°C

| Article number | Article designation |
|---|---|
| **M12 feed through, socket on socket, D-coded** | |
| 22262022 | AB-C4-DSI-M12FSD-M12FSD-M16-SH |
| **M12 fl ush-type connector socket for front-mounting, solder contacts for circuit board, X-coded** | |
| 21700617 | ED-IE-M12F-X-FM |
| **M12 flush-type connector socket for rear wall mounting, solder contacts for circuit board, X-coded** | |
| 21700618 | ED-IE-M12F-X-RM |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA CCR FA

Cable coupler round

**Info**

- Installation without tools



## Product features

- Field mountable cable coupler for data cables up to Cat.$7_A$
- Compact, round design
- Qualified for 10 Gigabit/s Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey

## Norm references / Approvals

- Compliance to class FA up to 1000 MHz in connection with Cat.$7_A$ cables
- Cat.$7_A$ acc. to ISO/IEC 11801

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

IP **Protection rating**
IP 67

**Ambient temperature (operation)**
Plug/socket -40°C to +85°C

| Article number | Article designation | Min. outer diameter (mm) | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG solid | AWG 7-wire |
|---|---|---|---|---|---|---|---|---|
| **EPIC® DATA CCR FA** | | | | | | | | |
| 21700623 | EPIC® DATA CCR FA | 5 | 9.7 | 0.85 | 1.6 | 1 | 26 - 22 | 26 - 22 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA M12-RJ45

Control cabinet bushing



44429474



44429475

**Info**

- For panel mounting
- Installation without tools

## Benefits

- Enables easy transition from M12 to RJ45
- When connected, protection class IP 67 can be achieved on the M12 side
- D-coded or x-coded available

## Application range

- Designed as a control cabinet feed-through for connecting an M12 connection to an RJ45 patch cable
- For use with assembled data cables (M12D or M12X connector)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 67
IP 20

**Ambient temperature (operation)**
-25°C to +80°C

| Article number | Article designation | Coding type | Connector format | Ethernet cable cat. |
|---|---|---|---|---|
| **EPIC® DATA M12-RJ45** | | | | |
| 44429474 | EPIC® DATA M12X8FS-RJ45FS | X-Coded | M 12,RJ 45 | Cat. $6_A$ |
| 44429475 | EPIC® DATA M12D4FS-RJ45FS | D-coded | M 12,RJ 45 | Cat. 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® DATA SPE-6 FA M CS1

Data connector; Ethernet; SPE; Plug; Straight



**Info**

- Single Pair Ethernet connector
- Crimp termination

### Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Compact design for use in restricted spaces
- Time-saving and simplified installation compared to conventional Ethernet connectors
- Connector face of the SPE connector in accordance with DIN EN IEC 63171-6
- Power over Data Line (PoDL)-capable connector according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Crimp termination creates a vibration-proof connection, provides maximum contact protection between the contact and cable and is suitable for automated assembly

### Application range

- For establishing a detachable Single Pair Ethernet connection
- Typical applications include control cabinets, industrial robots and field equipment
- For use with the SPE circuit board socket EPIC® DATA SPE-6 PCB F

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-25°C to +85°C

| Article number | Article designation | Min. outer diameter (mm) | Max. outer diameter (mm) |
|---|---|---|---|
| **EPIC® DATA SPE-6 FA M CS1** | | | |
| 21700865 | DATA SPE-6 FA M CS1 | 4.5 | 6 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® DATA SPE-6 PCB F

Data connector; Ethernet; SPE; Circuit board socket



**Info**

- Single Pair Ethernet connector
- PCB connection

### Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Compact design for use in restricted spaces
- Connector face of the SPE connector in accordance with DIN EN IEC 63171-6
- Power over Data Line (PoDL)-capable circuit board socket according to IEEE 802.3 bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)

### Application range

- For connecting SPE connectors to a PCB inside active devices
- For use with the SPE connector EPIC® DATA SPE-6 FA M CS1
- For use with the SPE patch cable EPIC® DATA SPE-6 PC M-M CT001

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

**Protection rating**
IP 20

**Ambient temperature (operation)**
-25°C to +85°C

| Article number | Article designation |
|---|---|
| **EPIC® DATA SPE-6 PCB F** | |
| 21700866 | DATA SPE-6 PCB F |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA SPE-6 PC M-M CT001

Control cabinet bushing



**Info**

- Pre-assembled Ethernet cable; SPE straight plug to SPE straight plug

## Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- The patch cable assembled on both sides saves time during installation and reduces or eliminates the potential for errors during on-site assembly
- Power over Data Line (PoDL)-capable patch cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- Secure hold and increased mechanical stability thanks to overmoulded connectors

## Application range

- For establishing a detachable Single Pair Ethernet connection
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Typical applications include control cabinets, industrial robots and field equipment
- For use with the SPE circuit board socket EPIC® DATA SPE-6 PCB F
- For fixed installation and occasional flexing
- Can be used in dry rooms
- Suitable for medium mechanical stress

## Technical data

**Classification**
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

**Protection rating**
IP 20

**Ambient temperature (operation)**
-25 °C to +85 °C

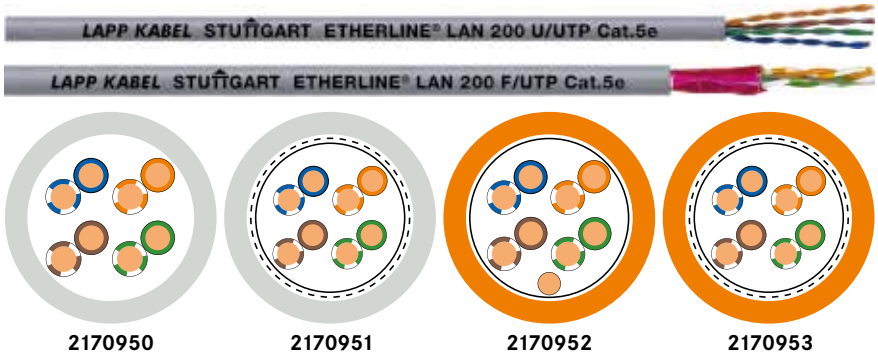
| Article number | Article designation | Length (mm) | Connector 1 and 2 | Cable dimension | Delivery Unit |
|---|---|---|---|---|---|
| **EPIC® DATA M12-RJ45** | | | | | |
| 21700867 | EPIC® DATA SPE-6 PC M-M 0.3m CT001 | 0.3 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700868 | EPIC® DATA SPE-6 PC M-M 0.5m CT001 | 0.5 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700869 | EPIC® DATA SPE-6 PC M-M 1m CT001 | 1 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700870 | EPIC® DATA SPE-6 PC M-M 1.5m CT001 | 1.5 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700871 | EPIC® DATA SPE-6 PC M-M 2m CT001 | 2 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700872 | EPIC® DATA SPE-6 PC M-M 3m CT001 | 3 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700873 | EPIC® DATA SPE-6 PC M-M 5m CT001 | 5 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |
| 21700874 | EPIC® DATA SPE-6 PC M-M 10m CT001 | 10 m | SPE Plug Straight | 1 X 2 X 26 AWG | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.


ANT
DATA
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ETHERLINE® GUARD
PM02TWA
PWR
STATUS
WIFI
SET
GUARD
DATA

# ETHERLINE® LAN 200 Cat.5e

Ethernet cable for Category 5e/ class D - verfied up to 200 MHz




2170950 2170951 2170952 2170953

**Info**

- CPR: Article number choice under www.lapp.com

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

## Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T
- Flame retardant acc. to IEC 60332-1-2

## Norm references / Approvals

- LAN Cat.5e cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class D).

## Product Make-up

- Solid conductor 4x2xAWG24/1
- U/UTP: no overall or pair screening
- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **PVC** | | | | | | | |
| 2170950 | ETHERLINE® LAN Cat.5e U/UTP 4x2xAWG24 | 4 x 2 x AWG24/1 | 0.9 | 5.1 | grey | 17 | 32 |
| 2170951 | ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 | 4 x 2 x AWG24/1 | 1.05 | 6.3 | grey | 28 | 46 |
| **LSZH** | | | | | | | |
| 2170952 | ETHERLINE® LAN Cat.5e F/UTP 4x2xAWG24 LSZH | 4 x 2 x AWG24/1 | 1.05 | 6.3 | orange | 18 | 40 |
| 2170953 | ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 LSZH | 4 x 2 x AWG24/1 | 1.05 | 6.4 | orange | 28 | 46 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

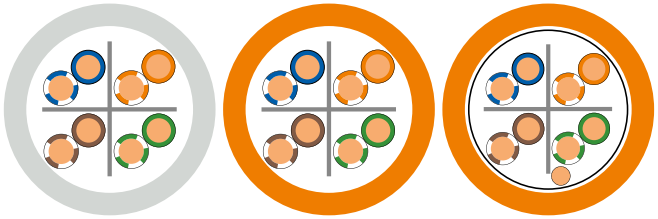
# ETHERLINE® LAN 350 Cat.6

Ethernet cable for Category 6/ class E - verified up to 350 MHz

**Info**

- CPR: Article number choice under www.lapp.com



2170954 2170955 2170956

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

## Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM
- Flame retardant acc. to IEC 60332-1-2

## Norm references / Approvals

- LAN CAT.6 cables from Lapp Kabel for “Structured Cabling Systems” meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E - permanent link).
- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6

## Product Make-up

- Solid conductor
- U/UTP: no overall or pair screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

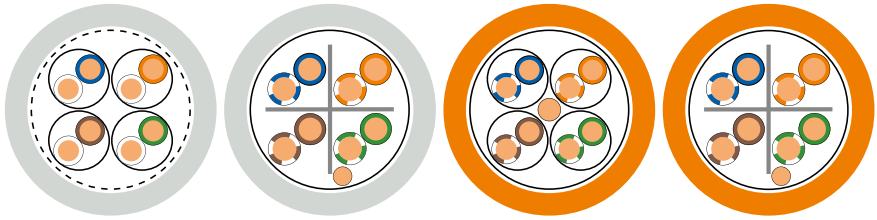
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **LSZH** | | | | | | | |
| 2170955 | ETHERLINE® LAN Cat.6 U/UTP 4x2xAWG24 LSZH | 4 x 2 x AWG24/1 | 0.95 | 6.0 | orange | 18 | 40 |
| 2170956 | ETHERLINE® LAN Cat.6 F/UTP 4x2xAWG23 LSZH | 4 x 2 x AWG23/1 | 1.07 | 7.4 | orange | 19 | 52 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® LAN 500 Cat.6$_A$

Ethernet cable for Category 6$_A$/ class E$_A$ -verified up to 500 MHz



2170960 2170961 2170962 2170963

**Info**

- CPR: Article number choice under www.lapp.com

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

## Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Flame retardant acc. to IEC 60332-1-2

## Norm references / Approvals

- LAN Cat.6$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class EA - permanent link).

## Product Make-up

- Solid conductor 4x2xAWG23/1
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/FTP: aluminium compound foil as overall screening and pair screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **PVC** | | | | | | | |
| 2170960 | ETHERLINE® LAN Cat.6$_A$ S/FTP 4x2xAWG23 | 4 x 2 x AWG23/1 | 1.28 | 7.3 | grey | 24 | 52 |
| 2170961 | ETHERLINE® LAN Cat.6$_A$ F/UTP 4x2xAWG23 | 4 x 2 x AWG23/1 | 1.09 | 7.4 | grey | 24 | 52 |
| **LSZH** | | | | | | | |
| 2170962 | ETHERLINE® LAN Cat.6$_A$ F/FTP 4x2xAWG23 LSZH | 4 x 2 x AWG23/1 | 1.28 | 7.3 | orange | 22 | 54 |
| 2170963 | ETHERLINE® LAN Cat.6$_A$ F/UTP 4x2xAWG23 LSZH | 4 x 2 x AWG23/1 | 1.09 | 7.4 | orange | 24 | 56 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® LAN 1000 Cat. 7$_A$

Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1000 MHz

**Info**

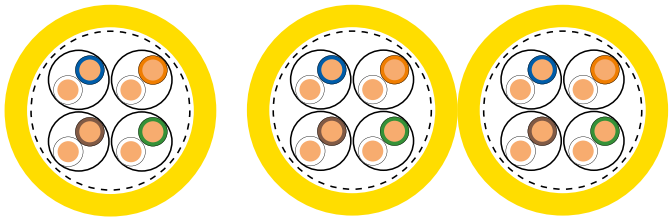
- CPR: Article number choice under www.lapp.com




# ETHERLINE® LAN 1200 Cat.7$_A$

Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1200 MHz



2170971/2170974 2170972/2170975

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

## Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

## Norm references / Approvals

- LAN Cat.7$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).

## Product Make-up

- Solid conductor 4x2xAWG23/1, duplex 2x(4x2xAWG23/1)
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

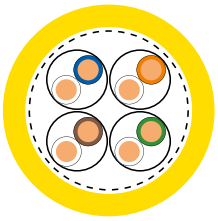
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **ETHERLINE® LAN 1000 S/FTP Cat.7$_A$** | | | | | | | |
| 2170971 | ETHERLINE® LAN 1000 Cat.7$_A$ 4x2xAWG23 LSZH | 4 x 2 x AWG23/1 | 1.3 | 7.5 | yellow | 24 | 56 |
| 2170972 | ETHERLINE® LAN 1000 Cat.7$_A$ 2x(4x2xAWG23) LSZH duplex | 2x (4x2xAWG23/1) | 1.3 | 15.2 | yellow | 48 | 113 |
| **ETHERLINE® LAN 1200 S/FTP Cat.7$_A$** | | | | | | | |
| 2170974 | ETHERLINE® LAN 1200 Cat.7$_A$ 4x2xAWG23 LSZH | 4 x 2 x AWG23/1 | 1.33 | 7.5 | yellow | 26 | 58 |
| 2170975 | ETHERLINE® LAN 1200 Cat.7$_A$ 2x(4x2xAWG23) LSZH duplex | 2x (4x2xAWG23/1) | 1.33 | 15.2 | yellow | 52 | 114 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® LAN 1600 Cat.7$_A$

Data cable for Category 7$_A$/ class F$_A$ - verified up to 1600 MHz



2170976

**Info**

- CPR: Article number choice under www.lapp.com
- Verified up to 1600 MHz at max. 30m cable length (data centers)

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

## Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- 1500 MHz: Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)
- 1600 MHz: at max. 30m length (typical in data centers)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

## Norm references / Approvals

- LAN Cat.7$_A$ cables from Lapp Kabel for “Structured Cabling Systems” meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

## Product Make-up

- Solid conductor 4x2xAWG22/1
- Core insulation: cellular polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

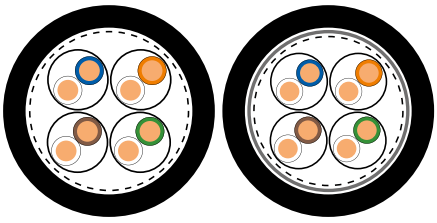
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **ETHERLINE® LAN 1600 Cat.7$_A$** | | | | | | | |
| 2170976 | ETHERLINE® LAN Cat.7$_A$ 1600 S/FTP 4x2xAWG22LSZH | 4 x 2 x AWG22/1 | 1.56 | 8.2 | yellow | 34 | 71 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LAN OUTDOOR

Ethernet cable for Category 7/ class F - verified up to 1000 MHz, for outdoor applications



2170978 2170977

## Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801
- Suitable for outdoor use
- UV-resistant

## Application range

- For outdoor use
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

## Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Backward compatible

## Norm references / Approvals

- LAN Cat.7 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

## Product Make-up

- Solid conductor 4x2xAWG23/1
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PE, black (L)PE additional with aluminum tape

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Characteristic impedance**
100 Ω ± 15%

**Temperature range**
During installation: -10°C to +50°C
Fixed installation: -30°C to +70°C

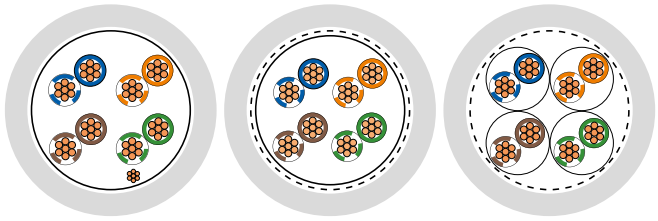
| Article number | Article designation | Number of pairs and AWG per conductor | Core diameter in mm | Outer diameter mm | Colour | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|---|---|
| **For outdoor applications** | | | | | | | |
| 2170978 | ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 PE | 4 x 2 x AWG23/1 | 1.3 | 7.7 | black | 24 | 48 |
| **Suitable for direct routing underground, transversely waterproof** | | | | | | | |
| 2170977 | ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 (L)PE | 4 x 2 x AWG23/1 | 1.3 | 9.6 | black | 24 | 77 |

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# UNITRONIC® LAN FLEX

Data cable for patchcable applications



**2170127/2170172** **2170129/2170139** **2170144/2170142**

**Info**

- Only for patch cable applications (max. 60 m)

## Benefits

- For directly connecting two electric components
- Easy to assemble

## Application range

- Indoor applications
- LAN connections
- Control cabinet wiring

## Product features

- Good flexibility - easy installation with tight space requirements
- Flame retardant acc. to IEC 60332-1-2
  2170139: flame retardant acc. to IEC 60332-1-2 and IEC 60332-3-24

## Product Make-up

- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC or LSZH (color grey RAL 7035)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

**Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

**Mean characteristic Impedance**
100 Ω ± 15%

**Temperature range**
Fixed installation: -20°C to +60°C
Flexing: 0°C to +50°C

| Article number | Article designation | Number of pairs and AWG per conductor | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|---|
| **PVC versions** | | | | | |
| 2170127 | ETHERLINE® LAN Cat. 5e F/UTP 4x2xAWG24 | 4 x 2 x AWG26/7 | 5.6 | 13 | 28 |
| 2170129 | ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 | 4 x 2 x AWG26/7 | 6.0 | 22 | 36 |
| 2170144 | UNITRONIC LAN 600 S/FTP Cat.7 Y FLEX | 4 x 2 x AWG26/7 | 6.5 | 22 | 39 |
| **Halogen-free versions** | | | | | |
| 2170172 | ETHERLINE® LAN Cat.5e F/UTP 4x2xAWG24 LSZH | 4 x 2 x AWG26/7 | 5.6 | 13 | 28 |
| 2170139 | ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 LSZH | 4 x 2 x AWG26/7 | 6.0 | 22 | 36 |
| 2170142 | UNITRONIC LAN 600 S/FTP Cat.7 LSZH Flex | 4 x 2 x AWG26/7 | 6.2 | 21 | 40 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# ETHERLINE® LAN Cat.6$_A$ Patchcords

Pre-assembled Ethernet cable

**Info**

- Suitable for Ethernet applications up to 10GBase-T



## Benefits

- Rapid information exchange at up to 10 Gbit/s over 60 m thanks to Cat.6$_A$ Ethernet
- Cable assembled on both sides saves time and eliminates the potential for errors during on-site assembly
- The narrow RJ45 connector allows use in devices with a very high port density
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S /FTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- With halogen free LSZH outer sheath to meet special fire protection requirements
- Versatile properties allow universal use, reduce the variety of parts and thus result in savings in logistics
- Available in different colours

## Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- Suitable for workplace cabling
- Can also be used in industrial control cabinets, taking electromagnetic stress into account
- Suitable for Ethernet applications up to 10GBase-T

## Technical data

**Minimum bending radius**
5 x outer diameter

**Protection rating**
RJ45: IP 20

**Temperature range**
-20°C to +40°C

| Article number | Article designation | Connector 1 and 2 | Length m | Cable sheath colour |
|---|---|---|---|---|
| 24441316 | ETHERLINE® LAN Cat.6$_A$ 0,25 BK | RJ 45 Plug Straight | 0.25 | black |
| 24441317 | ETHERLINE® LAN Cat.6$_A$ 0,5 BK | RJ 45 Plug Straight | 0.5 | black |
| 24441318 | ETHERLINE® LAN Cat.6$_A$ 1,0 BK | RJ 45 Plug Straight | 1 | black |
| 24441319 | ETHERLINE® LAN Cat.6$_A$ 1,5 BK | RJ 45 Plug Straight | 1.5 | black |
| 24441320 | ETHERLINE® LAN Cat.6$_A$ 2,0 BK | RJ 45 Plug Straight | 2 | black |
| 24441321 | ETHERLINE® LAN Cat.6$_A$ 3,0 BK | RJ 45 Plug Straight | 3 | black |
| 24441322 | ETHERLINE® LAN Cat.6$_A$ 5,0 BK | RJ 45 Plug Straight | 5 | black |
| 24441323 | ETHERLINE® LAN Cat.6$_A$ 7,5 BK | RJ 45 Plug Straight | 7.5 | black |
| 24441324 | ETHERLINE® LAN Cat.6$_A$ 10,0 BK | RJ 45 Plug Straight | 10 | black |
| 24441325 | ETHERLINE® LAN Cat.6$_A$ 15,0 BK | RJ 45 Plug Straight | 15 | black |
| 24441326 | ETHERLINE® LAN Cat.6$_A$ 20,0 BK | RJ 45 Plug Straight | 20 | black |
| 24441327 | ETHERLINE® LAN Cat.6$_A$ 25,0 BK | RJ 45 Plug Straight | 25 | black |
| 24441328 | ETHERLINE® LAN Cat.6$_A$ 30,0 BK | RJ 45 Plug Straight | 30 | black |
| 24441329 | ETHERLINE® LAN Cat.6$_A$ 40,0 BK | RJ 45 Plug Straight | 40 | black |
| 24441330 | ETHERLINE® LAN Cat.6$_A$ 50,0 BK | RJ 45 Plug Straight | 50 | black |
| 24441331 | ETHERLINE® LAN Cat.6$_A$ 0,25 BU | RJ 45 Plug Straight | 0.25 | blue |
| 24441332 | ETHERLINE® LAN Cat.6$_A$ 0,5 BU | RJ 45 Plug Straight | 0.5 | blue |
| 24441333 | ETHERLINE® LAN Cat.6$_A$ 1,0 BU | RJ 45 Plug Straight | 1 | blue |
| 24441334 | ETHERLINE® LAN Cat.6$_A$ 1,5 BU | RJ 45 Plug Straight | 1.5 | blue |
| 24441335 | ETHERLINE® LAN Cat.6$_A$ 2,0 BU | RJ 45 Plug Straight | 2 | blue |
| 24441336 | ETHERLINE® LAN Cat.6$_A$ 3,0 BU | RJ 45 Plug Straight | 3 | blue |
| 24441337 | ETHERLINE® LAN Cat.6$_A$ 5,0 BU | RJ 45 Plug Straight | 5 | blue |
| 24441338 | ETHERLINE® LAN Cat.6$_A$ 7,5 BU | RJ 45 Plug Straight | 7.5 | blue |
| 24441339 | ETHERLINE® LAN Cat.6$_A$ 10,0 BU | RJ 45 Plug Straight | 10 | blue |
| 24441340 | ETHERLINE® LAN Cat.6$_A$ 15,0 BU | RJ 45 Plug Straight | 15 | blue |
| 24441341 | ETHERLINE® LAN Cat.6$_A$ 20,0 BU | RJ 45 Plug Straight | 20 | blue |
| 24441342 | ETHERLINE® LAN Cat.6$_A$ 25,0 BU | RJ 45 Plug Straight | 25 | blue |
| 24441343 | ETHERLINE® LAN Cat.6$_A$ 30,0 BU | RJ 45 Plug Straight | 30 | blue |
| 24441344 | ETHERLINE® LAN Cat.6$_A$ 40,0 BU | RJ 45 Plug Straight | 40 | blue |
| 24441345 | ETHERLINE® LAN Cat.6$_A$ 50,0 BU | RJ 45 Plug Straight | 50 | blue |
| 24441346 | ETHERLINE® LAN Cat.6$_A$ 0,25 GN | RJ 45 Plug Straight | 0.25 | green |
| 24441347 | ETHERLINE® LAN Cat.6$_A$ 0,5 GN | RJ 45 Plug Straight | 0.5 | green |
| 24441348 | ETHERLINE® LAN Cat.6$_A$ 1,0 GN | RJ 45 Plug Straight | 1 | green |
| 24441349 | ETHERLINE® LAN Cat.6$_A$ 1,5 GN | RJ 45 Plug Straight | 1.5 | green |
| 24441350 | ETHERLINE® LAN Cat.6$_A$ 2,0 GN | RJ 45 Plug Straight | 2 | green |
| 24441351 | ETHERLINE® LAN Cat.6$_A$ 3,0 GN | RJ 45 Plug Straight | 3 | green |
| 24441352 | ETHERLINE® LAN Cat.6$_A$ 5,0 GN | RJ 45 Plug Straight | 5 | green |
| 24441353 | ETHERLINE® LAN Cat.6$_A$ 7,5 GN | RJ 45 Plug Straight | 7.5 | green |
| 24441354 | ETHERLINE® LAN Cat.6$_A$ 10,0 GN | RJ 45 Plug Straight | 10 | green |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

| Article number | Article designation | Connector 1 and 2 | Length m | Cable sheath colour |
|---|---|---|---|---|
| 24441355 | ETHERLINE® LAN Cat.6$_A$ 15,0 GN | RJ 45 Plug Straight | 15 | green |
| 24441356 | ETHERLINE® LAN Cat.6$_A$ 20,0 GN | RJ 45 Plug Straight | 20 | green |
| 24441357 | ETHERLINE® LAN Cat.6$_A$ 25,0 GN | RJ 45 Plug Straight | 25 | green |
| 24441358 | ETHERLINE® LAN Cat.6$_A$ 30,0 GN | RJ 45 Plug Straight | 30 | green |
| 24441359 | ETHERLINE® LAN Cat.6$_A$ 40,0 GN | RJ 45 Plug Straight | 40 | green |
| 24441360 | ETHERLINE® LAN Cat.6$_A$ 50,0 GN | RJ 45 Plug Straight | 50 | green |
| 24441361 | ETHERLINE® LAN Cat.6$_A$ 0,25 GY | RJ 45 Plug Straight | 0.25 | grey |
| 24441362 | ETHERLINE® LAN Cat.6$_A$ 0,5 GY | RJ 45 Plug Straight | 0.5 | grey |
| 24441363 | ETHERLINE® LAN Cat.6$_A$ 1,0 GY | RJ 45 Plug Straight | 1 | grey |
| 24441364 | ETHERLINE® LAN Cat.6$_A$ 1,5 GY | RJ 45 Plug Straight | 1.5 | grey |
| 24441365 | ETHERLINE® LAN Cat.6$_A$ 2,0 GY | RJ 45 Plug Straight | 2 | grey |
| 24441366 | ETHERLINE® LAN Cat.6$_A$ 3,0 GY | RJ 45 Plug Straight | 3 | grey |
| 24441367 | ETHERLINE® LAN Cat.6$_A$ 5,0 GY | RJ 45 Plug Straight | 5 | grey |
| 24441368 | ETHERLINE® LAN Cat.6$_A$ 7,5 GY | RJ 45 Plug Straight | 7.5 | grey |
| 24441369 | ETHERLINE® LAN Cat.6$_A$ 10,0 GY | RJ 45 Plug Straight | 10 | grey |
| 24441370 | ETHERLINE® LAN Cat.6$_A$ 15,0 GY | RJ 45 Plug Straight | 15 | grey |
| 24441371 | ETHERLINE® LAN Cat.6$_A$ 20,0 GY | RJ 45 Plug Straight | 20 | grey |
| 24441372 | ETHERLINE® LAN Cat.6$_A$ 25,0 GY | RJ 45 Plug Straight | 25 | grey |
| 24441373 | ETHERLINE® LAN Cat.6$_A$ 30,0 GY | RJ 45 Plug Straight | 30 | grey |
| 24441374 | ETHERLINE® LAN Cat.6$_A$ 40,0 GY | RJ 45 Plug Straight | 40 | grey |
| 24441375 | ETHERLINE® LAN Cat.6$_A$ 50,0 GY | RJ 45 Plug Straight | 50 | grey |
| 24441376 | ETHERLINE® LAN Cat.6$_A$ 0,25 OR | RJ 45 Plug Straight | 0.25 | orange |
| 24441377 | ETHERLINE® LAN Cat.6$_A$ 0,5 OR | RJ 45 Plug Straight | 0.5 | orange |
| 24441378 | ETHERLINE® LAN Cat.6$_A$ 1,0 OR | RJ 45 Plug Straight | 1 | orange |
| 24441379 | ETHERLINE® LAN Cat.6$_A$ 1,5 OR | RJ 45 Plug Straight | 1.5 | orange |
| 24441380 | ETHERLINE® LAN Cat.6$_A$ 2,0 OR | RJ 45 Plug Straight | 2 | orange |
| 24441381 | ETHERLINE® LAN Cat.6$_A$ 3,0 OR | RJ 45 Plug Straight | 3 | orange |
| 24441382 | ETHERLINE® LAN Cat.6$_A$ 5,0 OR | RJ 45 Plug Straight | 5 | orange |
| 24441383 | ETHERLINE® LAN Cat.6$_A$ 7,5 OR | RJ 45 Plug Straight | 7.5 | orange |
| 24441384 | ETHERLINE® LAN Cat.6$_A$ 10,0 OR | RJ 45 Plug Straight | 10 | orange |
| 24441385 | ETHERLINE® LAN Cat.6$_A$ 15,0 OR | RJ 45 Plug Straight | 15 | orange |
| 24441386 | ETHERLINE® LAN Cat.6$_A$ 20,0 OR | RJ 45 Plug Straight | 20 | orange |
| 24441387 | ETHERLINE® LAN Cat.6$_A$ 25,0 OR | RJ 45 Plug Straight | 25 | orange |
| 24441388 | ETHERLINE® LAN Cat.6$_A$ 30,0 OR | RJ 45 Plug Straight | 30 | orange |
| 24441389 | ETHERLINE® LAN Cat.6$_A$ 40,0 OR | RJ 45 Plug Straight | 40 | orange |
| 24441390 | ETHERLINE® LAN Cat.6$_A$ 50,0 OR | RJ 45 Plug Straight | 50 | orange |
| 24441391 | ETHERLINE® LAN Cat.6$_A$ 0,25 RD | RJ 45 Plug Straight | 0.25 | red |
| 24441392 | ETHERLINE® LAN Cat.6$_A$ 0,5 RD | RJ 45 Plug Straight | 0.5 | red |
| 24441393 | ETHERLINE® LAN Cat.6$_A$ 1,0 RD | RJ 45 Plug Straight | 1 | red |
| 24441394 | ETHERLINE® LAN Cat.6$_A$ 1,5 RD | RJ 45 Plug Straight | 1.5 | red |
| 24441395 | ETHERLINE® LAN Cat.6$_A$ 2,0 RD | RJ 45 Plug Straight | 2 | red |
| 24441396 | ETHERLINE® LAN Cat.6$_A$ 3,0 RD | RJ 45 Plug Straight | 3 | red |
| 24441397 | ETHERLINE® LAN Cat.6$_A$ 5,0 RD | RJ 45 Plug Straight | 5 | red |
| 24441398 | ETHERLINE® LAN Cat.6$_A$ 7,5 RD | RJ 45 Plug Straight | 7.5 | red |
| 24441399 | ETHERLINE® LAN Cat.6$_A$ 10,0 RD | RJ 45 Plug Straight | 10 | red |
| 24441400 | ETHERLINE® LAN Cat.6$_A$ 15,0 RD | RJ 45 Plug Straight | 15 | red |
| 24441401 | ETHERLINE® LAN Cat.6$_A$ 20,0 RD | RJ 45 Plug Straight | 20 | red |
| 24441402 | ETHERLINE® LAN Cat.6$_A$ 25,0 RD | RJ 45 Plug Straight | 25 | red |
| 24441403 | ETHERLINE® LAN Cat.6$_A$ 30,0 RD | RJ 45 Plug Straight | 30 | red |
| 24441404 | ETHERLINE® LAN Cat.6$_A$ 40,0 RD | RJ 45 Plug Straight | 40 | red |
| 24441405 | ETHERLINE® LAN Cat.6$_A$ 50,0 RD | RJ 45 Plug Straight | 50 | red |
| 24441406 | ETHERLINE® LAN Cat.6$_A$ 0,25 WH | RJ 45 Plug Straight | 0.25 | white |
| 24441407 | ETHERLINE® LAN Cat.6$_A$ 0,5 WH | RJ 45 Plug Straight | 0.5 | white |
| 24441408 | ETHERLINE® LAN Cat.6$_A$ 1,0 WH | RJ 45 Plug Straight | 1 | white |
| 24441409 | ETHERLINE® LAN Cat.6$_A$ 1,5 WH | RJ 45 Plug Straight | 1.5 | white |
| 24441410 | ETHERLINE® LAN Cat.6$_A$ 2,0 WH | RJ 45 Plug Straight | 2 | white |
| 24441411 | ETHERLINE® LAN Cat.6$_A$ 3,0 WH | RJ 45 Plug Straight | 3 | white |
| 24441412 | ETHERLINE® LAN Cat.6$_A$ 5,0 WH | RJ 45 Plug Straight | 5 | white |
| 24441413 | ETHERLINE® LAN Cat.6$_A$ 7,5 WH | RJ 45 Plug Straight | 7.5 | white |
| 24441414 | ETHERLINE® LAN Cat.6$_A$ 10,0 WH | RJ 45 Plug Straight | 10 | white |
| 24441415 | ETHERLINE® LAN Cat.6$_A$ 15,0 WH | RJ 45 Plug Straight | 15 | white |
| 24441416 | ETHERLINE® LAN Cat.6$_A$ 20,0 WH | RJ 45 Plug Straight | 20 | white |
| 24441417 | ETHERLINE® LAN Cat.6$_A$ 25,0 WH | RJ 45 Plug Straight | 25 | white |
| 24441418 | ETHERLINE® LAN Cat.6$_A$ 30,0 WH | RJ 45 Plug Straight | 30 | white |
| 24441419 | ETHERLINE® LAN Cat.6$_A$ 40,0 WH | RJ 45 Plug Straight | 40 | white |
| 24441420 | ETHERLINE® LAN Cat.6$_A$ 50,0 WH | RJ 45 Plug Straight | 50 | white |
| 24441421 | ETHERLINE® LAN Cat.6$_A$ 0,25 YE | RJ 45 Plug Straight | 0.25 | yellow |
| 24441422 | ETHERLINE® LAN Cat.6$_A$ 0,5 YE | RJ 45 Plug Straight | 0.5 | yellow |
| 24441423 | ETHERLINE® LAN Cat.6$_A$ 1,0 YE | RJ 45 Plug Straight | 1 | yellow |
| 24441424 | ETHERLINE® LAN Cat.6$_A$ 1,5 YE | RJ 45 Plug Straight | 1.5 | yellow |
| 24441425 | ETHERLINE® LAN Cat.6$_A$ 2,0 YE | RJ 45 Plug Straight | 2 | yellow |
| 24441426 | ETHERLINE® LAN Cat.6$_A$ 3,0 YE | RJ 45 Plug Straight | 3 | yellow |
| 24441427 | ETHERLINE® LAN Cat.6$_A$ 5,0 YE | RJ 45 Plug Straight | 5 | yellow |
| 24441428 | ETHERLINE® LAN Cat.6$_A$ 7,5 YE | RJ 45 Plug Straight | 7.5 | yellow |
| 24441429 | ETHERLINE® LAN Cat.6$_A$ 10,0 YE | RJ 45 Plug Straight | 10 | yellow |
| 24441430 | ETHERLINE® LAN Cat.6$_A$ 15,0 YE | RJ 45 Plug Straight | 15 | yellow |
| 24441431 | ETHERLINE® LAN Cat.6$_A$ 20,0 YE | RJ 45 Plug Straight | 20 | yellow |
| 24441432 | ETHERLINE® LAN Cat.6$_A$ 25,0 YE | RJ 45 Plug Straight | 25 | yellow |
| 24441433 | ETHERLINE® LAN Cat.6$_A$ 30,0 YE | RJ 45 Plug Straight | 30 | yellow |
| 24441434 | ETHERLINE® LAN Cat.6$_A$ 40,0 YE | RJ 45 Plug Straight | 40 | yellow |
| 24441435 | ETHERLINE® LAN Cat.6$_A$ 50,0 YE | RJ 45 Plug Straight | 50 | yellow |

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Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

## Connector RJ45 Cat.5e Hirose TM11

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

### Product features

- Easy to handle
- For use with Cat.5e cables.
- For data transfer rates up to 100 MHz

### Norm references / Approvals

- Cat.5e acc. to ISO/IEC 11801



| Article number | Article designation | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG 7-wire |
|---|---|---|---|---|---|---|
| **Connector RJ45 CAT.5e Hfirose TM11** | | | | | | |
| CE6321 | Connector RJ45 CAT.5e Hirose TM11 | 5.8 | 0.9 | 1 | 50 | 27-24 |

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Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Connector RJ45 Cat.6 Hirose TM21

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

### Product features

- Fully screened
- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige

### Norm references / Approvals

- Cat.6acc. to ISO/IEC 11801



| Article number | Article designation | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG 7-wire |
|---|---|---|---|---|---|---|
| **Connector RJ45 CAT.6 Hirose TM21** | | | | | | |
| CE6324 | Connector RJ45 CAT.6 Hirose TM21 | 6.6 | 0.9 | 1 | 50 | 27-24 |

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Connector RJ45 Cat.6$_A$ Hirose TM31

Connector RJ45 Cat.6$_A$, Class E$_A$ bis 500 MHz

### Technical data

**Protection rating**
IP 20

**Ambient temperature (operation)**
-25°C .. +60°C

### Application range

- Connector RJ45 CAT.6$_A$ Hirose TM31
- For data transfer rates up to 500 MHz

### Product features

- Easy to handle

### Norm references / Approvals

- Cat.6$_A$ acc. to ISO/IEC 11801

### Product Make-up

- Connector (inkl. Antikink & Guide Plate)
- Suitable for braided conductors: AWG24/7, AWG26/7, AWG27/7
- Fully screened



| Article number | Article designation | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG 7-wire |
|---|---|---|---|---|---|---|
| **Connector RJ45 Cat.6$_A$ Hirose TM31** | | | | | | |
| 24441256 | RJ45 connector TM31 Hirose Cat.6$_A$ GY | 6 | 0.9 | 1 | 50 | 27-24 |
| 24441258 | RJ45 Connector TM31 Hirose Cat.6$_A$ BK | 6 | 0.9 | 1 | 50 | 27-24 |
| 24441259 | RJ45 connector TM31 Hirose Cat.6$_A$ RD | 6 | 0.9 | 1 | 50 | 27-24 |
| 24441260 | RJ45 connector TM31 Hirose Cat.6$_A$ GN | 6 | 0.9 | 1 | 50 | 27-24 |
| 24441261 | RJ45 connector TM31 Hirose Cat.6$_A$ BU | 6 | 0.9 | 1 | 50 | 27-24 |
| 24441262 | RJ45 connector TM31 Hirose Cat.6$_A$ YE | 6 | 0.9 | 1 | 50 | 27-24 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA RJ45 Plug Cat.5e FM45 field m.



## Product features

- Allows assembly without special tools and creates a vibration-proof connection between contact and cable.
- For use with Cat.5e cables.
- For data transfer rates up to 100 MHz

## Norm references / Approvals

- Cat.5e acc. to ISO/IEC 11801

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

| Article number | Article designation | Max. outer diameter (mm) | Min. core diameter including insulation | Max. core diameter including insulation | PU | AWG 7-wire |
|---|---|---|---|---|---|---|
| **EIA/TIA standard (T568A or T568B)** | | | | | | |
| 21700540 | RJ45 Plug Cat.5e FM45 field m. | 8 | 0.4 | 0.54 | 1 | 26-22 |

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.




# 4 HITRONIC®

## Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault-free, bug-proof and at almost the speed of light. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions and even for use in cable chains.

**Application range**

- Telecommunications and network technology
- Industrial cabling and automation level
- Industrial machinery and plant engineering
- Data transmission under harsh conditions (mining and tunnel construction, oil and gas platforms, wind power plants)

## POF - Polymer Optical Fibre Cable

**One Buffered Fibre Applications (SIMPLEX)**

HITRONIC® POF SIMPLEX BUFFERED FIBRE 530
HITRONIC® POF SIMPLEX CABLE 531

**Two buffered fibres applications (DUPLEX)**

HITRONIC® POF DUPLEX BUFFERED FIBRES 532
HITRONIC® POF DUPLEX CABLE 533
HITRONIC® POF cables for PROFINET Applications 534

## POF - Polymer optical fibre accessories

**Connectors and adapters**

POF Connector and Adapter HFBR 535
POF Connector F05 Simplex 536
POF Connector F-SMA and ST(BFOC) 536
POF Connector SC-RJ 537
POF Adapter F-SMA 537
POF Adapter ST (BFOC) 537
POF Assembly Sets 538
POF Cutting Tools 538

**Tools and Accessories**

POF Polishing tools and accessories 539
POF Measurement Equipment 540

## PCF - Plastic Cladded Fibre Cable

**One Buffered Fibre Applications (SIMPLEX)**

HITRONIC® PCF SIMPLEX Cable 541

**Two buffered fibres applications (DUPLEX)**

HITRONIC® PCF DUPLEX Cable 542
HITRONIC® PCF DUPLEX FD cables 543
HITRONIC® PCF cables for PROFINET Applications 544

## PCF - Plastic Cladded Fibre Accessories

**Connectors and adapters**

PCF Connector HFBR 545
PCF Connector F-SMA and ST(BFOC) 545
PCF Connector SC-RJ 546
PCF Assembly Sets 546

**Tools and Accessories**

PCF Cutting Tools 547
PCF Measurement Equipment 547

## GOF - Glass Optical Fibre

**Industrial and special applications**

HITRONIC® FIRE 548
HITRONIC® TORSION 549
HITRONIC® HDM Cable 550
HITRONIC® HRM-FD Cable 551

**FTTx applications**

HITRONIC® HVN-Mini Cable 552

**Outdoor area**

HITRONIC® HQN Outdoor Cable 553
HITRONIC® HVN Outdoor Cable 554
HITRONIC® HQW Armoured Outdoor Cable 555
HITRONIC® HVW Armoured Outdoor Cable 556
HITRONIC® HQW-Plus Armoured Outdoor Cable 557

**Outdoor area - aerial cable**

HITRONIC® HQA Aerial Cable 558
HITRONIC® HQA-Plus Aerial Cable 559

**Outdoor and indoor area**

HITRONIC® HUN Universal Cable 560
HITRONIC® HUW Armoured Universal Cable 561

**Indoor area**

HITRONIC® HRH Breakout Cable 562
HITRONIC® HDH Mini-Breakout Cable 563

**Two buffered fibres applications (DUPLEX)**

HITRONIC® GOF cables for PROFINET Applications 564

## GOF - Fiber optic accessories

**Harnessed cables**

GOF DUPLEX Patchcord 565
GOF SIMPLEX Pigtail 566

**Connectors and adapters**

GOF Connector 567
GOF Adapters 568
EPIC® DATA FFC-LC Assembly accessories 569
EPIC® DATA FFC-SC Assembly accessories 569
EPIC® DATA FFC-LC/SC starter kit 570
EPIC® DATA FFC Connectors 571
HITRONIC® FO tool kit 572

**Housing and distribution boxes**

Splice Box Compact 573
Accessories for splice boxes and wall-mounted rack 574
HITRONIC® SBX 575
EPIC® DATA TS 576

# Fibre optic technology – General

The optical transmission of signals in fibre optic cables functions according to the principle of "total reflection". The reflection is attained by surrounding a light-conducting core with a sheath that is optically thinner – the light is totally reflected by the boundary surface of the sheath, enabling it to be guided through the fibre optic cable.

At a time when the demand for fast and secure communication networks is constantly growing, fibre optic cables are now an indispensable and irreplaceable communication medium.

**Benefits of using fibre optic cables**

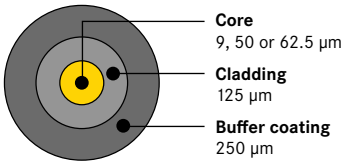
- Insensitivity to electromagnetic interference
- Electrical isolation of connected devices
- Low attenuation values
- Large transmission distances and high bandwidths
- Lightweight design
- Compact dimensions
- Can be installed in explosive environments
- High level of interception protection



## GOF – Glass Optical Fibre

**There are the following different types of fibres:**

- Single-mode (SM) fibre, E9/125 OS2
- Multi-mode (MM) fibre, G62.5/125 OM1, G50/125 OM2 to OM4

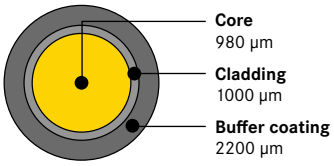



## POF – Polymer Optical Fibre

- P980/1000

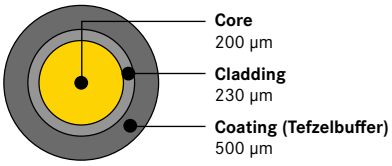
**A distinction is made between the following application cases**

- SIMPLEX (one buffered fibre)
- DUPLEX (two buffered fibres)




## PCF – Plastic Cladded Fibre

- K200/230
- PCF – Plastic Cladded Fibre
- Also known as HCS (Hard Cladded Silica Optical Fibre)



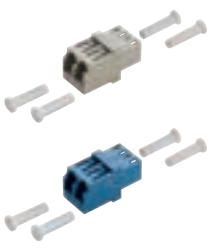

| Fibre type/ wavelength | max. attenuation [dB/km] | | | | max. transmission length [m] | | | | Colour |
|---|---|---|---|---|---|---|---|---|---|
| | 650 nm | 850 nm | 1300 nm | 1550 nm | 650 nm | 850 nm | 1300 nm | 1550 nm | |
| POF 980 µm | 160 | | | | 100 Mbit/s (PN): 50 | | | | |
| PCF 200 µm | 10.0 | 8.0 | | | 100 Mbit/s (PN): 100 | | | | |
| GOF MM 62.5 µm OM1 | | 3.5 (3.0) | 1.5 (0.7) | | | 100 Mbit/s: 550<br>1 Gbit/s: 275<br>10 Gbit/s: 33 | 100 Mbit/s: 2,000<br>1 Gbit/s: 550<br>10 Gbit/s: 300 | | Orange |
| GOF MM 50 µm OM2 | | 3.5 (2.5) | 1.5 (0.7) | | | 100 Mbit/s: 550<br>1 Gbit/s: 550<br>10 Gbit/s: 82 | 100 Mbit/s: 2,000<br>1 Gbit/s: 550<br>10 Gbit/s: 300 | | Orange |
| GOF MM 50 µm OM3 | | 3.5 (2.5) | 1.5 (0.7) | | | 1 Gbit/s: 1,000<br>10 Gbit/s: 300<br>40 Gbit/s: 100<br>100 Gbit/s: 100 | 1 Gbit/s: 550<br>10 Gbit/s: 300 | | Aqua |
| GOF MM 50 µm OM4 | | 3.5 (2.5) | 1.5 (0.7) | | | 1 Gbit/s: 1,100<br>10 Gbit/s: 550<br>40 Gbit/s: 150<br>100 Gbit/s: 150 | 1 Gbit/s: 550<br>10 Gbit/s: 300 | | Violet |
| GOF SM 9 µm OS2 (G652.D) | | | 0.40 (0.35) | 0.40 (0.21) | | | 40 Gbit/s: 10,000 | 40 Gbit/s: 40,000 | Yellow |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For specific cable parameters see product pages or technical data sheets.

# Optical transmission systems

LAPP

## HITRONIC® Product Overview

| Type of fibre | Cables | | Connectors and adapters | Accessories |
|---|---|---|---|---|
| POF | POF SIMPLEX PE | |  |  |
| | POF DUPLEX PE | |  | |
| | POF SIMPLEX PE-PUR | |  | |
| | POF DUPLEX PE-PUR | |  |  |
| | POF DUPLEX Heavy | |  | |
| | POF SIMPLEX/DUPLEX FD PE-PUR | |  | |
| | POF DUPLEX for PROFINET® applications | |  |  |
| PCF | PCF SIMPLEX Outdoor | |  |  |
| | PCF DUPLEX Outdoor | | | |
| | PCF DUPLEX Indoor | | | |
| | PCF DUPLEX FD Universal | |  | |
| | PCF DUPLEX for PROFINET® applications | | | |
| GOF | HITRONIC® FIRE | |  |  |
| | HITRONIC® TORSION | | | |
| | HRM-FD Flexible | | | |
| | HDM Reel | | | |
| | HQN Outdoor | | | |
| | HVN Stranded Outdoor | | |  |
| | HVN-Mini Outdoor (air blowable) | | | |
| | HQW Armoured Outdoor | | | |
| | HVW Armoured Stranded Outdoor | | | |
| | HQW-Plus Armoured Outdoor | | | |
| | HQA Aerial ADSS | | |  |
| | HQA-Plus Aerial ADSS | | | |
| | HUN Universal | | | |
| | HUW Armoured Universal | |  |  |
| | HRH Breakout | | | |
| | HDH Mini Breakout | | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Customised Pre-Assembled FO Cable Solutions

# ÖLFLEX® CONNECT – integrated solutions made by LAPP

LAPP is offering an integrated solution with **ÖLFLEX® CONNECT** – cables assembled exactly to your requirements. Everything is possible – from traditional cable assemblies to industry-standard servo connections right up to highly complex cable chain systems. With **ÖLFLEX® CONNECT**, LAPP also offers customised fibre optic system assemblies (FO trunks).

Customers can choose the right cable from the wide range of HITRONIC® fibre optic cables, which can be assembled exactly as per customer specification.

By using factory-assembled fibre optic cable solutions, the installation process for industry, telecommunication and office applications is significantly simplified.

Depending on the planning approach, time-consuming connector installation or splicing on site can be avoided. Just lay the trunk system and simply plug it in with the factory pre-assembled connectors. **A plug & play solution from LAPP.**





### Technical benefits

- No splice connections are required during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values thanks to factory pre-assembled connectors
- Trunk systems are easy to use without any further time-consuming on-site work
- Available with all major cable and connector types (LAPP HITRONIC® range)
- Ready-to-use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

### Get a customised FO trunk system in just a few steps:

**1. Determination of the required fibre type**
- POF (980/1000)
- PCF (200/230)
- GOF (single-mode 9/125 OS2)
  (multi-mode 62.5/125 OM1)
  (multi-mode 50/125 OM2; OM3; OM4)

**2. Selection of cable type and version**
See HITRONIC® cable range
(POF, PCF and GOF and number of fibres)

**3. Determination of the system length**

**4. Connector configuration**
Selection of connector type – side 1 and 2

**5. Cable pulling device**
Selection of cable pulling device side 1 and/or side 2

**6. Specific requirements**
Regarding packaging and marking

**7. LAPP in-house**
LAPP will check the technical feasibility and plausibility (fibre – cable – connector) and draw up a quotation

**8. Easy ordering and fast shipping**

For questions about customised packaging and special issues, please contact us – we are happy to assist you.

### Example:

**Short designation:**
TRUNK GOF HUN 1500-4E9/125-SC/LC-85m

**Description:**
- Customised pre-assembled fibre optic cable solution
- Based on cable version
  HITRONIC® HUN 4E9/125 OS2
- Assembled at both ends with connectors
  - side 1: 2 x SC-duplex connector
  - side 2: 2 x LC-duplex connector
- Cable splitter unit IP68:
  - up to 24 fibres
  - M20 through hole
- Side 1 protected with a cable pulling device
  - outer diameter < 30 mm
- System length 85 m
- On disposable drum
- With test report

# HITRONIC® POF SIMPLEX BUFFERED FIBRE

Polymer optical fibre as simplex buffered fibre version with PE sheath

**Info**

- Suitable for direct connector assembly

## Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

## Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress

## Product features

- Lightweight
- High flexibility
- Halogen-free buffer tube

## Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Without outer sheath
- Colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Buffered fibre: 2.2 mm

**Fibre type**
POF - P980/1000

**Standard designation**
J-V2Y

**Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers

**Permissible bending radius**
≥ 10 x outer diameter

**Permissible tensile force**
Fixed installation: 5 N
Short-term: 15 N

**Temperature range**
Operation: -55 °C to +85 °C
Installation: -10 °C to +50 °C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® POF SIMPLEX PE** | | | | | |
| 28000001 | HITRONIC® POF SIMPLEX PE | 980/1000 POF | 1 | 2.2 | 3.8 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® POF SIMPLEX CABLE

Polymer optical fibre as simplex fibre cable version with PUR sheath for fixed or flexible application

**Info**

- Suitable for direct connector assembly




## Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

## Application range

- For optical signal transmission in industrial applications
- As a link between moving parts
- FD cable version:
  for flexible applications (cable chains)

## Product features

- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Outer sheath flame-retardant and halogen-free
- FD cable version:
  5.000.000 bending cycles

## Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

**Dimensions**
Buffered fibre: 2.2 mm
Cable: see table

**Fibre type**
POF - P980/1000

**Standard designation**
J-V2Y(ZN)11Y

**Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers

**Permissible bending radius**
≥ 10 x outer diameter

**Permissible tensile force**
Fixed installation: 100 N
Short-term: 600 N

**Temperature range**
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® POF SIMPLEX PE-PUR** | | | | | |
| 28020001 | HITRONIC® POF SIMPLEX PE-PUR | 980/1000 POF | 1 | 5.5 | 25 |
| **HITRONIC® POF SIMPLEX FD PE-PUR for draig chain application** | | | | | |
| 28320001 | HITRONIC® POF SIMPLEX FD PE-PUR | 980/1000 POF | 1 | 6 | 30 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at:www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® POF DUPLEX BUFFERED FIBRES

Polymer optical fibre as duplex buffered fibres version with PE sheath



**Info**

- For direct connector assembly

## Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

## Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress
- Light mechanical stress
- Identification by white dots

## Product features

- Halogen-free
- Lightweight
- High flexibility

## Product Make-up

- Polymer Optical Fibre (POF)
- Twin cable
- PE buffer tube
- Without outer sheath
- Colour: black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Twin cable
2x2.2mm

**Core identification code**
Black/black with white dots

**Fibre type**
POF - P980/1000

**Standard designation**
J-V2Y

**Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers

**Permissible bending radius**
≥ 10 x outer diameter

**Permissible tensile force**
Fixed installation: 10 N
Short-term: 30 N

**Temperature range**
Operation: -55 °C to +85 °C
Installation: -10 °C to +50 °C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® POF DUPLEX BUFFERED FIBRES** | | | | | |
| 28000002 | HITRONIC® POF DUPLEX PE | 980/1000 POF | 2 | 2.2 | 7.6 |

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Please find our standard lengths at: www.lapp.com
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EtherNet/IP

# HITRONIC® POF DUPLEX CABLE

Polymer optical fibre as duplex fibre cable version with PUR sheath for fixed or flexible application

**Info**

- For direct connector assembly




## Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

## Application range

- For optical signal transmission in industrial applications
- FD cable version:
  for flexible applications (cable chains)

## Product features

- Outer sheath flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- FD cable version:
  5.000.000 bending cycles

## Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Fibre colour coding: black, orange
- Aramid yarns as strain relief
- PUR outer sheath, orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

**Dimensions**
Buffered fibre: 2.2 mm
Cable: see table

**Core identification code**
Black, orange

**Fibre type**
2x
POF - P980/1000

**Standard designation**
J-V2Y(ZN)11Y

**Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers

**Permissible bending radius**
≥ 10 x outer diameter

**Permissible tensile force**
Fixed installation: 100 N (PE-PUR),
130 N (Heavy PE-PUR)
Short-term: 400 N

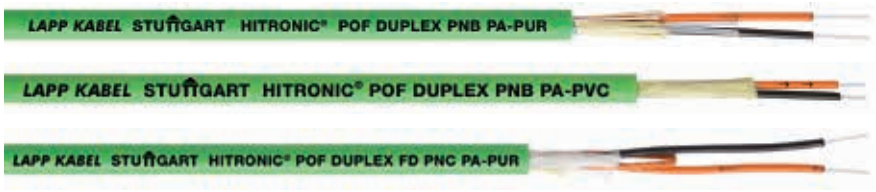
**Temperature range**
Operation: -40°C to +7 °C
(FD: -20°C to +70°C)
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® POF DUPLEX PE-PUR** | | | | | |
| 28020002 | HITRONIC® POF DUPLEX PE-PUR | 980/1000 POF | 2 | 5.5 | 27 |
| **HITRONIC® POF DUPLEX HEAVY PE-PUR** | | | | | |
| 28030002 | HITRONIC® POF DUPLEX HEAVY PE-PUR | 980/1000 POF | 2 | 8 | 57 |
| **HITRONIC® POF DUPLEX FD PE-PUR for draig chain application** | | | | | |
| 28320002 | HITRONIC® POF DUPLEX FD PE-PUR | 980/1000 POF | 2 | 6 | 30 |

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Please find our standard lengths at: www.lapp.com
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# HITRONIC® POF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PUR sheath for PROFINET applications type B or C




**Info**

- PROFINET compliant
  - Type B or Type C

## Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

## Application range

- For optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 50 m cable length
- PROFINET type B: for fixed laying
- PROFINET type C: for flexible applications (cable chains)

## Product features

- Cable version with PVC outer sheath: for standard applications in industrial environments
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (cable chains)

## Norm references / Approvals

- PUR compound: Oil-resistant acc. IEC 60811-2-1, DIN EN 50363-10-2

## Product Make-up

- Polymer Optical Fibre (POF)
- PA buffer tube
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Buffered fibre: 2.2 mm
Cable: see table

**Core identification code**
Black, orange (with arrow printing)

**Standard designation**
J-V4Y(ZN)11Y 2P980/1000
J-V4Y(ZN)Y 2P980/1000
J-V4Y(ZN)11Y 2P980/1000 flex

**Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers

**Permissible bending radius**
≥ 10 x outer diameter

**Permissible tensile force**
see data sheet

**Temperature range**
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **POF DUPLEX - PROFINET TYPE B** | | | | | |
| 28051002 | HITRONIC® POF DUPLEX PNB PA-PUR | 980/1000 POF | 2 | 8 | 56 |
| 28052002 | HITRONIC® POF DUPLEX PNB PA-PVC | 980/1000 POF | 2 | 7.8 | 59 |
| **POF DUPLEX - PROFINET TYPE C** | | | | | |
| 28351002 | HITRONIC® POF DUPLEX FD PNC PA-PUR | 980/1000 POF | 2 | 8 | 55 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lapp.com
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POF Connector and Adapter HFBR

Connector and adapters for polymer optical fibre cables, type HFBR family (HFBR4501/4503/4506/4511/4513/4516/4531/4532/4533)

## Benefits

- Compatible with HP Versatile Link Connectors and Components series
- Different colours for channel coding

## Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

## Product features

- HFBR connector series for 2.2 mm POF with dust cap
- For crimping or clamping
- Simplex or Duplex variations

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



HFBR 4501



HFBR 4503



HFBR-4531



HFBR 4516

| Article number | Article designation | Colour | PU |
|---|---|---|---|
| **Connector HFBR-4501, Simplex, with Crimp Sleve** | | | |
| 29140099 | POF Connector HFBR4501 GY Simplex /4PC | grey | 4 piece |
| 29140098 | POF Connector HFBR4501 GY Simplex /50PC | grey | 50 piece |
| **Latching Connector HFBR-4503, Simplex, with Crimp Sleve** | | | |
| 29141099 | POF Connector HFBR4503 GY Simplex /4PC | grey | 4 piece |
| 29141098 | POF Connector HFBR4503 GY Simplex /50PC | grey | 50 piece |
| **Connector HFBR-4506, Duplex, with Crimp Sleve** | | | |
| 29142099 | POF Connector HFBR4506 WH Duplex /4PC | white | 4 piece |
| 29142098 | POF Connector HFBR4506 WH Duplex /50PC | white | 50 piece |
| **Connector HFBR-4511, Simplex, with Crimp Sleve** | | | |
| 29143099 | POF Connector HFBR4511 BL Simplex /4PC | blue | 4 piece |
| 29143098 | POF Connector HFBR4511 BL Simplex /50PC | blue | 50 piece |
| **Latching Connector HFBR-4513, Simplex, with Crimp Sleve** | | | |
| 29144099 | POF Connector HFBR4513 BL Simplex /4PC | blue | 4 piece |
| 29144098 | POF Connector HFBR4513 BL Simplex /50PC | blue | 50 piece |
| **Latching Connector HFBR-4516, Duplex, with Crimp Sleve** | | | |
| 29145099 | POF Connector HFBR4516 GY Duplex /4PC | grey | 4 piece |
| 29145098 | POF Connector HFBR4516 GY Duplex /50PC | grey | 50 piece |
| **Clamp Connector HFBR-4531, Simplex** | | | |
| 29146099 | POF Connector HFBR4531 BK Simplex /4PC | black | 4 piece |
| 29146098 | POF Connector HFBR4531 BK Simplex /50PC | black | 50 piece |
| 29146100 | POF STECKER HFBR4531 BK SIMPLEX /1000ST | black | 1000 pieces |
| **Clamp and Latching Connector HFBR-4532, Simplex** | | | |
| 29147099 | POF Connector HFBR4532 BK Simplex /4PC | black | 4 piece |
| 29147098 | POF Connector HFBR4532 BK Simplex /50PC | black | 50 piece |
| **Clamp Connector HFBR-4533, Simplex** | | | |
| 29148099 | POF Connector HFBR4533 BL Simplex /4PC | blue | 4 piece |
| 29148098 | POF Connector HFBR4533 BL Simplex /50PC | blue | 50 piece |
| **HFBR4505 Adapters** | | | |
| 29440099 | POF Adapter HFBR4505 GY Simplex /4PC | grey | 4 piece |
| **HFBR4515 Adapters** | | | |
| 29441099 | POF Adapter HFBR4515 BL Simplex /4PC | blue | 4 piece |

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## POF Connector F05 Simplex

Connector and adapter for polymer optical fibre cables, type F05, compatible with TOCP155K



F05 Simplex

### Benefits

- Easy to assemble

### Application range

- Digital audio
- Factory automation
- Office Automation (Smart House)

### Product features

- F-05 (TOCP) SIMPLEX clamp connector for connecting to polymer optical fibre without crimping or gluing
- Snap-In Connector
- Suitable for 2.2 mm POF

### Info

- Compatible with TOCP155K

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Article number | Article designation | Colour | PU |
|---|---|---|---|
| **Connector F05 Simplex** | | | |
| 29150099 | POF Connector F05 Simplex /4PC | black | 4 piece |
| 29150098 | POF Connector F05 Simplex /50PC | black | 50 piece |
| **Adapter for Connector F05 Simplex** | | | |
| 29450099 | POF Adapter F05 Simplex /4PC | black | 4 piece |

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## POF Connector F-SMA and ST(BFOC)

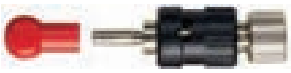
Connector for polymer optical fibre cables, type FSMA and ST(BFOC)



FSMA



ST(BFOC)



### Benefits

- As crimp or clamp version for easy assembling

### Product features

- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF
- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: 50% black and 50% red

### Info

- FSMA and ST(BFOC) connectors for POF cable assembly

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Article number | Article designation | Boot colour | PU |
|---|---|---|---|
| **FSMA Connectors with knurled nut for crimping** | | | |
| 29135099 | POF Connector FSMA Crimp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29135098 | POF Connector FSMA Crimp 2.2 /50PC | 25 black, 25 red | 50 piece |
| 29137099 | POF Connector FSMA Crimp 6.0 /4PC | black | 4 piece |
| 29137098 | POF Connector FSMA Crimp 6.0 /50PC | black | 50 piece |
| **FSMA Connectors with hexagonal nut for crimping** | | | |
| 29135089 | POF Connector FSMA Hex Crimp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29135088 | POF Connector FSMA Hex Crimp 2.2 /50PC | 25 black, 25 red | 50 piece |
| 29132089 | POF Connector FSMA Hex Crimp 6.0 /4PC | black | 4 piece |
| 29132088 | POF Connector FSMA Hex Crimp 6.0 /50PC | black | 50 piece |
| **FSMA Connectors with knurled nut for clamping** | | | |
| 29130099 | POF Connector FSMA Clamp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29130098 | POF Connector FSMA Clamp 2.2 /50PC | 25 black, 25 red | 50 piece |
| **FSMA Connectors with hexagonal nut for clamping** | | | |
| 29130089 | POF Connector FSMA Hex Clamp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29130088 | POF Connector FSMA Hex Clamp 2.2 /50PC | 25 black, 25 red | 50 piece |
| **ST(BFOC) Connectors for crimping** | | | |
| 29125099 | POF Connector ST(BFOC) Crimp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29125098 | POF Connector ST(BFOC) Crimp 2.2 /50PC | 25 black, 25 red | 50 piece |
| **ST(BFOC) Connectors for clamping** | | | |
| 29120099 | POF Connector ST(BFOC) Clamp 2.2 /4PC | 2 black, 2 red | 4 piece |
| 29120098 | POF Connector ST(BFOC) Clamp 2.2 /50PC | 25 black, 25 red | 50 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POF Connector SC-RJ

Connector for polymer optical fibre cables, type SC-RJ

## Benefits

- Connectors for PROFINET Data Cabling
- As crimp version for easy assembling

## Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Suitable for 2.2 mm POF
- Bend protection boot colour: 50% black and 50% red

## Info

- SC-RJ connectors for POF cable assembly
- Connectors for PROFINET Data Cabling

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

**Certifications**
SC-RJ complies with IEC61754-24



SC-RJ

| Article number | Article designation | PU |
|---|---|---|
| **POF Connector SC-RJ** | | |
| 29161097 | POF Connector SC-RJ Crimp 2.2 | 1 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POF Adapter F-SMA

Adapter for connector type FSMA

## Product features

- POF Adapter FSMA: version with two fixing nuts and lock wahser
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock wahser

## Info

- Can be used for POF and PCF connector types

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler



F-SMA

| Article number | Article designation | PU |
|---|---|---|
| **FSMA Adapters** | | |
| 29430099 | POF Adapter FSMA /4PC | 4 piece |
| 29430089 | POF Adapter FSMA Hex /4PC | 4 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POF Adapter ST (BFOC)

Adapter for connector type ST(BFOC)

## Product features

- ST(BFOC) adapter with flange, fixing nuts and lock washer

## Norm references / Approvals

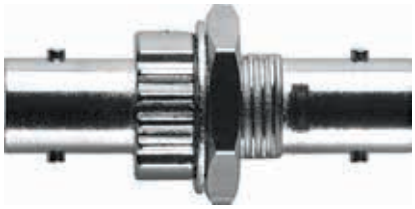
- ST comply with IEC standard 61754-2

## Info

- Can be used for POF and PCF connector types

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler



ST(BFOC)

| Article number | Article designation | PU |
|---|---|---|
| **ST(BFOC) Adaptera** | | |
| 29420099 | POF Adapter ST (BFOC) /4PC | 4 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## POF Assembly Sets

Tools for connector assembly of POF crimp connector versions: FSMA; ST(BFOC); SC/SC-RJ



### Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly
- Suitable for on-site assembly

### Product features

- Sets available for POF connector types FSMA and ST (BFOC) and SC / SC-RJ
- Contents: crimp tool, buffered fibre stripper, polishing disc FSMA, polishing film, cutter

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description: Accessories for optic fibre technique

| Article number | Article designation | PU |
|---|---|---|
| **Assembly Set for POF FSMA Connector** | | |
| 29500001 | Assembly Set POF Connector FSMA | 1 piece |
| **Assembly Set for POF ST(BFOC) Connector** | | |
| 29500002 | Assembly Set POF Connector ST(BFOC) | 1 piece |
| **Assembly Set for POF SC/SC-RJ Connector** | | |
| 29500004 | Assembly Set for POF Connector SC | 1 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## POF Cutting Tools

Stripping tools for different sheath materials and cable diameters for POF cable and connector product range



**29500014**



**29500015**



**29500011**



**29500013**



**29500017**



**29500010**

### Benefits

- Cutting tools for the POF cable and connector product range

### Application range

- Cable stripper for different jacket materials and cable diameter

### Product features

- Various tools for cutting buffered fibres (2.2mm)
  from very simple to version with automatic blade advance
- 29500011 - fibre stripper for PE buffer tube 2.2mm
- 29500013 - fibre stripper for PA buffer tube 2.2mm-2.3mm
- 29500012 - jacket stripper for cable diameter 3.6mm and 6.0mm
- Crimping tool suitable for the POF(PCF) connector program

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver

| Article number | Article designation | PU |
|---|---|---|
| **POF Bare Fibre Cutter** | | |
| 29500014 | POF Cutter 2.2/1.0mm Guillotine | 5 pieces |
| 29500015 | POF BufferedFibreCutter 2.2mm manuel | 1 piece |
| 29500016 | POF BufferedFibreCutter 2.2mm automatic | 1 piece |
| **POF Cable Stripper** | | |
| 29500011 | POF Buffered Fibre Stripper 2.2 mm (P980/1000) | 1 piece |
| 29500013 | POF Cable Stripper PA 2.2mm | 1 piece |
| 29500012 | POF Cable Stripper 3.6/6.0mm | 1 piece |
| **Strain relief element scissors** | | |
| 29500017 | Strain relief element scissors | 1 piece |
| **POF Crimping Tool** | | |
| 29500010 | POF Crimp Tool 2.5/3.0/4.5/4.95mm | 1 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# POF Polishing tools and accessories

Polishing discs for different connector designs; polishing sheets; accessories

## Benefits

- Easy to handle
- Suitable to POF Connector Assembly Sets

## Product features

- Accessories for POF Assembly
- Polishing disc for various POF connector types
- Other versions are available upon request
- Polishing film with different graining size types for fibre end face treatment
- Polishing process:
  POF - Polishing Film 1000 (BU)
  Polishing Film 5µm (BN)
  Polishing Film 1µm (GN)
  PCF - Polishing Film 5 µm (BN)
  Polishing Film 1 µm (GN)
  Polishing Film 0.3 µm (WH)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver



SC



ST(BFOC)



| Article number | Article designation | PU |
|---|---|---|
| **Polishing Disc for POF connector assembly** | | |
| 29500031 | Polishing Disc POF FSMA Connector | 1 piece |
| 29500032 | Polishing Disc POF ST(BFOC) Connector | 1 piece |
| 29500033 | Polishing Disc POF HFBR4501/4511 SIMPLEX | 1 piece |
| 29500034 | Polishing Disc POF HFBR4516 DUPLEX | 1 piece |
| 29500035 | Polishing Disc POF F05 Connector | 1 piece |
| 29500036 | Polishing Disc POF Simplex 2.2mm | 1 piece |
| 29500733 | Polishing Disc PCF HFBR4521 Connector | 1 piece |
| 29500037 | Polishing Disc POF SC Connector | 1 piece |
| **Polishing film** | | |
| 29500021 | Polishing film graining size 1000 (BL) | 10 pieces |
| 29500024 | Polishing film graining size 5 µm (BR) | 10 pieces |
| 29500023 | Polishing film graining size 1 µm (GN) | 10 pieces |
| 29500022 | Polishing film graining size 0.3 µm (WH) | 10 pieces |
| **Polishing accessories** | | |
| 29500020 | Polishing glass plate 150x230mm | 1 piece |

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# POF Measurement Equipment

Measuring equipment set for wavelength range 660 nm and 850 nm; suitable for measuring assembled POF and PCF systems



## Benefits

- Measuring Equiment Set for wavelenghts 660/850nm
- Suitable for the measurement of assemblied POF and PCF systems

## Product features

- The mesasurement device is supplied without adaters. Please order separatly
- Optical Transmitter (TMR): wavelength dependent on interchangeable adapter
  - 650nm
  - 660nm
  - 850nm (on request)
- Optical Power Meter: for attenuation measurement of an assembled POF (PCF) systems adapted to Optical Transmitter (TMR)

## Product Make-up

- Optical Transmitter with digital display, wavelength dependent on adapter, active interchangeable adapters are not included, please order separately
- Optical Power Meter with digital display, wavelength meter 660/850 nm, interchangeable adapters (receiver side) are not included, please order separately
- Measuring Set (29500089): Optical Transmitter and Power Meter as set in a black suitcase, interchangeable adapters are not included

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description: Accessories for optic fibre technique

| Article number | Article designation | PU |
|---|---|---|
| **POF Measurement Equipment** | | |
| 29500092 | POF Optical Transmitter (TMR) | 1 piece |
| **POF TMR Adapter, wavelength 650nm** | | |
| 29500071 | POF Optical TMR Adapter HFBR, 650nm | 1 piece |
| 29500072 | POF Optical TMR Adapter FSMA, 650nm | 1 piece |
| 29500073 | POF Optical TMR Adapter ST(BFOC), 650nm | 1 piece |
| **POF TMR Adapter, wavelength 660nm** | | |
| 29500074 | POF Optical TMR Adapter F05, 660nm | 1 piece |
| 29500075 | POF Optical TMR Adapter HFBR, 660nm | 1 piece |
| 29500076 | POF Optical TMR Adapter FSMA, 660nm | 1 piece |
| 29500077 | POF Optical TMR Adapter ST(BFOC), 660nm | 1 piece |
| 29500090 | POF OPTICAL TMR ADAPTER SC-RJ, 660NM | 1 piece |
| **POF Optical Power Meter 660/850 nm** | | |
| 29500093 | POF Optical Power Meter 660/850 nm | 1 piece |
| **POF Power Meter Adapters** | | |
| 29500081 | POF Power Meter Adapter HFBR4501/4521 | 1 piece |
| 29500082 | POF Power Meter Adapter FSMA | 1 piece |
| 29500083 | POF Power Meter Adapter ST(BFOC) | 1 piece |
| 29500084 | POF Power Meter Adapter F05 | 1 piece |
| 29500085 | POF POWER METER ADAPTER SC-RJ | 1 piece |
| **POF Measuring Equiment Set without adapters** | | |
| 29500094 | POF Measuring Equiment Set 660/850nm | 1 piece |

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# HITRONIC® PCF SIMPLEX Cable

Polymer Cladded Fibre as simplex fibre cable version for indoor or outdoor use, pur outer sheath; halogen-free

**Info**

- For direct connector assembly




## Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- High mechanical strength
- UV-resistant
- EMC protection

## Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

## Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Outer sheath flame-retardant and halogen-free

## Product Make-up

- Tight-buffered fibres
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
2.9mm

**Fibre type**
PCF - K200/230
PCF - Polymer Cladded Fibre

**Minimum bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Standard designation**
A-V(ZN)11Y

**Optical fibre type**
Core material: glass
Cladding material: fluoropolymers

**Permissible tensile force**
Fixed installation: 200 N

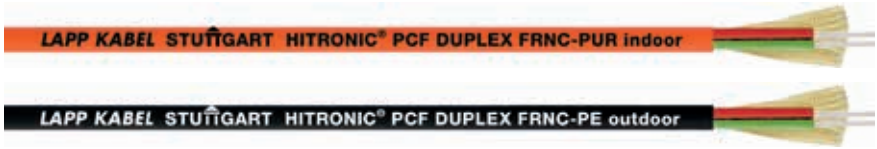
**Temperature range**
Operation: -10°C to +60°C
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® PCF SIMPLEX Cable** | | | | | |
| 28600701 | HITRONIC® PCF SIMPLEX PUR Outdoor | 200/230 PCF | 1 | 2.9 | 7.5 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® PCF DUPLEX Cable

Polymer Cladded Fibre as duplex fibre cable version for indoor or outdoor use







**Info**

- For direct connector assembly

## Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- High mechanical strength
- EMC protection

## Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

## Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Halogen-free outer sheath

## Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath (2.9mm)
- Aramid yarns as strain relief
- PUR outer sheath (indoor); PE outer sheath (outdoor)
- Colour: orange (indoor); black (outdoor)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Buffered fibre: 0.5mm
Single cable: 2.9 mm
Cable: see table

**Core identification code**
red, green

**Fibre type**
PCF - K200/230
PCF - Polymer Cladded Fibre

**Minimum bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Standard designation**
PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230
PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: fluoropolymers

**Permissible tensile force**
Fixed installation: 400 N (indoor); 500 N (outdoor)
Short-term: 1200 N (indoor); 1500 N (outdoor)

**Temperature range**
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Indoor** | | | | | |
| 28020702 | HITRONIC® PCF DUPLEX FRNC-PUR Indoor | 200/230 PCF | 2 | 8 | 53 |
| **Outdoor** | | | | | |
| 28620702 | HITRONIC® PCF DUPLEX FRNC-PE Outdoor | 200/230 PCF | 2 | 10.5 | 89 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® PCF DUPLEX FD cables

Polymer Cladded Fibre as duplex fibre cable version for flexible applications, PUR outer sheath, halogen-free

**Info**

- Flexible PCF cable compatible with all BUS systems




## Benefits

- Designed for use in cable chains
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- EMC protection

## Application range

- For highly flexible applications
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- As a link between moving parts
- Industrial environments

## Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Oil-resistant
- Outer sheath flame-retardant and halogen-free

## Norm references / Approvals

- Halogen-free according to IEC 60754

## Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: 8.8mm

**Core identification code**
red, green

**Fibre type**
PCF - K200/230
PCF - Polymer Cladded Fibre

**Minimum bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Standard designation**
A/J-V(ZN)H11Y

**Optical fibre type**
Core material: glass
Cladding material: fluoropolymers

**Permissible tensile force**
Fixed installation: 800 N
Short-term: 2000 N

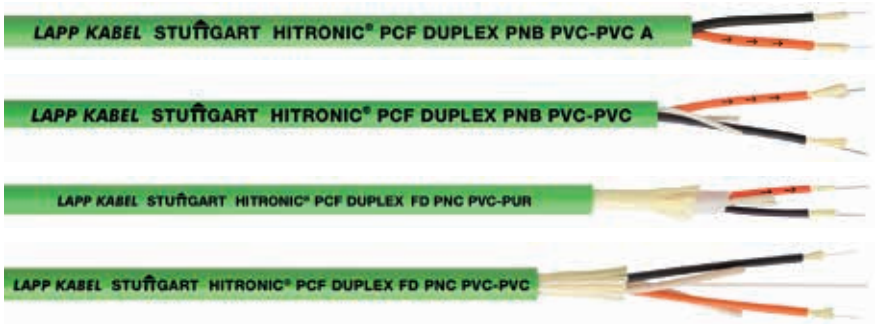
**Temperature range**
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® PCF DUPLEX FD cables** | | | | | |
| 28320702 | HITRONIC® PCF DUPLEX FD FRNC-PUR | 200/230 PCF | 2 | 8.8 | 63 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® PCF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PCV or PUR sheath for PROFINET applications type B or C




**Info**

- PROFINET compliant
  - Type B or Type C
- For direct connector assembly

## Benefits

- Optical data transmisson up to 500m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

## Application range

- PCF DUPLEX cabels for optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 100 m cable length
- PROFINET type B:
  for fixed laying
- PROFINET type C:
  for flexible applications (cable chains)

## Product features

- Cable version with PVC outer sheath:
  for standard applications in industrial environments
- Cable version with PUR outer sheath:
  for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (cable chains)

## Norm references / Approvals

- 28055702: with c(UL)us certification (OFNG 75°C)
- PUR compound: oil resistant acc. to IEC 60811-2-1 and DIN EN 50363-10-2

## Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with PVC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

**Dimensions**
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: see table

**Core identification code**
Black, orange (with arrow printing)

**Fibre type**
PCF - K200/230
PCF - Polymer Cladded Fibre

**Minimum bending radius**
see data sheet

**Standard designation**
J-V(ZN)YY 2K200/230
J-V(ZN)Y(ZN)11Y 2K200/230 flex
J-V(ZN)Y(ZN)Y 2K200/230 flex

**Optical fibre type**
Core material: glass
Cladding material: fluoropolymers

**Permissible tensile force**
see data sheet

**Temperature range**
See data sheet

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **PCF DUPLEX - PROFINET TYPE B** | | | | | |
| 28055702 | HITRONIC® PCF DUPLEX PNB PVC-PVC A | 200/230 PCF | 2 | 7.5 | 59 |
| **PCF DUPLEX - PROFINET TYPE C** | | | | | |
| 28351702 | HITRONIC® PCF DUPLEX FD PNC PVC-PUR | 200/230 PCF | 2 | 8.8 | 71 |
| 28352702 | HITRONIC® PCF DUPLEX FD PNC PVC-PVC | 200/230 PCF | 2 | 8.8 | 76 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# PCF Connector HFBR

Connectors for polymer cladded optical fibre cables, type HFBR4521

### Benefits

- Compatible with HP Versatile Link Connectors and Components series

### Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems

### Product features

- HFBR4521 connector for 2.2 mm PCF cable diameter as crimp version
- HFBR4521 connector for 3.0 mm PCF cable diameter as clamp version
- HFBR4521 clamp connector compatible with Assemby Set PCF Connector HFBR4521

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



HFBR4521



HFBR4521

| Article number | Article designation | Colour | PU |
|---|---|---|---|
| **Connector HFBR4521 for 2.2 mm cables - crimp version** | | | |
| 29140799 | PCF Connector HFBR4521 BK Simplex 2.2 /4PC | black | 4 piece |
| 29140798 | PCF Connector HFBR4521 BK Simplex 2.2 /50PC | black | 50 piece |
| **Connector HFBR4521 for 3.0 mm cables - clamp version** | | | |
| 29141798 | PCF Connector HFBR4521 Clamp 3.0 /50PC | black | 50 piece |

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# PCF Connector F-SMA and ST(BFOC)

Connector for Polymer Claddes Fibre cables, type FSMA and ST(BFOC)

### Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

### Product features

- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Adapters available on request
- Bend protection boot colour: 50% black and 50% red

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



F-SMA



ST(BFOC)

| Article number | Article designation | PU |
|---|---|---|
| **Connector FSMA Clamp for 3.0 mm cables** | | |
| 29136799 | PCF Connector FSMA Clamp 3.0 /4PC | 4 piece |
| 29136798 | PCF Connector FSMA Clamp 3.0 /50PC | 50 piece |
| **Connector FSMA Clamp for 2.2 mm cables** | | |
| 29135799 | PCF Connector FSMA Clamp 2.2 /4PC | 4 piece |
| 29135798 | PCF Connector FSMA Clamp 2.2 /50PC | 50 piece |
| **Connector ST(BFOC) Clamp for 3.0 mm cables** | | |
| 29126799 | PCF Connector ST (BFOC) Clamp 3.0 /4PC | 4 piece |
| 29126798 | PCF Connector ST (BFOC) Clamp 3.0 /50PC | 50 piece |
| **Connector ST(BFOC) Clamp for 2.2 mm cables** | | |
| 29125799 | PCF Connector ST (BFOC) Clamp 2.2 /4PC | 4 piece |
| 29125798 | PCF Connector ST (BFOC) Clamp 2.2 /50PC | 50 piece |

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## PCF Connector SC-RJ

Accessories for PCF cables, connector type SC-RJ for clamp and cleave assembly, PROFINET



**SC-RJ**

### Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

### Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Bend protection boot colour: 50% black and 50% red

### Info

- Connectors for PROFINET Data Cabling

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

**Certifications**
SC-RJ complies with IEC61754-24

| Article number | Article designation | PU |
|---|---|---|
| **PCF Connector SC-RJ** | | |
| 29166797 | PCF Connector SC-RJ Clamp 3.0 | 1 piece |
| 29165797 | PCF connector SC-RJ KLEMM 2,2 | 1 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## PCF Assembly Sets

Assembling set for PCF connecting types: FSMA, ST(BFOC), SC/SC-RJ, HFBR4521



### Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly from clamp connector versions
- Suitable for on-site assembly

### Product features

- Sets available for PCF clamp connector types FSMA, ST (BFOC), SC and HFBR4521
- Contents: stripper, cleave tool, kevlar scissor, cutter, microscope

| Article number | Article designation | PU |
|---|---|---|
| **Assembly Set For PCF FSMA Connectors** | | |
| 29500701 | Assemby Set PCF Connector FSMA | 1 piece |
| **Assembly Set For PCF ST(BFOC) Connectors** | | |
| 29500702 | Assemby Set PCF Connector ST(BFOC) | 1 piece |
| **Assembly Set For PCF HFBR4521 Connectors** | | |
| 29500703 | Assembly Set PCF Connector HFBR4521 | 1 piece |
| **Assembly Set For PCF SC/SC-RJ Connectors** | | |
| 29500704 | Assemby Set PCF Connector SC | 1 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# PCF Cutting Tools

Accessories for Polymer Claddes Fibre cables

### Benefits

- Optimally coordinated tools for the PCF cable and connector product range
- For the processing of PCF fibres

### Product features

- PCF cleaving tool for connector types:
  -FSMA
  -ST(BFOC)
  -HFBR4521
  -SC



29500711



29500712

| Article number | Article designation | PU |
|---|---|---|
| **PCF Buffered Fibre Stripper** | | |
| 29500711 | PCF Buffered Fibre Stripper 0.5mm (K200/230) | 1 piece |
| **PCF Fibre Cleaving Tool** | | |
| 29500712 | PCF Cleaving Tool FSMA Connector | 1 piece |
| 29500713 | PCF Cleaving Tool ST(BFOC) Connector | 1 piece |
| 29500714 | PCF Cleaving Tool HFBR4521 Connector | 1 piece |
| 29500715 | PCF Cleaving Tool SC Connector | 1 piece |

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# PCF Measurement Equipment

Inspection microscope for PCF connector types: FSMA; ST(BFOC); HFBR

### Benefits

- Inspection Microscope with 200x magnification for connector inspection
- Easy to handle

### Product features

- Interchangeable adapter for PCF connector types FSMA, ST(BFOC), HFBR
- Interchangeable adapters are not included in microscope, please order separately
- Other adapters available on request

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001685
ETIM 5.0/6.0 Class-Description:
Microscope for glass fibre



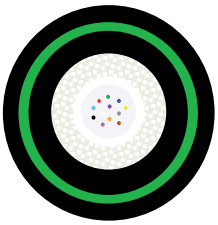

| Article number | Article designation | PU |
|---|---|---|
| **PCF Inspection Microscope (200x) without adapter** | | |
| 29500770 | PCF Inspection Microscope (200x) | 1 piece |
| **PCF Microscope Adapter For Connector Types** | | |
| 29500771 | PCF Microscope Adapter FSMA Simplex | 1 piece |
| 29500772 | PCF Microscope Adapter ST(BFOC) Simplex | 1 piece |
| 29500773 | PCF Microscope Adapter HFBR Simplex | 1 piece |

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# HITRONIC® FIRE

Safety cable with central loose tube, LSZH inner and outer sheath, corrugated steel tape; halogen-free





## Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant longitudinally and laterally watertight

## Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3-24)
  - Low smoke density (IEC 61034-1/2)
  - Circuit integrity (IEC 60331-25); Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free

## Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)

## Info

- Fire-resistant for at least 180 minutes in the event of fire
- * Cable had been tested to withstand 180 min

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-DQ(ZN)BH(SR)H

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 1500 N
Short-term: 2200 N

**Temperature range**
Fixed installation: -30°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G50 OM4** | | | | | |
| 27560404 | HITRONIC FIRE 4G 50/125 OM4 | 50/125 OM4 | 4 | 9.6 | 123 |
| 27560408 | HITRONIC FIRE 8G 50/125 OM4 | 50/125 OM4 | 8 | 9.6 | 123 |
| 27560412 | HITRONIC FIRE 12G 50/125 OM4 | 50/125 OM4 | 12 | 9.6 | 123 |
| 27560424 | HITRONIC FIRE 24G 50/125 OM4 | 50/125 OM4 | 24 | 12.6 | 188 |
| **Multimode G 50 OM3** | | | | | |
| 27560304 | HITRONIC® FIRE 4G 50/125 OM3 | 50/125 OM3 | 4 | 9.6 | 123 |
| 27560308 | HITRONIC® FIRE 8G 50/125 OM3 | 50/125 OM3 | 8 | 9.6 | 123 |
| 27560312 | HITRONIC® FIRE 12G 50/125 OM3 | 50/125 OM3 | 12 | 9.6 | 123 |
| 27560324 | HITRONIC® FIRE 24G 50/125 OM3 | 50/125 OM3 | 24 | 12.6 | 188 |
| **Multimode G 50 OM2** | | | | | |
| 27560204 | HITRONIC® FIRE 4G 50/125 OM2 | 50/125 OM2 | 4 | 9.6 | 123 |
| 27560208 | HITRONIC® FIRE 8G 50/125 OM2 | 50/125 OM2 | 8 | 9.6 | 123 |
| 27560212 | HITRONIC® FIRE 12G 50/125 OM2 | 50/125 OM2 | 12 | 9.6 | 123 |
| 27560224 | HITRONIC® FIRE 24G 50/125 OM2 | 50/125 OM2 | 24 | 12.6 | 188 |
| **Multimode G 62.5 OM1** | | | | | |
| 27560104 | HITRONIC® FIRE 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 9.6 | 123 |
| 27560108 | HITRONIC® FIRE 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 9.6 | 123 |
| 27560112 | HITRONIC® FIRE 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 9.6 | 123 |
| 27560124 | HITRONIC® FIRE 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 12.6 | 188 |
| **Single-mode E 9 OS2** | | | | | |
| 27560904 | HITRONIC® FIRE 4E 9/125 OS2 | 9/125 OS2 | 4 | 9.6 | 123 |
| 27560908 | HITRONIC® FIRE 8E 9/125 OS2 | 9/125 OS2 | 8 | 9.6 | 123 |
| 27560912 | HITRONIC® FIRE 12E 9/125 OS2 | 9/125 OS2 | 12 | 9.6 | 123 |
| 27560924 | HITRONIC® FIRE 24E 9/125 OS2 | 9/125 OS2 | 24 | 12.6 | 188 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

# HITRONIC® TORSION

Breakout cable specially designed to withstand high torsional stresses; PUR outer sheath

**Info**

- Torsion-resistant and very flexible



## Benefits

- Designed to withstand high torsion in the windmill drip loop
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Industrial environments
- In vertical installations
- As a link between moving parts
- For indoor and outdoor use

## Product features

- Based on military norm MIL-C-85045
- Torsion-resistant and very flexible
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

## Product Make-up

- 2.5 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
sub-cable: 2.5mm
Cable: see table

**Core identification code**
Details see datasheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-V(ZN)H11Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

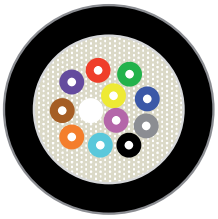
| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G50 OM4** | | | | | |
| 26310402 | HITRONIC TORSION 2G 50/125 OM4 | 50/125 OM4 | 2 | 8.4 | 54 |
| 26310404 | HITRONIC TORSION 4G 50/125 OM4 | 50/125 OM4 | 4 | 8.4 | 54 |
| 26310408 | HITRONIC TORSION 8G 50/125 OM4 | 50/125 OM4 | 8 | 11.6 | 95 |
| 26310412 | HITRONIC TORSION 12G 50/125 OM4 | 50/125 OM4 | 12 | 14.7 | 122 |
| **Multimode G 50 OM3** | | | | | |
| 26310302 | HITRONIC® TORSION 2G 50/125 OM3 | 50/125 OM3 | 2 | 8.4 | 54 |
| 26310304 | HITRONIC® TORSION 4G 50/125 OM3 | 50/125 OM3 | 4 | 8.4 | 54 |
| 26310308 | HITRONIC® TORSION 8G 50/125 OM3 | 50/125 OM3 | 8 | 11.6 | 95 |
| 26310312 | HITRONIC® TORSION 12G 50/125 OM3 | 50/125 OM3 | 12 | 14.7 | 122 |
| **Multimode G 50 OM2** | | | | | |
| 26310202 | HITRONIC® TORSION 2G 50/125 OM2 | 50/125 OM2 | 2 | 8.4 | 54 |
| 26310204 | HITRONIC® TORSION 4G 50/125 OM2 | 50/125 OM2 | 4 | 8.4 | 54 |
| 26310208 | HITRONIC® TORSION 8G 50/125 OM2 | 50/125 OM2 | 8 | 11.6 | 95 |
| 26310212 | HITRONIC® TORSION 12G 50/125 OM2 | 50/125 OM2 | 12 | 14.7 | 122 |
| **Multimode G 62.5 OM1** | | | | | |
| 26310102 | HITRONIC® TORSION 2G 62.5/125 OM1 | 62.5/125 OM1 | 2 | 8.4 | 54 |
| 26310104 | HITRONIC® TORSION 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 8.4 | 54 |
| 26310108 | HITRONIC® TORSION 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 11.6 | 95 |
| 26310112 | HITRONIC® TORSION 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 14.7 | 122 |
| **Single-mode E 9 OS2** | | | | | |
| 26310902 | HITRONIC® TORSION 2E 9/125 OS2 | 9/125 OS2 | 2 | 8.4 | 54 |
| 26310904 | HITRONIC® TORSION 4E 9/125 OS2 | 9/125 OS2 | 4 | 8.4 | 54 |
| 26310908 | HITRONIC® TORSION 8E 9/125 OS2 | 9/125 OS2 | 8 | 11.6 | 95 |
| 26310912 | HITRONIC® TORSION 12E 9/125 OS2 | 9/125 OS2 | 12 | 14.7 | 122 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

# HITRONIC® HDM Cable

Mini breakout/distribution cable designed for frequent reeling and unreeling, reelable





**Info**

- Mobile field cables

## Benefits

- Suitable for field application
- Reelable for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- Light & sound technology
- For indoor and outdoor use
- Industrial environments
- TV broadcasts
  Camera technology
  Building monitoring
- Field application

## Product features

- Based on military norm MIL-C-85045
- Highly flexible, reelable and tensile strength
- Colour-coded tight buffered fibres for easy channel identification
- Outer sheath halogen-free
- Mechanically robust

## Product Make-up

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
tight-buffer (secondary coated fibre): 900µm
Cable: see table

**Core identification code**
Buffered-Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-V(ZN)11Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 26610404 | HITRONIC® HDM600 4G 50/125 OM4 | 50/125 OM4 | 4 | 5.5 | 24 |
| 26610406 | HITRONIC® HDM600 6G 50/125 OM4 | 50/125 OM4 | 6 | 5.6 | 29 |
| 26610408 | HITRONIC® HDM700 8G 50/125 OM4 | 50/125 OM4 | 8 | 6.2 | 36 |
| **Multimode G 50 OM3** | | | | | |
| 26610304 | HITRONIC® HDM600 4G 50/125 OM3 | 50/125 OM3 | 4 | 5.5 | 24 |
| 26610306 | HITRONIC® HDM600 6G 50/125 OM3 | 50/125 OM3 | 6 | 5.6 | 29 |
| 26610308 | HITRONIC® HDM700 8G 50/125 OM3 | 50/125 OM3 | 8 | 6.2 | 36 |
| **Multimode G 50 OM2** | | | | | |
| 26610204 | HITRONIC® HDM600 4G 50/125 OM2 | 50/125 OM2 | 4 | 5.5 | 24 |
| 26610206 | HITRONIC® HDM600 6G 50/125 OM2 | 50/125 OM2 | 6 | 5.6 | 29 |
| 26610208 | HITRONIC® HDM700 8G 50/125 OM2 | 50/125 OM2 | 8 | 6.2 | 36 |
| **Multimode G 62.5 OM1** | | | | | |
| 26610104 | HITRONIC® HDM600 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 5.5 | 24 |
| 26610106 | HITRONIC® HDM600 6G 62.5/125 OM1 | 62.5/125 OM1 | 6 | 5.6 | 29 |
| 26610108 | HITRONIC® HDM700 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 6.2 | 36 |
| **Single-mode E 9 OS2** | | | | | |
| 26610904 | HITRONIC® HDM600 4E9/125 OS2 | 9/125 OS2 | 4 | 5.5 | 24 |
| 26610906 | HITRONIC® HDM600 6E9/125 OS2 | 9/125 OS2 | 6 | 5.6 | 29 |
| 26610908 | HITRONIC® HDM700 8E9/125 OS2 | 9/125 OS2 | 8 | 6.2 | 36 |
| 26610912 | HITRONIC® HDM700 12E9/125 OS2 | 9/125 OS2 | 12 | 6.7 | 49 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

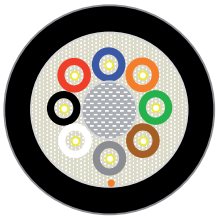
# HITRONIC® HRM-FD Cable

flexible deivisible breakout cable designed for use in cable chains

**Info**

- Highly flexible cable for cable chain use





## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
sub-cable: 2.0mm
Cable: see table

**Core identification code**
Details see datasheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-V(ZN)H(ZN)11Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

## Benefits

- Designed for use in cable chains
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

## Product features

- Based on military norm MIL-C-85045
- For use in cable chains and moving machinery parts in dry or damp rooms
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

## Product Make-up

- 2.0 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

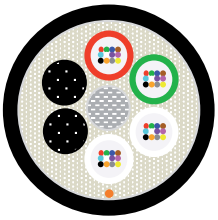
| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 26300402 | HITRONIC® HRM-FD800 2G 50/125 OM4 | 50/125 OM4 | 2 | 7.8 | 50 |
| 26300404 | HITRONIC® HRM-FD1000 4G 50/125 OM4 | 50/125 OM4 | 4 | 7.8 | 50 |
| 26300408 | HITRONIC® HRM-FD1400 8G 50/125 OM4 | 50/125 OM4 | 8 | 10.4 | 93 |
| 26300412 | HITRONIC® HRM-FD1800 12G 50/125 OM4 | 50/125 OM4 | 12 | 13 | 98 |
| **Multimode G 50 OM3** | | | | | |
| 26300302 | HITRONIC® HRM-FD800 2G 50/125 OM3 | 50/125 OM3 | 2 | 7.8 | 50 |
| 26300304 | HITRONIC® HRM-FD1000 4G 50/125 OM3 | 50/125 OM3 | 4 | 7.8 | 50 |
| 26300308 | HITRONIC® HRM-FD1400 8G 50/125 OM3 | 50/125 OM3 | 8 | 10.4 | 93 |
| 26300312 | HITRONIC® HRM-FD1800 12G 50/125 OM3 | 50/125 OM3 | 12 | 13 | 98 |
| **Multimode G 50 OM2** | | | | | |
| 26300202 | HITRONIC® HRM-FD800 2G 50/125 OM2 | 50/125 OM2 | 2 | 7.8 | 50 |
| 26300204 | HITRONIC® HRM-FD1000 4G 50/125 OM2 | 50/125 OM2 | 4 | 7.8 | 50 |
| 26300208 | HITRONIC® HRM-FD1400 8G 50/125 OM2 | 50/125 OM2 | 8 | 10.4 | 93 |
| 26300212 | HITRONIC® HRM-FD1800 12G 50/125 OM2 | 50/125 OM2 | 12 | 13 | 98 |
| **Multimode G 62.5 OM1** | | | | | |
| 26300102 | HITRONIC® HRM-FD800 2G 62.5/125 OM1 | 62.5/125 OM1 | 2 | 7.8 | 50 |
| 26300104 | HITRONIC® HRM-FD1000 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 7.8 | 50 |
| 26300108 | HITRONIC® HRM-FD1400 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 10.4 | 93 |
| 26300112 | HITRONIC® HRM-FD1800 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 13 | 98 |
| **Single-mode E 9 OS2** | | | | | |
| 26300902 | HITRONIC® HRM-FD800 2E 9/125 OS2 | 9/125 OS2 | 2 | 7.8 | 50 |
| 26300904 | HITRONIC® HRM-FD1000 4E 9/125 OS2 | 9/125 OS2 | 4 | 7.8 | 50 |
| 26300908 | HITRONIC® HRM-FD1400 8E 9/125 OS2 | 9/125 OS2 | 8 | 10.4 | 93 |
| 26300912 | HITRONIC® HRM-FD1800 12E 9/125 OS2 | 9/125 OS2 | 12 | 13 | 98 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® HVN-Mini Cable

Mini outdoor cable designed for installation by air-blowing systems (Ducts)





**Info**

- Mobile field cables

## Benefits

- Suitable for blowing into ducts
- Compact dimensions
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- Backbone-Area, FTTH applications
- Telecommunications network
- WAN applications
- For installations by blowing
- Methods of deployment: for blowing or pulling into ducts

## Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Reduced dimensions
- Halogen-free, low-friction outer sheath
- UV-resistant

## Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Fibre type**
GOF - Glass Optical Fibre
Single-mode
E9/125 OS2

**Standard designation**
A-DQ(ZN)2Y

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -40°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Single-mode E 9 OS2** | | | | | |
| 26609912 | HITRONIC® HVN-Mini500 1x12E 9/125 OS2 | 9/125 OS2 | 12 | 5.8 | 30 |
| 26609924 | HITRONIC® HVN-Mini500 2x12E 9/125 OS2 | 9/125 OS2 | 24 | 5.8 | 30 |
| 26609948 | HITRONIC® HVN-Mini500 4x12E 9/125 OS2 | 9/125 OS2 | 48 | 5.8 | 33 |
| 26609972 | HITRONIC® HVN-Mini500 6x12E 9/125 OS2 | 9/125 OS2 | 72 | 5.8 | 33 |
| 26609996 | HITRONIC® HVN-Mini1200 8x12E 9/125 OS2 | 9/125 OS2 | 96 | 7.2 | 52 |
| 26609944 | HITRONIC® HVN-Mini1000 12x12E 9/125 | 9/125 OS2 | 144 | 8 | 80 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® HQN Outdoor Cable

Outdoor cable with central loose tube and non-metallic strain relief



## Info

- For outdoor applications
- Suitable for direct burial

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)B2Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 1500 N
Short-term: 3000 N

**Temperature range**
Fixed installation: -40°C to +70°C

## Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)
- Suitable for blowing-in technic
  (low friction outer sheath)

## Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays
  Suitable for blowing-in technics

## Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

## Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 27600404 | HITRONIC® HQN 1500 4G 50/125 OM4 | 50/125 OM4 | 4 | 7.3 | 40 |
| 27600408 | HITRONIC® HQN 1500 8G 50/125 OM4 | 50/125 OM4 | 8 | 7.3 | 40 |
| 27600412 | HITRONIC® HQN 1500 12G 50/125 OM4 | 50/125 OM4 | 12 | 7.3 | 40 |
| 27600424 | HITRONIC® HQN 1500 24G 50/125 OM4 | 50/125 OM4 | 24 | 8.3 | 65 |
| **Multimode G 50 OM3** | | | | | |
| 27600304 | HITRONIC® HQN 1500 4G 50/125 OM3 | 50/125 OM3 | 4 | 7.3 | 40 |
| 27600308 | HITRONIC® HQN 1500 8G 50/125 OM3 | 50/125 OM3 | 8 | 7.3 | 40 |
| 27600312 | HITRONIC® HQN 1500 12G 50/125 OM3 | 50/125 OM3 | 12 | 7.3 | 40 |
| 27600324 | HITRONIC® HQN 1500 24G 50/125 OM3 | 50/125 OM3 | 24 | 8.3 | 65 |
| **Multimode G 50 OM2** | | | | | |
| 27600204 | HITRONIC® HQN 1500 4G 50/125 OM2 | 50/125 OM2 | 4 | 7.3 | 40 |
| 27600208 | HITRONIC® HQN 1500 8G 50/125 OM2 | 50/125 OM2 | 8 | 7.3 | 40 |
| 27600212 | HITRONIC® HQN 1500 12G 50/125 OM2 | 50/125 OM2 | 12 | 7.3 | 40 |
| 27600224 | HITRONIC® HQN 1500 24G 50/125 OM2 | 50/125 OM2 | 24 | 8.3 | 65 |
| **Multimode G 62.5 OM1** | | | | | |
| 27600104 | HITRONIC® HQN 1500 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 7.3 | 40 |
| 27600108 | HITRONIC® HQN 1500 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 7.3 | 40 |
| 27600112 | HITRONIC® HQN 1500 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 7.3 | 40 |
| 27600124 | HITRONIC® HQN 1500 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 8.3 | 65 |
| **Single-mode E 9 OS2** | | | | | |
| 27600904 | HITRONIC® HQN 1500 4E 9/125 OS2 | 9/125 OS2 | 4 | 7.3 | 40 |
| 27600906 | HITRONIC HQN 1500 6E 9/125 OS2 | 9/125 OS2 | 6 | 7.3 | 40 |
| 27600908 | HITRONIC® HQN 1500 8E 9/125 OS2 | 9/125 OS2 | 8 | 7.3 | 40 |
| 27600912 | HITRONIC® HQN 1500 12E 9/125 OS2 | 9/125 OS2 | 12 | 7.3 | 40 |
| 27600924 | HITRONIC® HQN 1500 24E 9/125 OS2 | 9/125 OS2 | 24 | 8.3 | 65 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

# HITRONIC® HVN Outdoor Cable

Outdoor cable with stranded loose tubes and non-metallic strain relief





**Info**

- For outdoor applications
- Suitable for direct burial
- Telecommunication cable, high number of fibers (up to 144)

## Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Suitable for blowing-in technic (low friction outer sheath)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

## Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)B2Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -40°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multfimode G 50 OM4** | | | | | |
| 26600424 | HITRONIC® HVN5000 2x12G 50/125 OM4 | 50/125 OM4 | 24 | 11 | 64 |
| 26600448 | HITRONIC® HVN5000 4x12G 50/125 OM4 | 50/125 OM4 | 48 | 11 | 84 |
| **Multimode G 50 OM3** | | | | | |
| 26600324 | HITRONIC® HVN5000 2x12G 50/125 OM3 | 50/125 OM3 | 24 | 11 | 64 |
| 26600348 | HITRONIC® HVN5000 4x12G 50/125 OM3 | 50/125 OM3 | 48 | 11 | 84 |
| **Multimode G 50 OM2** | | | | | |
| 26600224 | HITRONIC® HVN5000 2x12G 50/125 OM2 | 50/125 OM2 | 24 | 11 | 64 |
| 26600248 | HITRONIC® HVN5000 4x12G 50/125 OM2 | 50/125 OM2 | 48 | 11 | 84 |
| **Single-mode E 9 OS2** | | | | | |
| 26600924 | HITRONIC® HVN5000 2x12E 9/125 OS2 | 9/125 OS2 | 24 | 11 | 64 |
| 26600948 | HITRONIC® HVN5000 4x12E 9/125 OS2 | 9/125 OS2 | 48 | 11 | 84 |
| 26601912 | HITRONIC HVN1500 1x12E 9/125 OS2 | 9/125 OS2 | 12 | 11 | 64 |
| **HVN Telecom Single-mode E 9 OS2** | | | | | |
| 26601924 | HITRONIC® HVN1500 2x12E 9/125 OS2 | 9/125 OS2 | 24 | 10.5 | 89 |
| 26601948 | HITRONIC® HVN1500 4x12E 9/125 OS2 | 9/125 OS2 | 48 | 10.5 | 91 |
| 26601972 | HITRONIC® HVN2000 6x12E 9/125 OS2 | 9/125 OS2 | 72 | 10.8 | 97 |
| 26601996 | HITRONIC® HVN2000 8x12E 9/125 OS2 | 9/125 OS2 | 96 | 11.9 | 121 |
| 26601944 | HITRONIC® HVN2000 12x12E 9/125 OS2 | 9/125 OS2 | 144 | 14.3 | 183 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other models are available upon request.

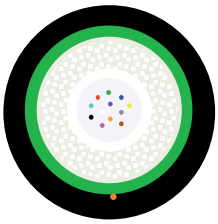
# HITRONIC® HQW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief

**Info**

- Cable with corrugated steel tape (CST) for increased mechanical stress





## Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight

## Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

## Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)(SR)2Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 3000 N
Short-term: 5000 N

**Temperature range**
Fixed installation: -40°C to +70°C

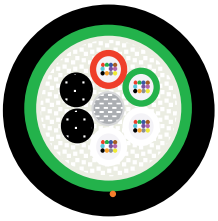
| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 27900404 | HITRONIC HQW3000 4G 50/125 OM4 | 50/125 OM4 | 4 | 9.6 | 88 |
| 27900408 | HITRONIC HQW3000 8G 50/125 OM4 | 50/125 OM4 | 8 | 9.6 | 88 |
| 27900412 | HITRONIC HQW3000 12G 50/125 OM4 | 50/125 OM4 | 12 | 9.6 | 88 |
| 27900424 | HITRONIC HQW3000 24G 50/125 OM4 | 50/125 OM4 | 24 | 9.6 | 88 |
| **Multimode G 50 OM3** | | | | | |
| 27900304 | HITRONIC® HQW3000 4G 50/125 OM3 | 50/125 OM3 | 4 | 9.6 | 88 |
| 27900308 | HITRONIC® HQW3000 8G 50/125 OM3 | 50/125 OM3 | 8 | 9.6 | 88 |
| 27900312 | HITRONIC® HQW3000 12G 50/125 OM3 | 50/125 OM3 | 12 | 9.6 | 88 |
| 27900324 | HITRONIC® HQW3000 24G 50/125 OM3 | 50/125 OM3 | 24 | 9.6 | 88 |
| **Multimode G 50 OM2** | | | | | |
| 27900204 | HITRONIC® HQW3000 4G 50/125 OM2 | 50/125 OM2 | 4 | 9.6 | 88 |
| 27900208 | HITRONIC® HQW3000 8G 50/125 OM2 | 50/125 OM2 | 8 | 9.6 | 88 |
| 27900212 | HITRONIC® HQW3000 12G 50/125 OM2 | 50/125 OM2 | 12 | 9.6 | 88 |
| 27900224 | HITRONIC® HQW3000 24G 50/125 OM2 | 50/125 OM2 | 24 | 9.6 | 88 |
| **Multimode G 62.5 OM1** | | | | | |
| 27900104 | HITRONIC® HQW3000 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 9.6 | 88 |
| 27900108 | HITRONIC® HQW3000 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 9.6 | 88 |
| 27900112 | HITRONIC® HQW3000 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 9.6 | 88 |
| 27900124 | HITRONIC® HQW3000 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 9.6 | 88 |
| **Single-mode E 9 OS2** | | | | | |
| 27900904 | HITRONIC® HQW3000 4E 9/125 OS2 | 9/125 OS2 | 4 | 9.6 | 88 |
| 27900908 | HITRONIC® HQW3000 8E 9/125 OS2 | 9/125 OS2 | 8 | 9.6 | 88 |
| 27900912 | HITRONIC® HQW3000 12E 9/125 OS2 | 9/125 OS2 | 12 | 9.6 | 88 |
| 27900924 | HITRONIC® HQW3000 24E 9/125 OS2 | 9/125 OS2 | 24 | 9.6 | 88 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® HVW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, stranded loose tubes and non-metallic strain relief





**Info**

- Cable with corrugated steel tape (CST) for increased mechanical stress

## Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight

## Application range

- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

## Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

## Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)(SR)2Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 3000 N
Short-term: 5000 N

**Temperature range**
Fixed installation: -40°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Single-mode E 9 OS2** | | | | | |
| 26900924 | HITRONIC® HVW3000 2x12E 9/125 OS2 | 9/125 OS2 | 24 | 10 | 98 |
| 26900948 | HITRONIC® HVW3000 4x12E 9/125 OS2 | 9/125 OS2 | 48 | 12.5 | 148 |
| 26900972 | HITRONIC® HVW3000 6x12E 9/125 OS2 | 9/125 OS2 | 72 | 16 | 215 |
| 26900996 | HITRONIC® HVW3000 8x12E 9/125 OS2 | 9/125 OS2 | 96 | 16 | 222 |
| 26900944 | HITRONIC® HVW3000 12x12E 9/125 OS2 | 9/125 OS2 | 144 | 18.5 | 261 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

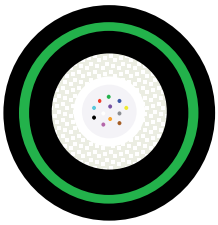
# HITRONIC® HQW-Plus Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief and PE inner and outer sheath

**Info**

- Cable with corrugated steel tape (CST) for increased mechanical stress





## Benefits

- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- UV-resistant longitudinally and laterally watertight

## Application range

- For outdoor use
- Harsh industrial environment
- Campus backbone
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

## Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE inner and outer sheaths
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)B2Y(SR)2Y

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 3000 N
Short-term: 5000 N

**Temperature range**
Fixed installation: -40°C to +70°C

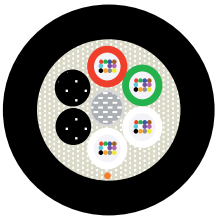
| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 27920404 | HITRONIC HQW-Plus3000 4G 50/125 OM4 | 50/125 OM4 | 4 | 9.6 | 95 |
| 27920408 | HITRONIC HQW-Plus3000 8G 50/125 OM4 | 50/125 OM4 | 8 | 9.6 | 95 |
| 27920412 | HITRONIC HQW-Plus3000 12G 50/125 OM4 | 50/125 OM4 | 12 | 9.6 | 95 |
| 27920424 | HITRONIC HQW-plus3000 24G 50/125 OM4 | 50/125 OM4 | 24 | 12.6 | 135 |
| **Multimode G 50 OM3** | | | | | |
| 27920304 | HITRONIC® HQW-Plus3000 4G 50/125 OM3 | 50/125 OM3 | 4 | 9.6 | 95 |
| 27920308 | HITRONIC® HQW-Plus3000 8G 50/125 OM3 | 50/125 OM3 | 8 | 9.6 | 95 |
| 27920312 | HITRONIC® HQW-Plus3000 12G 50/125 OM3 | 50/125 OM3 | 12 | 9.6 | 95 |
| 27920324 | HITRONIC® HQW-Plus3000 24G 50/125 OM3 | 50/125 OM3 | 24 | 12.6 | 135 |
| **Multimode G 50 OM2** | | | | | |
| 27920204 | HITRONIC® HQW-Plus3000 4G 50/125 OM2 | 50/125 OM2 | 4 | 9.6 | 95 |
| 27920208 | HITRONIC® HQW-Plus3000 8G 50/125 OM2 | 50/125 OM2 | 8 | 9.6 | 95 |
| 27920212 | HITRONIC® HQW-Plus3000 12G 50/125 OM2 | 50/125 OM2 | 12 | 9.6 | 95 |
| 27920224 | HITRONIC® HQW-Plus3000 24G 50/125 OM2 | 50/125 OM2 | 24 | 12.6 | 135 |
| **Multimode G 62.5 OM1** | | | | | |
| 27920104 | HITRONIC® HQW-Plus3000 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 9.6 | 95 |
| 27920108 | HITRONIC® HQW-Plus3000 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 9.6 | 95 |
| 27920112 | HITRONIC® HQW-Plus3000 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 9.6 | 95 |
| 27920124 | HITRONIC® HQW-Plus3000 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 12.6 | 135 |
| **Single-mode E 9 OS2** | | | | | |
| 27920904 | HITRONIC® HQW-Plus3000 4E 9/125 OS2 | 9/125 OS2 | 4 | 9.6 | 95 |
| 27920908 | HITRONIC® HQW-Plus3000 8E 9/125 OS2 | 9/125 OS2 | 8 | 9.6 | 95 |
| 27920912 | HITRONIC® HQW-Plus3000 12E 9/125 OS2 | 9/125 OS2 | 12 | 9.6 | 95 |
| 27920924 | HITRONIC® HQW-Plus3000 24E 9/125 OS2 | 9/125 OS2 | 24 | 12.6 | 135 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# HITRONIC® HQA Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief; ADSS cable type





**Info**

- ADSS - All Dielectric Self Supporting

## Benefits

- Suitable for mild weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For outdoor use
- Hanging on poles
- Laying on poles
- Installation on building columns

## Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 90m

## Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ(ZN)2Y - ADSS
All-Dielectric Self-Supporting

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
MAT: 2000 N
EDS: 800 N

**Temperature range**
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

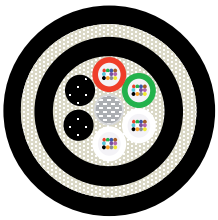
| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Single-mode E 9 OS2** | | | | | |
| 26640912 | HITRONIC® HQA800 6x2E 9/125 OS2 | 9/125 OS2 | 12 | 9.7 | 73 |
| 26640924 | HITRONIC® HQA800 6x4E 9/125 OS2 | 9/125 OS2 | 24 | 9.7 | 73 |
| 26640948 | HITRONIC® HQA800 6x8E 9/125 OS2 | 9/125 OS2 | 48 | 10.9 | 92 |
| 26640972 | HITRONIC® HQA800 6x12E 9/125 OS2 | 9/125 OS2 | 72 | 10.9 | 94 |
| 26640996 | HITRONIC® HQA800 8x12E 9/125 OS2 | 9/125 OS2 | 96 | 12.4 | 121 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

# HITRONIC® HQA-Plus Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes, non-metallic strain relief and PE inner and outer sheath; ADSS cable type





**Info**

- ADSS - All Dielectric Self Supporting
- For harsh weather conditions

## Benefits

- Designed to withstand harsh weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For long span widths
- Hanging on poles
- For outdoor use
- Laying on poles
- Installation on building columns

## Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 250m

## Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE inner and outer sheaths
- Colour: black (RAL 9005)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A-DQ2Y(ZN)2Y ADSS
All-Dielectric Self-Supporting

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
MAT: 8000 N
EDS: 3200 N

**Temperature range**
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Single-mode E 9 OS2** | | | | | |
| 26644912 | HITRONIC® HQA-Plus3200 6x2E 9/125 OS2 | 9/125 OS2 | 12 | 12.8 | 132 |
| 26644924 | HITRONIC® HQA-Plus3200 6x4E 9/125 OS2 | 9/125 OS2 | 24 | 12.8 | 132 |
| 26644948 | HITRONIC® HQA-Plus3200 6x8E 9/125 OS2 | 9/125 OS2 | 48 | 13.7 | 151 |
| 26644972 | HITRONIC® HQA-Plus3200 6x12E 9/125 OS2 | 9/125 OS2 | 72 | 13.7 | 153 |
| 26644996 | HITRONIC® HQA-Plus3200 8x12E 9/125 OS2 | 9/125 OS2 | 96 | 15.3 | 188 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

# HITRONIC® HUN Universal Cable

Universal cable with central loose tube and non-metallic strain relief



## Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free
- Rodent-protection

## Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey

## Info

- CPR: Article number choice under www.lapp.com
- For indoor and outdoor use

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-DQ(ZN)BH
U-DQ(ZN)BH

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 1500 N
Short-term: 2000 N

**Temperature range**
Fixed installation: -30°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 27400404 | HITRONIC® HUN1500 4G 50/125 OM4 | 50/125 OM4 | 4 | 7.3 | 53 |
| 27400408 | HITRONIC® HUN1500 8G 50/125 OM4 | 50/125 OM4 | 8 | 7.3 | 53 |
| 27400412 | HITRONIC® HUN1500 12G 50/125 OM4 | 50/125 OM4 | 12 | 7.3 | 53 |
| 27400424 | HITRONIC® HUN1500 24G 50/125 OM4 | 50/125 OM4 | 24 | 8.3 | 60 |
| **Multimode G 50 OM3** | | | | | |
| 27400304 | HITRONIC® HUN1500 4G 50/125 OM3 | 50/125 OM3 | 4 | 7.3 | 53 |
| 27400308 | HITRONIC® HUN1500 8G 50/125 OM3 | 50/125 OM3 | 8 | 7.3 | 53 |
| 27400312 | HITRONIC® HUN1500 12G 50/125 OM3 | 50/125 OM3 | 12 | 7.3 | 53 |
| 27400324 | HITRONIC® HUN1500 24G 50/125 OM3 | 50/125 OM3 | 24 | 8.3 | 60 |
| **Multimode G 50 OM2** | | | | | |
| 27400204 | HITRONIC® HUN1500 4G 50/125 OM2 | 50/125 OM2 | 4 | 7.3 | 53 |
| 27400208 | HITRONIC® HUN1500 8G 50/125 OM2 | 50/125 OM2 | 8 | 7.3 | 53 |
| 27400212 | HITRONIC® HUN1500 12G 50/125 OM2 | 50/125 OM2 | 12 | 7.3 | 53 |
| 27400224 | HITRONIC® HUN1500 24G 50/125 OM2 | 50/125 OM2 | 24 | 8.3 | 60 |
| **Multimode G 62.5 OM1** | | | | | |
| 27400104 | HITRONIC® HUN1500 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 7.3 | 53 |
| 27400108 | HITRONIC® HUN1500 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 7.3 | 53 |
| 27400112 | HITRONIC® HUN1500 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 7.3 | 53 |
| 27400124 | HITRONIC® HUN1500 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 8.3 | 60 |
| **Single-mode E 9 OS2** | | | | | |
| 27400904 | HITRONIC® HUN1500 4E 9/125 OS2 | 9/125 OS2 | 4 | 7.3 | 53 |
| 27400908 | HITRONIC® HUN1500 8E 9/125 OS2 | 9/125 OS2 | 8 | 7.3 | 53 |
| 27400912 | HITRONIC® HUN1500 12E 9/125 OS2 | 9/125 OS2 | 12 | 7.3 | 53 |
| 27400924 | HITRONIC® HUN1500 24E 9/125 OS2 | 9/125 OS2 | 24 | 8.3 | 60 |

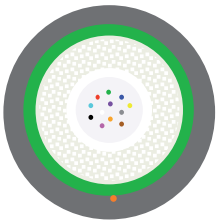
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

# HITRONIC® HUW Armoured Universal Cable

Universal cable with central loose tube, corrugated steel tape and non-metallic strain relief for applications with extended mechanical stress





## Info

- CPR: Article number choice under www.lapp.com
- For indoor and outdoor use
- Cable with corrugated steel tape (CST) for increased mechanical stress

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Primary coated fibre: 250µm
Cable: see table

**Core identification code**
Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
A/J-DQ(ZN)(SR)H
U-DQ(ZN)(SR)H

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**
Fixed installation: 1500 N
Short-term: 2000 N

**Temperature range**
Fixed installation: -30°C to +70°C

## Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Water-resistant

## Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## Product features

- Outer sheath flame-retardant and halogen-free
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection

## Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH outer sheath
- Colour: green (based on RAL 6018)

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 27500404 | HITRONIC® HUW1500 4G 50/125 OM4 | 50/125 OM4 | 4 | 9.6 | 88 |
| 27500408 | HITRONIC® HUW1500 8G 50/125 OM4 | 50/125 OM4 | 8 | 9.6 | 88 |
| 27500412 | HITRONIC® HUW1500 12G 50/125 OM4 | 50/125 OM4 | 12 | 9.6 | 88 |
| 27500424 | HITRONIC® HUW1500 24G 50/125 OM4 | 50/125 OM4 | 24 | 9.6 | 88 |
| **Multimode G 50 OM3** | | | | | |
| 27500304 | HITRONIC® HUW1500 4G 50/125 OM3 | 50/125 OM3 | 4 | 9.6 | 88 |
| 27500308 | HITRONIC® HUW1500 8G 50/125 OM3 | 50/125 OM3 | 8 | 9.6 | 88 |
| 27500312 | HITRONIC® HUW1500 12G 50/125 OM3 | 50/125 OM3 | 12 | 9.6 | 88 |
| 27500324 | HITRONIC® HUW1500 24G 50/125 OM3 | 50/125 OM3 | 24 | 9.6 | 88 |
| **Multimode G 50 OM2** | | | | | |
| 27500204 | HITRONIC® HUW1500 4G 50/125 OM2 | 50/125 OM2 | 4 | 9.6 | 88 |
| 27500208 | HITRONIC® HUW1500 8G 50/125 OM2 | 50/125 OM2 | 8 | 9.6 | 88 |
| 27500212 | HITRONIC® HUW1500 12G 50/125 OM2 | 50/125 OM2 | 12 | 9.6 | 88 |
| 27500224 | HITRONIC® HUW1500 24G 50/125 OM2 | 50/125 OM2 | 24 | 9.6 | 88 |
| **Multimode G 62.5 OM1** | | | | | |
| 27500104 | HITRONIC® HUW1500 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 9.6 | 88 |
| 27500108 | HITRONIC® HUW1500 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 9.6 | 88 |
| 27500112 | HITRONIC® HUW1500 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 9.6 | 88 |
| 27500124 | HITRONIC® HUW1500 24G 62.5/125 OM1 | 62.5/125 OM1 | 24 | 9.6 | 88 |
| **Single-mode E 9 OS2** | | | | | |
| 27500904 | HITRONIC® HUW1500 4E 9/125 OS2 | 9/125 OS2 | 4 | 9.6 | 88 |
| 27500908 | HITRONIC® HUW1500 8E 9/125 OS2 | 9/125 OS2 | 8 | 9.6 | 88 |
| 27500912 | HITRONIC® HUW1500 12E 9/125 OS2 | 9/125 OS2 | 12 | 9.6 | 88 |
| 27500924 | HITRONIC® HUW1500 24E 9/125 OS2 | 9/125 OS2 | 24 | 9.6 | 88 |

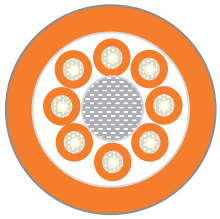
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

EtherNet/IP

# HITRONIC® HRH Breakout Cable

Divisible breakout cable for direct connector assembly; J-V(ZN)HH



## Info

- CPR: Article number choice under www.lapp.com
- Breakout cable for direct connector assembly

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
tight-buffer (secondary coated fibre): 900µm
sub-cable: 2.1mm

**Core identification code**
Sub-cable: with black numbers

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
J-V(ZN)HH

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -20°C to +70°C

## Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

## Product features

- Installation cable with up to 12 Simplex cables
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

## Product Make-up

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: violet for OM4, aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1, yellow for Single-mode

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **Multimode G 50 OM4** | | | | | |
| 26000402 | HITRONIC HRH400 2G 50/125 OM4 | 50/125 OM4 | 2 | 7 | 35 |
| 26000404 | HITRONIC HRH600 4G 50/125 OM4 | 50/125 OM4 | 4 | 7 | 44 |
| 26000408 | HITRONIC HRH1200 8G 50/125 OM4 | 50/125 OM4 | 8 | 9.7 | 77 |
| 26000412 | HITRONIC HRH1700 12G 50/125 OM4 | 50/125 OM4 | 12 | 10.3 | 100 |
| **Multimode G 50 OM3** | | | | | |
| 26000302 | HITRONIC® HRH400 2G 50/125 OM3 | 50/125 OM3 | 2 | 7 | 35 |
| 26000304 | HITRONIC® HRH600 4G 50/125 OM3 | 50/125 OM3 | 4 | 7 | 44 |
| 26000308 | HITRONIC® HRH1200 8G 50/125 OM3 | 50/125 OM3 | 8 | 9.7 | 77 |
| 26000312 | HITRONIC® HRH1700 12G 50/125 OM3 | 50/125 OM3 | 12 | 10.3 | 100 |
| **Multimode G 50 OM2** | | | | | |
| 26000202 | HITRONIC® HRH400 2G 50/125 OM2 | 50/125 OM2 | 2 | 7 | 35 |
| 26000204 | HITRONIC® HRH600 4G 50/125 OM2 | 50/125 OM2 | 4 | 7 | 44 |
| 26000208 | HITRONIC® HRH1200 8G 50/125 OM2 | 50/125 OM2 | 8 | 9.7 | 77 |
| 26000212 | HITRONIC® HRH1700 12G 50/125 OM2 | 50/125 OM2 | 12 | 10.3 | 100 |
| **Multimode G 62.5 OM1** | | | | | |
| 26000102 | HITRONIC® HRH400 2G 62.5/125 OM1 | 62.5/125 OM1 | 2 | 7 | 35 |
| 26000104 | HITRONIC® HRH600 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 7 | 44 |
| 26000108 | HITRONIC® HRH1200 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 9.7 | 77 |
| 26000112 | HITRONIC® HRH1700 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 10.3 | 100 |
| **Single-mode E 9 OS2** | | | | | |
| 26000902 | HITRONIC® HRH400 2E 9/125 OS2 | 9/125 OS2 | 2 | 7 | 35 |
| 26000904 | HITRONIC® HRH600 4E 9/125 OS2 | 9/125 OS2 | 4 | 7 | 44 |
| 26000908 | HITRONIC® HRH1200 8E 9/125 OS2 | 9/125 OS2 | 8 | 9.7 | 77 |
| 26000912 | HITRONIC® HRH1700 12E 9/125 OS2 | 9/125 OS2 | 12 | 10.3 | 100 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with multi-mode OM4 fibres
(outer sheath colour violet).

EtherNet/IP

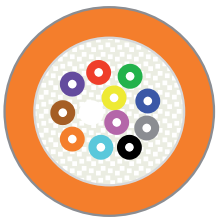
# HITRONIC® HDH Mini-Breakout Cable

Divisible indoor cable (distribution-style) with LSZH outer sheath, halogenfree; J-V(ZN)HH

**Info**

- CPR: Article number choice under www.lapp.com
- Mini breakout/distribution cable for direct connector assembly



## Benefits

- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Universal cable for cabling of buildings
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

## Product features

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded fibres
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

## Product Make-up

- Tight-buffered fibres
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1
- Available on request: single-mode OS2 (yellow) and multimode OM4 (violet)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
tight-buffer (secondary coated fibre): 900µm
Cable: see table

**Core identification code**
Buffered-Fibre colour code see data sheet

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
J-V(ZN)H

**Optical values**
see data sheet

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

**Temperature range**
Fixed installation: -20°C to +70°C

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® HDH Mini-Breakout Cable** | | | | | |
| 26010402 | HITRONIC HDH 2G 50/125 OM4 | 50/125 OM4 | 2 | 6 | 34 |
| 26010404 | HITRONIC HDH 4G 50/125 OM4 | 50/125 OM4 | 4 | 6.3 | 37 |
| 26010408 | HITRONIC HDH 8G 50/125 OM4 | 50/125 OM4 | 8 | 7.5 | 57 |
| 26010412 | HITRONIC HDH 12G 50/125 OM4 | 50/125 OM4 | 12 | 8.3 | 69 |
| **Multimode G 50 OM3** | | | | | |
| 26010302 | HITRONIC® HDH 2G 50/125 OM3 | 50/125 OM3 | 2 | 6 | 34 |
| 26010304 | HITRONIC® HDH 4G 50/125 OM3 | 50/125 OM3 | 4 | 6.3 | 37 |
| 26010308 | HITRONIC® HDH 8G 50/125 OM3 | 50/125 OM3 | 8 | 7.5 | 57 |
| 26010312 | HITRONIC® HDH 12G 50/125 OM3 | 50/125 OM3 | 12 | 8.3 | 69 |
| **Multimode G 50 OM2** | | | | | |
| 26010202 | HITRONIC® HDH 2G 50/125 OM2 | 50/125 OM2 | 2 | 6 | 34 |
| 26010204 | HITRONIC® HDH 4G 50/125 OM2 | 50/125 OM2 | 4 | 6.3 | 37 |
| 26010208 | HITRONIC® HDH 8G 50/125 OM2 | 50/125 OM2 | 8 | 7.5 | 57 |
| 26010212 | HITRONIC® HDH 12G 50/125 OM2 | 50/125 OM2 | 12 | 8.3 | 69 |
| **Multimode G 62.5 OM1** | | | | | |
| 26010102 | HITRONIC® HDH 2G 62.5/125 OM1 | 62.5/125 OM1 | 2 | 6 | 34 |
| 26010104 | HITRONIC® HDH 4G 62.5/125 OM1 | 62.5/125 OM1 | 4 | 6.3 | 37 |
| 26010108 | HITRONIC® HDH 8G 62.5/125 OM1 | 62.5/125 OM1 | 8 | 7.5 | 57 |
| 26010112 | HITRONIC® HDH 12G 62.5/125 OM1 | 62.5/125 OM1 | 12 | 8.3 | 69 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

# HITRONIC® GOF cables for PROFINET Applications

Glass Optical Fibre as duplex fibre cable version with PUR sheath or LSZH compound for PROFINET applications type B or C





**Info**

- PROFINET compliant - Type B or Type C
- CPR: Article number choice under www.lapp.com

**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**
Buffered Fibre: 2.9 mm
Cable: see table

**Core identification code**
Black, orange (with arrow printing)

**Standard designation**
J-V(ZN)HH

**Permissible bending radius**
Without tensile load
15 x outer diameter
With tensile load 20 x outer diameter

**Temperature range**
Fixed installation: -20°C to +70°C

## Benefits

- With non-metallic aramid yarns for strain relief
- Easy to handle
- No intereference by external fields
- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire.
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

## Application range

- PROFINET type B: for fixed laying
- PROFINET type C: For flexible applications (cable chains)
- PROFINET type C: Design allows rotations with torsion angles of up to ± 180°/m.
- For structured building cabling in the secondary and tertiary sector, according to
- EN 50173 and ISO/IEC 11801
- For fixed and protected installation in installation ducts, on cable trays, in the riser zone, in hollow ceilings and floors, as well as for short distances
- Can be used in dry rooms
- The outer sheath of the product and inner sheaths of both individual cables are made of halogen-free LSZH compound

## Norms

- Flame-retardant acc. to IEC 60332-1-2
- Halogen-free acc to IEC 60754-1 & IEC 60754-2
- Low smoke density acc. to IEC 61034-1 & IEC 61034-2

## Product Make-up

- Glass optical fiber
- 2 tight-buffered simplex units enclosed
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath materfial PUR or LSZH
- Outer sheath colour: green (RAL 6018)

| Article number | Article designation | Fibre type | Number of fibres | Outer diameter [mm] | Weight (kg/km) |
|---|---|---|---|---|---|
| **HITRONIC® GOF DUPLEX PNB** | | | | | |
| 28052003 | HITRONIC® GOF DUPLEX PNB 2G 62,5/125 OM1 | 62,5/125 OM1 | 2 | 9.2 | 72 |
| 28052004 | HITRONIC® GOF DUPLEX PNB 2G 50/125 OM2 | 50/125 OM2 | 2 | 9.2 | 72 |
| 28052005 | HITRONIC® GOF DUPLEX PNB 2G 50/125 OM3 | 50/125 OM3 | 2 | 9.2 | 72 |
| 28052006 | HITRONIC® GOF DUPLEX PNB 2E 9/125 OS2 | 9/125 OS2 | 2 | 9.2 | 72 |
| **HITRONIC® GOF DUPLEX PNC** | | | | | |
| 28052007 | HITRONIC® GOF DUPLEX PNC 2G 62,5/125 OM1 | 62,5/125 OM1 | 2 | 8.8 | 70 |
| 28052008 | HITRONIC® GOF DUPLEX PNC 2G 50/125 OM2 | 50/125 OM2 | 2 | 8.8 | 70 |
| 28052009 | HITRONIC® GOF DUPLEX PNC 2G 50/125 OM3 | 50/125 OM3 | 2 | 8.8 | 70 |
| 28052010 | HITRONIC® GOF DUPLEX PNC 2E 9/125 OS2 | 9/125 OS2 | 2 | 8.8 | 70 |

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please fi nd our standard lengths at: www.lapp.com
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# GOF DUPLEX Patchcord

Optical patch cords with various types of connectors available in single-mode or multi-mode fibre version

**Info**

- Pre-assembled duplex tight-buffered optical fibre cables with durable ceramic ferrule connectors
- Other types are available at www.lapp.com or on request



OM4 OM3 OM2/OM1 OS2

## Benefits

- To connect optical transmitter, receiver and terminal box
- “Plug & Play” connection between optical devices
- Non-permanent connections allow for easy change of equipment
- For direct connection between two active optical components

## Application range

- For indoor use
- LAN connections
- Data Centers
- Distributor cabinet

## Product features

- Outer sheath flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Pre-assembled connectors:
  -Low insertion loss
  -High return loss

## Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- FC complies with IEC61754-13

## Product Make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour:
  violet for multimode OM4,
  turquoise for multimode OM3,
  orange for multimode OM2 and OM1,
  yellow for single-mode OS2
- Standard length: 2 m
- On request: 1 m, 3 m, 5 m and 10 m

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001263
ETIM 5.0/6.0 Class-Description: Fibre optic patch cord

**Dimensions**
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm
sub-cable: 1.9mm

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
J-VH 2x1G/E...

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible bending radius**
Static: ≥ 30 mm
Dynamic: ≥ 40 mm

**Permissible tensile force**
Fixed installation: 100 N

**Temperature range**
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

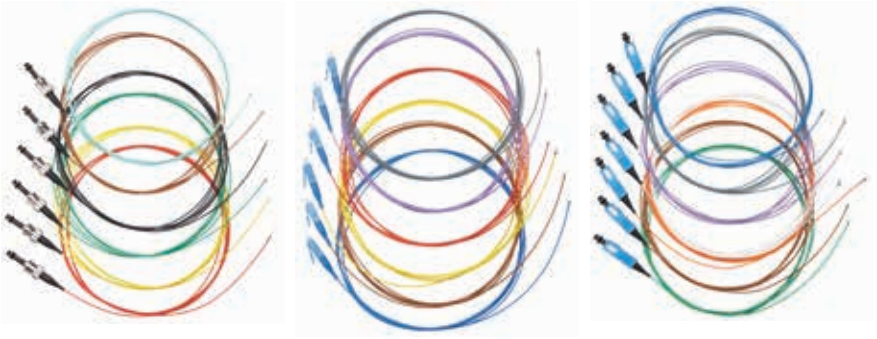
| Article number | Article designation | PU |
|---|---|---|
| **Multimode G 50 OM4** | | |
| 29011402 | GOF Duplex Patchcord SC/SC G50 OM4, 2m | 1 piece |
| 29021402 | GOF Duplex Patchcord ST/SC G50 OM4, 2m | 1 piece |
| 29022402 | GOF Duplex Patchcord ST/ST G50 OM4, 2m | 1 piece |
| 29031402 | GOF Duplex Patchcord LC/SC G50 OM4, 2m | 1 piece |
| 29032402 | GOF Duplex Patchcord LC/ST G50 OM4, 2m | 1 piece |
| 29033402 | GOF Duplex Patchcord LC/LC G50 OM4, 2m | 1 piece |
| 29044402 | GOF Duplex Patchcord FC/FC G50 OM4, 2m | 1 piece |
| **Multimode G 50 OM3** | | |
| 29011302 | GOF Duplex Patchcord SC/SC G50 OM3, 2m | 1 piece |
| 29021302 | GOF Duplex Patchcord ST/SC G50 OM3, 2m | 1 piece |
| 29022302 | GOF Duplex Patchcord ST/ST G50 OM3, 2m | 1 piece |
| 29031302 | GOF Duplex Patchcord LC/SC G50 OM3, 2m | 1 piece |
| 29032302 | GOF Duplex Patchcord LC/ST G50 OM3, 2m | 1 piece |
| 29033302 | GOF Duplex Patchcord LC/LC G50 OM3, 2m | 1 piece |
| 29044302 | GOF Duplex Patchcord FC/FC G50 OM3, 2m | 1 piece |
| **Multimode G 50 OM2** | | |
| 29011202 | GOF Duplex Patchcord SC/SC G50 OM2, 2m | 1 piece |
| 29021202 | GOF Duplex Patchcord ST/SC G50 OM2, 2m | 1 piece |
| 29022202 | GOF Duplex Patchcord ST/ST G50 OM2, 2m | 1 piece |
| 29031202 | GOF Duplex Patchcord LC/SC G50 OM2, 2m | 1 piece |
| 29032202 | GOF Duplex Patchcord LC/ST G50 OM2, 2m | 1 piece |
| 29033202 | GOF Duplex Patchcord LC/LC G50 OM2, 2m | 1 piece |
| 29044202 | GOF Duplex Patchcord FC/FC G50 OM2, 2m | 1 piece |
| **Multimode G 62.5 OM1** | | |
| 29011102 | GOF Duplex Patchcord SC/SC G62.5, 2m | 1 piece |
| 29021102 | GOF Duplex Patchcord ST/SC G62.5, 2m | 1 piece |
| 29022102 | GOF Duplex Patchcord ST/ST G62.5, 2m | 1 piece |
| 29031102 | GOF Duplex Patchcord LC/SC G62.5, 2m | 1 piece |
| 29032102 | GOF Duplex Patchcord LC/ST G62.5, 2m | 1 piece |
| 29033102 | GOF Duplex Patchcord LC/LC G62.5, 2m | 1 piece |
| 29044102 | GOF Duplex Patchcord FC/FC G62.5, 2m | 1 piece |
| **Single-mode E 9 OS2** | | |
| 29011902 | GOF Duplex Patchcord SC/SC E9 OS2, 2m | 1 piece |
| 29021902 | GOF Duplex Patchcord ST/SC E9 OS2, 2m | 1 piece |
| 29022902 | GOF Duplex Patchcord ST/ST E9 OS2, 2m | 1 piece |
| 29031902 | GOF Duplex Patchcord LC/SC E9 OS2, 2m | 1 piece |
| 29032902 | GOF Duplex Patchcord LC/ST E9 OS2, 2m | 1 piece |
| 29033902 | GOF Duplex Patchcord LC/LC E9 OS2, 2m | 1 piece |
| 29033802 | GOF DUPLEX Patchcord LC/LC 9/125 APC, 2m | 1 piece |
| 29039902 | GOF DUPLEX Patchcord LC/SC-APC E9 OS2, 2m | 1 piece |

Other lengths and types of connectors are available with minimum quanity of 50 pcs.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

# GOF SIMPLEX Pigtail

12x assorted colour coded pigtails with various types of connectors (LC, ST, LC) with Singlemode OS2 and Multimode OM1, OM2, OM3, OM4 fibres



ST LC SC

**Info**

- Pre-assembled simplex tight-buffered optical fibre with a durable ceramic ferrule connector

## Benefits

- Ease of installation and assembly
- Create a direct plug connection for installation cables with splicing
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## Application range

- For indoor use
- Connection to an end optical device

## Product features

- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails (red, green, blue, yellow, white, gray, brown, violet, turquoise, black, orange, pink)

## Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

## Product Make-up

- Tight buffered simplex fibres
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000748
ETIM 5.0/6.0 Class-Description: Pigtail

**Dimensions**
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm

**Fibre type**
GOF - Glass Optical Fibre

**Standard designation**
J-VH 1G/E...

**Optical fibre type**
Core material: glass
Cladding material: glass

**Permissible tensile force**
Fixed installation: 100 N

**Temperature range**
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

| Article number | Article designation | PU |
|---|---|---|
| **Multimode G 50 OM4** | | |
| 29310402 | GOF Simplex Pigtail SC G50 OM4, 2m | 12 piece |
| 29320402 | GOF Simplex Pigtail ST G50 OM4, 2m | 12 piece |
| 29330402 | GOF Simplex Pigtail LC G50 OM4, 2m | 12 piece |
| **Multimode G 50 OM3** | | |
| 29310302 | GOF Simplex Pigtail SC G50 OM3, 2m | 12 piece |
| 29320302 | GOF Simplex Pigtail ST G50 OM3, 2m | 12 piece |
| 29330302 | GOF Simplex Pigtail LC G50 OM3, 2m | 12 piece |
| **Multimode G 50 OM2** | | |
| 29310202 | GOF Simplex Pigtail SC G50 OM2, 2m | 12 piece |
| 29320202 | GOF Simplex Pigtail ST G50 OM2, 2m | 12 piece |
| 29330202 | GOF Simplex Pigtail LC G50 OM2, 2m | 12 piece |
| **Multimode G 62.5 OM1** | | |
| 29310102 | GOF Simplex Pigtail SC G62.5, 2m | 12 piece |
| 29320102 | GOF Simplex Pigtail ST G62.5, 2m | 12 piece |
| 29330102 | GOF Simplex Pigtail LC G62.5, 2m | 12 piece |
| **Single-mode E 9 OS2** | | |
| 29310902 | GOF Simplex Pigtail SC E9 OS2, 2m | 12 piece |
| 29320902 | GOF Simplex Pigtail ST E9 OS2, 2m | 12 piece |
| 29330902 | GOF Simplex Pigtail LC E9 OS2, 2m | 12 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# GOF Connector

Accessories for glass optical fibre cable, connector types LC, SC, ST and FC



LC



SC





FC

## Benefits

- Ideal for assembling
- For assembly process: cable preparation/ glueing/crimping/polishing
- Assembly instructions can be found in the GOF assembly toolbox (not included in Lapp product range)
- Trained optical installers should be used in all connector assembly

## Application range

- For connector assemblies in production or laboratory environment

## Product features

- Connector sets include all needed parts for assembly

## Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

## Product Make-up

- Ferrule diameter:
  LC: 1.25mm (zirconia)
  SC, ST: 2.5mm (zirconia)
- Can be assembled with cables of 1.7mm-2.1mm diameter
- LC and SC connector sets available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

**Permissible tensile force**
Tensile load 70N
Tensile strength after assembly
> 100N

**Temperature range**
Operating
LC: -40°C to 75°C
SC: -40°C to 75°C
ST: -40°C to 85°C
Humidity 95%
Flammability UL 94 V-0

| Article number | Article designation | PU |
|---|---|---|
| **Singlemode** | | |
| 29110999 | GOF Connector SC Single-mode Blue /4PC | 4 piece |
| 29110998 | GOF Connector SC Single-mode Blue /50PC | 50 piece |
| 29110989 | GOF Connector SC Single-mode APC Green/ 4PC | 4 piece |
| 29110988 | GOF Connector SC Single-mode APC Green/ 50PC | 50 piece |
| 29130999 | GOF Connector LC Single-mode Blue /4PC | 4 piece |
| 29130998 | GOF Connector LC Single-mode Blue /50PC | 50 piece |
| 29130989 | GOF Connector LC Single-mode APC GR /4PC | 4 piece |
| 29130988 | GOF Connector LC Single-mode APC GR/50PC | 50 piece |
| 29120999 | GOF Connector ST Single-mode /4PC | 4 piece |
| 29120998 | GOF Connector ST Single-mode /50PC | 50 piece |
| 29140999 | GOF Connector FC Single-mode /4PC | 4 piece |
| **Multimode** | | |
| 29110199 | GOF Connector SC Multimode Beige /4PC | 4 piece |
| 29110198 | GOF Connector SC Multimode Beige /50PC | 50 piece |
| 29130199 | GOF Connector LC Multimode Beige /4PC | 4 piece |
| 29130198 | GOF Connector LC Multimode Beige /50PC | 50 piece |
| 29130197 | GOF Stecker LC Multimode BE-BK /50ST | 50 piece |
| 29120199 | GOF Connector ST Multimode /4PC | 4 piece |
| 29120198 | GOF Connector ST Multimode /50PC | 50 piece |
| 29140199 | GOF Connector FC Multimode /4PC | 4 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# GOF Adapters

Accessories for glass optical fibre cable, adapters for connector types LC, SC and ST






## Product features

- The couplings connect the glass fibre connectors with the same or different connector types.

## Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- Comply with IEC, EIA/TIA standards

## Product Make-up

- Zirconia sleeves
- LC and SC adapters available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description:
Fibre optic coupler

**Attenuation**
Attenuation (dB) < 0.2
Repeatability
1000 cycles (dB) < 0.2

**Temperature range**
Operating
LC, ST, SC: -40° up to +85°C
Humidity 95%
Flammability UL 94 V-0

| Article number | Article designation | PU |
|---|---|---|
| **Singlemode** | | |
| 29410999 | GOF Adapter Duplex SC Single-mode Blue /4PC | 4 piece |
| 29410989 | GOF Adapter Duplex SC Single-mode APC Green /4PC | 4 piece |
| 29430999 | GOF Adapter Duplex LC Single-mode Blue /4PC | 4 piece |
| 29430989 | GOF Adapter Duplex LC Single-mode APC Green /4PC | 4 piece |
| 29420999 | GOF Adapter Simplex ST(BFOC) Single-mode /4PC | 4 piece |
| 29421999 | GOF Adapter Duplex ST-SC Single-mode /4PC | 4 piece |
| **Multimode** | | |
| 29410199 | GOF Adaper Duplex SC Multimode Beige /4PC | 4 piece |
| 29430199 | GOF Adaper Duplex LC Multimode Beige /4PC | 4 piece |
| 29420199 | GOF Adapter Simplex ST(BFOC) Multimode /4PC | 4 piece |
| 29421199 | GOF Adaper Duplex ST-SC Multimode /4PC | 4 piece |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA FFC-LC Assembly accessories

Spare components for EPIC® DATA FFC-LC starter kit, for easy assembly of FFC-LC connectors



**Info**

- Easy handling of Kevlar® fibres

## Benefits

- Assembly accessories as useful equipment for easy assembly of Fibre Fast Connect LC connectors for GOF fibre optic cables
- Cable assembly set for secure insertion of the glass fibre into the connector and for simplified attachment of the strain relief by fastening the aramide fibres on the side
- Cable clamps for securing cables with diameters of 2 or 3 mm
- Fibre guide for secure insertion of the glass fibre into the connector and for attachment of the strain relief by manually fastening the aramide fibres
- Precise identification of the offset dimensions on the core using the markings on the fibre guide

## Application range

- For field assembly of Fibre Fast Connect LC connectors for GOF fibre optic cables
- Can be used as replacement components for the EPIC® DATA FFC-LC starter kit

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Article number | Name | Product type | Assembly type | Fibre optic cable type | Type of plug connection |
|---|---|---|---|---|---|
| 38115783 | FFC-LC-CABLE-ASSEMBLY-SET | Fibre optic cable assembly accessories | Direct assembly | GOF | LC |
| 38115785 | FFC-LC-FIBRE-GUIDE | Fibre optic cable assembly accessories | Direct assembly | GOF | LC |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA FFC-SC Assembly accessories

Spare components for EPIC® DATA FFC-SC starter kit, for easy assembly of FFC-SC connectors



**Info**

- Easy handling of Kevlar® fibres

## Benefits

- Assembly accessories as useful equipment for easy assembly of Fibre Fast Connect SC connectors for GOF fibre optic cables
- Cable assembly set for secure insertion of the glass fibre into the connector and for simplified attachment of the strain relief by fastening the aramide fibres on the side
- Cable clamps for securing cables with diameters of 2 or 3 mm
- Fibre guide for secure insertion of the glass fibre into the connector and for attachment of the strain relief by manually fastening the aramide fibres
- Precise identification of the offset dimensions on the core using the markings on the fibre guide

## Application range

- For field assembly of Fibre Fast Connect SC connectors for GOF fibre optic cables
- Can be used as replacement components for the EPIC® DATA FFC-SC starter kit

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Article number | Name | Product type | Assembly type | Fibre optic cable type | Type of plug connection |
|---|---|---|---|---|---|
| 38115784 | FFC-SC-CABLE-ASSEMBLY-SET | Fibre optic cable assembly accessories | Direct assembly | GOF | SC |
| 38115786 | FFC-SC-FIBRE-GUIDE | Fibre optic cable assembly accessories | Direct assembly | GOF | SC |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA FFC-LC starter kit
# EPIC® DATA FFC-SC starter kit

Starter kit with field-configurable Fibre Fast Connect LC/SC connectors, fibre separator and fibre guide; available with or without cable assembly set





**Info**

- Easy handling of Kevlar® fibres

## Benefits

- Starter kit as basic equipment with field-configurable Fibre Fast Connect connectors, fibre separator and fibre guide
- Highly precise fibre separator (cleaver) for shortening the glass fibres by means of a straight cut (PC) or slanting cut (UPC/APC). This achieves ideal return loss values
- The maintenance-free cleaver can be used up to 200 times and has a mechanical, visually readable counter
- The fibre clamp is used to hold the core in place and prevent the glass fibre from being pulled back
- With a red marking on the fibre clamp for an exact offset of the glass fibre
- Available with different cut types (APC, UPC or PC)
- Available in different GOF fibre categories (OM3/OM4 and OS2)
- Available as a set in the cable variant (diameter 2 or 3 mm) or core variant (diameter 0.25 or 0.90 mm)
- Available as a variant with or without cable assembly set

## Application range

- For creating a pluggable glass fibre connection
- For field assembly of Fibre Fast Connect LC/SC connectors for GOF fibre optic cables

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Article number | Name | Polishing description | Grinding contact surface | Optical cable, fibre category | Pieces / PU | Bending protection |
|---|---|---|---|---|---|---|
| **LC** | | | | | | |
| 38115789 | FFC-LC-APC-OS2-0.25/0.9-20PCS-AS | angled physical contact | APC | OS2 | 20 | Anti-kink sleeve for fibre assembly |
| 38115790 | FFC-LC-APC-OS2-2/3-20PCS-AS | angled physical contact | APC | OS2 | 20 | Anti-kink sleeve for cable assembly |
| 38115791 | FFC-LC-UPC-OS2-0.25/0.9-20PCS-AS | ultra physical contact | UPC | OS2 | 20 | Anti-kink sleeve for fibre assembly |
| 38115792 | FFC-LC-UPC-OS2-2/3-20PCS-AS | ultra physical contact | UPC | OS2 | 20 | Anti-kink sleeve for cable assembly |
| 38115837 | FFC-LC-PC-OM3/OM4-0.25/0.9-20PCS-AS | physical contact | PC | OM3/4 | 20 | Anti-kink sleeve for fibre assembly |
| 38115838 | FFC-LC-PC-OM3/OM4-2/3-20PCS-AS | physical contact | PC | OM3/4 | 20 | Anti-kink sleeve for cable assembly |
| **SC** | | | | | | |
| 38115793 | FFC-SC-APC-OS2-0.25/0.9-20PCS-AS | angled physical contact | APC | OS2 | 20 | Anti-kink sleeve for fibre assembly |
| 38115794 | FFC-SC-APC-OS2-2/3-20PCS-AS | angled physical contact | APC | OS2 | 20 | Anti-kink sleeve for cable assembly |
| 38115795 | FFC-SC-UPC-OS2-0.25/0.9-20PCS-AS | ultra physical contact | UPC | OS2 | 20 | Anti-kink sleeve for fibre assembly |
| 38115796 | FFC-SC-UPC-OS2-2/3-20PCS-AS | ultra physical contact | UPC | OS2 | 20 | Anti-kink sleeve for cable assembly |
| 38115839 | FFC-SC-PC-OM3/OM4-0.25/0.9-20PCS-AS | physical contact | PC | OM3/4 | 20 | Anti-kink sleeve for fibre assembly |
| 38115840 | FFC-SC-PC-OM3/OM4-2/3-20PCS-AS | physical contact | PC | OM3/4 | 20 | Anti-kink sleeve for cable assembly |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA FFC Connectors

Field-configurable LC/SC connector for GOF fibre optic cables, available in different variants from the FFC system for simple and fast on-site assembly



LC Connector

SC Connector

## Benefits

- The field-configurable LC/SC connectors for GOF fibre optic cables are prepared and tested at the factory so they are ready for on- site assembly
- FFC (Fibre Fast Connect) system for simple and fast assembly, even in restricted spaces. Complex process steps, special tools and a laboratory environment for assembly are no longer required
- With refraction index gel for constant and excellent optical values
- Serial numbers on the individual connectors ensure complete traceability.
- Connectors can be assembled up to 3 times, making them flexible to use
- Connector faces of the SC connector in accordance with DIN EN IEC 61754-4
- Connector faces of the LC connector in accordance with DIN EN IEC 61754-20.
- Available with different cut types (APC, UPC or PC)
- Available in different GOF fibre categories (OM3/OM4 and OS2)
- Available as a set in the cable variant (diameter 2 or 3 mm) or core variant (diameter 0.25 or 0.90 mm)

## Application range

- For creating a pluggable glass fibre connection
- For use in backbone network areas
- For cabling buildings and data centres
- For use in control cabinets
- For use with the EPIC® DATA FFC-SC assembly accessories and the EPIC® DATA FFC-SC starter kit
- For use with the EPIC® DATA FFC-LC assembly accessories and the EPIC® DATA FFC-LC starter kit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

**Temperature range**
Operating temperature: –25 °C to +70°C
Storage: –25 °C to +70 °C

| Article number | Name | Polishing description | Grinding contact surface | Optical cable, fibre category | Pieces / PU | Bending protection |
|---|---|---|---|---|---|---|
| **LC** | | | | | | |
| 38115797 | FFC-LC-APC-OS2-0.25/0.9-10PCS | angled physical contact | APC | OS2 | 10 | Anti-kink sleeve for fibre assembly |
| 38115798 | FFC-LC-APC-OS2-2/3-10PCS | angled physical contact | APC | OS2 | 10 | Anti-kink sleeve for cable assembly |
| 38115799 | FFC-LC-UPC-OS2-0.25/0.9-10PCS | ultra physical contact | UPC | OS2 | 10 | Anti-kink sleeve for fibre assembly |
| 38115800 | FFC-LC-UPC-OS2-2/3-10PCS | ultra physical contact | UPC | OS2 | 10 | Anti-kink sleeve for cable assembly |
| 38115833 | FFC-LC-PC-OM3/4-0.25/0.9-10PCS | physical contact | PC | OM3/4 | 10 | Anti-kink sleeve for fibre assembly |
| 38115834 | FFC-LC-PC-OM3/4-2/3-10PCS | physical contact | PC | OM3/4 | 10 | Anti-kink sleeve for cable assembly |
| **SC** | | | | | | |
| 38115801 | FFC-SC-APC-OS2-0.25/0.9-10PCS | angled physical contact | APC | OS2 | 10 | Anti-kink sleeve for fibre assembly |
| 38115802 | FFC-SC-APC-OS2-2/3-10PCS | angled physical contact | APC | OS2 | 10 | Anti-kink sleeve for cable assembly |
| 38115803 | FFC-SC-UPC-OS2-0.25/0.9-10PCS | ultra physical contact | UPC | OS2 | 10 | Anti-kink sleeve for fibre assembly |
| 38115804 | FFC-SC-UPC-OS2-2/3-10PCS | ultra physical contact | UPC | OS2 | 10 | Anti-kink sleeve for cable assembly |
| 38115835 | FFC-SC-PC-OM3/4-0.25/0.9-10PCS | physical contact | PC | OM3/4 | 10 | Anti-kink sleeve for fibre assembly |
| 38115836 | FFC-SC-PC-OM3/4-2/3-10PCS | physical contact | PC | OM3/4 | 10 | Anti-kink sleeve for cable assembly |

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# HITRONIC® FO tool kit

Complete tool kit for preparing GOF fibre optic cables and connectors; with tools and cleaning agents and other accessories available individually



## Benefits

- All common tools and cleaning agents as well as the necessary accessories for preparing GOF fibre optic cables and connectors under one article number
- Aramide shears with special cutting edge for easy cutting of aramide fibres
- Compact red light source with clearly visible light for continuity testing of fibre optic cables and for optical break or fault identification
- Fibre stripping pliers with die for common diameters for stripping the individual layers of the fibres
- Lint-free cleaning cloths and cleaning agents with a practical 3-way dispenser for simple and thorough cleaning of the fibres
- Tweezers and container for safe collection and storage of fibre residues
- Ferrule cleaner for safe and easy cleaning of 1.25 mm and 2.5 mm ferrules. Can be used for up to 800 cleaning operations
- Cleaning cartridge for removing dirt from the connector end surfaces with automatic feed after cleaning
- Stocked tool bag with an adjustable hip belt for optimum carrying comfort and several inner compartments for plenty of storage space

## Application range

- For the correct assembly and installation of Fibre Fast Connect connectors on GOF fibre optic cables
- Tool bag only available fully filled Consumables can be re-purchased individually

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

| Articl number | Name | Product type |
|---|---|---|
| 38115778 | FO-TOOL-KIT | FOC tool bag |
| 38115779 | FO-CLEANING-WIPES | FOC cleaning clothes |
| 38115780 | FO-CLEANING-LIQUID | FOC cleaning fluid |
| 38115781 | FO-ARAMID-SCISSORS | FOC aramid shears |
| 38115782 | FO-GOF-STRIPPING-TOOL | FOC fibre stripping tool |
| 38115787 | FO-FERRULE-CLEANER-LC/MU | FOC ferrule cleaner |
| 38115788 | FO-FERRULE-CLEANER-SC/ST/FC/E2000 | FOC ferrule cleaner |
| 38115841 | FO-CONNECTOR-CLEANER | FOC connector cleaner |
| 38115842 | FO-CONNECTOR-CLEANER-REPLACEMENT | FOC connector cleaner spare cartridge |
| 38115859 | FO-RED-LIGHT-SOURCE | FOC red light source |

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# Splice Box Compact

## Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Includes distributor plate for 8 ST couplings
- Includes distributor plate for 4 SC duplex couplings
- Dimensions (WxHxD): 265 x 150 x 55 mm
- Colour: light grey (RAL 7035)

## Technical data

ETIM

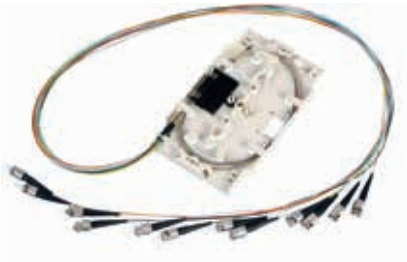
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic



| Article number | Article designation | PU |
|---|---|---|
| **Splice Box Compact** | | |
| CE9147 | Splice Box Compact | 1 piece |

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# Accessories for splice boxes and wall-mounted rack



## Product features

- Splicing cassette for up to 2 splicing protection holders
- Cover for splicing cartridge
- 12-fold splicing protection holder
- Splicing protection sleeve for ANT splicing device
- Blind cap instead of E2000 coupling
- Blind cap instead of ST coupling
- Dummy cap instead of SC duplex coupling

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001123
ETIM 5.0/6.0 Class-Description: Splice protection

| Article number | Article designation | PU |
|---|---|---|
| **Accessories for splice boxes and wall-mounted rack** | | |
| CE9914 | Splicing cassette for up to 2 splicing protection holders | 1 piece |
| CE9914D | Cover for splicing cartridge | 1 piece |
| CE9916 | 12-fold splicing protection holder | 1 piece |
| CE9913 | Splicing protection sleeve for ANT splicing device | 15 pieces |
| CE9918 | Blind cap instead of ST coupling | 10 pieces |
| CE9919 | Blind cap instead of SC duplex coupling | 10 pieces |

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PROFINET

# HITRONIC® SBX

Industrial splice boxes for splicing fibre optic cables

**Info**

- For different connector types in singlemode and multimode versions




## Product features

- Mounting type on contract rail: TH35
- Three different cable inlets and positions on contract rail possible
- Available in 6x and 12x duplex adapter
- Plastic or metal version
- SC-RJ variants are suitable for PROFINET® applications

## Technical data

**Dimensions**
Cable entry: M20 for 6-13 mm
Width: 35 mm
Height: 125 mm
Depth: 140 mm

**Material**
Housing / front plate: steel, galvanized, powder-coated, light gray RAL 7035
DIN rail adapter: nickel-plated sheet steel

**Protection rating**
IP20

**Temperature range**
Operation: -5°C to +55°C

| Article number | Article designation | Housing material | Colour | PU |
|---|---|---|---|---|
| **Multimode G50 OM4** | | | | |
| 29500792 | HITRONIC SBX 12xST-D MT PG150 G50 OM4 | metal | | 1 piece |
| 29500796 | HITRONIC SBX 12xSC-D VT PG150 G50 OM4 | plastic | violet | 1 piece |
| 29500805 | HITRONIC SBX 12xLC-D VT PG150 G50 OM4 | plastic | violet | 1 piece |
| 29500777 | HITRONIC SBX 6xST-D MT PG150 G50 OM4 | metal | | 1 piece |
| 29500782 | HITRONIC SBX 6xSC-D VT PG150 G50 OM4 | plastic | violet | 1 piece |
| 29500788 | HITRONIC SBX 6XSC-RJ BG PG150 G50 OM4 | plastic | beige | 1 piece |
| 29500801 | HITRONIC SBX 6xLC-D VT PG150 G50 OM4 | plastic | violet | 1 piece |
| **Multimode G50 OM3** | | | | |
| 29500791 | HITRONIC SBX 12xST-D MT PG150 G50 OM3 | metal | | 1 piece |
| 29500795 | HITRONIC SBX 12xSC-D TQ PG150 G50 OM3 | plastic | turquoise | 1 piece |
| 29500804 | HITRONIC SBX 12xLC-D TQ PG150 G50 OM3 | plastic | turquoise | 1 piece |
| 29500776 | HITRONIC SBX 6xST-D MT PG150 G50 OM3 | metal | | 1 piece |
| 29500781 | HITRONIC SBX 6xSC-D TQ PG150 G50 OM3 | plastic | turquoise | 1 piece |
| 29500787 | HITRONIC SBX 6XSC-RJ BG PG150 G50 OM3 | plastic | beige | 1 piece |
| 29500800 | HITRONIC SBX 6xLC-D TQ PG150 G50 OM3 | plastic | turquoise | 1 piece |
| **Multimode G50 OM2** | | | | |
| 29500790 | HITRONIC SBX 12xST-D MT PG150 G50 OM2 | metal | | 1 piece |
| 29500794 | HITRONIC SBX 12xSC-D BG PG150 G50 OM2 | plastic | beige | 1 piece |
| 29500803 | HITRONIC SBX 12xLC-D BG PG150 G50 OM2 | plastic | beige | 1 piece |
| 29500775 | HITRONIC SBX 6xST-D MT PG150 G50 OM2 | metal | | 1 piece |
| 29500780 | HITRONIC SBX 6xSC-D BG PG150 G50 OM2 | plastic | beige | 1 piece |
| 29500786 | HITRONIC SBX 6XSC-RJ BG PG150 G50 OM2 | plastic | beige | 1 piece |
| 29500799 | HITRONIC SBX 6xLC-D BG PG150 G50 OM2 | plastic | beige | 1 piece |
| **Multimode G62,5 OM1** | | | | |
| 29500774 | HITRONIC SBX 6xST-D MT PG150 G62.5 OM1 | metal | | 1 piece |
| 29500785 | HITRONIC SBX 6XSC-RJ BG PG150 G62.5 OM1 | plastic | beige | 1 piece |
| 29500798 | HITRONIC SBX 6xLC-D BG PG150 G62.5 OM1 | plastic | beige | 1 piece |
| 29500799 | HITRONIC SBX 6XSC-D BG PG150 G62.5 OM1 | plastic | beige | 1 piece |
| **Singlemode E9/125 OS2** | | | | |
| 29500793 | HITRONIC SBX 12xST-D MT PG150 E9 OS2 | metal | | 1 piece |
| 29500797 | HITRONIC SBX 12xSC-D BL PG150 E9 OS2 | plastic | blue | 1 piece |
| 29500806 | HITRONIC SBX 12xLC-D BL PG150 E9 OS2 | plastic | blue | 1 piece |
| 29500778 | HITRONIC SBX 6xST-D MT PG150 E9 OS2 | metal | | 1 piece |
| 29500783 | HITRONIC SBX 6xSC-D BL PG150 E9 OS2 | plastic | blue | 1 piece |
| 29500784 | HITRONIC SBX 6xSC-D MT PG150 E9 OS2 | metal | | 1 piece |
| 29500789 | HITRONIC SBX 6XSC-RJ BL PG150 E9 OS2 | plastic | blue | 1 piece |
| 29500802 | HITRONIC SBX 6xLC-D BL PG150 E9 OS2 | plastic | blue | 1 piece |

Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request.Judy Lim:This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® DATA TS

Din rail adapter for optical fibre



## Product features

- Directly mountable on carrier acc. to DIN 50022 in industrial environment
- Available for breakout cables with clutch SC Simplex, SC-RJ and LC duplex
- Labeling for better identification
- Easy to install with srewdriver
- Suitable for GOF singlemode and multimode fibers
- Ideal for the industry due to it's compact design
- Colour: grey (RAL 7035)
- Material housing: PC-GFIO
- Loading force ≥ 100 N
- Extraction force: ≥ 40 N

## Info

- Mountable carrier

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

**Protection rating**
IP 20

**Temperature range**
-10 to + 60°C (operation)

| Article number | Article designation | PU |
|---|---|---|
| **EPIC® DATA TS** | | |
| 29500762 | EPIC DATA TS GOF LC-D MM | 1 piece |
| 29500763 | EPIC DATA TS GOF LC-D SM | 1 piece |
| 29500760 | EPIC DATA TS GOF SC MM | 1 piece |
| 29500761 | EPIC DATA TS GOF SC SM | 1 piece |

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5

# EPIC®

## Industrial connectors

EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

**Application range**

- Electronics and telecommunications
- Measurement, testing and control technology
- Industrial machinery and appliances
- Drive technology and industrial automation
- Photovoltaic plants

## Rectangular connectors

**EPIC® H-A Inserts**
EPIC® H-A 3 Screw termination 583
EPIC® H-A 4 Screw termination 583
EPIC® H-A 3 584
EPIC® H-A 4 585
EPIC® H-A 003 CL 586
EPIC® H-A 004 CL 587
EPIC® H-A 10 588
EPIC® H-A 16 588
EPIC® H-A 10 589
EPIC® H-A 16 590
EPIC® H-A 32 591
EPIC® H-A 48 591
EPIC® H-A 32 592
**EPIC® STA Inserts**
EPIC® STA 6 Screw termination 593
EPIC® STA 6 Solder termination 593
**EPIC® H-Q Inserts**
EPIC® H-Q 2 Axial screw termination 594
EPIC® H-Q 5 595
EPIC® H-Q 7 596
EPIC® H-Q 12 597
**EPIC® H-D Inserts**
EPIC® H-D 7 machined 598
EPIC® H-D 7 stamped 598
EPIC® H-D 8 599
EPIC® H-D 15 machined 600
EPIC® H-D 15 stamped 600
EPIC® H-D 25 machined 601
EPIC® H-D 25 stamped 601
EPIC® H-D 40 machined 602
EPIC® H-D 40 stamped 602
EPIC® H-D 64 machined 603
EPIC® H-D 64 stamped 603
EPIC® H-D 7 machined 604
EPIC® H-D 8 605
EPIC® H-D 15 machined 606
EPIC® H-D 25 machined 607
EPIC® H-D 40 machined 608
EPIC® H-D 64 machined 609
**EPIC® H-DD Inserts**
EPIC® H-DD 24 610
EPIC® H-DD 42 610
EPIC® H-DD 72 611
EPIC® H-DD 108 611
EPIC® H-DD 24 612
EPIC® H-DD 42 613
EPIC® H-DD 72 614
EPIC® H-DD 108 615
**EPIC® H-BE Inserts**
EPIC® H-BE 6 Screw termination 616
EPIC® H-BE 6 Crimp termination 616
EPIC® H-BE 6 Cage clamp 616
EPIC® H-BE 6 Push-In termination 616
EPIC® H-BE 10 Screw termination 618
EPIC® H-BE 10 Crimp termination 618
EPIC® H-BE 10 Cage clamp 618
EPIC® H-BE 10 Push-In termination 618
EPIC® H-BE 16 Screw termination 620
EPIC® H-BE 16 Crimp termination 620
EPIC® H-BE 16 Cage clamp 620
EPIC® H-BE 16 Push-In termination 620
EPIC® H-BE 24 Screw termination 622
EPIC® H-BE 24 Crimp termination 622
EPIC® H-BE 24 Cage clamp 622
EPIC® H-BE 24 Push-In termination 622
EPIC® H-BE 6 Screw termination 624
EPIC® H-BE 10 Screw termination 625
EPIC® H-BE 16 Screw termination 626
EPIC® H-BE 24 Screw termination 627
EPIC® H-BE 32 Screw termination 628
**EPIC® H-EE Inserts**
EPIC® H-EE 10 629
EPIC® H-EE 18 629
EPIC® H-EE 32 630
EPIC® H-EE 46 630
EPIC® H-EEE 40 631
EPIC® H-EEE 64 631
**EPIC® H-BS Inserts**
EPIC® H-BSS 4 632
EPIC® H-BS 4 633
EPIC® H-BS 6 634
EPIC® H-BS 6 635
EPIC® H-BS 12 635
**EPIC® H-BVE Inserts**
EPIC® H-BVE 3 636
EPIC® H-BVE 6 636
EPIC® H-BVE 10 636
**H-S Inserts**
Power H-S 637
**EPIC® K-Inserts**
EPIC® K 4/0 638
EPIC® Power K 4/2 639
EPIC® K 4/8 640
EPIC® H-K 8/24 641
EPIC® H-K 4/4 642
EPIC® H-K 6/6 643
EPIC® H-K 6/12 644
EPIC® H-K 6/36 645
EPIC® H-K 12/2 646
EPIC® H-K 6/6 647
EPIC® H-K 8/0 648
**EPIC® TB-H-BE Terminal adapter**
EPIC® TB-H-BE 16 650
EPIC® TB-H-BE 24 650
**EPIC® MH modular system module**
EPIC® MH 1 250A 651
EPIC® MH 1 PE 250A 651
EPIC® MH 2 100A 652
EPIC® MH 2 40A 653
EPIC® MH 3 654
EPIC® MH 4 655
EPIC® MH 6 656
EPIC® MH 8 657
EPIC® MH 12 658
EPIC® MH 17 659
EPIC® MH 20 660
EPIC® MH 36 661
EPIC® MH LWL Modul LC 662
EPIC® MH Gigabit Modul 663
EPIC® MH BUS 664
EPIC® MH Bus PIN 1x(4) contact holder 664
EPIC® MH Coax 1.6mm 665
EPIC® MH Coax 2.5mm 665
EPIC® MH Potential set 666
EPIC® MH 0 blind modul 667
**EPIC® MH Modular System frame**
EPIC® MH 6 multi frame 668
EPIC® MH 10 multi frame 668
EPIC® MH 16 multi frame 668
EPIC® MH 24 multi frame 668
EPIC® MH Clip 668
**EPIC® MC Modules**
EPIC® MC module: HC1+PE 670
EPIC® MC module: HC2 670
Power module: HC2 671
Power module: HHC2 671
Power module: HHC1 671
EPIC® MC module: HC3 672
EPIC® MC module: HC4+PE 673
EPIC® MC Module: 3 pole 673
EPIC® MC Module: HE 4 pole 673
EPIC® MC Module: 5 pole 674
EPIC® MC Module: 10pole 674
EPIC® MC Module: 10pole stamped 675
EPIC® MC Module: 20pole 675
EPIC® MC Dummy Module 675
EPIC® MC Module: Koax 3 pole 676
EPIC® MC Module: PROFIBUS DP 676
EPIC® MC Module: RJ45 677
EPIC® MC Module Pneumatic 1 pole 679
EPIC® MC Module Pneumatic 2 pole 679
EPIC® MC Module removal tool 680
**EPIC® MCR Frames**
EPIC® MCR 6 681
EPIC® MCR 10 681
EPIC® MCR 16 681
EPIC® MCR 24 681
**EPIC® MH Modular System contacts and accessories**
EPIC® MH 1.0mm contacts machined 682
**EPIC® Contacts + tools**
EPIC® M-D 1.0 D-Sub stamped contacts-on-reel 683
EPIC® Tools for M-D 1,0 D-Sub contacts-on-reel stamped 684
EPIC® H-D 1.6 machined contacts 685
EPIC® Tools for contacts H-D 1.6 machined 685
EPIC® H-D 1.6 stamped contacts 686
EPIC® Tools for contacts H-D 1.6 stamped 686
EPIC® H-D 1.6 stamped contacts-on-reel 687
EPIC® Tools for contacts-on-reel H-D 1.6 stamped 687
EPIC® H-BE 2.5 machined contacts 688
EPIC® Tools for contacts H-BE 2.5 machined 688
EPIC® MC 2.5 machined contacts 689
EPIC® Tools for contacts MC 2.5 machined 689
EPIC® MC 2.5 stamped contacts 690
EPIC® Tools for contacts MC 2.5 stamped 690
EPIC® MC 2.5 stamped contacts-on-reel 691
EPIC® Tools for contacts-on-reel MC 2.5 stamped 691

EPIC® MC 3.6 machined contacts 692
EPIC® Tools for contacts MC 3.6 machined 692
EPIC® MC 3.6 machined contacts 16 mm² 693
**EPIC® MH Modular System contacts and accessories**
EPIC® MH 4.0mm Contacts 694
EPIC® MH tools for 4.0 mm contacts 694
**EPIC® Contacts + tools**
MC 6.0 machined contacts 695
EPIC® MH 8.0mm Contacts 695
**EPIC® MH Modular System contacts and accessories**
EPIC® TOOL DIE 8.0mm 696
EPIC® MH contact removal tool 8.0mm 696
EPIC® MH 10.0mm Contacts 697
EPIC® MH PE 10.0mm Contacts 697
**EPIC® Contacts + tools**
MC 10.0 machined contacts 698
EPIC® MC Coax-Contacts 699
EPIC® Tools for contacts MC Coax 699
**EPIC® ULTRA H-A 3**
EPIC® ULTRA H-A 3 TG 700
EPIC® ULTRA H-A 3 TS 700
EPIC® ULTRA H-A 3 TBF 700
EPIC® ULTRA H-A 3 AG 701
EPIC® ULTRA H-A 3 AGS 701
EPIC® ULTRA H-A 3 AGSV open 701
EPIC® ULTRA H-A 3 AGSV 701
EPIC® ULTRA H-A 3 EGS 701
**EPIC® H-A 3 Housings**
EPIC® H-A 3 Hood and cable coupler hood 703
EPIC® H-A 3 Panel-mount- and surface-mount base 704
EPIC® H-A 3 MEG 705
**EPIC® H-A 10 Housings**
EPIC® H-A 10 Hood and cable coupler hood 706
EPIC® H-A 10 Panel-mount- and surface-mount base 707
**EPIC® H-A 16 Housings**
EPIC® H-A 16 Hood and cable coupler hood 708
EPIC® H-A 16 Panel-mount- and surface-mount base 709
**EPIC® ULTRA H-B 6**
EPIC® ULTRA H-B 6 TG LB 710
EPIC® ULTRA H-B 6 TS LB 710
EPIC® ULTRA H-B 6 AG LB 711
EPIC® ULTRA H-B 6 SGR LB 711
**EPIC® H-B 6 Housings**
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EPIC® H-B 6 Panel-mount- and surface-mount base 713
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## Solar connectors

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## Battery connectors

**EPIC® BATTERY**
EPIC® BATTERY M 800
EPIC® BATTERY F 801



## EPIC® rectangular connectors

Flexible, robust connectors for
mechanical engineering



The connector system for mechanical and plant engineering and wherever a robust connection system is required. EPIC® rectangular connectors are available as components. The right connector for any application can be tailor-made from housings, inserts and contacts.

For the housing, there are two performance classes to choose from
- EPIC® Standard is robust and there is a flexible choice of cable entries
- EPIC® ULTRA has a high corrosion protection, EMC protection as well as a stainless steel interlocking device

EPIC® inserts are available in a fixed pin design and as a modular system
- EPIC® fixed pin inserts are easy to handle and come in a wide variety of designs
- EPIC® modular inserts offer flexibility with modules for data, signals, power, fibre optics and pneumatics. This means every insert is tailor-made for the relevant module configuration

## EPIC® circular connectors

Compact connectors for motion control
and energy transfer



Circular connectors come in two designs: a signal design with gold-plated contacts for transmitting delicate signals and as high-reserve power connectors.

EPIC® SIGNAL connectors are available as M17, M23 and R3.0 (M27)
- The metal housing with an integrated EMC screen contact reliably prevents electromagnetic interference
- Gold-plated signal contacts ensure reliable transmissions with the lowest of currents and voltages

EPIC® POWER connectors are available as
M12, M17, LS1 (M23), LS1.5 (M40) and LS3 (M58)
- The integrated EMC cable glands offer strain relief and are perfectly sealed
- High-quality sealing materials for good chemical protection

EPIC® POWERLOCK
- Perfect for transmitting very high currents
- Colour-coded and geometrically coded in order to prevent incorrect connections



## EPIC® SOLAR 4 GEN2

Long-life PV connector for photovoltaic systems

- 1,500 V system voltage for modern photovoltaic plants with huge power outputs
- Crimp connection from 4 $mm^2$ up to 10 $mm^2$ for reliable and durable field mounting
- Reliable connection, can only be unlocked with a tool
- TÜV certified

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## EPIC® H-A 3 Screw termination

H-A inserts with screw termination up to 2.5 mm² wire cross section

**Info**

- Small power connector for single- or three-phase current
- Easy to assemble due to straight entry of conductors
- Railway applications



## EPIC® H-A 4 Screw termination

H-A inserts with screw termination up to 2.5 mm² wire cross section

**Info**

- Insert for three-phase current application with neutral conductor
- Easy to assemble due to straight entry of conductors
- Railway applications



### Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

### Benefits

- The small H-A 3 / H-A 4 are used whenever there is minimal space.
- Easy to service screw connection
- Easy cable connection with strait cable entry in the contacts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

### Application range

- Machine and equipment manufacturing
- Control engineering
- Apparatus construction
- Railway applications / vehicle construction

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 23 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® H-A 3**
3 + PE
**EPIC® H-A 4**
4 + PE

**Termination methods**
Screw termination: 0.5 - 2.5 mm²
(2.5 mm² with conductor end sleeves depending on the crimping profile)

**Stripping length (mm)**
6

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **H-A 3 screw termination** | | | | |
| 10420000 | H-A 3 SS | male | 1 - 3 | 10 |
| 10421000 | H-A 3 BS | female | 1 - 3 | 10 |
| **H-A 4 screw termination** | | | | |
| 10431000 | H-A 4 SS | male | 1 - 4 | 10 |
| 10432000 | H-A 4 BS | female | 1 - 4 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 3

H-A inserts with screw termination up to 2.5 mm² wire cross section





**Info**

- Small power connector for single- or three-phase current
- Easy to assemble due to straight of conductors

## Suitable housing

- EPIC® ULTRA H-A 3
- EPIC® H-A 3

## Benefits

- The small H-A 3 / H-A 4 are used whenever there is minimal space
- Easy to service screw connection
- Easy cable connection with strait cable entry in the contacts

## Application range

- Machine and equipment manufacturing
- Control engineering
- Apparatus construction
- Vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 230 V / 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
3 + PE

**Termination methods**
Screw termination: 1.0 - 2.5 mm²

**Stripping length (mm)**
6

**Cycle of mechanical operation**
> 500

**UL-tested**
UL File Number: E75770

**Temperature range**
-40°C to +100°C, short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-A 3** | | | | |
| 381167223 | EPIC® H-A 003 MS | male | 1 - 3 | 5 |
| 381167224 | EPIC® H-A 003 FS | female | 1 - 3 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 4

H-A inserts with screw termination up to 2.5 mm² wire cross section

**Info**

- Insert for three-phase current application with neutral conductort
- Easy to assemble due to straight conductor entry



## Suitable housing

- EPIC® ULTRA H-A 3
- EPIC® H-A 3

## Benefits

- The small H-A 3 / H-A 4 are used whenever there is minimal space
- Easy to service screw connection
- Easy cable connection with strait cable entry in the contacts

## Application range

- Machine and equipment manufacturing
- Control engineering
- Apparatus construction
- Vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 230 V / 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
4 + PE

**Termination methods**
Screw termination: 1.0 - 2.5 mm²

**Stripping length (mm)**
6

**Cycle of mechanical operation**
500

**UL-tested**
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C, short-term up to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-A 4** | | | | |
| 381167225 | EPIC® H-A 004 MS | male | 1 - 4 | 5 |
| 381167226 | EPIC® H-A 004 FS | female | 1 - 4 | 5 |

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# EPIC® H-A 003 CL

H-A inserts with cage clamp termination up to 2.5 mm² wire cross section





## Benefits

- Easy to assemble due to straight conductor entry
- Cage clamp connection allows assembly without special tools and creates a vibration-proof connection between contact and cable. Strands can be connected with or without end sleeves
- Made of robust plastic (flammability class V-0 according to UL94 test method for the flammability of plastics)
- Designed for use where space is limited thanks to small size
- UL certification according to technical data enables the use of the product in the North American region

## Application range

- For power supply connection of devices and machines in various applications
- For use with EPIC® H-A 3 series housings
- Suitable for outdoor use, taking into account the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 230 V / 400 V
UL: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 1 mOhm

**Contacts**
Silver-plated brass

**Number of contacts**
3 + PE

**Termination methods**
age clamp termination:
0.14 - 2.5 mm²
Cage clamp termination: 26 - 14 AWG

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to + 125°C

| Article number | Article description | Contact type | Wire protections | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-A 003 CL** | | | | |
| 44424055 | EPIC® H-A 003 M CL | male | yes | 10 |
| 44424056 | EPIC® H-A 003 F CL | female | yes | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

# EPIC® H-A 004 CL

H-A inserts with cage clamp termination up to 2.5 mm² wire cross section



## Benefits

- Easy to assemble due to straight conductor entry
- Cage clamp connection allows assembly without special tools and creates a vibration-proof connection between contact and cable. Strands can be connected with or without end sleeves
- Made of robust plastic (flammability class V-0 according to UL94 test method for the flammability of plastics)
- Designed for use where space is limited thanks to small size
- UL certification according to technical data enables the use of the product in the North American region

## Application range

- For power supply connection of devices and machines in various applications
- For use with EPIC® H-A 3 series housings
- Suitable for outdoor use, taking into account the temperature range

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 230 V / 400 V
UL: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
10 A

**Flammability**
UL94 V-0

**Contact resistance**
< 1 mOhm

**Contacts**
Silver-plated brass

**Number of contacts**
4 + PE

**Termination methods**
Cage clamp termination: 0.14 - 2.5 mm²
Cage clamp termination: 26 - 14 AWG

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Contact type | Wire protection | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-A 004 CL** | | | | |
| 44424057 | EPIC® H-A 004 M CL | male | yes | 10 |
| 44424058 | EPIC® H-A 004 F CL | female | yes | 10 |

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# EPIC® H-A 10

H-A connector insert up to 400V with service friendly screw connection



**Info**

- Higher voltage resistance, 400V in a small space
- Universal for current and voltage transmission

# EPIC® H-A 16

H-A connector insert up to 400V with service friendly screw connection



**Info**

- New higher voltage resistance, 400V in a small space
- Universal for current and voltage transmission

## Suitable housing

**EPIC® H-A 10**
- EPIC® H-A 10
- EPIC® ULTRA H-A 10

**EPIC® H-A 16**
- EPIC® H-A 16
- EPIC® ULTRA H-A 16

## Benefits

- New higher voltage resistance, 400V in a small space
- Slim connector insert for standard application
- Service friendly screw connection for different cross section, PH1 screw heat suitable for electric screwdrivers
- Universal for current and voltage transmission
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Machine and equipment manufacturing
- Control engineering
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 16 A
UL: 14 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® H-A 10**
10 + PE
**EPIC® H-A 16**
16 + PE

**Termination methods**
Screw termination: 0.5 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-A 10 screw termination** | | | | | |
| 10440100 | H-A 10 SS | male | yes | 1 - 10 | 5 |
| 10441100 | H-A 10 BS | female | yes | 1 - 10 | 5 |
| 10440000 | H-A 10 SS | male | | 1 - 10 | 5 |
| 10441000 | H-A 10 BS | female | | 1 - 10 | 5 |
| **H-A 16 screw termination** | | | | | |
| 10530000 | H-A 16 SS | male | yes | 1 - 16 | 5 |
| 10531000 | H-A 16 BS | female | yes | 1 - 16 | 5 |
| 10532000 | H-A 16 SS | male | | 1 - 16 | 5 |
| 10533000 | H-A 16 BS | female | | 1 - 16 | 5 |

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NEW

# EPIC® H-A 10

H-A connector insert with service friendly screw connection

**Info**

- Universal for current and voltage transmission



## Suitable housing

- EPIC® H-A 10

## Similar products

- Further products with higher numbering (H-A 32, H-A 48)

## Benefits

- Slim connector insert for standard application
- Service friendly screw connection for different cross section, PH1 screw heat suitable for electric screwdrivers
- Universal for current and voltage transmission

## Application range

- Machine and equipment manufacturing
- Control engineering
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
10 + PE

**Methods**
Screw termination: 1.0 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonated

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control: VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-A 10** | | | | |
| 381167227 | EPIC® H-A 10 MS | male | 1 - 10 | 5 |
| 381167228 | EPIC® H-A 10 FS | female | 1 - 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 16

H-A connector insert with service friendly screw connection



**Info**

- Universal for current and voltage transmission

## Suitable housing

- EPIC® H-A 16

## Similar products

- Further products with higher numbering (H-A 32, H-A 48)

## Benefits

- Universal for current and voltage transmission
- Slim connector insert for standard application
- Service friendly screw connection for different cross section, PH1 screw heat suitable for electric screwdrivers

## Application range

- Machine and equipment manufacturing
- Control engineering
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
16 + PE

**Termination methods**
Screw termination: 1.0 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonated

**Cycle of mechanical operation**
500

**UL-tested**
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-A 16** | | | |
| 381167230 | male | 1 - 16 | 1 |
| 381167229 | female | 1 - 16 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 32

H-A connector insert up to 400V with service friendly screw connection, numbered 17 - 32

**Info**

- New higher voltage resistance, 400V in a small space
- Universal for current and voltage transmission



# EPIC® H-A 48

H-A connector insert up to 400V with service friendly screw connection, numbered 33 - 48

**Info**

- New higher voltage resistance, 400V in a small space
- Universal for current and voltage transmission



## Suitable housing

- EPIC® H-A 32
- EPIC® H-A 48

## Benefits

- New higher voltage resistance, 400V in a small space
- Slim connector insert for standard application
- Service friendly screw connection for different cross section, PH1 screw heat suitable for electric screwdrivers
- Universal for current and voltage transmission
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Machine and equipment manufacturing
- Control engineering
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 16 A
UL: 14 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
16 + PE

**Termination methods**
Screw termination: 0.5 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-A 32 screw termination** | | | | | |
| 10540000 | H-A 16 SS 17-32 DR PH1 | male | yes | 17 - 32 | 5 |
| 10541000 | H-A 16 BS 17-32 DR PH1 | female | yes | 17 - 32 | 5 |
| 10542000 | H-A 16 SS 17-32 PH1 | male | | 17 - 32 | 5 |
| 10543000 | H-A 16 BS 17-32 PH1 | female | | 17 - 32 | 5 |
| **H-A 48 screw termination** | | | | | |
| 10540100 | H-A 16 SS 33-48 DR PH1 | male | yes | 33 - 48 | 5 |
| 10541100 | H-A 16 BS 33-48 DR PH1 | female | yes | 33 - 48 | 5 |
| 10542100 | H-A 16 BS 33-48 PH1 | male | | 33 - 48 | 5 |
| 10543100 | H-A 16 BS | female | | 33 - 48 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 32

H-A connector insert up to 400V with service friendly screw connection



**Info**

- Universal for current and voltage transmission

## Suitable housing

- EPIC® H-A 32

## Benefits

- Universal for current and voltage transmission
- Slim connector insert for standard application
- Service friendly screw connection for different cross section, PH1 screw heat suitable for electric screwdrivers

## Application range

- Machine and equipment manufacturing
- Control engineering
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Clas s-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
1.5 - 4 mohm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
16 + PE

**Termination methods**
Screw termination: 1.0 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonated

**Cycle of mechanical operation**
500

**UL-tested**
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-A 32** | | | |
| 381167232 | female | 17 - 32 | 1 |
| 381167231 | Pin | 17 - 32 | 1 |

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## EPIC® STA 6 Screw termination

The proven STA inserts with spring contacts

**Info**

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts



## EPIC® STA 6 Solder termination

The proven STA inserts with spring contacts

**Info**

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts



### Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

### Benefits

- Good contact due to the strong contact springs
- The proven STA inserts with spring contacts

### Application range

- Control systems
- Rack technology
- Electronic laboratory

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 24 V AC, 60 V DC
UL: 48 V
CSA: 48 V

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
2

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, tinned

**Number of contacts**
6

**Termination methods**
**EPIC® STA 6 Screw termination**
Screw termination: 0.5 - 1.5 mm²
**EPIC® STA 6 Solder termination**
Solder termination: up to 1.5 mm²

**Stripping length (mm)**
5

**Cycle of mechanical operation**
100

**VDE-tested**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C up to +80°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **STA 6 screw termination** | | | | |
| 10486100 | STA 6 SS | male | 1 - 6 | 10 |
| 10488100 | STA 6 FS | Spring | 1 - 6 | 10 |
| **STA 6 solder termination** | | | | |
| 10485200 | STA 6 SL | male | 1 - 6 | 10 |
| 10487200 | STA 6 FL | Spring | 1 - 6 | 10 |

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# EPIC® H-Q 2 Axial screw termination

Multi-pole insert for small H-A 3 housing, with 2+PE axial screw connection





**Info**

- Compact, powerful standard insert
- Space saving

## Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

## Benefits

- Axial screw terminal technology allows service-friendly connection without special crimping tools, saves costs and is suitable for detachable connections
- Available in variants with a rated voltage of 400 V or 830 V. Article names with the suffix “V” are designed for a rated voltage of 830 V
- Simple cable connection using an Allen key

## Application range

- Machine and equipment manufacturing
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V or 830 V (H-QV)
UL: 400 V or 600 V (H-QV)
CSA: 400 V or 600 V (H-QV)

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 40 A
UL: 40 A
CSA: 40 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 1 mOhm

**Contacts**
Copper alloy, silver-plated

**Number of contacts**
2 + PE

**Termination methods**
Axial screw termination
H-Q 2.1: 2.5 – 6.0 mm²
Axial screw termination
H-Q 2.2: 4 – 10 mm²

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Cross section (mm²) | Pieces / PU |
|---|---|---|---|---|
| **H-Q 2 axial screw termination, 400 V (IEC), 400 V (UL, CSA)** | | | | |
| 10431720 | H-Q 002.1 MAS | male | 2.5 - 6.0 | 5 |
| 10431721 | H-Q 002.2 MAS | male | 4 - 10 | 5 |
| 10431722 | H-Q 002.1 FAS | female | 2.5 - 6.0 | 5 |
| 10431723 | H-Q 002.2 FAS | female | 4 - 10 | 5 |
| **H-QV 2 axial screw termination, 830 V (IEC), 600 V (UL, CSA)** | | | | |
| 10431724 | H-QV 002.1 MAS | male | 2.5 - 6.0 | 5 |
| 10431725 | H-QV 002.2 MAS | male | 4 - 10 | 5 |
| 10431726 | H-QV 002.1 FAS | female | 2.5 - 6.0 | 5 |
| 10431727 | H-QV 002.2 FAS | female | 4 - 10 | 5 |

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# EPIC® H-Q 5

Multi-pole insert for small H-A 3 housing, with 5 working contacts and a screw or crimp PE contact

**Info**

- Compact, powerful standard insert
- Space saving, crimping contact



10431600 10431610

## Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts
- EPIC® H-Q 5 PE protection earth contact

## Benefits

- High performance crimping contacts
- PE contact with screw or crimp connection

## Application range

- Machine and equipment manufacturing
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 30 A
UL: 30 A
CSA: 22 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
5 + PE

**Termination methods**
Crimp termination: 0.14 – 4.0 mm²
PE crimp termination: 0.75 – 4.0 mm²
PE - screw termination: 0.25 - 4.0 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **H-Q 5 crimp termination** | | | | |
| 10431610 | H-Q 5 SC PE-C | male | 1 - 5 | 10 |
| 10432610 | H-Q 5 BC PE-C | female | 1 - 5 | 10 |
| **H-Q 5 with PE screw termination** | | | | |
| 10431600 | H-Q 5 SC PE-S | male | 1 - 5 | 10 |
| 10432600 | H-Q 5 BC PE-S | female | 1 - 5 | 10 |

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# EPIC® H-Q 7

Multi-pole insert for small H-A 3 housing, with 7 working contacts and a screw or crimp PE contact



10431700 10431710

**Info**

- Compact, powerful standard insert
- Space saving, crimping contact

## Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

## Suitable contacts

- EPIC® H-D 1.6 machined contacts
- EPIC® H-Q 5 PE protection earth contact

## Benefits

- High performance crimping contacts
- PE contact with screw or crimp connection

## Application range

- Machine and equipment manufacturing
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
7 + PE

**Termination methods**
Crimp termination: 0.14 – 4.0 mm²
PE crimp termination: 0.75 – 2.5 mm²
PE - screw termination: 0.25 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **H-Q 7 with PE crimp termination** | | | | |
| 10431710 | H-Q 7 SC PE-C | male | 1 - 7 | 10 |
| 10432710 | H-Q 7 BC PE-C | female | 1 - 7 | 10 |
| **H-Q 7 with PE screw termination** | | | | |
| 10431700 | H-Q 7 SC PE-S | male | 1 - 7 | 10 |
| 10432700 | H-Q 7 BC PE-S | female | 1 - 7 | 10 |

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# EPIC® H-Q 12

Multi-pole insert for the small H-A 3 housing



**Info**

- 12 power contacts in confined spaces
- Space saving, crimping contact

## Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- High performance crimping contacts
- PE contact with screw connection

## Application range

- Machine and equipment manufacturing
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 10 A
UL: 14 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
12 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PA Polyamid

**Cycle of mechanical operation**
200

**VDE-tested**
CSA-tested:
CSA File Number: 262771
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +120°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **H-Q 12 Crimp termination** | | | | |
| 44424049 | H-Q 12 SC | male | 1 - 12 | 10 |
| 44424050 | H-Q 12 BC | female | 1 - 12 | 10 |
| 44424071 | H-Q 012/0 MC | male | 1 - 12 | 10 |
| 44424072 | H-Q 012/0 FC | female | 1 - 12 | 10 |

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## EPIC® H-D 7 machined

Multi-pole inserts for machined crimp contacts



**Info**

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool

## EPIC® H-D 7 stamped

Multi-pole inserts for stamped crimp contacts



**Info**

- For automated production with crimping machine
- Space saving, crimping contact
- Suitable for processing with contacts on reel

### Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

### Suitable contacts

**EPIC® H-D 7 machined**

- EPIC® H-D 1.6 machined contacts

**EPIC® H-D 7 stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

### Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

### Application range

- Machine and equipment manufacturing
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 24 V (AC)/60 V (DC) metal housing; 250 V thermoplastic housing;
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
7 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
100

**Certifications**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® H-D 7 machined** | | | | | |
| 11250500 | H-D 7 SCM | male | machined | 1 - 7 | 10 |
| 11251500 | H-D 7 BCM | female | machined | 1 - 7 | 10 |
| **EPIC® H-D 7 stamped** | | | | | |
| 11250000 | H-D 7 SCG | male | stamped | 1 - 7 | 10 |
| 11251000 | H-D 7 BCG | female | stamped | 1 - 7 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 8

Multi-pole inserts for machined crimp contacts



**Info**

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool

## Suitable housing

- EPIC® H-A 3
- EPIC® ULTRA H-A 3

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

## Application range

- Machine and equipment manufacturing
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 24 V (AC)/60 V (DC) metal housing; 250 V thermoplastic housing;
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
8

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
100

**Certifications**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 8** | | | | |
| 11252500 | H-D 8 SCM | male | 1 - 8 | 10 |
| 11253500 | H-D 8 BCM | female | 1 - 8 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-D 15 machined

Multi-pole inserts for machined crimp contacts



**Info**

- For machined contacts for fast processing with the crimping tool

## EPIC® H-D 15 stamped

Multi-pole inserts for stamped crimp contacts



**Info**

- For automated production with crimping machine
- Suitable for processing with contacts on reel

### Suitable housing

- EPIC® H-A 10

### Suitable contacts

**EPIC® H-D 15 machined**

- EPIC® H-D 1.6 machined contacts

**EPIC® H-D 15 stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

### Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

### Application range

- Machine and equipment manufacturing
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
15 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**Certifications**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® H-D 15 machined** | | | | | |
| 11283200 | H-D 15 SCM | male | machined | 1 - 15 | 5 |
| 11282200 | H-D 15 BCM | female | machined | 1 - 15 | 5 |
| **EPIC® H-D 15 stamped** | | | | | |
| 11255000 | H-D 15 SCG | male | stamped | 1 - 15 | 5 |
| 11256000 | H-D 15 BCG | female | stamped | 1 - 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-D 25 machined

Multi-pole inserts for machined crimp contacts

**Info**

- For machined contacts for fast processing with the crimping tool



## EPIC® H-D 25 stamped

Multi-pole inserts for stamped crimp contacts

**Info**

- For automated production with crimping machine
- Suitable for processing with contacts on reel



### Suitable housing

- EPIC® H-A 16

### Suitable contacts

**EPIC® H-D 25 machined**

- EPIC® H-D 1.6 machined contacts

**EPIC® H-D 25 stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

### Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

### Application range

- Machine and equipment manufacturing
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
25 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**Certifications**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® H-D 25 machined** | | | | | |
| 11283300 | H-D 25 SCM | male | machined | 1 - 25 | 5 |
| 11282300 | H-D 25 BCM | female | machined | 1 - 25 | 5 |
| **EPIC® H-D 25 stamped** | | | | | |
| 11260000 | H-D 25 SCG | male | stamped | 1 - 25 | 5 |
| 11261000 | H-D 25 BCG | female | stamped | 1 - 25 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 40 machined

Multi-pole inserts for machined crimp contacts





**Info**

- For machined contacts for fast processing with the crimping tool

# EPIC® H-D 40 stamped

Multi-pole inserts for stamped crimp contacts





**Info**

- For automated production with crimping machine
- Suitable for processing with contacts on reel

## Suitable housing

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

## Suitable contacts

**EPIC® H-D 40 machined**

- EPIC® H-D 1.6 machined contacts

**EPIC® H-D 40 stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Plant engineering
- Light & sound technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
40 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® H-D 40 machined** | | | | | |
| 11265200 | H-D 40 SCM | male | machined | 1 - 40 | 10 |
| 11266200 | H-D 40 BCM | female | machined | 1 - 40 | 10 |
| **EPIC® H-D 40 stamped** | | | | | |
| 11265000 | H-D 40 SCG | male | stamped | 1 - 40 | 5 |
| 11266000 | H-D 40 BCG | female | stamped | 1 - 40 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 64 machined

Multi-pole inserts for machined crimp contacts

**Info**

- For machined contacts for fast processing with the crimping tool



# EPIC® H-D 64 stamped

Multi-pole inserts for stamped crimp contacts

**Info**

- For automated production with crimping machine
- Suitable for processing with contacts on reel



## Suitable housing

- EPIC® H-B 24
- EPIC® ULTRA H-B 24
- EPIC® QUICK & EASY Mounting system

## Suitable contacts

**EPIC® H-D 64 machined**

- EPIC® H-D 1.6 machined contacts

**EPIC® H-D 64 stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Plant engineering
- Light & sound technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
64 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® H-D 64 machined** | | | | | |
| 11272000 | H-D 64 SCM | male | machined | 1 - 64 | 10 |
| 11273000 | H-D 64 BCM | female | machined | 1 - 64 | 10 |
| **EPIC® H-D 64 stamped** | | | | | |
| 11270000 | H-D 64 SCG | male | stamped | 1 - 64 | 5 |
| 11271000 | H-D 64 BCG | female | stamped | 1 - 64 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 7 machined

Multi-pole inserts for machined crimp contacts





**Info**

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool

## Suitable housing

- EPIC® H-A 3

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Small, high-performance connector
- High performance crimping contacts

## Application range

- Machine and equipment manufacturing
- Control engineering

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
7 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 7 machined** | | | | |
| 381167250 | female | machined | 1 - 7 | 5 |
| 381167249 | male | machined | 1 - 7 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 8

Multi-pole inserts for machined crimp contacts

**Info**

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool







## Suitable housing

- EPIC® H-A 3

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Small, high-performance connector
- High performance crimping contacts

## Application range

- Machine and equipment manufacturing
- Control engineering

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 50 V (AC)/120 V (DC) metal housing; 250 V thermoplastic housing;
UL: 50 V; CSA: 50V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
8 + 0 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

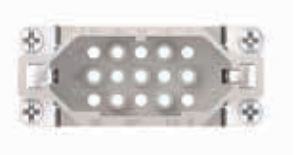
**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 8** | | | | |
| 381167254 | female | machined | 1 - 8 | 5 |
| 381167253 | male | machined | 1 - 8 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 15 machined

Multi-pole inserts for machined crimp contacts


**Info**

- For machined contacts for fast processing with the crimping tool

## Suitable housing

- EPIC® H-A 10

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Machine and equipment manufacturing
- Control engineering

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
15 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 15 machined** | | | | |
| 381167258 | female | machined | 1 - 15 | 1 |
| 381167257 | male | machined | 1 - 15 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 25 machined

Multi-pole inserts for machined crimp contacts

**Info**

- For machined contacts for fast processing with the crimping tool





## Suitable housing

- EPIC® H-A 16

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Machine and equipment manufacturing
- Control engineering

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
25 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 25 machined** | | | | |
| 381167260 | female | machined | 1 - 25 | 1 |
| 381167259 | male | machined | 1 - 25 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 40 machined

Multi-pole inserts for machined crimp contacts





**Info**

- For machined contacts for fast processing with the crimping tool

## Suitable housing

- EPIC® ULTRA H-B 16
- EPIC® H-B 16

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Plant engineering
- Light & sound technology

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
40 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 40 machined** | | | | |
| 381167262 | female | machined | 1 - 40 | 1 |
| 381167261 | male | machined | 1 - 40 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 64 machined

Multi-pole inserts for machined crimp contacts

**Info**

- For machined contacts for fast processing with the crimping tool





## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® H-D 1.6 machined contacts
- EPIC® ULTRA H-B 24
- EPIC® Docking frame
- EPIC® H-B 24

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required

## Application range

- Plant engineering
- Light & sound technology

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 250 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
64 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PBT Polyester

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-D 64 machined** | | | | |
| 381167264 | female | machined | 1 - 64 | 1 |
| 381167263 | male | machined | 1 - 64 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-DD 24

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces



**Info**

- Highest packing density for compact connectors

## EPIC® H-DD 42

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces



**Info**

- Highest packing density for compact connectors

### Suitable housing

**EPIC® H-DD 24**

- EPIC® H-B 6
- EPIC® ULTRA H-B 6
- EPIC® QUICK & EASY Mounting system

EPIC® H-DD 42

- EPIC® H-B 10
- EPIC® ULTRA H-B 10
- EPIC® QUICK & EASY Mounting system

### Suitable contacts

- EPIC® H-D 1.6 machined contacts

### Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

### Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 8.5 A
CSA: 10 A

**Pollution degree**
2

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
**EPIC® H-DD 24**
24 + PE
**EPIC® H-DD 42**
42 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-DD 24 crimp termination** | | | | | |
| 11285000 | H-DD 24 SCM | male | machined | 1 - 24 | 5 |
| 11286000 | H-DD 24 BCM | female | machined | 1 - 24 | 5 |
| **H-DD 42 crimp termination** | | | | | |
| 11285100 | H-DD 42 SCM | male | machined | 1 - 42 | 5 |
| 11286100 | H-DD 42 BCM | female | machined | 1 - 42 | 5 |

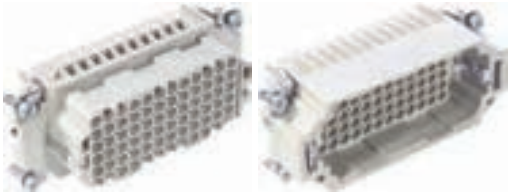
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# EPIC® H-DD 72

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces

**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 144 available

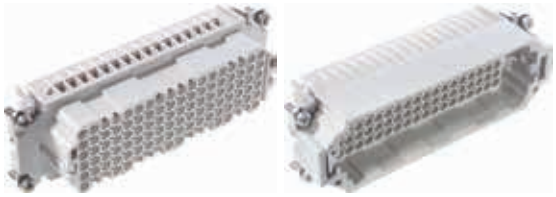


# EPIC® H-DD 108

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces

**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 216 available



## Suitable housing

**EPIC® H-DD 72**

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

**EPIC® H-DD 108**

- EPIC® H-B 24
- EPIC® ULTRA H-B 24
- EPIC® QUICK & EASY Mounting system

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Similar products

- Further products with higher numbering in the internet. (H-DD 144, H-DD 216)

## Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
IEC: 10 A
UL: 8.5 A
CSA: 10 A

**Pollution degree**
2

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
**EPIC® H-DD 72**
72 + PE
**EPIC® H-DD 108**
108 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-DD 72 crimp termination** | | | | | |
| 11285200 | H-DD 72 SCM | male | machined | 1 - 72 | 5 |
| 11286200 | H-DD 72 BCM | female | machined | 1 - 72 | 5 |
| **H-DD 108 crimp termination** | | | | | |
| 11285300 | H-DD 108 SCM | male | machined | 1 - 108 | 5 |
| 11286300 | H-DD 108 BCM | female | machined | 1 - 108 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- Further products with higher numbering in the internet. (H-DD 144, H-DD 216)

# EPIC® H-DD 24

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces







**Info**

- Highest packing density for compact connectors

## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 6
- EPIC® Docking frame
- EPIC® H-B 6

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
24 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
24 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-DD 24** | | | | |
| 381167266 | female | machined | 1 - 24 | 1 |
| 381167265 | male | machined | 1 - 24 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-DD 42

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces

**Info**

- Highest packing density for compact connectors





## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 10
- EPIC® Docking frame
- EPIC® H-B 10

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- EPIC® contact removal tool for H-D 1.6mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
24 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
42 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-DD 42** | | | | |
| 381167268 | female | machined | 1 - 42 | 1 |
| 381167267 | male | machined | 1 - 42 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-DD 72

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces





**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 144 available

## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 16
- EPIC® Docking frame
- EPIC® H-B 16

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Similar products

- Further products with higher numbering (H-DD 144, H-DD 216)

## Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
24 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
72 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-DD 72** | | | | |
| 381167270 | female | machined | 1 - 72 | 1 |
| 381167269 | male | machined | 1 - 72 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-DD 108

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces

**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 216 available





## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 24
- EPIC® Docking frame
- EPIC® H-B 24

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Similar products

- Further products with higher numbering (H-DD 144, H-DD 216)

## Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
24 kV

**Rated current (A)**
IEC: 10 A
UL: 10 A
CSA: 10 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
108 + PE

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-DD 108** | | | | |
| 381167272 | female | machined | 1 - 108 | 1 |
| 381167271 | male | machined | 1 - 108 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-BE 6 Screw termination

The proven standard inserts for easy assembly



**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

## EPIC® H-BE 6 Crimp termination

The proven standard inserts for easy assembly

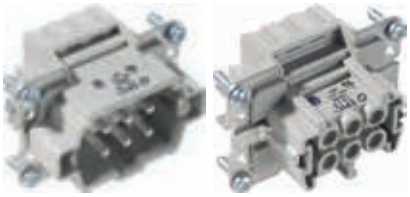


**Info**

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

## EPIC® H-BE 6 Cage clamp

The proven standard inserts for easy assembly



**Info**

- Vibration resistant and fast wire connection
- Screw, crimp, cage clamp and Push-In version - freely combinable

## EPIC® H-BE 6 Push-In termination

The proven standard inserts for easy assembly



**Info**

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

### Suitable housing

- EPIC® H-B 6
- EPIC® ULTRA H-B 6
- EPIC® QUICK & EASY Mounting system

### Suitable contacts

**EPIC® H-BE 6 Crimp termination**

- EPIC® H-BE 2.5 machined contacts

### Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

**EPIC® H-BE 6 Screw termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- UL tested for application in control cabinets according UL 508 / UL 2237

**EPIC® H-BE 6 Push-In termination**

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

### Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

**EPIC® H-BE 6 Screw termination**
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Push-In termination**

- Railway applications / vehicle construction

### Suitable tools

**EPIC® H-BE 6 Screw termination**

- PEW 8.186 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- Recommended crimping tool when conductor end-sleeves are used: PEW 8.186

**EPIC® H-BE 6 Crimp termination**

- Removel tool 11182501 to remove the machined EPIC® H-BE contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
**EPIC® H-BE 6 Screw termination**
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Cage clamp**
IEC: 16 A
UL: 16 A
CSA: 16 A
**EPIC® H-BE 6 Push-In termination**
IEC: 16 A
UL: 13 A
CSA: 13 A

**Pollution degree**
3

**Flammability**
**EPIC® H-BE 6 Screw termination**
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Push-In termination**
UL94 V-0

**Contact resistance**
**EPIC® H-BE 6 Screw termination**
< 2 mOhm
**EPIC® H-BE 6 Crimp termination**
< 2 mOhm
**EPIC® H-BE 6 Cage clamp**
1.5 - 4 mohm
**EPIC® H-BE 6 Push-In termination**
< 2 mOhm

**Contacts**
**EPIC® H-BE 6 Screw termination**
Copper alloy, hard silver-plated
**EPIC® H-BE 6 Crimp termination**
Copper alloy, hard silver/gold-plated
**EPIC® H-BE 6 Cage clamp**
Copper alloy, hard silver-plated
**EPIC® H-BE 6 Push-In termination**
Copper alloy, hard silver-plated

**Number of contacts**
6 + PE

**Termination methods**
**EPIC® H-BE 6 Screw termination**
Screw termination: 0.5 - 2.5 mm²
**EPIC® H-BE 6 Crimp termination**
Crimp termination: 0.14 - 4.0 mm²
**EPIC® H-BE 6 Cage clamp**
Cage clamp termination: 0.5 - 2.5 mm²
**EPIC® H-BE 6 Push-In termination**
Push-In termination: 0.14 - 2.5mm²

**Stripping length (mm)**
**EPIC® H-BE 6 Screw termination**
8
**EPIC® H-BE 6 Cage clamp**
7
**EPIC® H-BE 6 Push-In termination**
10

**Material**
**EPIC® H-BE 6 Screw termination**
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Cage clamp**
PC, polycarbonate
**EPIC® H-BE 6 Push-In termination**
PA Polyamid

**Cycle of mechanical operation**
**EPIC® H-BE 6 Screw termination**
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Push-In Anschluss**
500
**EPIC® H-BE 6 Cage clamp**
100EPIC® H-BE 6 Push-In termination

**Certifications**
**EPIC® H-BE 6 Screw termination**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
**EPIC® H-BE 6 Crimp termination**
**EPIC® H-BE 6 Cage clamp**
**EPIC® H-BE 6 Push-In termination**
UL-tested:
UL File Number: E75770

**Temperature range**
**EPIC® H-BE 6 Screw termination**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 6 Crimp termination**
-40°C to +125°C
**EPIC® H-BE 6 Cage clamp**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 6 Push-In termination**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BE 6 screw termination** | | | | | |
| 10190000 | EPIC® H-BE 6 SS | male | yes | 1 - 6 | 10 |
| 10191000 | EPIC® H-BE 6 BS | female | yes | 1 - 6 | 10 |
| 10190100 | EPIC® H-BE 6 SS | male | | 1 - 6 | 10 |
| 10191100 | EPIC® H-BE 6 BS | female | | 1 - 6 | 10 |
| **EPIC® H-BE 6 crimp termination** | | | | | |
| 10180002 | EPIC® H-BE 6 SCM | male | | 1 - 6 | 10 |
| 10181002 | EPIC® H-BE 6 BCM | female | | 1 - 6 | 10 |
| **H-BE 6 cage clamp termination** | | | | | |
| 10400000 | EPIC® H-BE 6 SF | male | yes | 1 - 6 | 10 |
| 10401000 | EPIC® H-BE 6 BF | female | yes | 1 - 6 | 10 |
| **H-BE 6 Push-In termination** | | | | | |
| 381166835 | EPIC® H-BE 006 MQL | male | yes | 1 - 6 | 1 |
| 381166834 | EPIC® H-BE 006 FQL | female | yes | 1 - 6 | 1 |
| 44423200 | EPIC® H-BE 6 SP | male | yes | 1 - 6 | 10 |
| 44423201 | EPIC® H-BE 6 BP | female | yes | 1 - 6 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-BE 10 Screw termination

The proven standard inserts for easy assembly



**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

## EPIC® H-BE 10 Crimp termination

The proven standard inserts for easy assembly

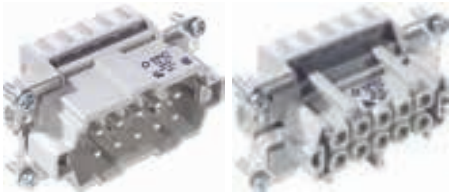


**Info**

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

## EPIC® H-BE 10 Cage clamp

The proven standard inserts for easy assembly



**Info**

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable

## EPIC® H-BE 10 Push-In termination

The proven standard inserts for easy assembly



**Info**

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

### Suitable housing

- EPIC® H-B 10
- EPIC® ULTRA H-B 10
- EPIC® QUICK & EASY Mounting system

### Suitable contacts

**EPIC® H-BE 10 Crimp termination**

- EPIC® H-BE 2.5 machined contacts

### Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

**EPIC® H-BE 10 Screw termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- UL tested for application in control cabinets according UL 508 / UL 2237

**EPIC® H-BE 10 Push-In termination**

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

### Application range

- Mechanical engineering
- Plastics industry
- Light & sound technology

**EPIC® H-BE 10 Screw termination**
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Push-In termination**

- Railway applications / vehicle construction

### Suitable tools

**EPIC® H-BE 10 Screw termination**

- PEW 8.186 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- Recommended crimping tool when conductor end-sleeves are used: PEW 8.186

**EPIC® H-BE 10 Crimp termination**

- Removel tool 11182501 to remove the machined EPIC® H-BE contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
**EPIC® H-BE 10 Screw termination**
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Cage clamp**
IEC: 16 A
UL: 16 A
CSA: 16 A
**EPIC® H-BE 10 Push-In termination**
IEC: 16 A
UL: 13 A
CSA: 13 A

**Pollution degree**
3

**Flammability**
**EPIC® H-BE 10 Screw termination**
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Push-In termination**
UL94 V-0
**EPIC® H-BE 10 Cage clamp**
UL94 V-2
UL94 V-0

**Contact resistance**
**EPIC® H-BE 10 Screw termination**
< 2 mOhm
**EPIC® H-BE 10 Crimp termination**
< 2 mOhm
**EPIC® H-BE 10 Cage clamp**
1.5 - 4 mohm
**EPIC® H-BE 10 Push-In termination**
< 2 mOhm

**Contacts**
**EPIC® H-BE 10 Screw termination**
Copper alloy, hard silver-plated
**EPIC® H-BE 10 Crimp termination**
Copper alloy, hard silver/gold-plated
**EPIC® H-BE 10 Cage clamp**
Copper alloy, hard silver-plated
**EPIC® H-BE 10 Push-In termination**
Copper alloy, hard silver-plated

**Number of contacts**
10 + PE

**Termination methods**
**EPIC® H-BE 10 Screw termination**
Screw termination: 0.5 - 2.5 mm²
**EPIC® H-BE 10 Crimp termination**
Crimp termination: 0.14 - 4.0 mm²
**EPIC® H-BE 10 Cage clamp**
Cage clamp termination: 0.5 - 2.5 mm²
**EPIC® H-BE 10 Push-In termination**
Push-In termination: 0.14 - 2.5mm²

**Stripping length (mm)**
**EPIC® H-BE 10 Screw termination**
8
**EPIC® H-BE 10 Cage clamp**
7
**EPIC® H-BE 10 Push-In termination**
10

**Material**
**EPIC® H-BE 10 Screw termination**
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Cage clamp**
PC, polycarbonate
**EPIC® H-BE 10 Push-In termination**
PA Polyamid

**Cycle of mechanical operation**
**EPIC® H-BE 10 Screw termination**
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Push-In termination**
500
**EPIC® H-BE 10 Cage clamp**
100

**Certifications**
**EPIC® H-BE 10 Screw termination**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
**EPIC® H-BE 10 Crimp termination**
**EPIC® H-BE 10 Cage clamp**
**EPIC® H-BE 10 Push-In termination**
UL-tested:
UL File Number: E75770

**Temperature range**
**EPIC® H-BE 10 Screw termination**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 10 Crimp termination**
-40°C to +125°C
**EPIC® H-BE 10 Cage clamp**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 10 Push-In termination**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BE 10 screw termination** | | | | | |
| 10192000 | EPIC® H-BE 10 SS | male | yes | 1 - 10 | 10 |
| 10193000 | EPIC® H-BE 10 BS | female | yes | 1 - 10 | 10 |
| 10192100 | EPIC® H-BE 10 SS | male | | 1 - 10 | 10 |
| 10193100 | EPIC® H-BE 10 BS | female | | 1 - 10 | 10 |
| **H-BE 10 crimp termination** | | | | | |
| 10182002 | EPIC® H-BE 10 SCM | male | | 1 - 10 | 10 |
| 10183002 | EPIC® H-BE 10 BCM | female | | 1 - 10 | 10 |
| **H-BE 10 cage clamp termination** | | | | | |
| 10400100 | EPIC® H-BE 10 SF | male | yes | 1 - 10 | 10 |
| 10401100 | EPIC® H-BE 10 BF | female | yes | 1 - 10 | 10 |
| **H-BE 10 Push-In termination** | | | | | |
| 381166837 | EPIC® H-BE 010 MQL | male | yes | 1 - 10 | 1 |
| 381166836 | EPIC® H-BE 010 FQL | female | yes | 1 - 10 | 1 |
| 44423202 | EPIC® H-BE 10 SP | male | yes | 1 - 10 | 10 |
| 44423203 | EPIC® H-BE 10 BP | female | yes | 1 - 10 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-BE 16 Screw termination

The proven standard inserts for easy assembly



**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 32 available

## EPIC® H-BE 16 Crimp termination

The proven standard inserts for easy assembly

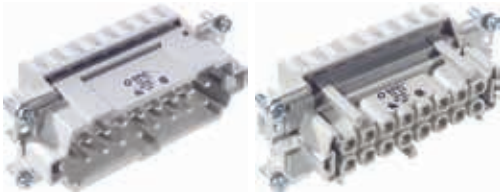


**Info**

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 32 available

## EPIC® H-BE 16 Cage clamp

The proven standard inserts for easy assembly



**Info**

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable

## EPIC® H-BE 16 Push-In termination

The proven standard inserts for easy assembly



**Info**

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

### Suitable housing

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

### Suitable contacts

**EPIC® H-BE 16 Crimp termination**

- EPIC® H-BE 2.5 machined contacts

### Similar products

**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Cage clamp**

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

### Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

**EPIC® H-BE 16 Screw termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- UL tested for application in control cabinets according UL 508 / UL 2237

**EPIC® H-BE 16 Crimp termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

**EPIC® H-BE 16 Push-In termination**

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Plastics industry
- Light & sound technology

**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Push-In termination**

- Railway applications / vehicle construction

## Suitable tools

**EPIC® H-BE 16 Screw termination**

- PEW 8.186 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- Recommended crimping tool when conductor end-sleeves are used: PEW 8.186

**EPIC® H-BE 16 Crimp termination**

- Removel tool 11182501 to remove the machined EPIC® H-BE contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Cage clamp**
IEC: 16 A
UL: 16 A
CSA: 16 A
**EPIC® H-BE 16 Push-In termination**
IEC: 16 A
UL: 13 A
CSA: 13 A

**Pollution degree**
3

**Flammability**
**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Push-In termination**
UL94 V-0

**Contact resistance**
**EPIC® H-BE 16 Screw termination**
< 2 mOhm
**EPIC® H-BE 16 Crimp termination**
< 2 mOhm
**EPIC® H-BE 16 Cage clamp**
1.5 - 4 mohm
**EPIC® H-BE 16 Push-In termination**
< 2 mOhm

**Contacts**
**EPIC® H-BE 16 Screw termination**
Copper alloy, hard silver-plated
**EPIC® H-BE 16 Crimp termination**
Copper alloy, hard silver/gold-plated
**EPIC® H-BE 16 Cage clamp**
Copper alloy, hard silver-plated
**EPIC® H-BE 16 Push-In termination**
Copper alloy, hard silver-plated

**Number of contacts**
16 + PE

**Termination methods**
**EPIC® H-BE 16 Screw termination**
Screw termination: 0.5 - 2.5 mm²
**EPIC® H-BE 16 Crimp termination**
Crimp termination: 0.14 - 4.0 mm²
**EPIC® H-BE 16 Cage clamp**
Cage clamp termination: 0.5 - 2.5 mm²
**EPIC® H-BE 16 Push-In termination**
Push-In termination: 0.14 - 2.5mm²

**Stripping length (mm)**
**EPIC® H-BE 16 Screw termination**
8
**EPIC® H-BE 16 Cage clamp**
7
**EPIC® H-BE 16 Push-In termination**
10

**Material**
**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
PC, polycarbonate
**EPIC® H-BE 16 Push-In termination**
PA Polyamid

**Cycle of mechanical operation**
**EPIC® H-BE 16 Screw termination**
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Push-In termination**
500
**EPIC® H-BE 16 Cage clamp**
100

**Certifications**
**EPIC® H-BE 16 Screw termination**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
**EPIC® H-BE 16 Crimp termination**
**EPIC® H-BE 16 Cage clamp**
**EPIC® H-BE 16 Push-In termination**
UL-tested:
UL File Number: E75770

**Temperature range**
**EPIC® H-BE 16 Screw termination**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 16 Crimp termination**
-40°C to +125°C
**EPIC® H-BE 16 Cage clamp**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 16 Push-In termination**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BE 16 screw termination** | | | | | |
| 10194000 | EPIC® H-BE 16 SS | male | yes | 1 -16 | 5 |
| 10195000 | EPIC® H-BE 16 BS | female | yes | 1 -16 | 5 |
| 10194100 | EPIC® H-BE 16 SS | male | | 1 -16 | 5 |
| 10195100 | EPIC® H-BE 16 BS | female | | 1 -16 | 5 |
| **EPIC® H-BE 16 Crimp termination** | | | | | |
| 10184002 | EPIC® H-BE 16 SCM | male | | 1 -16 | 5 |
| 10185002 | EPIC® H-BE 16 BCM | female | | 1 -16 | 5 |
| **H-BE 16 cage clamp termination** | | | | | |
| 10400200 | EPIC® H-BE 16 SF | male | yes | 1 -16 | 5 |
| 10401200 | EPIC® H-BE 16 BF | female | yes | 1 -16 | 5 |
| **H-BE 16 Push-In termination** | | | | | |
| 381166839 | EPIC® H-BE 016 MQL | male | yes | 1 - 16 | 1 |
| 381166838 | EPIC® H-BE 016 FQL | female | yes | 1 - 16 | 1 |
| 44423204 | EPIC® H-BE 16 SP | male | yes | 1 - 16 | 5 |
| 44423205 | EPIC® H-BE 16 BP | female | yes | 1 - 16 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-BE 24 Screw termination

The proven standard inserts for easy assembly



**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 48 available

## EPIC® H-BE 24 Crimp termination

The proven standard inserts for easy assembly

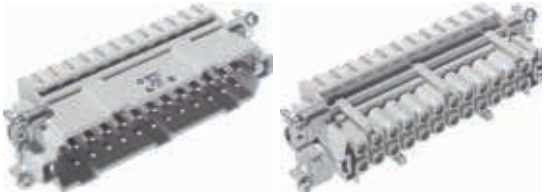


**Info**

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 48 available

## EPIC® H-BE 24 Cage clamp

The proven standard inserts for easy assembly

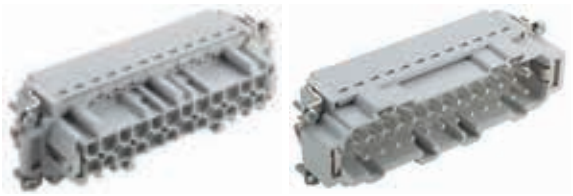


**Info**

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable

## EPIC® H-BE 24 Push-In termination

The proven standard inserts for easy assembly



**Info**

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

### Suitable housing

- EPIC® H-B 24
- EPIC® ULTRA H-B 24
- EPIC® QUICK & EASY Mounting system

### Suitable contacts

**EPIC® H-BE 24 Crimp termination**

- EPIC® H-BE 2.5 machined contacts

### Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

### Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

**EPIC® H-BE 24 Screw termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- UL tested for application in control cabinets according UL 508 / UL 2237

**EPIC® H-BE 24 Crimp termination**

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

**EPIC® H-BE 24 Push-In termination**

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

### Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

**EPIC® H-BE 24 Screw termination**
**EPIC® H-BE 24 Crimp termination**
**EPIC® H-BE 24 Push-In termination**

- Railway applications / vehicle construction

## Suitable tools

**EPIC® H-BE 24 Screw termination**

- PEW 8.186 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- Recommended crimping tool when conductor end-sleeves are used: PEW 8.186

**EPIC® H-BE 24 Crimp termination**

- Removel tool 11182501 to remove the machined EPIC® H-BE contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
**EPIC® H-BE 24 Screw termination**
**EPIC® H-BE 24 Crimp termination**
**EPIC® H-BE 24 Cage clamp**
IEC: 16 A
UL: 16 A
CSA: 16 A
**EPIC® H-BE 24 Push-In termination**
IEC: 16 A
UL: 13 A
CSA: 13 A

**Pollution degree**
3

**Flammability**
**EPIC® H-BE 24 Screw termination**
**EPIC® H-BE 24 Crimp termination**
**EPIC® H-BE 24 Push-In termination**
UL94 V-0
**EPIC® H-BE 24 Cage clamp**
UL94 V-2

**Contact resistance**
**EPIC® H-BE 24 Screw termination**
< 2 mOhm
**EPIC® H-BE 24 Crimp termination**
< 2 mOhm
**EPIC® H-BE 24 Cage clamp**
1.5 - 4 mohm
**EPIC® H-BE 24 Push-In termination**
< 2 mOhm

**Contacts**
**EPIC® H-BE 24 Screw termination**
Copper alloy, hard silver-plated
**EPIC® H-BE 24 Crimp termination**
Copper alloy, hard silver/gold-plated
**EPIC® H-BE 24 Cage clamp**
Copper alloy, hard silver-plated
**EPIC® H-BE 24 Push-In termination**
Copper alloy, hard silver-plated

**Number of contacts**
24 + PE

**Termination methods**
**EPIC® H-BE 24 Screw termination**
Screw termination: 0.5 - 2.5 mm²
**EPIC® H-BE 24 Crimp termination**
Crimp termination: 0.14 - 4.0 mm²
**EPIC® H-BE 24 Cage clamp**
Cage clamp termination: 0.5 - 2.5 mm²
**EPIC® H-BE 24 Push-In termination**
Push-In termination: 0.14 - 2.5mm²

**Stripping length (mm)**
**EPIC® H-BE 24 Screw termination**
8
**EPIC® H-BE 24 Cage clamp**
7
**EPIC® H-BE 24 Push-In termination**
10

**Material**
**EPIC® H-BE 24 Screw termination**
**EPIC® H-BE 24 Crimp termination**
PC, polycarbonate
**EPIC® H-BE 24 Push-In termination**
PA Polyamid

**Cycle of mechanical operation**
**EPIC® H-BE 24 Screw termination**
**EPIC® H-BE 24 Crimp termination**
**EPIC® H-BE 24 Push-In termination**
500
**EPIC® H-BE 24 Cage clamp**
100

**Certifications**
**EPIC® H-BE 24 Screw termination**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
**EPIC® H-BE 24 Crimp termination**
**EPIC® H-BE 24 Cage clamp**
**EPIC® H-BE 24 Push-In termination**
UL-tested:
UL File Number: E75770

**Temperature range**
**EPIC® H-BE 24 Screw termination**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 24 Crimp termination**
-40°C to +125°C
**EPIC® H-BE 24 Cage clamp**
-40°C to +100°C,
short-term up to +125°C
**EPIC® H-BE 24 Push-In termination**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BE 24 screw termination** | | | | | |
| 10196000 | EPIC® H-BE 24 SS | male | yes | 1 - 24 | 5 |
| 10197000 | EPIC® H-BE 24 BS | female | yes | 1 - 24 | 5 |
| 10196100 | EPIC® H-BE 24 SS | male | | 1 - 24 | 5 |
| 10197100 | EPIC® H-BE 24 BS | female | | 1 - 24 | 5 |
| **H-BE 24 crimp termination** | | | | | |
| 10186002 | EPIC® H-BE 24 SCM | male | | 1 - 24 | 5 |
| 10187002 | EPIC® H-BE 24 BCM | female | | 1 - 24 | 5 |
| **H-BE 24 cage clamp termination** | | | | | |
| 10400300 | EPIC® H-BE 24 SF | male | yes | 1 - 24 | 5 |
| 10401300 | EPIC® H-BE 24 BF | female | yes | 1 - 24 | 5 |
| **H-BE 24 Push-In termination** | | | | | |
| 381166841 | EPIC® H-BE 024 MQL | male | yes | 1 - 24 | 1 |
| 381166840 | EPIC® H-BE 024 FQL | female | yes | 1 - 24 | 1 |
| 44423206 | EPIC® H-BE 24 SP | male | yes | 1 - 24 | 5 |
| 44423207 | EPIC® H-BE 24 BP | female | yes | 1 - 24 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BE 6 Screw termination

The proven standard inserts for easy assembly





**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable

## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 6
- EPIC® Docking frame
- EPIC® H-B 6

## Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- PEW 8.286 crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
6 + PE

**Termination methods**
Screw termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-BE 6 Screw termination** | | | | |
| 381166826 | female | yes | 1 - 6 | 1 |
| 381166827 | male | yes | 1 - 6 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BE 10 Screw termination

The proven standard inserts for easy assembly

**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable





## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 10
- EPIC® Docking frame
- EPIC® H-B 10

## Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set
- PEW 8.286 crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
10 + PE

**Termination methods**
Screw termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-BE 10 Screw termination** | | | |
| 381166828 | female | 1 - 10 | 1 |
| 381166829 | male | 1 - 10 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BE 16 Screw termination

The proven standard inserts for easy assembly



**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable

## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 16
- EPIC® Docking frame
- EPIC® H-B 16

## Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Similar products

- Further products with higher numbering (H-BE 32, H-BE 48)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
16 + PE

**Termination methods**
Screw termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-BE 16 Screw termination** | | | | |
| 381166830 | female | yes | 1 - 16 | 1 |
| 381166831 | male | yes | 1 - 16 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BE 24 Screw termination

The proven standard inserts for easy assembly

**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable





## Suitable housing

- EPIC® QUICK & EASY Mounting system
- EPIC® ULTRA H-B 24
- EPIC® Docking frame

## Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

## Similar products

- Further products with higher numbering (H-BE 32, H-BE 48)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
24 + PE

**Termination methods**
Screw termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770 and E483837

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-BE 24 Screw termination** | | | | |
| 381166832 | female | yes | 1 - 24 | 1 |
| 381166833 | male | | 1 - 24 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BE 32 Screw termination

The proven standard inserts for easy assembly





**Info**

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable

## Suitable housing

- EPIC® H-B 32

## Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

## Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

## Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt®
- PEW 8.286 crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
32 + PE

**Termination methods**
Screw termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770 and E483837

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-BE 32 Screw termination** | | | |
| 381167238 | female | 17 - 32 | 1 |
| 381167237 | male | 17 - 32 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-EE 10

H-EE inserts with high contact density based on the proven H-BE series

**Info**

- Inserts with high contact density for medium power



# EPIC® H-EE 18

H-EE inserts with high contact density based on the proven H-BE series

**Info**

- Inserts with high contact density for medium power



## Suitable housing

**EPIC® H-EE 10**

- EPIC® H-B 6
- EPIC® ULTRA H-B 6
- EPIC® QUICK & EASY Mounting system
- EPIC® H-EE 18
- EPIC® H-B 10
- EPIC® ULTRA H-B 10
- EPIC® QUICK & EASY Mounting system

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts

## Benefits

- The H-EE inserts with machined contacts for a high number of pins in very tight spaces.
- For assembly in H-B housing

## Application range

- Mechanical engineering
- Plant engineering
- Appliance and apparatus construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
**EPIC® H-EE 10**
10 + PE
**EPIC® H-EE 18**
18 + PE

**Termination methods**
Crimp termination: 0.5 - 4.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
UL-tested:
UL File Number: E75770

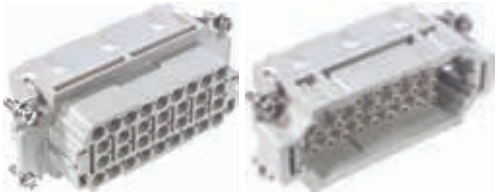
**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-EE 10 crimp termination** | | | | | |
| 10180400 | H-EE 10 SC | male | machined | 1 - 10 | 10 |
| 10181400 | H-EE 10 BC | female | machined | 1 - 10 | 10 |
| **H-EE 18 crimp termination** | | | | | |
| 10182400 | H-EE 18 SC | male | machined | 1 - 18 | 10 |
| 10183400 | H-EE 18 BC | female | machined | 1 - 18 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-EE 32

H-EE inserts with high contact density based on the proven H-BE series



**Info**

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 64 available

# EPIC® H-EE 46

H-EE inserts with high contact density based on the proven H-BE series



**Info**

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 92 available

## Suitable housing

**EPIC® H-EE 32**

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

**EPIC® H-EE 46**

- EPIC® H-B 24
- EPIC® ULTRA H-B 24
- EPIC® QUICK & EASY Mounting system

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts

## Similar products

- Further products with higher numbering in the internet. (H-EE 64, H-EE 92)

## Benefits

- The H-EE inserts with machined contacts for a high number of pins in very tight spaces.
- For assembly in H-B housing

## Application range

- Mechanical engineering
- Plant engineering
- Appliance and apparatus construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver/gold-plated

**Number of contacts**
**EPIC® H-EE 32**
32 + PE
**EPIC® H-EE 46**
46 + PE

**Termination methods**
Crimp termination: 0.5 - 4.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Article designation | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-EE 32 crimp termination** | | | | | |
| 10184400 | H-EE 32 SC | male | machined | 1 - 32 | 5 |
| 10185400 | H-EE 32 BC | female | machined | 1 - 32 | 5 |
| **H-EE 46 crimp termination** | | | | | |
| 10186400 | H-EE 46 SC | male | machined | 1 - 46 | 5 |
| 10187400 | H-EE 46 BC | female | machined | 1 - 46 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-EEE 40

H-EEE inserts with very high contact density

**Info**

- Inserts with high contact density for medium power





### Suitable contacts

- EPIC® H-BE 2.5 machined contacts

### Suitable tools

- EPIC® contact removal tool for H-BE 2.5mm

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-EEE 40** | | | |
| 381167246 | female | 1 - 40 | 1 |
| 381167245 | male | 1 - 40 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® H-EEE 64

H-EEE inserts with very high contact density

**Info**

- Inserts with high contact density for medium power





### Suitable contacts

- EPIC® H-BE 2.5 machined contacts

### Suitable tools

- EPIC® contact removal tool for H-BE 2.5mm

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-EEE 64** | | | |
| 381167248 | female | 1 - 64 | 1 |
| 381167247 | male | 1 - 64 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BSS 4

Inserts for high currents





**Info**

- Standard insert for currents up to 35A

## Benefits

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²

## Application range

- Mechanical engineering
- Plant engineering
- Drive systems

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
400 V (conductor - ground)
690 V (conductor - conductor)
UL: 600 V AC/DC

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 35 A
UL: 35 A
CSA: 35 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
4 + PE

**Termination methods**
Screw termination: 1.5 - 6 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
VDE-REG. no.: B437
UL-tested: UL File Number:
E75770 and E483837

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-BSS 4** | | | | |
| 381167274 | female | | 1 - 4 | 1 |
| 381167273 | male | yes | 1 - 4 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BS 4

Inserts for high currents

**Info**

- Standard insert for currents up to 35A





## Benefits

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²

## Application range

- Mechanical engineering
- Plant engineering
- Drive systems

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
400 V (conductor - ground)
690 V (conductor - conductor)
UL: 600 V AC/DC

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 35 A
UL: 35 A
CSA: 35 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
4 + PE

**Termination methods**
Screw termination: 1.5 - 6 mm²

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-BS 4** | | | | |
| 381167276 | female | yes | 1 - 4 | 1 |
| 381167275 | male | yes | 1 - 4 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BS 6

Inserts for high currents



**Info**

- Standard insert for currents up to 35A
- Made in Germany

## Benefits

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²

## Application range

- Mechanical engineering
- Plant engineering
- Drive systems

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
400 V (conductor - ground)
690 V (conductor - conductor)
UL: 600 V AC/DC

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 35 A
UL: 35 A
CSA: 35 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
6 + PE

**Termination methods**
Screw termination: 0.5 - 6 mm²

**Stripping length (mm)**
8

**Cycle of mechanical operation**
500

**Certifications**
VDE-REG. no.: B437
UL-tested: UL File Number:
E75770 and E483837

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-BS 6** | | | |
| 381166844 | female | 1 - 6 | 1 |
| 381166845 | male | 1 - 6 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-BS 6

Inserts for high currents

**Info**

- Standard insert for currents up to 35A
- Railway applications



# EPIC® H-BS 12

Inserts for high currents

**Info**

- Standard insert for currents up to 35A
- Railway applications



## Suitable housing

**EPIC® H-BS 6**

- EPIC® H-B 6
- EPIC® ULTRA H-B 6
- EPIC® QUICK & EASY Mounting system

**EPIC® H-BS 12**

- EPIC® H-B 32

## Benefits

**EPIC® H-BS 6**

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

**EPIC® H-BS 12**

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²
- Two H-BS 6 inserts with different contact-numbering for one housing.

## Application range

**EPIC® H-BS 6**

- Railway applications / vehicle construction
- Plant engineering
- Mechanical engineering
- Drive systems

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V
Conductor - conductor: 690 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 35 A
UL: 35 A
CSA: 35 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® H-BS 6**
6 + PE
**EPIC® H-BS 12**
12 + PE

**Termination methods**
Screw termination: 0.5 - 6 mm²

**Stripping length (mm)**
8

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

**EPIC® H-BS 12**

- Plant engineering
- Mechanical engineering
- Drive systems

## Suitable tools

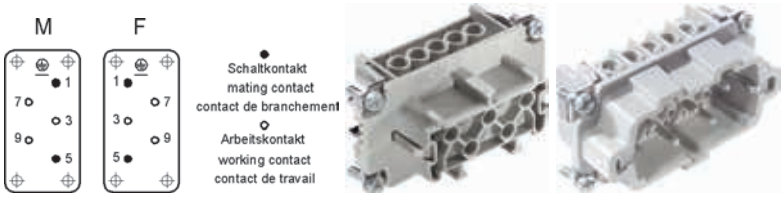
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BS 6 screw termination** | | | | | |
| 10170000 | H-BS 6 SS | male | yes | 1 - 6 | 5 |
| 10171000 | H-BS 6 BS | female | yes | 1 - 6 | 5 |
| **H-BS 12 screw termination** | | | | | |
| 10170600 | H-BS 6 SS 7-12 | male | yes | 7 - 12 | 5 |
| 10171600 | H-BS 6 BS 7-12 | female | yes | 7 - 12 | 5 |

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## EPIC® H-BVE 3

These high-voltage inserts are additionally equipped with 2 switching contacts




**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

## EPIC® H-BVE 6

These high-voltage inserts are additionally equipped with 2 switching contacts




**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

## EPIC® H-BVE 10

These high-voltage inserts are additionally equipped with 2 switching contacts




**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

### Suitable housing

- EPIC® QUICK & EASY Mounting system

**EPIC® H-BVE 3**

- EPIC® H-B 10
- EPIC® ULTRA H-B 10

**EPIC® H-BVE 6**

- EPIC® H-B 16
- EPIC® ULTRA H-B 16

**EPIC® H-BVE 10**

- EPIC® H-B 24
- EPIC® ULTRA H-B 24

### Benefits

- These high-voltage inserts are additionally equipped with 2 switching contacts
- With the relevant wiring, the lagging switch contacts interrupt the power supply before the working contacts are separated

### Application range

- Plant engineering
- Mechanical engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 630 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® H-BVE 3**
3 + 2 + PE
**EPIC® H-BVE 6**
6 + 2 + PE
**EPIC® H-BVE 10**
10 + 2 + PE

**Termination methods**
Screw termination: 0.5 - 2.5 mm²

**Stripping length (mm)**
8

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C, short-term up to +125°C

| Article number | Article description | Contact type | Wire protection | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **H-BVE 3 screw termination** | | | | | |
| 10210010 | H-BVE 3 SS | male | yes | 3 + 2 | 10 |
| 10211010 | H-BVE 3 BS | female | yes | 3 + 2 | 10 |
| 10210110 | H-BVE 3 SS | male | | 3 + 2 | 10 |
| 10211110 | H-BVE 3 BS | female | | 3 + 2 | 10 |
| **H-BVE 6 screw termination** | | | | | |
| 10239010 | H-BVE 6 SS | male | yes | 6 + 2 | 5 |
| 10240010 | H-BVE 6 BS | female | yes | 6 + 2 | 5 |
| 10239110 | H-BVE 6 SS | male | | 6 + 2 | 5 |
| 10240110 | H-BVE 6 BS | female | | 6 + 2 | 5 |
| **H-BVE 10 screw termination** | | | | | |
| 10270010 | H-BVE 10 SS | male | yes | 10 + 2 | 5 |
| 10271010 | H-BVE 10 BS | female | yes | 10 + 2 | 5 |
| 10270110 | H-BVE 10 SS | male | | 10 + 2 | 5 |
| 10271110 | H-BVE 10 BS | female | | 10 + 2 | 5 |

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# Power H-S

Power inserts

**Info**

- Very high current transfer in a small space
- Axial screw termination for assembly without special tool



## Suitable housing

- EPIC® H-B 6
- EPIC® ULTRA H-B 6

## Benefits

- Fast and easy assembly
- Very high current transfer
- Lower space requirement
- Axial screw termination for assembly without special tool

## Application range

- Mechanical engineering
- Plant engineering
- Renewable energy

## Suitable tools

- For cable assembly use a standard hex driver for 2mm hexagon screws

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 1000 V
UL: 600 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
40

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 1 mOhm

**Number of contacts**
4 + PE

**Termination methods**
Axial screw termination
2,5 mm² - 6 mm² (AWG 14 - 11)

**Stripping length (mm)**
8

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **H-S Axial screw connection** | | | | |
| 10407910 | H-S 4+2xPE SAS | male | 4 + PE | 10 |
| 10407900 | H-S 4+2xPE BAS | female | 4 + PE | 10 |

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# EPIC® K 4/0

Combination insert Power



**Info**

- Combination insert Power

## Suitable housing

- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

## Benefits

- High power in one connector insert
- Best in combination with ÖLFLEX® SERVO

## Application range

- Mechanical engineering
- Renewable energy
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
830 V Power

**Rated impulse voltage**
8 kV

**Rated current (A)**
80 A Power

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
4 + PE

**Termination methods**
Screw termination: 1.5 - 16.0 mm²
(power contact)

**Stripping length (mm)**
16 mm (Power)

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® K 4/0** | | | | |
| 381166842 | EPIC® H-K 004/0 FS | female | 4 + PE | 1 |
| 381166843 | EPIC® H-K 004/0 MSN | male | 4 + PE | 1 |
| **EPIC® 4/0** | | | | |
| 44424041 | EPIC® K 4/0 SS | male | 4 + PE | 10 |
| 44424042 | EPIC® K 4/0 BS | female | 4 + PE | 10 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® Power K 4/2

Combination insert Power and Control

**Info**

- Combination insert Power and Control



## Suitable housing

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system

## Benefits

**EPIC® Power K 4/2**

- Power and control in one connector insert
- Best in combination with ÖLFLEX® SERVO

## Application range

- Mechanical engineering
- Renewable energy
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
830 V Power
400 V Control

**Rated impulse voltage**
8 kV

**Rated current (A)**
80 A Power
16 A Control

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
4 + 2 + PE

**Termination methods**
Screw termination: 1.5 - 16.0 mm² (power contact)
Screw termination: 0.5 - 2.5 mm² (control contact)

**Stripping length (mm)**
16 mm (Power)
6 mm (Control)

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

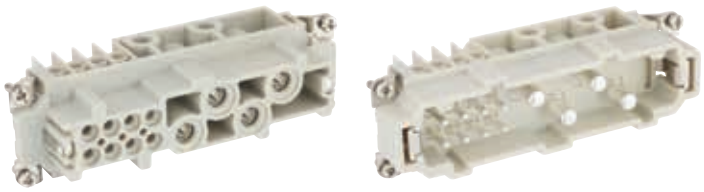
**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® K 4/2 n** | | | | |
| 44424043 | EPIC® K 4/2 SS | male | 4 + 2 + PE | 10 |
| 44424044 | EPIC® K 4/2 BS | female | 4 + 2 + PE | 10 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® K 4/8

Combination insert Power and Control



**Info**

- 4 pole power insert for rectangular connector with 8 additional signal contacts

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Rated voltage (V)**
IEC: 400 V
UL: 600 V
CSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
80 A Power
16 A Control

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
4 + 8 + PE

**Termination methods**
Screw termination: 1.5 - 16.0 mm² (power contact)
Screw termination: 0.5 - 2.5 mm² (control contact)

**Stripping length (mm)**
14 ± 0.5 mm (Power)
6 ± 0.5 mm (Control)

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® K 4/8 screw termination** | | | | |
| 44424053 | EPIC® K 4/8 SS | male | 4 + 8 + PE | 10 |
| 44424054 | EPIC® K 4/8 BS | female | 4 + 8 + PE | 10 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 8/24

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Renewable energy
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 230 V / 400 V

**Rated impulse voltage**
4 kV
2.5 kV

**Rated current (A)**
16 A
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
8 + 24 + PE

**Termination methods**
Crimp termination: 0.14 - 4.0 mm²
Crimp termination: 0.14 - 2.5 mm²

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 8/24** | | | |
| 381167278 | female | 36 | 1 |
| 381167277 | male | 36 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 4/4

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Suitable housing

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system
- EPIC® Docking frame

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
250 V

**Rated impulse voltage**
8 kV
4 kV

**Rated current (A)**
63 A
16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
4 + 4 + PE

**Termination methods**
Axial Screw termination: 6 - 16 mm²
Cage clamp termination: 0.14 - 2.5 mm²

**Stripping length (mm)**
11
9

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 4/4** | | | |
| 381167281 | female | 8 | 1 |
| 381167279 | male | 8 | 1 |
| 381167282 | female | 8 | 1 |
| 381167280 | male | 8 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 6/6

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Suitable housing

- EPIC® H-B 16
- EPIC® ULTRA H-B 16
- EPIC® QUICK & EASY Mounting system
- EPIC® Docking frame

## Benefits

- Power and control in one connector insert
- Best in combination with ÖLFLEX® SERVO

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
400 V Control

**Rated impulse voltage**
8 kV
4 kV

**Rated current (A)**
100 A
16 A Control

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
6 + 6 + PE

**Termination methods**
Screw termination: 1.5 - 16.0 mm² (power contact)
Screw termination: 0.5 - 2.5 mm² (control contact)

**Stripping length (mm)**
13
7

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 6/6** | | | |
| 381167284 | female | 12 | 1 |
| 381167283 | male | 12 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 6/12

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
IEC: 230 V / 400 V

**Rated impulse voltage**
6 kV
4 kV

**Rated current (A)**
IEC: 40 A
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
6 + 12 + PE

**Termination methods**
Axial Screw: 2.5 - 10 mm²
Screw: 0.25 -2.5 mm²

**Stripping length (mm)**
8
7

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

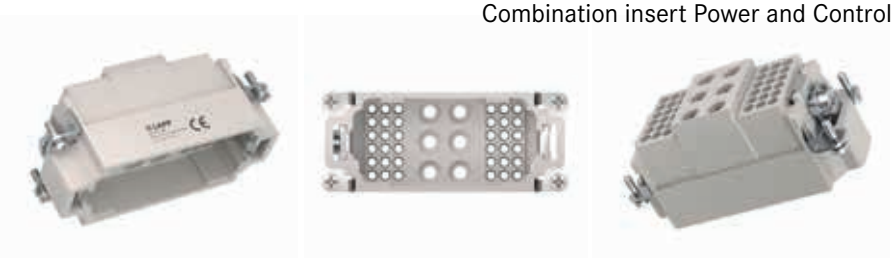
**Temperature range**
-40 °C to +125 °C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 6/12** | | | |
| 381167287 | female | 1 - 18 | 1 |
| 381167285 | male | 1 - 18 | 1 |
| 381167288 | female | 1 - 18 | 1 |
| 381167286 | male | 1 - 18 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 6/36

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
400 V Control

**Rated impulse voltage**
8 kV
2.5 kV

**Rated current (A)**
IEC: 40 A
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
6 + 36 + PE

**Termination methods**
Crimp termination: 1.5 - 6 mm²
Crimp termination: 0.14 - 2.5 mm²

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 6/36** | | | |
| 381167290 | female | 1 - 42 | 1 |
| 381167289 | male | 1 - 42 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 12/2

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
250 V

**Rated impulse voltage**
8 kV
4 kV

**Rated current (A)**
IEC: 40 A
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
12 + 2 + PE

**Termination methods**
Crimp termination: 1.5 - 6 mm²
Crimp termination: 0.14 - 2.5 mm²

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 12/2** | | | |
| 381167292 | female | 1 - 14 | 1 |
| 381167291 | male | 1 - 14 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 6/6

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V
400 V Control

**Rated impulse voltage**
8 kV
6 kV

**Rated current (A)**
80 A Power
16 A Control

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
6 + 6 + PE

**Termination methods**
Axial screw connection: 16 - 35 mm²
Screw: 0.25 -2.5 mm²

**Stripping length (mm)**
13
7

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 6/6** | | | |
| 381167294 | female | 12 | 1 |
| 381167293 | male | 12 | 1 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

# EPIC® H-K 8/0

Combination insert Power and Control



**Info**

- Combination insert Power and Control

## Benefits

- Power and control in one connector insert

## Application range

- Mechanical engineering
- Control engineering
- Renewable energy

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
690 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
100 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
8 + 0 + PE

**Termination methods**
Axial Screw: 10 - 25 mm²

**Stripping length (mm)**
14 ± 0.5 mm (Power)

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +125°C

| Article number | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|
| **EPIC® H-K 8/0** | | | |
| 381167296 | female | 8 | 1 |
| 381167295 | male | 8 | 1 |

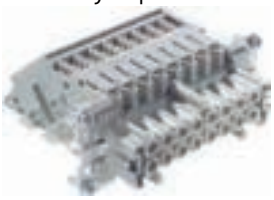
PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
To connect stranded conductors, use a end sleeve.

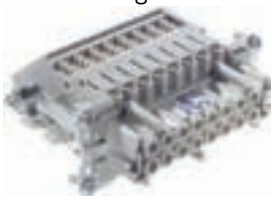

EPIC®

## EPIC® TB-H-BE 16

For convenient, clear wiring in control cabinets.

Assembly in panel-mount base housings.





**Info**

- Plug connection for control cabinets
- Size with 6 and 10 contacts online

## EPIC® TB-H-BE 24

For convenient, clear wiring in control cabinets.

Assembly in panel-mount base housings.





**Info**

- Plug connection for control cabinets
- Size with 6 and 10 contacts online

### Suitable housing

**EPIC® TB-H-BE 16**

- EPIC® ULTRA H-B 16 AG QB
- EPIC® H-B 16 AG-LB
- EPIC® H-B 16 AD-LB
- EPIC® H-B 16 AG
- EPIC® H-B 16 AD-BO

**EPIC® TB-H-BE 24**

- EPIC® ULTRA H-B 24 AG QB
- EPIC® H-B 24 AG-LB
- EPIC® H-B 24 AD-LB
- EPIC® H-B 24 AG
- EPIC® H-B 24 AD-BO

### Benefits

- Standard H-BE inserts for use with switch cabinets
- Pluggable with H-BE male inserts in hoods
- Fastening on side = “left” means that when mounting the terminal adapter on the left wall of a control cabinet, the PE connection and pin “1” are on the “top” side

### Application range

- Control cabinet manufacturing
- Plant engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
IEC: 500 VUL: 600 VCSA: 600 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
IEC: 16 A
UL: 16 A
CSA: 16 A

**Pollution degree**
3

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® TB-H-BE 16**
16 + PE
**EPIC® TB-H-BE 24**
24 + PE

**Termination methods**
Screw termination: 0.5 - 4.0 mm²

**Stripping length (mm)**
13

**Cycle of mechanical operation**
200

**VDE-tested**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Fastening on side | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **16-pin terminal adapter** | | | | | |
| 70315100 | TB-H-BE 16 BRE | female | right | 1 - 16 | 10 |
| 70314100 | TB-H-BE 16 BLI | female | left | 1 - 16 | 10 |
| **24-pin terminal adapter** | | | | | |
| 70317100 | TB-H-BE 24 BRE | female | right | 1 - 24 | 10 |
| 70316100 | TB-H-BE 24 BLI | female | left | 1 - 24 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 1 250A

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- High current module up to 250A with touch protection for maximum safety
- Modular connector system, mateable with the market standard



# EPIC® MH 1 PE 250A

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Protective earth conductor module for a safe PE connection
- Modular connector system, mateable with the market standard



## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame

## Suitable contacts

**EPIC® MH 1 250A**

- EPIC® MH 10.0mm Contacts

**EPIC® MH 1 PE 250A**

- EPIC® MH PE 10.0mm Contacts

## Benefits

**EPIC® MH 1 250A**

- High power module 1 pole for high power transmission
- Touch protection for maximum safety of the user (protected)
- Crimp connection up to 95mm² for maximum contact safety with the cable
- Protective earth conductor (PE) for a safe PE connection with connection to the frame and housing
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
1000 V AC/DC

**Rated impulse voltage**
8 kV

**Rated current (A)**
250

**Pollution degree**
3

**Flammability**
UL94 V-0

**Number of contacts**
1

**Termination methods**
**EPIC® MH 1 250A**
Crimp termination: 25mm² ... 95mm²
**EPIC® MH 1 PE 250A**
Crimp termination: 25mm² ... 95mm²
Stranded wire for PE connection to the module frame

**Material**
PA Polyamid

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +120°C

**EPIC® MH 1 PE 250A**

- Modular connector system, plugable with the market standard
- Protective earth conductor module (PE) for a safe PE connection with connection to the frame and housing
- Crimp connection up to 95mm² for maximum contact safety with the cable
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Renewable energy
- Test equipment building
- Plant engineering
- Railway applications / vehicle construction

| Article number | Article description | Contact type | Slots | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH 1 250A** | | | | |
| 44423342 | EPIC® MHS 1 CM 250A | male | 2 | 10 |
| 44423328 | EPIC® MHS 1 CM 250A protected | male | 2 | 10 |
| 44423329 | EPIC® MHB 1 CM 250A protected | female | 2 | 10 |
| **EPIC® MH 1 PE 250A** | | | | |
| 44423354 | EPIC® MHS 1 PE CM 250A | male | 2 | 1 |
| 44423355 | EPIC® MHB 1 PE CM 250A | female | 2 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 2 100A

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- High power module 2 pole for compact power transmission

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® MH 8.0mm Contacts

## Benefits

- High power module 2 pole for compact power transmission
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
100 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
2

**Termination methods**
Crimp termination: 10 mm² ... 35 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 2 100A** | | | | | |
| 44423212 | EPIC® MHS 2 CM | male | 2 | 2 | 10 |
| 44423213 | EPIC® MHB 2 CM | female | 2 | 2 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 2 40A

High flexibility by the use of any combination of inserts in one connector

**Info**

- Modular connector system, plugable with the market standard
- Power module 2 pole for compact power transmission



44423364



44423365

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® MH 4.0mm Contacts

## Benefits

- High power module 2 pole for compact power transmission
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
40 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
2

**Termination methods**
Crimp termination: 1.5 - 10 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 2 40A** | | | | | |
| 44423364 | EPIC® MHS 2 40A CM | male | 2 | 1 | 10 |
| 44423365 | EPIC® MHB 2 40A CM | female | 2 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 3

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Power module 3 pole for compact power transmission

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® MH 4.0mm Contacts

## Benefits

- Power module 3 pole for compact power transmission
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
400 V (conductor - ground)
690 V (conductor - conductor)

**Rated impulse voltage**
8 kV

**Rated current (A)**
40

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
3

**Termination methods**
Crimp termination: 1.5 - 10 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 3** | | | | | |
| 44423214 | EPIC® MHS 3 CM | male | 3 | 1 | 10 |
| 44423215 | EPIC® MHB 3 CM | female | 3 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 4

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Power module 4 pole for compact power transmission

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® MH 4.0mm Contacts

## Benefits

- Power module 4 pole for compact power transmission
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
830 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
40

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
4

**Termination methods**
Crimp termination: 1.5 - 10 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 4** | | | | | |
| 44423216 | EPIC® MHS 4 CM | male | 4 | 1 | 10 |
| 44423217 | EPIC® MHB 4 CM | female | 4 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 6

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Module 6 pole for control signals

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts

## Benefits

- Module 6 pole for control signals
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
500

**Rated impulse voltage**
6 kV

**Rated current (A)**
16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
6

**Termination methods**
Crimp termination

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 6** | | | | | |
| 44423218 | EPIC® MHS 6 CM | male | 6 | 1 | 10 |
| 44423219 | EPIC® MHB 6 CM | female | 6 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 8

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Module 8 pole for control signals

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts

## Benefits

- Module 8 pole for control signals
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
400 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
8

**Termination methods**
Crimp termination

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 8** | | | | | |
| 44423220 | EPIC® MHS 8 CM | male | 8 | 1 | 10 |
| 44423221 | EPIC® MHB 8 CM | female | 8 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 12

High flexibility by the use of any combination of inserts in one connector





**Info**

- Modular connector system, plugable with the market standard
- Module 12 pole for control signals

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Module 12 pole for control signals
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
250 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
12

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 12** | | | | | |
| 44423222 | EPIC® MHS 12 CM | male | 12 | 1 | 10 |
| 44423223 | EPIC® MHB 12 CM | female | 12 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 17

High flexibility by the use of any combination of inserts in one connector



## Info

- Modular connector system, plugable with the market standard
- Universal module for 17 contacts in smallest space

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Universal module for 17 contacts in smallest space
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
160 V

**Rated impulse voltage**
2.5 kV

**Rated current (A)**
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
17

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 17** | | | | | |
| 44423224 | EPIC® MHS 17 CM | male | 17 | 1 | 10 |
| 44423225 | EPIC® MHB 17 CM | female | 17 | 1 | 10 |

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# EPIC® MH 20

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Double module 20 pole for control signals

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-BE 2.5 machined contacts

## Benefits

- Double module 20 pole for control signals
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
500

**Rated impulse voltage**
6 kV

**Rated current (A)**
16 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
20

**Termination methods**
Crimp termination: 0.14 - 4.0 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 20** | | | | | |
| 44423226 | EPIC® MHS 20 CM | male | 20 | 2 | 10 |
| 44423227 | EPIC® MHB 20 CM | female | 20 | 2 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 36

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Double module for 36 contacts in smallest space

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Suitable contacts

- EPIC® H-D 1.6 machined contacts

## Benefits

- Double module for 36 contacts in smallest space
- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
250 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
10 A

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
36

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
Polyamide, glass fibre-reinforced

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH 36** | | | | | |
| 44423266 | EPIC® MHS 36 CM | male | 36 | 2 | 10 |
| 44423267 | EPIC® MHB 36 CM | female | 36 | 2 | 10 |

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# EPIC® MH LWL Modul LC

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- Fire Optic module for fitting 6 fiber optics LC connector in one module
- Modular connector system, mateable with the market standard

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame

## Benefits

- Fire Optic module for fitting 6 fiber optics LC connector in one module
- No EMC influences on the fiber optic data transmission
- EPIC® MH LWL Module is mateable with the market standard
- Integrated coupling element (sleeve) in one module for direct connection and exact positioning of the connection
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Renewable energy
- Test equipment building
- Plant engineering
- Railway applications / vehicle construction

## Suitable cables

- For fibre optics 50 - 62,5 / 125 µm and singlemode suitable

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Flammability**
UL94 V-0

**Number of contacts**
6

**Material**
PA Polyamid

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +120 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH LWL Modul LC** | | | | | |
| 44423340 | EPIC® MHS 6 LWL LC | male | 6 | 1 | 1 |
| 44423341 | EPIC® MHB 6 LWL LC | female | 6 | 1 | 1 |

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# EPIC® MH Gigabit Modul

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- Modular connector system, mateable with the market standard
- Gigabit module for Ethernet data rates up to 10 GBit/s, Cat. 7

## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame

## Suitable contacts

- EPIC® MH 1.0mm contacts machined

## Benefits

- Gigabit module, all around shielded, 4 pair of wires, in conjunction with Cat.7 CU cables, a transmission rate up to max. 10 GBit/s (according IEEE 802.3) is achieved
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Industrial machinery and plant engineering
- Industry 4.0 applications
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Rated voltage (V)**
50

**Rated impulse voltage**
0,8 kV

**Rated current (A)**
5

**Flammability**
UL94 V-0

**Number of contacts**
8

**Material**
PA Polyamid
Zinc die-cast

**Cycle of mechanical operation**
500

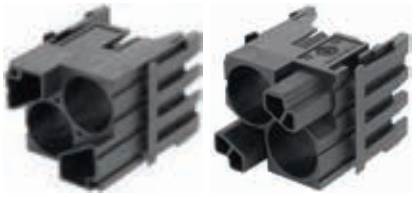
**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Clamping range in mm | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH Gigabit Kit** | | | | | |
| 44423291 | EPIC® MHS Gigabit Kit small | male | 5.0 - 7.0 | 1 | 1 |
| 44423292 | EPIC® MHB Gigabit Kit small | female | 5.0 - 7.0 | 1 | 1 |
| 44423326 | EPIC® MHS Gigabit Kit medium | male | 7.0 - 10.0 | 1 | 1 |
| 44423327 | EPIC® MHB Gigabit Kit medium | female | 7.0 - 10.0 | 1 | 1 |
| **EPIC® MH Gigabit Insulating body** | | | | | |
| 44423276 | EPIC® MHS Gigabit | male | | 1 | 10 |
| 44423277 | EPIC® MHB Gigabit | female | | 1 | 10 |
| **EPIC® MH Gigabit contact body metal** | | | | | |
| 44423278 | EPIC® MHS Gigabit PIN | male | | | 10 |
| 44423279 | EPIC® MHS Gigabit PIN + GND | male | | | 10 |
| 44423280 | EPIC® MHB Gigabit PIN | female | | | 10 |
| 44423281 | EPIC® MHB Gigabit PIN + GND | female | | | 10 |
| **EPIC® MH Gigabit cable clamp** | | | | | |
| 44423282 | EPIC® MH Clamp 5 - 7 mm | | 5.0 - 7.0 | | 10 |
| 44423283 | EPIC® MH Clamp 7 - 10 mm | | 7.0 - 10.0 | | 10 |
| 44423284 | EPIC® MH Clamp 10 - 12 mm | | 10.0 - 12.0 | | 10 |

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# EPIC® MH BUS

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e

# EPIC® MH Bus PIN 1x(4) contact holder

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e

## Suitable housing

**EPIC® MH BUS**

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® MH Bus PIN 1x(4) contact holder
- EPIC® MH Coax 1.6mm
- EPIC® MH Coax 2.5mm
- EPIC® H-B housing use in high version

## Suitable contacts

**EPIC® MH BUS**

- EPIC® H-D 1.6 machined contacts
- EPIC® MH Bus PIN 1x(4) contact holder
- EPIC® MH Coax 1.6mm
- EPIC® MH Coax 2.5mm
- EPIC® MH Potential set

**EPIC® MH Bus PIN 1x(4) contact holder**

- EPIC® H-D 1.6 machined contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
50

**Rated impulse voltage**
0,8 kV

**Rated current (A)**
10

**Pollution degree**
3

**Flammability**
UL94 V-0

**EPIC® MH Bus PIN 1x(4) contact holder**
4

**Termination methods**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PA

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

## Benefits

- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e
- EPIC® MH system is mateable with the market standard
- Crimp connection for permanent vibration proof contacting
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® MH BUS** | | | | | |
| 44423228 | EPIC® MHS Bus | male | 2 | 2 | 10 |
| 44423230 | EPIC® MHB Bus | female | 2 | 2 | 10 |
| **EPIC® MH BUS PIN 1x(4) contact holder** | | | | | |
| 44423229 | EPIC® MHS Bus PIN 1x(4) CM | male | 4 + shield | | 10 |
| 44423231 | EPIC® MHB Bus PIN 1x(4) CM | female | 4 + shield | | 10 |

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## EPIC® MH Coax 1.6mm

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Modular connector system, mateable with the market standard
- Shielded modul for data and signal transmission.



## EPIC® MH Coax 2.5mm

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Modular connector system, mateable with the market standard
- Shielded modul for data and signal transmission.



### Suitable contacts

**EPIC® MH Coax 1.6mm**

- EPIC® H-D 1.6 machined contacts

**EPIC® MH Coax 2.5mm**

- EPIC® H-BE 2.5 machined contacts

### Benefits

- Shielded modul for data and signal transmission.
- Modular connector system, plugable with the market standard
- Crimp connection for permanent vibration proof contacting
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- The mix of different functions in one plug guarantees high flexibility

### Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
50

**Rated impulse voltage**
0,8 kV

**Rated current (A)**
16

**Pollution degree**
3

**Flammability**
UL94 V-0

**Number of contacts**
1

**Cycle of mechanical operation**
500

**Certifications**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH Coax 1.6mm** | | | | |
| 44423260 | EPIC® MHS Coax D=1.6mm | male | 1 | 10 |
| 44423261 | EPIC® MHB Coax D=1.6mm | female | 1 | 10 |
| **EPIC® MH Coax 2.5mm** | | | | |
| 44423262 | EPIC® MHS Coax D=2.5mm | male | 1 | 10 |
| 44423263 | EPIC® MHB Coax D=2.5mm | female | 1 | 10 |

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# EPIC® MH Potential set

High flexibility by the use of any combination of inserts in one connector



## Benefits

- Potential spring for EPIC® MH multi frame
- For use in EPIC® MH BUS modules
- Two springs can be used for an EPIC® MH BUS module

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Info

- Potential spring for EPIC® MH multi frame

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors

**Temperature range**
-40°C to +125°C

| Article number | Article description | Contact type | Pieces / PU |
|---|---|---|---|
| **EPIC® MH Potential set** | | | |
| 44423265 | EPIC® MHS Potential Set | male | 20 |
| 44423275 | EPIC® MHB Potential Set | female | 20 |

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# EPIC® MH 0 blind modul

High flexibility by the use of any combination of inserts in one connector

**Info**

- Modular connector system, plugable with the market standard
- Dummy module as a placeholder for future expansion



## Suitable housing

- EPIC® MH 6 multi frame
- EPIC® MH 10 multi frame
- EPIC® MH 16 multi frame
- EPIC® MH 24 multi frame
- EPIC® H-B housing use in high version

## Benefits

- Dummy module as a placeholder for future expansion
- EPIC® MH system is mateable with the market standard
- “Z” version with centering function for plug in technique
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Number of contacts**
0

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40 °C to +125 °C

| Article number | Article description | Slots | Pieces / PU |
|---|---|---|---|
| **EPIC® MH 0 blind modul** | | | |
| 44423232 | EPIC® MH 0 | 1 | 10 |
| **EPIC® MH 0 blind modul with centering** | | | |
| 44423233 | EPIC® MH 0 Z | 1 | 10 |

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## EPIC® MH 6 multi frame

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Frame system for modules

## EPIC® MH 10 multi frame

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Frame system for modules

## EPIC® MH 16 multi frame

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Frame system for modules

## EPIC® MH 24 multi frame

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Frame system for modules

## EPIC® MH Clip

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard
- Adapter clip for modules of competition

## Suitable housing

- EPIC® H-B housing use in high version

**EPIC® MH 6 multi frame**

- EPIC® H-B 6
- EPIC® ULTRA H-B 6

**EPIC® MH 10 multi frame**

- EPIC® H-B 10
- EPIC® ULTRA H-B 10

**EPIC® MH 16 multi frame**

- EPIC® H-B 16
- EPIC® ULTRA H-B 16

**EPIC® MH 24 multi frame**

- EPIC® H-B 24
- EPIC® ULTRA H-B 24

## Benefits

**EPIC® MH 6 multi frame**
**EPIC® MH 10 multi frame**
**EPIC® MH 16 multi frame**
**EPIC® MH 24 multi frame**

- Multi frame for own and competition modules
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL3
- PE connection from 1mm² up to 6mm² with end sleeve, 10mm² with adapter

**EPIC® MH Clip**

- EPIC® MH Clip for mounting of competition modules in EPIC® MH frame

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Material**
**EPIC® MH 6 multi frame**
**EPIC® MH 10 multi frame**
**EPIC® MH 16 multi frame**
**EPIC® MH 24 multi frame**
Zinc die-cast

**Cycle of mechanical operation**
**EPIC® MH 6 multi frame**
**EPIC® MH 10 multi frame**
**EPIC® MH 16 multi frame**
**EPIC® MH 24 multi frame**
500

**Temperature range**
-40 °C ... +125 °C

| Article number | Article description | Contact type | Slots | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH 6 multi frame** | | | | |
| 44423234 | EPIC® MHS 6 R (A,B) | male | 2 | 10 |
| 44423235 | EPIC® MHB 6 R (a, b) | female | 2 | 10 |
| **EPIC® MH 10 multi frame** | | | | |
| 44423236 | EPIC® MHS 10 R (A, B, C) | male | 3 | 10 |
| 44423237 | EPIC® MHB 10 R (a, b, c) | female | 3 | 10 |
| **EPIC® MH 16 multi frame** | | | | |
| 44423238 | EPIC® MHS 16 R (A, B, C, D) | male | 4 | 10 |
| 44423239 | EPIC® MHB 16 R (a, b, c, d) | female | 4 | 10 |
| **EPIC® MH 24 multi frame** | | | | |
| 44423240 | EPIC® MHS 24 R (A, B, C, D, E, F) | male | 6 | 10 |
| 44423241 | EPIC® MHB 24 R (a, b, c, d, e, f) | female | 6 | 10 |
| **EPIC® MH Clip** | | | | |
| 44423264 | EPIC® MH Clip | | | 20 |

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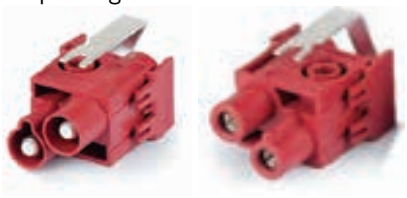
## Accessories

**EPIC® MH 6 multi frame**
**EPIC® MH 10 multi frame**
**EPIC® MH 16 multi frame**
**EPIC® MH 24 multi frame**

- EPIC® MH Clip

## EPIC® MC module: HC1+PE

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- High power module with screw connection and reinforced protection earth
- Lever for rapid removal of the module

## EPIC® MC module: HC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- High power module 2 pole with screw connection
- Lever for rapid removal of the module

### Suitable housing

- EPIC® MCR 6
- EPIC® MCR 10
- EPIC® MCR 16
- EPIC® MCR 24
- Higher housing
- The suitable connector housings depend on the modular frame used

### Benefits

**EPIC® MC module: HC1+PE**

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm² for easy assembly without speciall tools
- Separate protective conductor for increased safety

**EPIC® MC module: HC2**

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm² for easy assembly without speciall tools

### Application range

- Plant engineering
- Printing machines
- Control engineering

### Suitable tools

**EPIC® MC module: HC1+PE**

- Crimping tool for single contacts
- When connecting 25 mm² cables, please use the special crimping die (11147500) for the cable-end sleeves

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
IEC: 1000 V
UL: 600 V
CSA: 600 V

**Rated current (A)**
82 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® MC module: HC1+PE**
1 + PE
**EPIC® MC module: HC2**
2

**Termination methods**
Screw termination: 10 - 25 mm²

**Stripping length (mm)**
15

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control:
VDE-REG. no. A870
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: high current 1-pin + PE** | | | | | |
| 10344600 | MCS-HC 1+PE | male | 1 + PE | 2 | 5 |
| 10345600 | MCB-HC 1+PE | female | 1 + PE | 2 | 5 |
| **Module: high current 2-pin** | | | | | |
| 10344100 | MCS-HC 2 | male | 2 | 2 | 5 |
| 10345100 | MCB-HC 2 | female | 2 | 2 | 5 |

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## Power module: HC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- High current with only one module slot



## Power module: HHC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- High current for sufficient power reserves
- Lever for rapid removal of the module



## Power module: HHC1

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Extremely high current for sufficient power reserves
- Lever for rapid removal of the module



### Suitable housing

- EPIC® MCR 6
- EPIC® MCR 10
- EPIC® MCR 16
- EPIC® MCR 24
- EPIC® H-B housing use in high version

### Suitable contacts

**Power module: HC2**

- EPIC® MC 3.6 machined contacts 16 mm²
- Use only EPIC® MC 3.6 contacts 16mm²

**Power module: HHC2**

- MC 6.0 machined contacts

**Power module: HHC1**

- MC 10.0 machined contacts

### Benefits

- High current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contacting

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
1000

**Rated impulse voltage**
8 kV

**Rated current (A)**
**Power module: HC2**
65
**Power module: HHC2**
150
**Power module: HHC1**
220

**Pollution degree**
3

**Number of contacts**
**Power module: HC2**
**Power module: HHC2**
2
**Power module: HHC1**
1

**Termination methods**
**Power module: HC2**
Crimp termination: 16.0 mm²
**Power module: HHC2**
Crimp termination: 16 mm² ... 35 mm²
**Power module: HHC1**
Crimp termination: 50 mm² ... 95mm²

**Material**
PA6

**Cycle of mechanical operation**
500

**Temperature range**
-40°C to +125°C

### Application range

- Industrial machinery and plant engineering
- Robotics industry
- Control engineering
- Renewable energy

| Article number | Article description | Contact type | Slots | Pieces / PU |
|---|---|---|---|---|
| **Power module: HC2** | | | | |
| 44424012 | EPIC® MCS HC2 | male | 1 | 10 |
| 44424013 | EPIC® MCB HC2 | female | 1 | 10 |
| **Power module: HHC2** | | | | |
| 44424017 | MCS HHC2 | male | 2 | 10 |
| 44424018 | MCB HHC2 | female | 2 | 10 |
| **Power module: HHC1** | | | | |
| 44424030 | MCS HHC1 | male | 2 | 10 |
| 44424031 | MCB HHC1 | female | 2 | 10 |

PE connection with a 16mm² wire only with the recommended ring lug 44424029 / The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC module: HC3

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- Very high current transfer in a small space

## Suitable housing

- EPIC® MCR 6
- EPIC® MCR 10
- EPIC® MCR 16
- EPIC® MCR 24
- The suitable connector housings depend on the modular frame used

## Suitable contacts

- EPIC® MC 3.6 machined contacts

## Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

## Application range

- Plant engineering
- Printing machines
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
1000 V

**Rated current (A)**
50 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
3

**Termination methods**
Crimp termination: 1.5 - 10 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: high voltage 3-pin** | | | | | |
| 10399800 | MCS 3 CM-HV | male | 3 | 1 | 10 |
| 10399900 | MCB 3 CM-HV | female | 3 | 1 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® MC module: HC4+PE

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Suitable for processing with contacts on reel
- For automated production with crimping machine



## EPIC® MC Module: 3 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Very high current transfer in a small space



## EPIC® MC Module: HE 4 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Lever for rapid removal of the module



### Suitable housing

- EPIC® MCR frame
- The suitable connector housings depend on the modular frame used

### Suitable contacts

**EPIC® MC module: HC4+PE**

- EPIC® MC 2.5 stamped contacts
- EPIC® MC 2.5 stamped contacts-on-reel

**EPIC® MC Module: 3 pole**

- EPIC® MC 3.6 machined contacts

**EPIC® MC Module: HE 4 pole**

- EPIC® H-BE 2.5 machined contacts

### Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

### Application range

- Plant engineering
- Printing machines
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
**EPIC® MC module: HC4+PE**
1000 V
**EPIC® MC Module: 3 pole**
**EPIC® MC Module: HE 4 pole**
630 V

**Rated current (A)**
**EPIC® MC module: HC4+PE**
16 A
**EPIC® MC Module: 3 pole**
40
**EPIC® MC Module: HE 4 pole**
25 A

**Pollution degree**
3

**Contact resistance**
< 2 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Number of contacts**
**EPIC® MC module: HC4+PE**
4 + PE
**EPIC® MC Module: 3 pole**
3
**EPIC® MC Module: HE 4 pole**
4

**Termination methods**
**EPIC® MC module: HC4+PE**
Crimp termination: 0.5 - 2.5 mm²
**EPIC® MC Module: 3 pole**
Crimp termination: 1.5 - 10 mm²
**EPIC® MC Module: HE 4 pole**
Crimp termination: 0.5 - 4.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
**EPIC® MC module: HC4+PE**
**EPIC® MC Module: 3 pole**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: high voltage 4-pin + PE** | | | | | |
| 10383200 | MCS 5 CG | male | 4 + PE | 1 | 10 |
| 10383300 | MCB 5 CG | female | 4 + PE | 1 | 10 |
| **Module: 3-pin** | | | | | |
| 10382000 | MCS 3 CM | male | 3 | 1 | 10 |
| 10382100 | MCB 3 CM | female | 3 | 1 | 10 |
| **Module: 4-pin HE** | | | | | |
| 10399000 | MCS 4 CM | male | 4 | 1 | 10 |
| 10399100 | MCB 4 CM | female | 4 | 1 | 10 |

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## EPIC® MC Module: 5 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



## EPIC® MC Module: 10pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- Ideal for data transmission

### Suitable housing

- EPIC® MCR frame
- The suitable connector housings depend on the modular frame used

### Suitable contacts

**EPIC® MC Module: 5 pole**

- EPIC® MC 2.5 machined contacts

**EPIC® MC Module: 10pole**

- EPIC® H-D 1.6 machined contacts

### Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

### Application range

- Plant engineering
- Printing machines
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
**EPIC® MC Module: 5 pole**
400 V
**EPIC® MC Module: 10pole**
IEC: 250 V
UL: 600 V
CSA: 600 V

**Rated current (A)**
**EPIC® MC Module: Cage clamp 4 pole**
**EPIC® MC Module: 5 pole**
20 A
**EPIC® MC Module: 10pole**
max. 10 A

**Pollution degree**
3

**Contact resistance**
**EPIC® MC Module: 5 pole**
**EPIC® MC Module: 10pole**
< 2 mOhm

**Contacts**
**EPIC® MC Module: 5 pole**
Copper alloy, hard silver-plated
**EPIC® MC Module: 10pole**
Copper alloy, hard silver/gold-plated

**Number of contacts**
**EPIC® MC Module: 5 pole**
5
**EPIC® MC Module: 10pole**
10

**Termination methods**
**EPIC® MC Module: 5 pole**
Crimp termination: 0.5 - 4.0 mm²
**EPIC® MC Module: 10pole**
Crimp termination: 0.14 - 2.5 mm²

**Cycle of mechanical operation**
100

**EPIC® MC Module: 5 pole**
UL-tested:
UL File Number: E75770
**EPIC® MC Module: 10pole**
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: 5-pin** | | | | | |
| 10382200 | MCS 5 CM | male | 5 | 1 | 10 |
| 10382300 | MCB 5 CM | female | 5 | 1 | 10 |
| **Module: 10-pin** | | | | | |
| 10382400 | MCS 10 CM | male | 10 | 1 | 10 |
| 10382500 | MCB 10 CM | female | 10 | 1 | 10 |

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## EPIC® MC Module: 10pole stamped

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Suitable for processing with contacts on reel
- For automated production with crimping machine



## EPIC® MC Module: 20pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Suitable for processing with contacts on reel
- For automated production with crimping machine



## EPIC® MC Dummy Module

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Dummy module as a placeholder for future expansion



### Suitable housing

- EPIC® MCR frame
- The suitable connector housings depend on the modular frame used

### Suitable contacts

**EPIC® MC Module: 10pole stamped**

- EPIC® H-D 1.6 stamped contacts
- EPIC® H-D 1.6 stamped contacts-on-reel

**EPIC® MC Module: 20pole**

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel

### Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

### Application range

- Plant engineering
- Printing machines
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
**EPIC® MC Module: 10pole stamped**
250 V
**EPIC® MC Module: 20pole**
100 V

**Rated current (A)**
**EPIC® MC Module: 10pole stamped**
max. 10 A
**EPIC® MC Module: 20pole**
4 A

**Pollution degree**
**EPIC® MC Module: 10pole stamped**
3
**EPIC® MC Module: 20pole**
3

**Contact resistance**
**EPIC® MC Module: 10pole stamped**
< 2 mOhm

**Contacts**
**EPIC® MC Module: 10pole stamped**
Copper alloy, hard silver/gold-plated
**EPIC® MC Module: 20pole**
Copper alloy, gold-plated

**Number of contacts**
**EPIC® MC Module: 10pole stamped**
10
**EPIC® MC Module: 20pole**
20

**Termination methods**
**EPIC® MC Module: 10pole stamped**
Crimp termination: 0.14 - 2.5 mm²
**EPIC® MC Module: 20pole**
Crimp termination: 0.08 - 0.56 mm²

**Cycle of mechanical operation**
**EPIC® MC Module: 10pole stamped**
100
**EPIC® MC Module: 20pole**
50

**VDE-tested**
**EPIC® MC Module: 10pole stamped**
**EPIC® MC Module: 20pole**
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: 10-pin** | | | | | |
| 10383400 | MCS 10 CG | male | 10 | 1 | 10 |
| 10383500 | MCB 10 CG | female | 10 | 1 | 10 |
| **Module: 20-pin** | | | | | |
| 10383600 | MCS 20 CG | male | 20 | 1 | 10 |
| 10383700 | MCB 20 CG | female | 20 | 1 | 10 |
| **Dummy module** | | | | | |
| 10399400 | MCS 0 Blind | male | 0 | 1 | 10 |
| 10399500 | MCB 0 Blind | female | 0 | 1 | 10 |

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## EPIC® MC Module: Koax 3 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- RGB video signal transmission in one module

## EPIC® MC Module: PROFIBUS DP

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- PROFIBUS DP module for uninterruptible fieldbus operation
- Lever for rapid removal of the module

### Suitable housing

- EPIC® MCR frame
- Higher housing
- The suitable connector housings depend on the modular frame used

### Suitable contacts

**EPIC® MC Module: Koax 3 pole**

- EPIC® MC Coax-Contacts

### Benefits

**EPIC® MC Module: Koax 3 pole**

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

**EPIC® MC Module: PROFIBUS DP**

- Uninterrupible fieldbus operartion when pulling the connector
- Transmission rate up to 12 MBit/s
- Easy assembly by screw connection
- Shielding connection by strain relief

### Application range

- Plant engineering
- Light & sound technology
- Control engineering

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
**EPIC® MC Module: Koax 3 pole**
250 V
**EPIC® MC Module: PROFIBUS DP**
30 V

**EPIC® MC Module: PROFIBUS DP**
1 A

**Pollution degree**
3

**Contact resistance**
**EPIC® MC Module: Koax 3 pole**
< 2,7 mOhm

**Contacts**
Copper alloy, gold-plated

**Number of contacts**
**EPIC® MC Module: Koax 3 pole**
3
**EPIC® MC Module: PROFIBUS DP**
2 / 4 + shield

**Termination methods**
**EPIC® MC Module: Koax 3 pole**
Solder termination: var. coax cables
**EPIC® MC Module: PROFIBUS DP**
Screw termination: for PROFIBUS cable

**Cycle of mechanical operation**
100

**Temperature range**
**EPIC® MC Module: Koax 3 pole**
-40°C to +100°C, short-term up to +125°C
**EPIC® MC Module: PROFIBUS DP**
-20 °C ... +85 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: 3-pin coax** | | | | | |
| 10399200 | MCS 3 coax | male | 3 | 1 | 10 |
| 10399300 | MCB 3 coax | female | 3 | 1 | 10 |
| **Module: PROFIBUS DP** | | | | | |
| 10390400 | MCS 2 SS | male | 2 + shield | 1 | 5 |
| 10390500 | MCS 2 BS | female | 2 + shield | 1 | 5 |

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# EPIC® MC Module: RJ45

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- CAT.5-Performance



## Suitable housing

- EPIC® MCR frame
- Higher housing
- The suitable connector housings depend on the modular frame used

## Suitable contacts

- EPIC® H-D 1.6 machined contacts
- RJ45 connector for this module: CE6326 with 8 IDC contacts, AWG24-26 (Matching assembly tool for mounting crimp tong RJ45 Stewart CE5092)

## Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

## Application range

- Plant engineering
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Rated voltage (V)**
max. 600 V/max. 125 V

**Rated current (A)**
max. 10 A/max. 1.5 A

**Pollution degree**
3

**Contacts**
Copper alloy, gold-plated

**Number of contacts**
4 Power + 8 Data

**Termination methods**
Power: crimp termination: 0.14 - 2.5 mm²,
Data: IDC/piercing termination: Cat5, AWG 24-26

**Cycle of mechanical operation**
100

**Temperature range**
-20 °C ... +85 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: RJ 45 (occupies 2 slots in the frame)** | | | | | |
| 10344300 | MCS 8 RJ45 | male | 4 + 8 | 2 | 5 |
| 10345300 | MCB 8 RJ45 | female | 4 + 8 | 2 | 5 |

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# EPIC® MC Module Pneumatic 1 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Pneumatic modules with valve for 2.5 and 4mm tubings



# EPIC® MC Module Pneumatic 2 pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Pneumatic modules with valve for 2.5 and 4mm tubings



## Suitable housing

- EPIC® MCR frame
- Higher housing
- The suitable connector housings depend on the modular frame used

## Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

## Application range

- Plant engineering
- Printing machines
- Control engineering

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

**Contacts**
Brass

**Number of contacts**
**EPIC® MC Module Pneumatic 1 pole**
1
**EPIC® MC Module Pneumatic 2 pole**
2

**Termination methods**
Plug-in connection: for hose with inner diameter 2.5 mm/4.0 mm

**Cycle of mechanical operation**
100

**Operating presure**
8 bar

**Testing presure**
10 bar

**Temperature range**
-20 °C to +100 °C

| Article number | Article description | Contact type | Number of operating contacts | Slots | Pieces / PU |
|---|---|---|---|---|---|
| **Module: pneumatic 1-pin** | | | | | |
| 44424004 | MCS 1x2,5 PNEU (10) | male | 1 | 1 | 10 |
| 44424005 | MCB 1x2,5 PNEU (10) | female with valve | 1 | 1 | 10 |
| 44424006 | MCS 1x4,0 PNEU (10) | male | 1 | 1 | 10 |
| 44424007 | MCB 1x4,0 PNEU (10) | female with valve | 1 | 1 | 10 |
| **Module: pneumatic 2-pin** | | | | | |
| 44424008 | MCS 2x2,5 PNEU (10) | male | 2 | 1 | 10 |
| 44424009 | MCB 2x2,5 PNEU (10) | female with valve | 2 | 1 | 10 |
| 44424010 | MCS 2x4,0 PNEU (10) | male | 2 | 1 | 10 |
| 44424011 | MCB 2x4,0 PNEU (10) | female with valve | 2 | 1 | 10 |

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# EPIC® MC Module removal tool

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



## Suitable housing

- EPIC® MCR frame

## Benefits

- This tool is used to lift built-in modules out of the module frames

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article description | Pieces / PU |
|---|---|---|
| **MC module removal tool** | | |
| 11171200 | MC module removal tool | 1 |

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## EPIC® MCR 6

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Frame system for modules
- Various functions can be used together in one connector



## EPIC® MCR 10

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Frame system for modules
- Various functions can be used together in one connector



## EPIC® MCR 16

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Frame system for modules
- Various functions can be used together in one connector



## EPIC® MCR 24

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Frame system for modules
- Various functions can be used together in one connector



### Suitable housing

- EPIC® QUICK & EASY Mounting system

**EPIC® MCR 6**
- EPIC® H-B 6
- EPIC® ULTRA H-B 6

**EPIC® MCR 10**
- EPIC® H-B 10
- EPIC® ULTRA H-B 10

**EPIC® MCR 16**
- EPIC® H-B 16
- EPIC® ULTRA H-B 16

**EPIC® MCR 24**
- EPIC® H-B 24
- EPIC® ULTRA H-B 24

### Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

### Product features

- The MCR “male” frame version is designed for use with modules with male contacts; the “female” version is designed for use with modules with female contacts

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002310
ETIM 5.0/6.0 Class-Description: Fixing frame industrial connectors

**VDE-tested**
Certified production control:
VDE-REG. no. A870
UL-tested:
UL File Number: E75770

| Article number | Article | Slots | Version | Pieces / PU |
|---|---|---|---|---|
| **MCR 6 frame** | | | | |
| 10381000 | MCR 6 S | 2 | male | 5 |
| 10381100 | MCR 6 B | 2 | female | 5 |
| **MCR 10 frame** | | | | |
| 10381200 | MCR 10 S | 3 | male | 5 |
| 10381300 | MCR 10 B | 3 | female | 5 |
| **MCR 16 frame** | | | | |
| 10381400 | MCR 16 S | 5 | male | 5 |
| 10381500 | MCR 16 B | 5 | female | 5 |
| **MCR 24 frame** | | | | |
| 10381600 | MCR 24 S | 7 | male | 5 |
| 10381700 | MCR 24 B | 7 | female | 5 |

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# EPIC® MH 1.0mm contacts machined

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



**Info**

- Machined gold plated contacts with 1mm diameter for EPIC® MH Gigabit module
- Gold-plated contacts for low transfer resistance

## Benefits

- Machined gold plated contacts with 1mm diameter for EPIC® MH Gigabit module
- Gold-plated contacts for low transfer resistance

## Application range

- Mechanical and plant engineering
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

## Suitable tools

- EPIC® CRIMP TOOL DIGITAL SMALL

## Technical data

**Stripping length (mm)**
4.2 ± 0.5mm

**Material**
brass gold plated CuZn / Au

**Cycle of mechanical operation**
500

| Article number | Article description | Contact type | Conductor cross-section AWG | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH 1.0mm contacts machined** | | | | |
| 44423285 | EPIC® MH SCEM AU 0.09 - 0.25sqmm D=1.0 | male | 28 - 24 | 100 |
| 44423286 | EPIC® MH BCEM AU 0.09 - 0.25sqmm D=1.0 | female | 28 - 24 | 100 |
| 44423287 | EPIC® MH SCEM AU 0.13 - 0.33sqmm D=1.0 | male | 26 - 22 | 100 |
| 44423288 | EPIC® MH BCEM AU 0.13 - 0.33sqmm D=1.0 | female | 26 - 22 | 100 |
| 44423289 | EPIC® MH SCEM AU 0.25 - 0.52sqmm D=1.0 | male | 24 - 20 | 100 |
| 44423290 | EPIC® MH BCEM AU 0.25 - 0.52sqmm D=1.0 | female | 24 - 20 | 100 |

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# EPIC® M-D 1.0 D-Sub stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Gold plated contacts in 2 quality levels
- For automated production with crimping machine
- 2 crimp areas with wire and insulation crimp



## Suitable tools

- Crimping tool for contacts-on-reel D-Sub
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Note | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 44429011 | EPIC® D-SUB SCBG AU G2 0,08-0,22 (500) | male | 0.08 - 0.22 | Au (0.8 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429007 | EPIC® D-SUB BCBG AU G2 0,08-0,22 (500) | female | 0.08 - 0.22 | Au (0.8 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429013 | EPIC® D-SUB SCBG AU G3 0,08-0,22 (500) | male | 0.08 - 0.22 | Au (0.1 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429009 | EPIC® D-SUB BCBG AU G3 0,08-0,22 (500) | female | 0.08 - 0.22 | Au (0.1 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429012 | EPIC® D-SUB SCBG AU G2 0,22-0,56 (500) | male | 0.22 - 0.56 | Au (0.8 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429008 | EPIC® D-SUB BCBG AU G2 0,22-0,56 (500) | female | 0.22 - 0.56 | Au (0.8 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429014 | EPIC® D-SUB SCBG AU G3 0,22-0,56 (500) | male | 0.22 - 0.56 | Au (0.1 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |
| 44429010 | EPIC® D-SUB BCBG AU G3 0,22-0,56 (500) | female | 0.22 - 0.56 | Au (0.1 µm) | 2.5 + 0.5 | 1 reel (PU) = 500 contacts | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Tools for M-D 1,0 D-Sub contacts-on-reel stamped

For inserts and modules of the EPIC® rectangular connectors






## Suitable contacts

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel

| Article number | Article description | Version | Note | Pieces / PU |
|---|---|---|---|---|
| **Tools** | | | | |
| 11158400 | Crimping tool | In tool case | Crimping dies included, for contacts H-D 1.0 D-Sub (0.08 - 0.56 mm²) | 1 |
| 11132501 | EPIC® Removal Tool M-D 1,0 D-Sub stamped | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 1.6 machined contacts

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Choice of high quality gold or silver plated contacts



## Suitable tools

- EPIC® Tools for contacts H-D 1.6 machined
- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Cross-section identification | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 13162000 | H-D 1.6 machined | male | 0.14 - 0.37 | 1 | Ag | 8.0 | 100 |
| 13163000 | H-D 1.6 machined | female | 0.14 - 0.37 | 1 | Ag | 8.0 | 100 |
| 13162100 | H-D 1.6 machined | male | 0.50 | 2 | Ag | 8.0 | 100 |
| 13163100 | H-D 1.6 machined | female | 0.50 | 2 | Ag | 8.0 | 100 |
| 13162200 | H-D 1.6 machined | male | 0.75 - 1.00 | 3 | Ag | 8.0 | 100 |
| 13163200 | H-D 1.6 machined | female | 0.75 - 1.00 | 3 | Ag | 8.0 | 100 |
| 13162300 | H-D 1.6 machined | male | 1.50 | 4 | Ag | 8.0 | 100 |
| 13163300 | H-D 1.6 machined | female | 1.50 | 4 | Ag | 8.0 | 100 |
| 13162400 | H-D 1.6 machined | male | 2.50 | 5 | Ag | 5.8 | 100 |
| 13163400 | H-D 1.6 machined | female | 2.50 | 5 | Ag | 5.8 | 100 |
| 13162500 | H-D 1.6 machined | male | 0.14 - 0.37 | 1 | Au | 8.0 | 100 |
| 13163500 | H-D 1.6 machined | female | 0.14 - 0.37 | 1 | Au | 8.0 | 100 |
| 13162600 | H-D 1.6 machined | male | 0.50 | 2 | Au | 8.0 | 100 |
| 13163600 | H-D 1.6 machined | female | 0.50 | 2 | Au | 8.0 | 100 |
| 13162700 | H-D 1.6 machined | male | 0.75 - 1.00 | 3 | Au | 8.0 | 100 |
| 13163700 | H-D 1.6 machined | female | 0.75 - 1.00 | 3 | Au | 8.0 | 100 |
| 13162800 | H-D 1.6 machined | male | 1.50 | 4 | Au | 8.0 | 100 |
| 13163800 | H-D 1.6 machined | female | 1.50 | 4 | Au | 8.0 | 100 |
| 13162900 | H-D 1.6 machined | male | 2.50 | 5 | Au | 5.8 | 100 |
| 13163900 | H-D 1.6 machined | female | 2.50 | 5 | Au | 5.8 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Tools for contacts H-D 1.6 machined

For inserts and modules of the EPIC® rectangular connectors



## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Conductor cross-section (mm²) | Version | Note | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tools** | | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | | In tool case | | 1 |
| 11147100 | Crimping dies | For crimping tools<br>11147000, 11147001 | 0.14 - 4.00 | | For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0 | 1 |
| 11147200 | Locator | | | For crimping tools<br>11147000, 11147001 | For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped | 1 |
| 11161001 | EPIC® Removal Tool H-D 1.6 M&F | | | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-D 1.6 stamped contacts

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Choice of high quality gold or silver plated contacts
- 2 crimp areas with wire and insulation crimp

## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Contacts** | | | | | | |
| 11241100 | H-D 1.6 stamped | male | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 100 |
| 11231100 | H-D 1.6 stamped | female | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 100 |
| 11221000 | H-D 1.6 stamped | male | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 100 |
| 11236100 | H-D 1.6 stamped | female | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 100 |
| 11223500 | H-D 1.6 stamped | male | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 100 |
| 11228500 | H-D 1.6 stamped | female | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 100 |
| 11243100 | H-D 1.6 stamped | male | 0.14 - 0.50 | Au | 2.5 + 0.5 | 100 |
| 11233100 | H-D 1.6 stamped | female | 0.14 - 0.50 | Au | 2.5 + 0.5 | 100 |
| 11221300 | H-D 1.6 stamped | male | 0.50 - 1.50 | Au | 3.5 + 0.5 | 100 |
| 11238100 | H-D 1.6 stamped | female | 0.50 - 1.50 | Au | 3.5 + 0.5 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Tools for contacts H-D 1.6 stamped

For inserts and modules of the EPIC® rectangular connectors



## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Version | Note | Pieces / PU |
|---|---|---|---|---|
| **Tools** | | | | |
| 11147000 | Crimping tool | In tool case | | 1 |
| 11147170 | Crimping dies | For crimping tools 11147000, 11147001 | For contacts: H-D 1.6 stamped (0.14 - 0.5 mm²) | 1 |
| 11147180 | Crimping dies | For crimping tools 11147000, 11147001 | For contacts: H-D 1.6 stamped (0.5 - 1.5 mm²), MC 2.5 stamped (0.5 - 1.5 mm²) | 1 |
| 11147190 | Crimping dies | For crimping tools 11147000, 11147001 | For contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²) | 1 |
| 11147300 | Locator | | For contacts: H-D 1.6 machined, H-D 1.6 stamped | 1 |
| 11161001 | EPIC® Removal Tool H-D 1.6 M&F | | | 1 |
| 11161002 | EPIC® Removal Tool H-D 1.6 stamped female | | | 1 |

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# EPIC® H-D 1.6 stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Choice of high quality gold or silver plated contacts
- For automated production with crimping machine
- 2 crimp areas with wire and insulation crimp



**Suitable tools**

- Crimping tool for contacts-on-reel
- Crimping dies for contacts-on-reel
- Locator
- Removal tool

**Technical data**

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Note | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 11240700 | H-D SCBG AG 0.14-0.5 200 LI | male | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11230700 | H-D BCBG AG 0.14-0.5 200 LI | female | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11240400 | H-D SCBG AG 0.14-0.5 2000 LI | male | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11230400 | H-D BCBG AG 0.14-0.5 2000 LI | female | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11240000 | H-D SCBG AG 0.14-0.5 2000 RE | male | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11230000 | H-D BCBG AG 0.14-0.5 2000 RE | female | 0.14 - 0.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11240500 | H-D SCBG AU 0.14-0.5 2000 LI | male | 0.14 - 0.50 | Au | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11230500 | H-D BCBG AU 0.14-0.5 2000 LI | female | 0.14 - 0.50 | Au | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11220700 | H-D SCBG AG 0.5-1.5 200 LI | male | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11235700 | H-D BCBG AG 0.14-0.5 200 LI | female | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11226000 | H-D SCBG AG 0.5-1.5 2000 LI | male | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11226500 | H-D BCBG AG 0.5-1.5 2000 LI | female | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11220000 | H-D SCBG AG 0.5-1.5 2000 RE | male | 0.50 - 1.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11235000 | H-D BCBG AG 0.5-1.5 2000 RE | female | 0.50 - 1.50 | Ag | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11220100 | H-D SCBG AU 0.5-1.5 2000 RE | male | 0.50 - 1.50 | Au | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11235200 | H-D BCBG AG 0.5-1.5 200 LI | female | 0.50 - 1.50 | Au | 2.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11223000 | H-D SCBG AG 1.5-2.5 100 LI | male | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 100 contacts | 1 |
| 11228000 | H-D BCBG AG 1.5-2.5 100 LI | female | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 100 contacts | 1 |
| 11222700 | H-D SCBG AG 1.5-2.5 2000 LI | male | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |
| 11227700 | H-D BCBG AG 1.5-2.5 2000 LI | female | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 2000 contacts | 1 |

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# EPIC® Tools for contacts-on-reel H-D 1.6 stamped

For inserts and modules of the EPIC® rectangular connectors



| Article number | Article description | Version | Note | Pieces / PU |
|---|---|---|---|---|
| **EPIC® Tools for contacts-on-reel H-D 1.6 stamped** | | | | |
| 11153500 | Crimping tool (tongs) | In tool case | Without crimping dies | 1 |
| | | | | |
| | | | | |
| 11153800 | Crimping dies | For crimping tool 11153500 | For ribbon contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²) | 1 |
| 11161001 | EPIC® Removal Tool H-D 1.6 M&F | | | 1 |
| 11161002 | EPIC® Removal Tool H-D 1.6 stamped female | | | 1 |

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# EPIC® H-BE 2.5 machined contacts

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Choice of high quality gold or silver plated contacts

## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Cross-section identification | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 11190000 | H-BE 2.5 machined | male | 0.50 | 0 | Ag | 7.4 | 100 |
| 11195000 | H-BE 2.5 machined | female | 0.50 | 0 | Ag | 7.4 | 100 |
| 11190100 | H-BE 2.5 machined | male | 0.75 - 1.00 | 1 | Ag | 7.4 | 100 |
| 11195100 | H-BE 2.5 machined | female | 0.75 - 1.00 | 1 | Ag | 7.4 | 100 |
| 11190200 | H-BE 2.5 machined | male | 1.50 | 2 | Ag | 7.4 | 100 |
| 11195200 | H-BE 2.5 machined | female | 1.50 | 2 | Ag | 7.4 | 100 |
| 11190300 | H-BE 2.5 machined | male | 2.50 | 3 | Ag | 7.4 | 100 |
| 11195300 | H-BE 2.5 machined | female | 2.50 | 3 | Ag | 7.4 | 100 |
| 11190400 | H-BE 2.5 machined | male | 4.00 | 0 | Ag | 7.4 | 100 |
| 11195400 | H-BE 2.5 machined | female | 4.00 | 0 | Ag | 7.4 | 100 |
| **Contacts** | | | | | | | |
| 11190301 | H-BE 2.5 machined | male | 0.14 - 0.37 | 2 | Au | 7.4 | 100 |
| 11190302 | H-BE 2.5 machined | female | 0.14 - 0.37 | 2 | Au | 7.4 | 100 |
| 11192000 | H-BE 2.5 machined | male | 0.50 | 0 | Au | 7.4 | 100 |
| 11197000 | H-BE 2.5 machined | female | 0.50 | 0 | Au | 7.4 | 100 |
| 11192100 | H-BE 2.5 machined | male | 0.75 - 1.00 | 1 | Au | 7.4 | 100 |
| 11197100 | H-BE 2.5 machined | female | 0.75 - 1.00 | 1 | Au | 7.4 | 100 |
| 11192200 | H-BE 2.5 machined | male | 1.50 | 2 | Au | 7.4 | 100 |
| 11197200 | H-BE 2.5 machined | female | 1.50 | 2 | Au | 7.4 | 100 |
| 11192300 | H-BE 2.5 machined | Pin | 2.50 | 3 | Au | 7.4 | 100 |
| 11197300 | H-BE 2.5 machined | female | 2.50 | 3 | Au | 7.4 | 100 |

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# EPIC® Tools for contacts H-BE 2.5 machined

For inserts and modules of the EPIC® rectangular connectors



## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Conductor cross-section (mm²) | Version | Note | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tools** | | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | | In tool case | | 1 |
| 11147100 | Crimping dies | For crimping tools<br>11147000, 11147001 | 0.14 - 4.00 | | For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0 | 1 |
| 11147200 | Locator | | | For crimping tools<br>11147000, 11147001 | For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped | 1 |
| 11182501 | EPIC® Removal Tool H-BE 2.5 machined | | | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC 2.5 machined contacts

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Silver plated and passivated contacts



## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Version | Conductor cross-section (mm²) | Cross-section identification | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 1121300C | MC 2.5 machined | male | 0.50 | | Ag | 7.8 | 100 |
| 1121800C | MC 2.5 machined | female | 0.50 | | Ag | 7.8 | 100 |
| 1121310C | MC 2.5 machined | male | 1.00 | 1 | Ag | 7.8 | 100 |
| 1121810C | MC 2.5 machined | female | 1.00 | 1 | Ag | 7.8 | 100 |
| 1121320C | MC 2.5 machined | male | 1.50 | 2 | Ag | 7.8 | 100 |
| 1121820C | MC 2.5 machined | female | 1.50 | 2 | Ag | 7.8 | 100 |
| 1121330C | MC 2.5 machined | male | 2.50 | 3 | Ag | 7.8 | 100 |
| 1121830C | MC 2.5 machined | female | 2.50 | 3 | Ag | 7.8 | 100 |
| 1121340C | MC 2.5 machined | male | 4.00 | | Ag | 7.8 | 100 |
| 1121840C | MC 2.5 machined | female | 4.00 | | Ag | 7.8 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Tools for contacts MC 2.5 machined

For inserts and modules of the EPIC® rectangular connectors











## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Conductor cross-section (mm²) | Version | Note | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tools** | | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | | In tool case | | 1 |
| 11147100 | Crimping dies | For crimping tools<br>11147000, 11147001 | 0.14 - 4.00 | | For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0 | 1 |
| 11147200 | Locator | | | For crimping tools<br>11147000, 11147001 | For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped | 1 |
| 11171001 | EPIC® Removal Tool MC 2.5 machined | | | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC 2.5 stamped contacts

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Silver plated and passivated contacts
- 2 crimp areas with wire and insulation crimp

## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Contacts** | | | | | | |
| 11201000 | MC 2.5 stamped | male | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 100 |
| 11205000 | MC 2.5 stamped | female | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 100 |
| 11202000 | MC 2.5 stamped | male | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 100 |
| 11206000 | MC 2.5 stamped | female | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 100 |

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# EPIC® Tools for contacts MC 2.5 stamped

For inserts and modules of the EPIC® rectangular connectors



## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Version | Note | Pieces / PU |
|---|---|---|---|---|---|
| **Tools** | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | In tool case | | 1 |
| 11147180 | Crimping dies | | For crimping tools 11147000, 11147001 | For contacts: H-D 1.6 stamped (0.5 - 1.5 mm²), MC 2.5 stamped (0.5 - 1.5 mm²) | 1 |
| 11147190 | Crimping dies | | For crimping tools 11147000, 11147001 | For contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²) | 1 |
| 11147300 | Locator | | | For contacts: H-D 1.6 machined, H-D 1.6 stamped | 1 |
| 11160001 | EPIC® Removal Tool MC 2.5 stamped | | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC 2.5 stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Silver plated and passivated contacts
- For very fast crimping with Hand crimping tool for contacts on reel
- 2 crimp areas with wire and insulation crimp

## Suitable tools

- Removal tool
- Crimping dies for contacts-on-reel
- Locator

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Note | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 11208000 | MC SCBG AG 0.5-1.5 200 LI | male | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11209000 | MC BCBG AG 0.5-1.5 200 LI | female | 0.50 - 1.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 200 contacts | 1 |
| 11208500 | MC SCBG AG 1.5-2.5 100 LI | male | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 100 contacts | 1 |
| 11209500 | MC BCBG AG 1.5-2.5 100 LI | female | 1.50 - 2.50 | Ag | 3.5 + 0.5 | 1 reel (PU) = 100 contacts | 1 |

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# EPIC® Tools for contacts-on-reel MC 2.5 stamped

For inserts and modules of the EPIC® rectangular connectors



| Article number | Article description | Version | Note | Pieces / PU |
|---|---|---|---|---|
| **EPIC® Tools for contacts-on-reel MC 2.5 stamped** | | | | |
| 11153500 | Crimping tool (tongs) | In tool case | Without crimping dies | 1 |
| 11153800 | Crimping dies | For crimping tool 11153500 | For ribbon contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²) | 1 |
| 11160001 | EPIC® Removal Tool MC 2.5 stamped | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC 3.6 machined contacts

For inserts and modules of the EPIC® rectangular connectors





**Info**

- Silver plated and passivated contacts

## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Conductor cross-section (mm²) | Surface | Stripping length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Contacts** | | | | | | |
| 1121070C | MC 3.6 machined | male | 1.50 | Ag | 10.0 | 100 |
| 1121570C | MC 3.6 machined | female | 1.50 | Ag | 10.0 | 100 |
| 1121060C | MC 3.6 machined | male | 2.50 | Ag | 10.0 | 100 |
| 1121560C | MC 3.6 machined | female | 2.50 | Ag | 10.0 | 100 |
| 1121000C | MC 3.6 machined | male | 4.00 | Ag | 10.0 | 100 |
| 1121500C | MC 3.6 machined | female | 4.00 | Ag | 10.0 | 100 |
| 1121010C | MC 3.6 machined | male | 6.00 | Ag | 10.0 | 100 |
| 1121510C | MC 3.6 machined | female | 6.00 | Ag | 10.0 | 100 |
| 1121020C | MC 3.6 machined | male | 10.00 | Ag | 10.0 | 100 |
| 1121520C | MC 3.6 machined | female | 10.00 | Ag | 10.0 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Tools for contacts MC 3.6 machined

For inserts and modules of the EPIC® rectangular connectors







## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Version | Note | Pieces / PU |
|---|---|---|---|---|---|
| **Tools** | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | In tool case | | 1 |
| 11147110 | Crimping dies | | For crimping tools 11147000, 11147001 | For contacts: MC 3.6 machined (1.5 - 2.5 mm²) | 1 |
| 11147120 | Crimping dies | | For crimping tools 11147000, 11147001 | For contacts: MC 3.6 machined (4.0 - 10 mm²) | 1 |
| 11147210 | Locator | | For crimping tools 11147000, 11147001 | For contacts: MC 3.6 machined | 1 |
| 11171101 | EPIC® Removal Tool MC 3.6 machined | | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MC 3.6 machined contacts 16 mm²

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Crimping contact for power modules
- Silver plated and passivated contacts



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

**Contact resistance**
< 1 mOhm

**Contacts**
Copper alloy, hard silver-plated

**Cycle of mechanical operation**
500

| Article number | Article description | Inserts | Version | Cross-section (mm²) | Surface | Pieces / PU |
|---|---|---|---|---|---|---|
| **Contacts** | | | | | | |
| 44424014 | EPIC® Modular SCEM AG 16 D=3.6 | Crimping contacts for HC2 modules | male | 16 | Ag | 20 |
| 44424015 | EPIC® Modular BCEM AG 16 D=3.6 | Crimping contacts for HC2 modules | female | 16 | Ag | 20 |
| **Ring lug for Protection earth** | | | | | | |
| 44424029 | EPIC® KB 16-4R | Ring cable lug to connect a 16mm² protective wire to the module frame | Ringlug | 16 | | 10 |
| **Crimping die for contacts of HC2 modules** | | | | | | |
| 11147111 | EPIC® TOOL DIE D=3.6/16 mm² | Crimping dies | | 16 | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH 4.0mm Contacts

High flexibility by the use of any combination of inserts in one connector



**Info**

- Modular connector system, plugable with the market standard

## Benefits

- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard

## Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Suitable tools

- EPIC® MH tools for 4.0 mm contacts

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors

**Contact resistance**
< 5 mOhm

**Termination methods**
Crimp termination: 1.5 - 10 mm²

**Stripping length (mm)**
10

**Cycle of mechanical operation**
500

| Article number | Article description | Contact type | Connection cross section (mm²) | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH 4.0mm Contacts** | | | | |
| 44423250 | EPIC® MH SCEM AG 1.5sqmm D=4.0 | male | 1.5 | 50 |
| 44423255 | EPIC® MH BCEM AG 1.5sqmm D=4.0 | female | 1.5 | 50 |
| 44423251 | EPIC® MH SCEM AG 2.5sqmm D=4.0 | male | 2.5 | 50 |
| 44423256 | EPIC® MH BCEM AG 2.5sqmm D=4.0 | female | 2.5 | 50 |
| 44423252 | EPIC® MH SCEM AG 4sqmm D=4.0 | male | 4 | 50 |
| 44423257 | EPIC® MH BCEM AG 4sqmm D=4.0 | female | 4 | 50 |
| 44423253 | EPIC® MH SCEM AG 6sqmm D=4.0 | male | 6 | 50 |
| 44423258 | EPIC® MH BCEM AG 6sqmm D=4.0 | female | 6 | 50 |
| 44423254 | EPIC® MH SCEM AG 10sqmm D=4.0 | male | 10 | 50 |
| 44423259 | EPIC® MH BCEM AG 10sqmm D=4.0 | female | 10 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® MH tools for 4.0 mm contacts

High flexibility by the use of any combination of inserts in one connector



**Info**

- Crimping tool for the assembly of EPIC® MH contacts with 4mm diameter

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article description | Conductor cross-section AWG | Note | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH tools for 4.0 mm contacts** | | | | |
| 11147000 | Crimping tool | | | 1 |
| 11147101 | Crimping dies | 4 - 10 | For contacts: MH 4.0mm | 1 |
| 11147201 | Locator | 1 - 10 | For contacts: MH 4.0mm | 1 |
| 44423268 | EPIC® Removal Tool MH 4.0 machined | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# MC 6.0 machined contacts

For inserts and modules of the EPIC® rectangular connectors

**Info**

- Silver plated and passivated contacts



## Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 60/22-L

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

**Contact resistance**
< 1 mOhm

**Material**
Copper alloy, hard silver-plated

**Cycle of mechanical operation**
500

| Article number | Article description | Inserts | Version | Cross-section (mm²) | Cross-section identification | Surface | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Contacts** | | | | | | | |
| 44424019 | MC SCEM AG 16 D=6.0 | Crimping contacts for HHC2 modules | male | 16 | 1 | Ag | 20 |
| 44424022 | MC BCEM AG 16 D=6.0 | Crimping contacts for HHC2 modules | female | 16 | 1 | Ag | 20 |
| 44424020 | MC SCEM AG 25 D=6.0 | Crimping contacts for HHC2 modules | male | 25 | 2 | Ag | 20 |
| 44424023 | MC BCEM AG 25 D=6.0 | Crimping contacts for HHC2 modules | female | 25 | 2 | Ag | 20 |
| 44424021 | MC SCEM AG 35 D=6.0 | Crimping contacts for HHC2 modules | male | 35 | 3 | Ag | 20 |
| 44424024 | MC BCEM AG 35 D=6.0 | Crimping contacts for HHC2 modules | female | 35 | 3 | Ag | 20 |
| **Crimping die for contacts of HHC2 modules** | | | | | | | |
| 44424025 | TOOL DIE D=6.0/16 mm² | Crimping dies | | 16 | | | 1 |
| 44424026 | TOOL DIE D=6.0/25 mm² | Crimping dies | | 25 | | | 1 |
| 44424027 | TOOL DIE D=6.0/35 mm² | Crimping dies | | 35 | | | 1 |

* Trade product, no Lapp product
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# EPIC® MH 8.0mm Contacts

High flexibility by the use of any combination of inserts in one connector

**Info**

- Modular connector system, plugable with the market standard



## Benefits

- Crimp connection for permanent vibration proof contacting
- EPIC® MH system is mateable with the market standard

## Application range

- Mechanical engineering
- Robot-building
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

## Suitable tools

- EPIC® TOOL DIE 8.0mm
- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

**Contact resistance**
< 5 mOhm

**Termination methods**
Crimp termination: 10 mm² ... 35 mm²

**Stripping length (mm)**
18

**Cycle of mechanical operation**
500

| Article number | Article description | Contact type | Connection cross section (mm²) | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH D=8.0 contacts** | | | | |
| 44423242 | EPIC® MH SCEM AG 10sqmm D=8.0 | male | 10 | 10 |
| 44423246 | EPIC® MH BCEM AG 10sqmm D=8.0 | female | 10 | 10 |
| 44423243 | EPIC® MH SCEM AG 16sqmm D=8.0 | male | 16 | 10 |
| 44423247 | EPIC® MH BCEM AG 16sqmm D=8.0 | female | 16 | 10 |
| 44423244 | EPIC® MH SCEM AG 25sqmm D=8.0 | male | 25 | 10 |
| 44423248 | EPIC® MH BCEM AG 25sqmm D=8.0 | female | 25 | 10 |
| 44423245 | EPIC® MH SCEM AG 35sqmm D=8.0 | male | 35 | 10 |
| 44423249 | EPIC® MH BCEM AG 35sqmm D=8.0 | female | 35 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® TOOL DIE 8.0mm

High flexibility by the use of any combination of inserts in one connector



**Info**

- Crimp dies for electro hydraulic crimp tool

## EPIC® MH contact removal tool 8.0mm

High flexibility by the use of any combination of inserts in one connector



**Info**

- Tool for removing the 8.0mm contacts from the EPIC® MH modules

### Benefits

**EPIC® MH contact removal tool 8.0mm**

- Tool for removing the 8.0mm contacts from the EPIC® MH modules

### Suitable tools

**EPIC® TOOL DIE 8.0mm**

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article description | Connection cross section (mm²) | Pieces / PU |
|---|---|---|---|
| **EPIC® TOOL DIE 8.0mm** | | | |
| 44423271 | EPIC® TOOL DIE D=8.0 16sqmm | 16 | 1 |
| 44423272 | EPIC® TOOL DIE D=8.0 25sqmm | 25 | 1 |
| 44423273 | EPIC® TOOL DIE D=8.0 35sqmm | 35 | 1 |
| **EPIC® MH contact removal tool 8.0mm** | | | |
| 44423269 | EPIC® MH Contact Removal Tool D=8.0 | | 1 |

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# EPIC® MH 10.0mm Contacts

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Crimping contacts for maximum cross sections and currents
- Modular connector system, mateable with the market standard



# EPIC® MH PE 10.0mm Contacts

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

**Info**

- Protection earth (PE) crimping contacts for maximum cross sections
- Modular connector system, mateable with the market standard



## Benefits

**EPIC® MH 10.0mm Contacts**

- Male and female contacts with silver plating
- Crimping with Klauke D 22 and HD 13 series
- Cross section: 25, 35, 50, 70 and 95 mm²

## Application range

- Mechanical engineering
- Renewable energy
- Test equipment building
- Plant engineering
- Railway applications / vehicle construction

## Suitable tools

**EPIC® MH 10.0mm Contacts**

**EPIC® MH PE 10.0mm Contacts**

- For use in battery powered hydraulic crimping tool Klauke type EK 60 with D13 series crimping dies or EK 120 battery powered tool with HD13 series crimping dies

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

**Termination methods**
**EPIC® MH 10.0mm Contacts**
Crimp termination: 25mm² ... 95mm²
**EPIC® MH PE 10.0mm Contacts**
Crimp termination: 25mm² ... 95mm²
Stranded wire for PE connection to the module frame

**Stripping length (mm)**
**EPIC® MH 10.0mm Contacts**
23
**EPIC® MH PE 10.0mm Contacts**
20

**Material**
brass silver plated

**Cycle of mechanical operation**
500

| Article number | Article description | Contact type | Connection cross section (mm²) | Pieces / PU |
|---|---|---|---|---|
| **EPIC® MH 10.0mm operating contacts** | | | | |
| 44423330 | EPIC® MH SCEM AG 25sqmm D=10.0 | male | 25 | 10 |
| 44423331 | EPIC® MH BCEM AG 25sqmm D=10.0 | female | 25 | 10 |
| 44423332 | EPIC® MH SCEM AG 35sqmm D=10.0 | male | 35 | 10 |
| 44423333 | EPIC® MH BCEM AG 35sqmm D=10.0 | female | 35 | 10 |
| 44423334 | EPIC® MH SCEM AG 50sqmm D=10.0 | male | 50 | 10 |
| 44423335 | EPIC® MH BCEM AG 50sqmm D=10.0 | female | 50 | 10 |
| 44423336 | EPIC® MH SCEM AG 70sqmm D=10.0 | male | 70 | 10 |
| 44423337 | EPIC® MH BCEM AG 70sqmm D=10.0 | female | 70 | 10 |
| 44423338 | EPIC® MH SCEM AG 95sqmm D=10.0 | male | 95 | 10 |
| 44423339 | EPIC® MH BCEM AG 95sqmm D=10.0 | female | 95 | 10 |
| **EPIC® MH 10.0mm protection earth contacts** | | | | |
| 44423344 | EPIC® MH PE SCEM AG 25sqmm D=10.0 | male | 25 | 1 |
| 44423345 | EPIC® MH PE BCEM AG 25sqmm D=10.0 | female | 25 | 1 |
| 44423346 | EPIC® MH PE SCEM AG 35sqmm D=10.0 | male | 35 | 1 |
| 44423347 | EPIC® MH PE BCEM AG 35sqmm D=10.0 | female | 35 | 1 |
| 44423348 | EPIC® MH PE SCEM AG 50sqmm D=10.0 | male | 50 | 1 |
| 44423349 | EPIC® MH PE BCEM AG 50sqmm D=10.0 | female | 50 | 1 |
| 44423350 | EPIC® MH PE SCEM AG 70sqmm D=10.0 | male | 70 | 1 |
| 44423351 | EPIC® MH PE BCEM AG 70sqmm D=10.0 | female | 70 | 1 |
| 44423352 | EPIC® MH PE SCEM AG 95sqmm D=10.0 | male | 95 | 1 |
| 44423353 | EPIC® MH PE BCEM AG 95sqmm D=10.0 | female | 95 | 1 |

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# MC 10.0 machined contacts

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Crimping contacts for maximum cross sections and currents
- Silver plated and passivated contacts

## Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

**Contact resistance**
< 1 mOhm

**Material**
Copper alloy, hard silver-plated

**Cycle of mechanical operation**
500

| Article number | Article description | Inserts | Version | Cross-section (mm²) | Surface | Pieces / PU |
|---|---|---|---|---|---|---|
| **Contacts** | | | | | | |
| 44424032 | Modular SCEM AG 50 D=10.0 | Crimping contacts for HHC1 modules | male | 50 | Ag | 10 |
| 44424035 | Modular BCEM AG 50 D=10.0 | Crimping contacts for HHC1 modules | female | 50 | Ag | 10 |
| 44424033 | Modular SCEM AG 70 D=10.0 | Crimping contacts for HHC1 modules | male | 70 | Ag | 10 |
| 44424036 | Modular BCEM AG 70 D=10.0 | Crimping contacts for HHC1 modules | female | 70 | Ag | 10 |
| 44424034 | Modular SCEM AG 95 D=10.0 | Crimping contacts for HHC1 modules | male | 95 | Ag | 10 |
| 44424037 | Modular BCEM AG 95 D=10.0 | Crimping contacts for HHC1 modules | female | 95 | Ag | 10 |
| **Crimping die for contacts of HHC1 modules** | | | | | | |
| 44424038 | TOOL DIE D=10.0/50 mm² | Crimping dies | | 50 | | 1 |
| 44424039 | TOOL DIE D=10.0/70 mm² | Crimping dies | | 70 | | 1 |
| 44424040 | TOOL DIE D=10.0/95 mm² | Crimping dies | | 95 | | 1 |

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# EPIC® MC Coax-Contacts

For inserts and modules of the EPIC® rectangular connectors



**Info**

- Selection between 50 and 75 ohms contacts
- All contacts are high quality gold plated

## Product features

- Solder termination: the inner conductor and the outer sleeve of the COAX cable are terminated by soldering

## Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

| Article number | Article description | Contact type | Surface | For cable type | Pieces / PU |
|---|---|---|---|---|---|
| **Solder termination** | | | | | |
| 44429018 | EPIC® MC SLEM 50Ohm RG58CU | male | Au | RG 58 CU | 10 |
| 44429017 | EPIC® MC BLEM 50Ohm RG58CU | female | Au | RG 58 CU | 10 |
| 44429020 | EPIC® MC SLEM 75Ohm RG180BU | male | Au | RG 180 BU | 10 |
| 44429019 | EPIC® MC BLEM 75Ohm RG180BU | female | Au | RG 180 BU | 10 |
| 44429022 | EPIC® MC SLEM 75Ohm RG187AU | male | Au | RG 187 AU | 10 |
| 44429021 | EPIC® MC BLEM 75Ohm RG187AU | female | Au | RG 187 AU | 10 |
| **Solder/crimp termination** | | | | | |
| 11214200 | MC SLEM COAX MALE | male | Au | RG 58 | 1 |
| 11219200 | MC BLEM COAX FEMALE | female | Au | RG 58 | 1 |

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# EPIC® Tools for contacts MC Coax

For inserts and modules of the EPIC® rectangular connectors





## Product features

- Locator and crimping dies fit together with the crimping tool 11147000

| Article number | Article description | Inserts | Version | Note | Pieces / PU |
|---|---|---|---|---|---|
| **Tools** | | | | | |
| 11147000 | Crimping tool | without crimping dies, without locator | In tool case | | 1 |
| 11147130 | Crimping dies | | For crimping tools<br>11147000, 11147001 | For coax-contacts<br>11214200,<br>11219200 | 1 |
| 11171101 | EPIC® Removal Tool MC 3.6 machined | | | | 1 |

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## EPIC® ULTRA H-A 3 TG

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

## EPIC® ULTRA H-A 3 TS

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

## EPIC® ULTRA H-A 3 TBF

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

### Benefits

- Plugable with standard housings
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- High mechanical and chemical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours
- Corrosion-resistant according to DIN EN 6988
- Delivery including stainless steel screw for the inserts

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Material**
Housing: nickel-plated zinc diecasting
Lever: stainless steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Screening diameter (min) | Clamping range min | Clamping range max | M | Pieces / PU |
|---|---|---|---|---|---|---|
| **EPIC® ULTRA H-A 3 TG** | | | | | | |
| 10423300 | EPIC® ULTRA H-A 3 TG | | | | 20 | 10 |
| 10423600 | EPIC® ULTRA H-A 3 TGV 5-9 BRUSH | 3 | 5 | 9 | | 10 |
| 10423620 | EPIC® ULTRA H-A 3 TGHV 6-13 BRUSH | 6 | 6 | 13 | | 10 |
| **EPIC® ULTRA H-A 3 TS** | | | | | | |
| 10423201 | EPIC® ULTRA H-A 3 TS | | | | 20 | 10 |
| 10423650 | EPIC® ULTRA H-A 3 TSV 5-9 BRUSH | 3 | 5 | 9 | | 10 |
| **EPIC® ULTRA H-A 3 TBF** | | | | | | |
| 10423204 | EPIC® ULTRA H-A 3 TBF | | | | 20 | 10 |

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## EPIC® ULTRA H-A 3 AG

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested




## EPIC® ULTRA H-A 3 AGS

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested





## EPIC® ULTRA H-A 3 AGSV open

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested




## EPIC® ULTRA H-A 3 AGSV

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested




## EPIC® ULTRA H-A 3 EGS

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested




## Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- High mechanical and chemical resistance

## Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

## Product features

- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours
- Corrosion-resistant according to DIN EN 6988
- Delivery including stainless steel screw for the inserts

**EPIC® ULTRA H-A 3 AG**

- H-A case: Wall base

**EPIC® ULTRA H-A 3 AGS**

- Panel-mount base with side cable entry

**EPIC® ULTRA H-A 3 AGSV open**

- Panel-mount base with open base, side cable entry and additional side M20 thread

**EPIC® ULTRA H-A 3 AGSV**

- Surface-mount base with solid base, side cable entry and additional side M20 thread

**EPIC® ULTRA H-A 3 EGS**

- Screw mounted housing M20, angled, with one cable entry

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Material**
Housing: nickel-plated zinc diecasting
Lever: stainless steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | M | Pieces / PU |
|---|---|---|---|
| **Panel-mount base** | | | |
| 10423200 | EPIC® ULTRA H-A 3 AG | | 10 |
| **Panel-mount base with side cable entry** | | | |
| 10423202 | ULTRA H-A 3 AGS | | 10 |
| **Panel-mount base with open base, side cable entry and additional side M20 thread** | | | |
| 10423203 | EPIC® ULTRA H-A 3 AGSV open | 20 | 10 |
| **Surface-mount base with solid base, side cable entry and additional side M20 thread** | | | |
| 19512702 | ULTRA H-A 3 AGSV | 20 | 10 |
| **Screw mounted housing M20, angled, with one cable entry** | | | |
| 10423640 | EPIC ULTRA H-A 3 EGS M20 | 20 | 10 |

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# EPIC® H-A 3 Hood and cable coupler hood

The robust and reliable industry connector housing

**Info**

- Lightweight, chemically resistant plastic housing or robust zinc-die casting housing
- Protection rating UL50E tested

## Benefits

- Housing in plastic or metal version for safe connections in the smallest possible space

## Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

## Product features

- Single lever or bolts for single lever
- Hood and cable coupler hood
- Version without cable gland
  Version with cable gland without strain relief (*)
  Version with cable gland with strain relief (**)

## Technical data

**Material**
Housing: powder-coated zinc die-casting, grey
thermoplastic, grey, black
Lever: zinc-plated steel

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | Material | High design | Cable gland | Clamping range in mm | Pieces / PU | Dimensions | |
|---|---|---|---|---|---|---|---|
| | | | | | | M 25 | M 20 |
| **EPIC® H-A 3 Hood and cable coupler hood** | | | | | | | |
| **Hood** | | | | | | | |
|  | Zinc die-casting | | yes * | 3.0 - 13.5 | 10 | | 19426500 |
| | Zinc die-casting | | | | 10 | | 19512100 |
|  | Zinc die-casting | | yes ** | 7.0 - 13.0 | 10 | | 19512102 |
|  | Zinc die-casting | yes | yes ** | 9.0 - 17.0 | 10 | 19512104 | |
| | Zinc die-casting | yes | | | 10 | 19512103 | |
|  | Thermoplastic | | yes | 3.0 - 13.5 | 10 | | 19426700 |
| | Thermoplastic | | | | 10 | | 19425500 |
|  | Thermoplastic | | yes | 3.0 - 13.5 | 10 | | 19426400 |
| | Thermoplastic | | | | 10 | | 19426000 |
|  | Zinc die-casting | | yes * | 3.0 - 13.5 | 10 | | 19427500 |
| | Zinc die-casting | | | | 10 | | 19512300 |
|  | Zinc die-casting | | yes ** | 7.0 - 13.0 | 10 | | 10422507 |
|  | Thermoplastic | | | | 10 | | 19427300 |
|  | Thermoplastic | | | | 10 | | 19427000 |
| **Cable coupler hood** | | | | | | | |
|  | Zinc die-casting | | | | 10 | | 19512900 |
|  | Thermoplastic | | yes | 3.0 - 13.5 | 10 | | 19620300 |
| | Thermoplastic | | | | 10 | | 19429200 |
|  | Thermoplastic | | yes | 3.0 - 13.5 | 10 | | 19429100 |
| | Thermoplastic | | | | 10 | | 19429000 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-A 3 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated zinc die-casting, grey
thermoplastic, grey, black
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
IP 44 (cover closed)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437 (except MAGD)
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

## Info

- Lightweight, chemically resistant plastic housing or robust zinc-die casting housing
- Protection rating UL50E tested

## Benefits

- Housing in plastic or metal version for safe connections in the smallest possible space

## Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

## Product features

- Panel-mount base and surface-mount base
- Versions with / without cable gland
- Panel-mount base, flat gasket included (version with open base)
- Panel-mount base with cover (with sealing, for female inserts)

| Illustration | Material | Cable gland | Pieces / PU | Dimensions | |
|---|---|---|---|---|---|
| | | | | AG | M 20 |
| **Panel-mount base** | | | | | |
|  | Zinc die-casting | | 10 | 10422500 | |
|  | Thermoplastic | | 10 | 10422200 | |
|  | Thermoplastic | | 10 | 10422000 | |
|  | Zinc die-casting | | 10 | 10423500 | |
|  | Thermoplastic | | 10 | 10423100 | |
|  | Thermoplastic | | 10 | 10423000 | |
|  | Aluninium die-casting | | 10 | 10455110<br>10455120 | |
| **Surface-mount base** | | | | | |
|  | Zinc die-casting | yes | 10 | | 19424500 |
|  | Thermoplastic | yes | 10 | | 19421900 |
|  | Zinc die-casting | | 10 | | 19517200 |
|  | Thermoplastic | | 10 | | 19515200 |

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# EPIC® H-A 3 MEG

Innovative metal housing

**Info**

- Innovative screw mounted housing
- Protection rating UL50E tested



## Benefits

- Metal housing for safe connections in the smallest possible space

## Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

## Product features

- Screw mounted housing including flat gasket and counter nut
- 1 lever

## Technical data

**Material**
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
Sealing: NBR
Housing: grey thermoplastic, black
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Article number | Article description | Material | Pieces / PU |
|---|---|---|---|
| **EPIC® H-A 3 MEG** | | | |
| 10422505 | EPIC H-A 3 MEG | Zinc die-casting | 10 |
| 10422506 | EPIC H-A 3 MEGS | Zinc die-casting | 10 |

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# EPIC® H-A 10 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring
- Protection rating UL50E tested

## Benefits

- Small and space-saving for narrow available space

## Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

## Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

| Illustration | High design | Pieces / PU | Dimensions | |
|---|---|---|---|---|
| | | | M 20 | M 25 |
| **Hood** | | | | |
|  | | 5 | 44700008 | 19445500 |
|  | | 5 | 19446000 | 19446100 |
| | yes | 5 | 79460200 | 79460400 |
|  | yes | 5 | 79462200 | 79462400 |
| **Cable coupler hood** | | | | |
|  | | 5 | 19439000 | 79450000 |
| | yes | 5 | | 79450400 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

# EPIC® H-A 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Non-slip ridges for comfortable disconnecting
- Protection rating UL50E tested

## Benefits

- Small and space-saving for narrow available space

## Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

## Product features

- Panel-mount base, with flat gasket included and single lever
- Version with metal cover
- Surface-mount base with 1 or 2 cable outlets

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Illustration | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | AG | M 20 | M 25 |
| **Panel-mount base** | | | | | |
|  | | 5 | 70444000 | | |
|  | | 5 | 10442000 | | |
| **Surface-mount base** | | | | | |
|  | | 5 | | 79455200 | 79455400 |
| | 1 | 5 | | 79456200 | 79456400 |
|  | | 5 | | 19448100 | 19448000 |
| | 1 | 5 | | 19450100 | |

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# EPIC® H-A 16 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Benefits

- Small and space-saving for narrow available space

## Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

## Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring
- Protection rating UL50E tested

## Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

| Illustration | High design | Pieces / PU | Dimensions | |
|---|---|---|---|---|
| | | | M 20 | M 25 |
| **Hood** | | | | |
|  | | 5 | 19564000 | 19564600 |
|  | | 5 | 19565000 | 19565300 |
| | yes | 5 | 79490200 | 79490400 |
|  | yes | 5 | 79492200 | 79492400 |
| **Cable coupler hood** | | | | |
|  | | 5 | 19563000 | 19563200 |
| | yes | 5 | 79480200 | 79480400 |

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CE

# EPIC® H-A 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Protection rating UL50E tested

## Benefits

- Small and compact, for applications with high number of contacts

## Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

## Product features

- Panel-mount base incl. flat gasket included
- Variants with or without hinged cover
- Surface-mount base with 1 or 2 cable outlets
- With single lever

## Technical data

**Material**
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | AG | M 20 | M 25 |
| **Panel-mount base** | | | | | |
|  | | 5 | 70474000 | | |
|  | | 5 | 10462000 | | |
| **Surface-mount base** | | | | | |
|  | 1 | 5 | | 79485200 | 79485400 |
| | 2 | 5 | | | 79486400 |
|  | 1 | 5 | | 19567100 | 19567000 |
| | 2 | 5 | | 19568100 | 19568000 |

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## EPIC® ULTRA H-B 6 TG LB

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

## EPIC® ULTRA H-B 6 TS LB

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
**EPIC® ULTRA H-B 6 TG LB**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors
EPIC® ULTRA Protective cover for housing H-B

**Material**
**EPIC® ULTRA H-B 6 TG LB**
**Housing: nickel-plated zinc die-casting**
**Lever and bolts: stainless steel**
**Sealing: NBR**
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **H-B housing: hood (straight cable entry, bolts for single lever)** | | | | |
| 70250200 | ULTRA H-B 6 TG-LB 6-13 | 6 - 13 | | 1 |
| 70250266 | ULTRA H-B 6 TG-LB 6-13 BRUSH | 6 - 13 | 5 | 1 |
| 70250201 | ULTRA H-B 6 TG-LB 9-17 | 9 - 17 | | 1 |
| 70250202 | ULTRA H-B 6 TG-LB 9-17 BRUSH | 9 - 17 | 5 | 1 |
| **H-B housing: hood (side cable entry, bolts for single lever)** | | | | |
| 70250203 | ULTRA H-B 6 TS-LB 6-13 | 6 - 13 | | 1 |
| 70250267 | ULTRA H-B 6 TS-LB 6-13 BRUSH | 6 - 13 | 5 | 1 |
| 70250204 | ULTRA H-B 6 TS-LB 9-17 | 9 - 17 | | 1 |
| 70250205 | ULTRA H-B 6 TS-LB 9-17 BRUSH | 9 - 17 | 5 | 1 |

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## EPIC® ULTRA H-B 6 AG LB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant



## EPIC® ULTRA H-B 6 SGR LB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland



### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **H-B housing: panel-mount base (single lever)** | | | | |
| 70250206 | ULTRA H-B 6 AG LB | | | 1 |
| **H-B housing: surface-mount base (1 cable entry, single lever)** | | | | |
| 70250207 | ULTRA H-B 6 SGR LB 6-13 | 6 - 13 | | 1 |
| 70250268 | ULTRA H-B 6 SGR LB 6-13 BRUSH | 6 - 13 | 5 | 1 |
| 70250208 | ULTRA H-B 6 SGR LB 9-17 | 9 - 17 | | 1 |
| 70250209 | ULTRA H-B 6 SGR LB 9-17 BRUSH | 9 - 17 | 5 | 1 |

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# EPIC® H-B 6 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The smallest housing out of the H-B series. For inserts with high electrical properties

## Application range

- Plant engineering
- Control engineering
- Plastics industry

## Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

| Illustration | High design | Pieces / PU | Dimensions | | | |
|---|---|---|---|---|---|---|
| | | | M 20 | M 16 | M 25 | M 32 |
| **Hood** | | | | | | |
|  | | 10 | 19011000 | | 19021000 | |
|  | | 10 | 19012000 | | 19022000 | |
|  | yes | 10 | 79020100 | 79020000 | 79020200 | 79020400 |
|  | yes | 10 | | | 79022200 | 79022400 |
| **Cable coupler hood** | | | | | | |
|  | | 10 | 19014000 | | 19024000 | |
|  | yes | 10 | | | 79010200 | |

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# EPIC® H-B 6 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The smallest housing out of the H-B series. For inserts with high electrical properties

## Application range

- Plant engineering
- Control engineering
- Plastics industry

## Product features

- Panel-mount base incl. flat gasket included
- Version with metal cover
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- With single lever

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AG | M 20 | M 25 | M 32 |
| **Panel-mount base** | | | | | | | |
|  | | | 10 | 10004000 | | | |
|  | | | 10 | 10003000 | | | |
| **Surface-mount base** | | | | | | | |
|  | | 1 | 10 | | 19007000 | 79015600 | |
| | | 2 | 10 | | 19009000 | 79016600 | |
|  | yes | 1 | 10 | | | 79015200 | 79015400 |
| | yes | 2 | 10 | | | 79016200 | 79016400 |
|  | | 1 | 10 | | 19005000 | 79005600 | |
| | | 2 | 10 | | 19006000 | 79006600 | |
|  | yes | 1 | 10 | | | 79005200 | 79005400 |
| | yes | 2 | 10 | | | 79006200 | 79006400 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® ULTRA H-B 10 TS QB

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

## EPIC® ULTRA H-B 10 AG QB

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant

### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 68
NEMA 250, UL50E: 12, 4, 4X (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **EPIC® ULTRA H-B 10 TS QB** | | | | |
| 70250265 | ULTRA H-B 10 TS QB 7-15 BRUSH | 7 - 15 | 6 | 1 |
| 70250211 | ULTRA H-B 10 TS QB 11-21 | 11 - 21 | | 1 |
| 70250212 | ULTRA H-B 10 TS QB 11-21 BRUSH | 11 - 21 | 6 | 1 |
| **H-B housing: panel-mount base (double lever)** | | | | |
| 70250213 | ULTRA H-B 10 AG QB | | | 1 |

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# EPIC® H-B 10 Hood and cable coupler hood

The robust and reliable industry connector housing

## Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Hood and cable coupler hood
- Standard and high version
- Versions with / without neck

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Illustration | High design | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | M 20 | M 25 | M 32 |
| **Hood** | | | | | |
|  | | 10 | 19042000 | 79077100 | |
| | | 10 | | 19042100 | |
|  | | 10 | 19045000 | 79057700 | |
|  | yes | 10 | | 79050400 | 79050600 |
|  | yes | 10 | | 79057200 | |
|  | yes | 10 | | 79052400 | 79052600 |
|  | | 10 | 19041000 | 79055700 | |
|  | yes | 10 | | 79055200 | 79055400 |
|  | | 10 | 19040000 | 19040100 | |
| **Cable coupler hood** | | | | | |
|  | | 10 | 19046000 | 79040200 | |
|  | yes | 10 | | 79040400 | 79040600 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 10 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The smallest housing with single and double lever. The right housing is available for every application

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

| Illustration | High design | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | M 20 | M 25 | M 32 |
| **Hood** | | | | | |
|  | | 10 | 19040900 | 19040700 | |
|  | | 10 | 19042900 | 19042800 | |
|  | yes | 10 | | 79044200 | 79044400 |
|  | yes | 10 | | 79054200 | 79054400 |
| **Cable coupler hood** | | | | | |
|  | | 10 | 19046900 | 79042200 | |
|  | yes | 10 | | 79042400 | 79042600 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Protection rating UL50E tested

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base incl. flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AG | M 20 | M 25 | M 32 |
| **Panel-mount base** | | | | | | | |
|  | | | 10 | 10033000 | | | |
|  | | | 10 | 10032000 | | | |
| **Surface-mount base** | | | | | | | |
|  | | 1 | 10 | | 19036000 | 19036100 | |
| | | 2 | 10 | | 19038000 | 79046600 | |
|  | yes | 1 | 5 | | | 79045200 | |
| | yes | 2 | 5 | | | 79046200 | 79046400 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12 (latched)

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Benefits

- The smallest housing with single and double lever. The right housing is available for every application

## Application range

- Plant engineering
- Drive systems
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base incl. flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | AG | M 20 | M 25 | M 32 |
| **EPIC® H-B 10 Panel-mount- and surface-mount base** | | | | | | | |
|  | | | 10 | 10033900 | | | |
|  | | | 10 | 10032900 | | | |
| **Surface-mount base** | | | | | | | |
|  | yes | 1 | 5 | | | 79064200 | 79064400 |
| | yes | 2 | 5 | | | 79065200 | 79065400 |
|  | | 2 | 10 | | 19038900 | 79065600 | |
| | | 1 | 10 | | 19036900 | 79064600 | |
|  | yes | 1 | 10 | | | 79060200 | 79060400 |
| | yes | 2 | 10 | | | 79061200 | 79061400 |
|  | | 1 | 10 | | 19034900 | 19034700 | |
| | | 2 | 10 | | 19035900 | 79061600 | |

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## EPIC® ULTRA H-B 16 TS QB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland



## EPIC® ULTRA H-B 16 AG QB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant



### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

### Application range

- Construction machinery
- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 68
NEMA 250, UL50E: 12, 4, 4X (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **H-B housing: hood (side cable entry, bolts for double lever)** | | | | |
| 70250214 | ULTRA H-B 16 TS QB 7-15 | 7 - 15 | | 1 |
| 70250264 | ULTRA H-B 16 TS QB 7-15 BRUSH | 7 - 15 | 6 | 1 |
| 70250215 | ULTRA H-B 16 TS QB 11-21 | 11 - 21 | | 1 |
| 70250216 | ULTRA H-B 16 TS QB 11-21 BRUSH | 11 - 21 | 6 | 1 |
| **H-B housing: panel-mount base (double lever)** | | | | |
| 70250217 | ULTRA H-B 16 AG QB | | | 1 |

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## EPIC® ULTRA H-B 16 TGH QB

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

## EPIC® ULTRA H-B 16 TGH QB 2x

The robust and reliable industry connector housing as EMC version



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Plugable with standard housings
- High mechanical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 67
NEMA 250, UL50E: 12, 4, 4X (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **H-B housing: hood (straight cable entry, bolts for double lever, high version)** | | | | |
| 70250274 | EPIC ULTRA H-B 16 TGH QB 15-23 | 15.0 - 23.0 | | 1 |
| 70250275 | EPIC ULTRA H-B 16 TGH QB 15-23 BRUSH | 15.0 - 23.0 | 7 | 1 |
| 70250276 | EPIC ULTRA H-B 16 TGH QB 19-28 | 19.0 - 28.0 | | 1 |
| 70250261 | EPIC ULTRA H-B 16 TGH QB 19-28 BRUSH | 19.0 - 28.0 | 7 | 1 |
| **H-B housing: hood (straight cable entry, bolts for double lever, high version)** | | | | |
| 70250271 | EPIC ULTRA H-B 16 TGH QB 2X 7-15 | 7.0 - 15.0 | | 1 |
| 70250272 | EPIC ULTRA H-B 16 TGH QB 2X 7-15 BRUSH | 7.0 - 15.0 | 6 | 1 |
| 70250273 | EPIC ULTRA H-B 16 TGH QB 2X 11-21 | 11.0 - 21.0 | | 1 |
| 70250262 | EPIC ULTRA H-B 16 TGH QB 2X 11-21 BRUSH | 11.0 - 21.0 | 6 | 1 |

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# EPIC® H-B 16 Hood and cable coupler hood

The robust and reliable industry connector housing

**Info**

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Hood and cable coupler hood
- Standard and high version
- Versions with / without neck

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Illustration | High design | Pieces / PU | Dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | M 20 | M 25 | M 32 | M 40 | 2 x M 25 | 2 x M 32 |
| **Hood** | | | | | | | | |
|  | | 10 | 19080001 | | | | | |
| | | 5 | | 19080000 | 19090000 | | | |
|  | | 5 | | 19081000 | | | | |
|  | yes | 5 | | 79105200 | 79105400 | | | |
|  | yes | 5 | | 79100200 | 79100400 | 79100800 | | |
|  | | 5 | 19082500 | 19082000 | 19092000 | | | |
|  | | 5 | | 19083000 | | | | |
|  | yes | 5 | | 79107200 | 79107400 | | | |
|  | yes | 5 | | 79102200 | 79102400 | 79102800 | | |
|  | | 5 | | | | | 19080500 | |
|  | yes | 5 | | | | | 44422018 | 79128600 |
| **Cable coupler hood** | | | | | | | | |
|  | | 5 | | 19086000 | | | | |
|  | yes | 5 | | | | | | 79090401 |
| | yes | 5 | | 79090200 | 79090400 | | | |

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# EPIC® H-B 16 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
UL50 Type 12 (latched) or higher

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

## Info

- Non-slip ridges for comfortable disconnecting
- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

| Illustration | High design | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | M 25 | M 32 | M 40 |
| **Hood** | | | | | |
|  | yes | 5 | 79094200 | 79094400 | 79094600 |
|  | | 5 | 19080900 | | |
|  | | 5 | 19082900 | 19092900 | |
| | yes | 5 | 79104200 | 79104400 | 79104800 |
| **Cable coupler hood** | | | | | |
|  | yes | 5 | 79092200 | 79092400 | |
|  | | 5 | 19086900 | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12, 4 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|---|
| | | | | AG | M 25 | M 32 |
| **Panel-mount base** | | | | | | |
|  | | | 5 | 10073000 | | |
|  | | | 5 | 10072000 | | |
| **Surface-mount base** | | | | | | |
|  | | 1 | 5 | | 19076000 | |
| | | 2 | 5 | | 79096000 | |
|  | yes | 1 | 5 | | 79095200 | 79095400 |
| | yes | 2 | 5 | | 79096200 | 79096400 |
|  | | 1 | 5 | | 19074000 | |
| | | 2 | 5 | | 19075000 | |
|  | yes | 1 | 5 | | 79085200 | 79085400 |
| | yes | 2 | 5 | | 79086200 | 79086400 |

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# EPIC® H-B 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

## Benefits

- The housing standard. Wide choice for all applications

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|---|
| | | | | AG | M 25 | M 32 |
| **Panel-mount base** | | | | | | |
|  | | | 5 | 10073900 | | |
|  | | | 5 | 10072900 | | |
| **Surface-mount base** | | | | | | |
|  | yes | 1 | 5 | | 79114200 | 79114400 |
| | yes | 2 | 5 | | 79115200 | 79115400 |
|  | | 1 | 5 | | 19076900 | |
| | | 2 | 5 | | 19078900 | |
|  | yes | 1 | 5 | | 79110200 | 79110400 |
| | yes | 2 | 5 | | 79111200 | 79111400 |
|  | | 1 | 5 | | 19074900 | |
| | | 2 | 5 | | 19075900 | |

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## EPIC® ULTRA H-B 24 TS QB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland



## EPIC® ULTRA H-B 24 AG QB

The robust and reliable industry connector housing as EMC version

**Info**

- EMC protection
- Corrosion-resistant



### Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

### Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

### Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

**Protection rating**
IP 65
NEMA 250, UL50E: 12 (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C

| Article number | Article description | Clamping range in mm | Minimum Ø above braiding (mm) | Pieces / PU |
|---|---|---|---|---|
| **H-B housing: hood (side cable entry, bolts for double lever)** | | | | |
| 70250219 | ULTRA H-B 24 TS QB 7-15 | 7 - 15 | | 1 |
| 70250263 | ULTRA H-B 24 TS QB 7-15 BRUSH | 7 - 15 | 6 | 1 |
| 70250220 | ULTRA H-B 24 TS QB 11-21 | 11 - 21 | | 1 |
| 70250221 | ULTRA H-B 24 TS QB 11-21 BRUSH | 11 - 21 | 6 | 1 |
| **H-B housing: panel-mount base (double lever)** | | | | |
| 70250222 | ULTRA H-B 24 AG QB | | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 24 Hood and cable coupler hood

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

## Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- Ideal for many applications due to a wide range of housings and inserts

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Standard and high version
- Versions with / without neck
- Hood and cable coupler hood

| Illustration | High design | Pieces / PU | Dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | M 25 | M 32 | M 40 | 2 x M 25 | 2 x M 32 | 2 x M 40 |
| **Hood** | | | | | | | | |
|  | | 5 | 19121000 | 19111000 | 19111500 | | | |
|  | | 5 | 19122000 | 19112000 | | | | |
|  | yes | 5 | 79155400 | 79155600 | | | | |
|  | yes | 5 | 79150400 | 79150600 | 79150800 | | | |
|  | yes | 5 | 79157400 | 79157600 | | | | |
|  | yes | 5 | 79152400 | 79152600 | 79152800 | | | |
|  | | 5 | 19113000 | 19123000 | | | | |
|  | | 5 | 19114000 | 19124000 | | | | |
|  | | 5 | | | | 44422019 | 44422020 | |
| | yes | 5 | | | | 44422021 | 79178500 | 70250260 |
| **Cable coupler hood** | | | | | | | | |
|  | | 5 | 19127000 | 19117000 | | | | |
|  | yes | 5 | 79140400 | 79140600 | | | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 24 Hood and cable coupler hood

The robust and reliable industry connector housing

**Info**

- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

## Benefits

- Ideal for many applications due to a wide range of housings and inserts

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | High design | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|
| | | | M 25 | M 32 | M 40 |
| **Hood** | | | | | |
|  | | 5 | 19121900 | 19111900 | |
|  | | 5 | 19113900 | 19123900 | |
|  | yes | 5 | 79144400 | 79144600 | 79144800 |
|  | yes | 5 | 79154400 | 79154600 | 79154800 |
| **Cable coupler hood** | | | | | |
|  | yes | 5 | 79142400 | 79142600 | |
|  | | 5 | 19127900 | 19117900 | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 24 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12 (latched) or higher

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

## Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

## Benefits

- Ideal for many applications due to a wide range of housings and inserts

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|---|
| | | | | AG | M 25 | M 32 |
| **Panel-mount base** | | | | | | |
|  | | | 5 | 10103000 | | |
|  | | | 5 | 10102000 | | |
| **Surface-mount base** | | | | | | |
|  | | 2 | 5 | | 19109000 | |
|  | yes | 1 | 5 | | | 79145400 |
| | yes | 2 | 5 | | | 79146400 |
|  | | 1 | 5 | | 19104000 | |
| | | 2 | 5 | | 19105000 | |
|  | yes | 1 | 5 | | 79135200 | 79135400 |
| | yes | 2 | 5 | | 79136200 | 79136400 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 24 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

**Info**

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge
- High version: More interior space for wiring

## Benefits

- Ideal for many applications due to a wide range of housings and inserts

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65
NEMA 250, UL50E: 12 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

| Illustration | High design | Cable entry | Pieces / PU | Dimensions | | |
|---|---|---|---|---|---|---|
| | | | | AG | M 25 | M 32 |
| **Panel-mount base** | | | | | | |
|  | | | 5 | 10103900 | | |
|  | | | 5 | 10102900 | | |
| **Surface-mount base** | | | | | | |
|  | yes | 1 | 5 | | 79164200 | 79164400 |
| | yes | 2 | 5 | | 79165200 | 79165400 |
|  | | 1 | 5 | | 19107900 | |
| | | 2 | 5 | | 19109900 | |
|  | yes | 1 | 5 | | 79160200 | 79160400 |
| | yes | 2 | 5 | | 79161200 | 79161400 |
|  | | 1 | 5 | | 19104900 | |
| | | 2 | 5 | | 19105900 | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 32 Housings

The robust and reliable industry connector housing

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40°C to +100°C,
short-term up to +125°C

**Info**

- Double lever version with 2 levers for increased safety
- Non-slip ridges for comfortable disconnecting

## Benefits

- Two inserts in one housing. With two levers for high safety

## Application range

- Plant engineering
- Light & sound technology
- Plastics industry

## Product features

- Panel-mount base, straight entry, flat gasket included
- Hood

## Suitable inserts

- The H-B 32 housings can also be assembled with 2 different inserts of size H-B 16

| Illustration | Cable entry | Pieces / PU | Dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2 x M 25 | 2 x M 32 | M 32 | M 40 | M 25 | AG |
| **Hood** | | | | | | | | |
|  | | 5 | 44422022 | 44422023 | | | | |
|  | | 5 | | | 19134000 | 19134400 | | |
|  | | | | | | | | |
| | | 5 | | | 19136000 | 19136200 | 19135000 | |
| **Cable coupler hood** | | | | | | | | |
|  | | 5 | | | 19139500 | | | |
| **Panel-mount base** | | | | | | | | |
|  | | 5 | | | | | | 10132000 |
| **Surface-mount base** | | | | | | | | |
|  | 1 | 5 | | | 19137000 | 19146400 | | |
| | 2 | 5 | | | 19138000 | 19145400 | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® H-B 48 Housings

The robust and reliable industry connector housing

## Benefits

- The large, robust housing for two inserts in one connector. Power and data in a single connector

## Application range

- Plant engineering
- Plastics industry

## Product features

- Panel-mount base, straight entry, flat gasket included
- Versions with / without neck
- Version with plastic cover
- With single lever

## Technical data

**Material**
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

**Protection rating**
IP 65 (latched)

**VDE-tested**
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Illustration | Cable entry | Pieces / PU | Dimensions | | | |
|---|---|---|---|---|---|---|
| | | | M 32 | M 40 | M 50 | AG |
| **Hood** | | | | | | |
|  | | 1 | 19155000 | 19156000 | 19157000 | |
|  | | 1 | 19158000 | 19159000 | 19160000 | |
| **Panel-mount base** | | | | | | |
|  | | 1 | | | | 10152000 |
|  | | 1 | | | | 10161000 |
| **Surface-mount base** | | | | | | |
|  | 1 | 1 | 19165000 | 19165100 | | |
| | 2 | 1 | 19166000 | 19166100 | | |
|  | 1 | 1 | 19167000 | 19167100 | | |
| | 2 | 1 | 19168000 | 19168100 | | |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Docking frame



**Info**

- Mounting system for control cabinets
- For float-mounting fixing of the inserts

## Application range

- Control cabinet manufacturing
- Wind power plants

## Product features

- Scope of delivery per packaging unit: 2 frames with 8 screws
- Special screws adapted to frame
- Pull-In range in x and y axis: + - 1,5mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002312
ETIM 5.0/6.0 Class-Description: Contact insert holder for industrial connectors

**Material**
Docking frame: stainless steel
Screws: steel zinc plated

**Cycle of mechanical operation**
500

| Article number | Article description | Version | Pieces / PU |
|---|---|---|---|
| **EPIC® Docking frame** | | | |
| 44429440 | H-B 6 DF | 4 fixing screws each included | 2 |
| 44429441 | H-B 10 DF | 4 fixing screws each included | 2 |
| 44429442 | H-B 16 DF | 4 fixing screws each included | 2 |
| 44429443 | H-B 24 DF | 4 fixing screws each included | 2 |

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# EPIC® QUICK & EASY Mounting system



**Info**

- Mounting system for control cabinets

## Application range

- Control cabinet manufacturing

## Product features

- For mounting inserts on top-hat rails according to DIN EN 50022
- Available as a complete set or as single parts (top part for use as a cable connector, bottom part for mounting on a top-hat rail)
- QUICK & EASY top parts are available in housing types H-B 6, H-B 10, H-B 16, H-B 24. The suitable size (number of contacts) of the different insert types are listed at the connector housings (H-B 6 ..H-B 24)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002312
ETIM 5.0/6.0 Class-Description: Contact insert holder for industrial connectors

**Flammability**
UL94 V-0

**Cycle of mechanical operation**
50

| Article number | Article description | Material | Version | Pieces / PU |
|---|---|---|---|---|
| **QUICK & EASY complete set** | | | | |
| 10027000 | EPIC® H-B 6 Q+E Set | Polycarbonate | Complete, for inserts size H-B 6 | 1 |
| 10027100 | EPIC® H-B 10 Q+E Set | Polycarbonate | Complete, for inserts size H-B 10 | 1 |
| 10027200 | EPIC® H-B 16 Q+E Set | Polycarbonate | Complete, for inserts size H-B 16 | 1 |
| 10027300 | EPIC® H-B 24 Q+E Set | Polycarbonate | Complete, for inserts size H-B 24 | 1 |
| **QUICK & EASY top part** | | | | |
| 10027410 | EPIC® H-B 6 Q+E top part | Polycarbonate | For inserts size H-B 6 | 10 |
| 10027510 | EPIC® H-B 10 Q+E top part | Polycarbonate | For inserts size H-B 10 | 10 |
| 10027610 | EPIC® H-B 16 Q+E top part | Polycarbonate | For inserts size H-B 16 | 10 |
| 10027710 | EPIC® H-B 24 Q+E top part | Polycarbonate | For inserts size H-B 24 | 10 |
| **QUICK & EASY bottom part** | | | | |
| 10027810 | EPIC® H-B 6-24 Q+E bottom part | Polycarbonate | For inserts size H-B 6 - 24 | 10 |

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# EPIC® Flat gaskets for housings H-A and H-B



# EPIC® Fixing screws



## Application range

- Accessories for an effective use of EPIC® rectangular connectors

## Product features

**EPIC® Flat gaskets for housings H-A and H-B**

- Flat gaskets as spare parts for panel-mount base

**EPIC® Fixing screws**

- Spare parts for fastening inserts in H-A 3 housings

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

| Article number | Article description | Pieces / PU |
|---|---|---|
| **Flat gasket for panel-mount base H-A** | | |
| 10607100 | Flat gasket for panel-mount base H-A 3 | 10 |
| 10607200 | Flat gasket for panel-mount base H-A 10 | 10 |
| 10607300 | Flat gasket for panel-mount base H-A 16 | 10 |
| 10607600 | Flat gasket for panel-mount base H-A 32 | 10 |
| **Flat gasket for panel-mount base H-B** | | |
| 10051000 | Flat gasket for panel-mount base H-B 6 | 10 |
| 10051200 | Flat gasket for panel-mount base H-B 10 | 10 |
| 10051400 | Flat gasket for panel-mount base H-B 16 | 10 |
| 10051600 | Flat gasket for panel-mount base H-B 24 | 10 |
| 10052000 | Flat gasket for panel-mount base H-B 32/H-A 48 | 10 |
| 10052200 | Flat gasket for panel-mount base H-B 48 | 10 |
| **Fastening screws** | | |
| 44423017 | Screw with O-ring for EPIC H-A 3/4, H-D7/8, H-Q 5 | 10 |
| 44423041 | Stainless steel screw with O-ring for EPIC ULTRA H-A 3/4, H-D7/8, H-Q 5 | 10 |
| 44423018 | EPIC® STA Screw | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® Coding parts



## Application range

- Accessories for an effective use of EPIC® rectangular connectors

## Product features

- For rectangular connector inserts, the key pin replaces one or more fastening screws. This enables simple coding.
- In rectangular connector inserts, the guide pin replaces the fastening screws on one side and on the other side the guide socket replaces the screw. This enables a lot of coding possibilities. Also the connector gets a perfect guiding and prevents a skew mating
- With these inserts, the H-A 3/H-A 4 Codepin is pressed into a socket contact. The corresponding pin contact is removed, meaning one electrical contact will be lost.

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002311
ETIM 5.0/6.0 Class-Description: Coding for industrial connectors

| Article number | Article description | Pieces / PU |
|---|---|---|
| **EPIC® H-A 3/4 Code pin** | | |
| 10451400 | EPIC® H-A 3/4 Code pin | 50 |
| **Key pin** | | |
| 10019000 | EPIC® Key pin | 50 |
| **Guide pin, guide socket** | | |
| 11281000 | EPIC® Guide socket | 50 |
| 11280000 | EPIC® Guide pin | 50 |
| **EPIC® H-Q 12 Codepin** | | |
| 44424052 | EPIC® H-Q 12 Key Pin | 20 |

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## EPIC® Protective cover H-A 3



## EPIC® Protective cover H-A



## EPIC® Protective cover H-B



### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002314
ETIM 5.0/6.0 Class-Description: Cap for industrial connectors

### Product features

**EPIC® Protective cover H-A 3**

- Protective cover made of thermoplastics and metal for H-A 3 housings
- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable

**EPIC® Protective cover H-A**

- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable
- Protective cover made of thermoplastics for H-A 10, H-A 16, H-A 32, H-A 48 housings

**EPIC® Protective cover H-B**

- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable
- Protective cover made of thermoplastics for H-B 6, H-B 10, H-B 16, H-B 24, H-B 32 housings

| Article number | Article description | Version | Bolts | Securing cord | Clamp | Material | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male or female inserts** | | | | | | | |
| 10513000 | H-A 3 MDBF-S | for housing H-A 3 with male inserts | 2 | with cable lug | | Metal | 10 |
| 10513100 | H-A 3 MDBF-B | for housing H-A 3 with female inserts | 2 | with cable lug | | Metal | 10 |
| **For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male inserts** | | | | | | | |
| 10430000 | H-A 3 KDB-S | for housing H-A 3 with male inserts | 2 | | | Plastic | 10 |
| 10430400 | H-A 3 KDBF-S | for housing H-A 3 with male inserts | 2 | with cable lug | | Plastic | 10 |
| **For H-A 3 panel-mount base, surface-mount base, cable coupler hood with female inserts** | | | | | | | |
| 10430300 | H-A 3 KDB-B | for housing H-A 3 with female inserts | 2 | | | Plastic | 10 |
| 10430100 | H-A 3 KDBF-B | for housing H-A 3 with female inserts | 2 | with cable lug | | Plastic | 10 |
| **with bolts for H-A 10-32 panel-mount base, surface-mount base, cable coupler hood** | | | | | | | |
| 10457700 | H-A 10 KDB | for housing H-A 10 | 2 | - | | Plastic | 5 |
| 10469700 | H-A 16 KDB | for housing H-A 16 | 2 | | | Plastic | 5 |
| 10481700 | H-A 32 KDB | for housing H-A 32 | 4 | | | Plastic | 5 |
| 10457500 | H-A 10 KDBF | for housing H-A 10 | 2 | with cable lug | | Plastic | 5 |
| 10469500 | H-A 16 KDBF | for housing H-A 16 | 2 | with cable lug | | Plastic | 5 |
| 10481500 | H-A 32 KDBF | for housing H-A 32 | 4 | with cable lug | | Plastic | 10 |
| **with lever for H-A 10-32 hoods** | | | | | | | |
| 10457800 | H-A 10 KDT | for H-A 10 hood | | | 2 snap-in hooks | Plastic | 5 |
| 10469800 | H-A 16 KDT | for H-A 16 hood | | | 2 snap-in hooks | Plastic | 5 |
| 10481800 | H-A 32 KDT | for H-A 32 hood | | | 4 snap-in hooks | Plastic | 5 |
| 10457600 | H-A 10 KDTF | for H-A 10 hood | | with loop | 2 snap-in hooks | Plastic | 5 |
| 10469600 | H-A 16 KDTF | for H-A 16 hood | | with loop | 2 snap-in hooks | Plastic | 5 |
| 10481600 | H-A 32 KDT | for H-A 32 hood | | with loop | 4 snap-in hooks | Plastic | 10 |
| **with bolts for H-B 6-24 panel-mount base, surface-mount base, cable coupler hood** | | | | | | | |
| 10015000 | H-B 6 KDB | for housing H-B 6 | 2 | with loop | | Plastic | 10 |
| 10047000 | H-B 10 KDB | for housing H-B 10 | 4 | with loop | | Plastic | 10 |
| 10087000 | H-B 16 KDB | for housing H-B 16 | 4 | with loop | | Plastic | 5 |
| 10118000 | H-B 24 KDB | for housing H-B 24 | 4 | with loop | | Plastic | 5 |
| **with lever for H-B 6-24 hood with bolts** | | | | | | | |
| 10016500 | H-B 6 KDT | for H-B 6 hood | | with loop | Single lever | Plastic | 10 |
| 10048500 | H-B 10 KDT | for H-B 10 hood | | with loop | Double Lever | Plastic | 10 |
| 10088500 | H-B 16 KDT | for H-B 16 hood | | with loop | Double Lever | Plastic | 5 |
| 10119500 | H-B 24 KDT | for H-B 24 hood | | with loop | Double Lever | Plastic | 5 |
| **with bolts for H-B 6-24 hoods with levers** | | | | | | | |
| 10015100 | H-B 6 KDBP | for H-B 6 hood | 2 | with loop | | Plastic | 10 |
| 10047100 | H-B 10 KDBP | for H-B 10 hood | 4 | with loop | | Plastic | 10 |
| 10087100 | H-B 16 KDBP | for H-B 16 hood | 4 | with loop | | Plastic | 10 |
| 10118100 | H-B 24 KDBP | for H-B 24 hood | 4 | with loop | | Plastic | 5 |
| **with bolts for H-B 10-32 panel-mount base, surface-mount base, cable coupler hood** | | | | | | | |
| 10048700 | H-B 10 KDBF | for housing H-B 10 | 2 | with loop | | Plastic | 10 |
| 10088700 | H-B 16 KDBF | for housing H-B 16 | 2 | with loop | | Plastic | 10 |
| 10118700 | H-B 24 KDBF | for housing H-B 24 | 2 | with loop | | Plastic | 10 |
| 10118020 | H-B 32 / H-A 48 KDBF | for housing H-B 32/H-A 48 | 4 | with loop | | Plastic | 10 |
| **with lever for H-B 10-24 hood with bolts** | | | | | | | |
| 10048600 | H-B 10 KDTF | for H-B 10 hood | | with loop | Single lever | Plastic | 10 |
| 10088600 | H-B 16 KDTF | for H-B 16 hood | | with loop | Single lever | Plastic | 10 |
| 10118600 | H-B 24 KDTF | for H-B 24 hood | | with loop | Single lever | Plastic | 10 |

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## EPIC® Cover plates



## EPIC® Adapter plates for 1 D-Sub insert



## EPIC® Adapter plates for 2 D-Sub inserts



## EPIC® Locking levers for H-A, H-B



### Technical data

ETIM

**Classification ETIM 5/6**
**EPIC® Cover plates**
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description: Adapter plate industrial connectors
**EPIC® Adapter plates for 1 D-Sub insert**
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description: Adapter plate industrial connectors
**EPIC® Adapter plates for 2 D-Sub inserts**
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description: Adapter plate industrial connectors
**EPIC® Locking levers for H-A, H-B**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

### Similar products

**EPIC® Cover plates**
- SKINTOP® CUBE
- SKINTOP® CUBE MULTI
- SKINTOP® MULTI
- SKINTOP® MULTI VENT

### Product features

**EPIC® Cover plates**
- For coverage of panel cut-outs for panel-mount base housings type H-A and H-B

**EPIC® Adapter plates for 1 D-Sub insert**
- For use of D-Sub inserts in H-B housings

**EPIC® Adapter plates for 2 D-Sub inserts**
- For use of D-Sub inserts in H-B housings

**EPIC® Locking levers for H-A, H-B**
- Locking levers as spare parts for H-A and H-B housings

| Article number | Article description | Version | Material | Pieces / PU |
|---|---|---|---|---|
| **Adapter plates for 1 D-Sub insert** | | | | |
| 11764200 | H-B 6 / M-D 9 | for 1 x D-Sub 9–pin | | 10 |
| 11764400 | H-B 16 / M-D 25 | for 1 x D-Sub 25–pin | | 10 |
| **Adapter plates for 2 D-Sub inserts** | | | | |
| 11764201 | H-B 6 / 2xM-D 9 | for 2 x D-Sub 9–pin | | 10 |
| 11764203 | H-B 6 / 2xM-D 15 | for 2 x D-Sub 15–pin | | 10 |
| 11764301 | H-B 10 / 2xM-D 25 | for 2 x D-Sub 25–pin | | 10 |
| **Single and double levers for H-A and H-B housings** | | | | |
| 10458000 | H-A 10 LB | single lever for H-A 10 housing | Steel | 10 |
| 10468000 | EPIC H-A 16 LB/H-B 32 QB | single lever for H-A 16 housing | Steel | 10 |
| 10480100 | H-A 32 QB | double lever for H-A 32 housing | Steel | 10 |
| 10049000 | H-B 10-24 QB | double lever for H-B 10 - 24 housing | Steel | 10 |
| 10017000 | H-B 6 LB | single lever for H-B 6 housing | Steel | 10 |
| 10017100 | H-B 6 LB-K | single lever for H-B 6 housing | Stainless steel | 10 |
| 10049100 | H-B 10-24 QB-K | double lever for H-B 10 - 24 housing | Stainless steel | 10 |

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## EPIC® H-Q 4+2

Combination insert Power and Control



**Info**

- High power up to 40 A
- Space saving design for H-Q housing

## EPIC® H-Q 8

Combination insert Power



**Info**

- High power up to 16 A
- Space saving design for H-Q housing

## EPIC® H-Q 17

Combination insert Power



**Info**

- High power up to 10 A
- Space saving design for H-Q housing

### Suitable housing

- EPIC® H-Q series

### Suitable contacts

- EPIC® H-D 1.6
- EPIC® H-BE 2.5

### Application range

- Typical areas of application are electric motors and servo drives
- For connecting devices and machines to a power supply in various applications

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
**EPIC® H-Q 4+2**
400 V Power (600 V UL&CSA)
250 V Signal
**EPIC® H-Q 8**
500 V Power (600 V UL&CSA)
**EPIC® H-Q 17**
250 V

**Rated current (A)**
**EPIC® H-Q 4+2**
40 A Power, 10 A Signal
**EPIC® H-Q 8**
16 A
**EPIC® H-Q 17**
10 A

**Flammability**
UL94 V-0

**Contact resistance**
< 5 mOhm

**Number of contacts**
**EPIC® H-Q 4+2**
4 + 2
**EPIC® H-Q 8**
8
**EPIC® H-Q 17**
17

**Termination methods**
**EPIC® H-Q 4+2**
Crimp termination: 0.14 - 6 mm²
**EPIC® H-Q 8**
Crimp termination: 0.14 - 4 mm²
**EPIC® H-Q 17**
Crimp termination: 0.14 - 2.5 mm²

**Material**
PC, polycarbonate

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +125 °C

**Pollution degree**
3

| Article number | Article description | Contact type | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® H-Q 4+2** | | | | |
| 44423372 | EPIC® H-Q 004/2 MC | male | 4 + 2 | 5 |
| 44423373 | EPIC® H-Q 004/2 FC | female | 4 + 2 | 5 |
| **EPIC® H-Q 8** | | | | |
| 44423374 | EPIC® H-Q 008/0 MC | male | 8 | 5 |
| 44423375 | EPIC® H-Q 008/0 FC | female | 8 | 5 |
| **EPIC® H-Q 17** | | | | |
| 44423376 | EPIC® H-Q 017 MC | male | 17 | 5 |
| 44423377 | EPIC® H-Q 017 FC | female | 17 | 5 |

The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products. To connect stranded conductors, use a end sleeve.

## EPIC® H-Q TG

Robust and reliable polyamide connector housing

**Info**

- Meets protection class IP 65 when locked
- Space and weight-saving



## EPIC® H-Q TS

Robust and reliable polyamide connector housing

**Info**

- Meets protection class IP 65 when locked
- Side cable entry



### Benefits

- The hood can be connected with many standard housings (mount base, surface-mount base or cable coupler housings)
- High stability thanks to impact-resistant polyamide
- Space and weight-saving due to the small size
- With space-saving female thread for use with metric cables or conduit glands
- Locking takes place using a central lever on the counter-housing. Meets protection class IP 65 when locked

### Application range

- For protecting the connector insert against environmental influences
- For connecting devices and machines to a power supply in various applications
- Typical areas of application are electric motors and servo drives
- For use with rectangular connector inserts in the EPIC® H-Q series
- Withstands high environmental and mechanical stres

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Material**
PC, polycarbonate

**Protection rating**
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

**Temperature range**
-40°C to +100°C

| Article number | Article description | Thread size | Pieces / PU |
|---|---|---|---|
| **EPIC® H-Q TG** | | | |
| 381166440 | EPIC® H-Q TG M25 | M 25 | 10 |
| **EPIC® H-QTS** | | | |
| 381166441 | EPIC® H-Q TS M25 | M 25 | 10 |

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# EPIC® POWER M12L Screw Termination

Circular connectors for servomotors and power supply



381166316

**Info**

- Screw type available also with different coding

## Benefits

- High stability thanks to impact-resistant polyamide
- High power up to 16 A with extreme space-saving design for very small devices
- The mechanical L coding of the connector face prevents incorrect plugging with the mating connector
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs

## Application range

- For direct current applications in the low voltage range
- For supplying power to smaller devices (e.g. decentralised I/O modules, smaller motors)
- Also suitable as the power supply in the PROFINET network (M12L is regarded as a standardised power interface)
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
63 V

**Rated current (A)**
16 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
4 + FE
L - coded

**Termination methods**
Screw Termination: 0.5 to 2.5mm²

**Material**
Polyamide

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-25°C to +85°C

| Article number | Article description | Contact type | Clamping range (mm) | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® POWER M12L, Straight, Screw Termination** | | | | | |
| 381166308 | EPIC® POWER M12L F6 4+FE SR1220 8-12 | male | 8 - 12 | 4 + FE | 1 |
| 381166313 | EPIC® POWER M12L D6 4+FE SR1220 8-12 | female | 8 - 12 | 4 + FE | 1 |
| **EPIC® POWER M12L, Angled, Screw Termination** | | | | | |
| 381166316 | EPIC® POWER M12L F1 4+FE SR1220 8-12 | male | 8 - 12 | 4 + FE | 1 |
| 381166317 | EPIC® POWER M12L D7 4+FE SR1220 8-12 | female | 8 - 12 | 4 + FE | 1 |

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# EPIC® POWER M12K Screw Termination

Circular connectors for servomotors and power supply

**Info**

- Screw type available also with different coding



381166311



381166312

## Benefits

- High stability thanks to impact-resistant polyamide
- High power up to 12 A with extreme space-saving design for tight spaces
- The mechanical K coding of the connector face prevents incorrect plugging with the mating connector
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs

## Application range

- For connecting three-phase motors up to 7.5 kW
- For connecting devices and machines to a power supply in various applications
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V

**Rated current (A)**
12 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
4 + PE
K - coded

**Termination methods**
Screw Termination: 0.5 to 2.5mm²

**Material**
Polyamide

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-25°C to +85°C

| Article number | Article description | Contact type | Clamping range (mm) | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® POWER M12K, Straight, Screw Termination** | | | | | |
| 381166315 | EPIC® POWER M12K F6 4+PE SR1220 8-12 | male | 8 - 12 | 4 + PE | 1 |
| 381166314 | EPIC® POWER M12K D6 4+PE SR1220 8-12 | female | 8 - 12 | 4 + PE | 1 |
| **EPIC® POWER M12K, Angled, Screw Termination** | | | | | |
| 381166311 | EPIC® POWER M12K F1 4+PE SR1220 8-12 | male | 8 - 12 | 4 + PE | 1 |
| 381166312 | EPIC® POWER M12K D7 4+PE SR1220 8-12 | female | 8 - 12 | 4 + PE | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products. To connect stranded conductors, use a end sleeve.

# EPIC® POWER M12M Screw Termination

Circular connectors for servomotors and power supply



381166345 381166344

**Info**

- Screw type available also with different coding

## Benefits

- High stability thanks to impact-resistant polyamide
- Compact contact arrangement enables 5 contacts + 1 PE contact in little assembly space
- The mechanical M coding of the connector face prevents incorrect plugging with the mating connector
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs

## Application range

- For supply power to smaller devices and system in a wide range of applications
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V

**Rated current (A)**
8 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
5 + PE
M - coded

**Termination methods**
Screw Termination: 0.5 to 2.5mm²

**Material**
Polyamide

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-25°C to +85°C

| Article number | Article description | Clamping range (mm) | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M12L, M12M D6, Female, Screw Termination** | | | | |
| 381166345 | EPIC® POWER M12M D6 5+PE SR1220 8-12 | 8 - 12 | 5 + PE | 1 |
| **EPIC® POWER M12M F6, Male, Screw Termination** | | | | |
| 381166344 | EPIC® POWER M12L D7 4+FE SR1220 8-12 | 8 - 12 | 5 + PE | 1 |

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# EPIC® POWER M12S Screw Termination

Circular connectors for servomotors and power supply

**Info**

- Screw type available also with different coding



**381166306**



**381166307**



**381166309**



**381166310**

## Benefits

- High stability thanks to impact-resistant polyamide
- High power up to 12 A with extreme space-saving design for tight spaces
- The mechanical S coding of the connector face prevents incorrect plugging with the mating connector
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs and configurations

## Application range

- For connecting three-phase motors up to 7.5 kW
- For connecting devices and machines to a power supply in various applications
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V

**Rated current (A)**
12 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
2+PE / 3+PE
S - coded

**Termination methods**
Screw Termination: 0.5 to 2.5mm²

**Material**
Polyamide

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-25°C to +85°C

| Article number | Article description | Clamping range (mm) | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M12S D6, Female, Screw Termination** | | | | |
| 381166306 | EPIC® POWER M12S D6 2+PE SR1220 8-12 | 8 - 12 | 2 + PE | 1 |
| 381166307 | EPIC® POWER M12S D6 3+PE SR1220 8-12 | 8 - 12 | 3 + PE | 1 |
| **EPIC® POWER M12S F6, Male, Screw Termination** | | | | |
| 381166309 | EPIC® POWER M12S F6 2+PE SR1220 8-12 | 8 - 12 | 2 + PE | 1 |
| 381166310 | EPIC® POWER M12S F6 3+PE SR1220 8-12 | 8 - 12 | 3 + PE | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products. To connect stranded conductors, use a end sleeve.

# EPIC® POWER M12 630V panel base

Circular connectors for servomotors and power supply



**Info**

- Simply screw in given metric thread

## Benefits

- Standard M20 Version with screw contacts
- Small M16 Version with preharnessed wires
- High performance gold plated contacts

## Application range

- Power Supply for small devices
- For 1-phase cables or 3-phase wihout N

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
12 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Number of contacts**
3 + PE
S-coded

**Termination methods**
Screw termination: 0.75 - 1.5mm²
with 0,2m PP-wire, 4x1.5mm²

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40 °C to +85 °C

| Article number | Article description | Fastening type | Pieces / PU |
|---|---|---|---|
| **EPIC® POWER M12 630V panel base** | | | |
| 44423144 | Panel base with pin contacts | M20 | 1 |
| 44423145 | Panel base with socket contacts | M20 | 1 |
| 44423146 | Panel base with pin contacts | M16 (with wires 4xAWG16/0.2m) | 1 |
| 44423147 | Panel base with socket contacts | M16 (with wires 4xAWG16/0.2m) | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWER M12 630V cable connector

Circular connectors for servomotors and power supply



**Info**

- Smallest Power connector

## Benefits

- To terminate only screw driver is neccessary
- Small and space-saving for narrow available space
- High performance gold plated contacts

## Application range

- Power Supply for small devices
- For 1-phase cables or 3-phase wihout N

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V

**Rated impulse voltage**
6 kV

**Rated current (A)**
12 A

**Pollution degree**
3

**Contact resistance**
< 3 mOhm

**Number of contacts**
3 + PE
S-coded

**Termination methods**
Screw termination: 0.75 - 1.5mm²

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40 °C to +85 °C

| Article number | Article description | Clamping range min | Clamping range max | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M12 630V cable connector** | | | | |
| 44423140 | Cable coupler with pin contacts | 8 | 10 | 1 |
| 44423142 | Cable coupler with pin contacts, angled | 8 | 10 | 1 |
| 44423143 | Cable connector with socket contacts, angled | 8 | 10 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWER M12T Screw Termination

Circular connectors for servomotors and power supply



381166346



381166347

**Info**

- Screw type available also with different coding

## Benefits

- High stability thanks to impact-resistant polyamide
- High power up to 12 A with extreme space-saving design for tight spaces
- The mechanical T coding of the connector face prevents incorrect plugging with the mating connector
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs and configurations

## Application range

- For direct current applications in the low voltage range
- For supplying power to smaller devices (e.g. decentralised I/O modules, smaller motors)
- Good oil and chemical resistance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
63 V

**Rated current (A)**
12 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
4
T - coded

**Termination methods**
Screw Termination: 0.5 to 2.5mm²

**Material**
Polyamide

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-25°C to +85°C

| Article number | Article description | Clamping range (mm) | Number of operating contacts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M12T D6, Female, Screw Termination** | | | | |
| 381166347 | EPIC® POWER M12T D6 4 SR1220 8-12 | 8 - 12 | 4 | 20 |
| **EPIC® POWER M12T F6, Male, Screw Termination** | | | | |
| 381166346 | EPIC® POWER M12T F6 4 SR1220 8-12 | 8 - 12 | 4 | 20 |

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# EPIC® POWER M12 flush-type

Panel mount plug for power transmission



**Info**

- Simply screw in given metric thread

## Benefits

- M12 screw connection
- With M16 thread for easy screwing into a housing with threaded bore (including lock nut for through bores without thread)
- High performance gold plated contacts
- With ready-to-connect single cores for quick wiring within the housing
- Length of conductors 0.5 m

## Application range

- For connecting devices to control cabinets or machine housings

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
S-coded: 630 V
T-coded: 63 V
L-coded: 63 V
K-coded: 630 V

**Rated current (A)**
S-coded: 12 A
T-coded: 12 A
L-coded: 16 A
K-coded: 16 A

**Pollution degree**
3

**Contact resistance**
< 5 mOhm

**Number of contacts**
S-coded: 63 V
T-coded: 630 V
L-coded: 63 V
K-coded: 630 V

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40 °C to +85 °C

| Article number | Article description | Coding type | Connector type | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M12 630V panel base** | | | | |
| 381166909 | EPIC® M12 FETM4F-0.5-M16 | T-coded | male | 10 |
| 381166910 | EPIC® M12 FETF4F-0.5-M16 | T-coded | female | 10 |
| 381166911 | EPIC® M12 FESM4F-0.5-M16 | S-coded | male | 10 |
| 381166912 | EPIC® M12 FESF4F-0.5-M16 | S-coded | female | 10 |
| 381166913 | EPIC® M12 FETM4F-0.5-M16 | L-coded | male | 10 |
| 381166914 | EPIC® M12 FETF4F-0.5-M16 | L-coded | female | 10 |
| 381166915 | EPIC® M12 FESM4F-0.5-M16 | K-coded | male | 10 |
| 381166916 | EPIC® M12 FESF4F-0.5-M16 | K-coded | female | 10 |

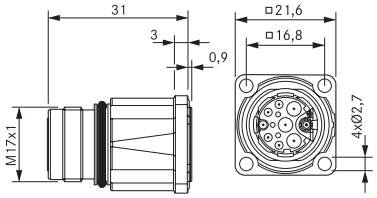
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## EPIC® POWER M17 A1

Circular connectors for servomotors and power supply

**Info**

- High Power with smallest space requirements



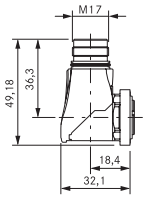


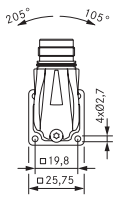

## EPIC® POWER M17 A3

Circular connectors for servomotors and power supply

**Info**

- Rotateable with 310° cable outlet



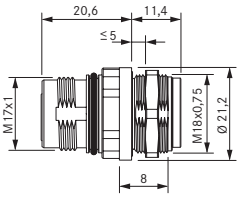



## EPIC® POWER M17 G4

Circular connectors for servomotors and power supply

**Info**

- For installation in existing hole






### Suitable contacts

- EPIC® M17 Contacts
- The contacts have to be ordered separately

### Benefits

- Version with less contacts for higher current
- Sensor/ ac
- EMC protection

### Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630V: 2mm and 1mm contacts
60V: 0,6mm contacts

**Rated impulse voltage**
6KV: 2mm and 1mm contacts
1.5KV: 0.6mm contacts

**Rated current (A)**
3+PE: 20A, 5+PE/6+PE/7+PE:14A, 3+PE+5:14A/3,6A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE, 5+PE, 6+PE, 7+PE, 3+PE+5
Contacts:3+PE(2mm), 5+PE(1mm), 6+PE(1mm), 7+PE(1mm), 3+PE+5(1mm/0.6mm)

**Termination methods**
Crimp: 3+PE: 0.5-2.5mm², 5+PE/6+PE/7+PE: 0.06-1mm², 3+P+5: 0.06-1/0.06-0.5mm²

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **Type M17 A1, front wall mounting** | | | | |
| 44423075 | EPIC® M17 female | Ø 2.7 mm (4x) | 3+PE (2mm contacts) | 5 |
| 44423070 | EPIC® M17 male | Ø 2.7 mm (4x) | 3+PE (2mm contacts) | 5 |
| 44423076 | EPIC® M17 female | Ø 2.7 mm (4x) | 5+PE (1mm contacts) | 5 |
| 44423071 | EPIC® M17 male | Ø 2.7 mm (4x) | 5+PE (1mm contacts) | 5 |
| 44423077 | EPIC® M17 female | Ø 2.7 mm (4x) | 6+PE (1mm contacts) | 5 |
| 44423072 | EPIC® M17 male | Ø 2.7 mm (4x) | 6+PE (1mm contacts) | 5 |
| 44423078 | EPIC® M17 female | Ø 2.7 mm (4x) | 7+PE (1mm contacts) | 5 |
| 44423073 | EPIC® M17 male | Ø 2.7 mm (4x) | 7+PE (1mm contacts) | 5 |
| 44423079 | EPIC® M17 female | Ø 2.7 mm (4x) | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| 44423074 | EPIC® M17 male | Ø 2.7 mm (4x) | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| **Type M17 A3, angled and rotateable** | | | | |
| 44423085 | EPIC® M17 female | Ø 2.7 mm (4x) | 3+PE (2mm contacts) | 5 |
| 44423080 | EPIC® M17 male | Ø 2.7 mm (4x) | 3+PE (2mm contacts) | 5 |
| 44423086 | EPIC® M17 female | Ø 2.7 mm (4x) | 5+PE (1mm contacts) | 5 |
| 44423081 | EPIC® M17 male | Ø 2.7 mm (4x) | 5+PE (1mm contacts) | 5 |
| 44423087 | EPIC® M17 female | Ø 2.7 mm (4x) | 6+PE (1mm contacts) | 5 |
| 44423082 | EPIC® M17 male | Ø 2.7 mm (4x) | 6+PE (1mm contacts) | 5 |
| 44423088 | EPIC® M17 female | Ø 2.7 mm (4x) | 7+PE (1mm contacts) | 5 |
| 44423083 | EPIC® M17 male | Ø 2.7 mm (4x) | 7+PE (1mm contacts) | 5 |
| 44423089 | EPIC® M17 female | Ø 2.7 mm (4x) | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| 44423084 | EPIC® M17 male | Ø 2.7 mm (4x) | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| **Type M17 G4, front wall mounting** | | | | |
| 44423095 | EPIC® M17 female | M18x0,75 (order counternut separately) | 3+PE (2mm contacts) | 5 |
| 44423090 | EPIC® M17 male | M18x0,75 (order counternut separately) | 3+PE (2mm contacts) | 5 |
| 44423099 | EPIC® M17 female | M18x0,75 (order counternut separately) | 5+PE (1mm contacts) | 5 |
| 44423094 | EPIC® M17 male | M18x0,75 (order counternut separately) | 5+PE (1mm contacts) | 5 |
| 44423096 | EPIC® M17 female | M18x0,75 (order counternut separately) | 6+PE (1mm contacts) | 5 |
| 44423091 | EPIC® M17 male | M18x0,75 (order counternut separately) | 6+PE (1mm contacts) | 5 |
| 44423097 | EPIC® M17 female | M18x0,75 (order counternut separately) | 7+PE (1mm contacts) | 5 |
| 44423092 | EPIC® M17 male | M18x0,75 (order counternut separately) | 7+PE (1mm contacts) | 5 |
| 44423098 | EPIC® M17 female | M18x0,75 (order counternut separately) | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| 44423093 | EPIC® M17 male | M18x0,75 (order counternut separately) | 3+PE+5 (1mm/0.6mm contacts) | 5 |

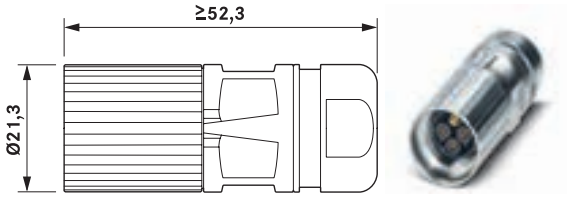
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# EPIC® POWER M17 D6

Circular connectors for servomotors and power supply

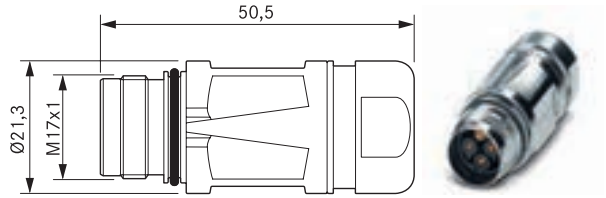
**Info**

- High Power with smallest space requirements




# EPIC® POWER M17 F6

Circular connectors for servomotors and power supply




## Suitable contacts

- EPIC® M17 Contacts
- The contacts have to be ordered separately

## Benefits

- Sensor/ ac
- Version with less contacts for higher current
- EMC protection

## Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630V: 2mm and 1mm contacts
60V: 0,6mm contacts

**Rated impulse voltage**
6KV: 2mm and 1mm contacts
1.5KV: 0.6mm contacts

**Rated current (A)**
3+PE: 20A, 5+PE/6+PE/7+PE:14A, 3+PE+5:14A/3,6A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE, 5+PE, 6+PE, 7+PE, 3+PE+5
Contacts:3+PE(2mm), 5+PE(1mm), 6+PE(1mm), 7+PE(1mm), 3+PE+5(1mm/0.6mm)

**Termination methods**
Crimp: 3+PE: 0.5-2.5mm², 5+PE/6+PE/7+PE: 0.06-1mm², 3+P+5: 0.06-1/0.06-0.5mm²

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article description | Clamping range min | Clamping range max | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **Type M17 D6, cable connector** | | | | | |
| 44423050 | EPIC® M17 female | 3.5 | 11 | 3+PE (2mm contacts) | 5 |
| 44423055 | EPIC® M17 male | 3.5 | 11 | 3+PE (2mm contacts) | 5 |
| 44423051 | EPIC® M17 female | 3.5 | 11 | 5+PE (1mm contacts) | 5 |
| 44423056 | EPIC® M17 male | 3.5 | 11 | 5+PE (1mm contacts) | 5 |
| 44423052 | EPIC® M17 female | 3.5 | 11 | 6+PE (1mm contacts) | 5 |
| 44423057 | EPIC® M17 male | 3.5 | 11 | 6+PE (1mm contacts) | 5 |
| 44423053 | EPIC® M17 female | 3.5 | 11 | 7+PE (1mm contacts) | 5 |
| 44423058 | EPIC® M17 male | 3.5 | 11 | 7+PE (1mm contacts) | 5 |
| 44423059 | EPIC® M17 male | 3.5 | 11 | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| **Type M17 F6, cable coupler** | | | | | |
| 44423065 | EPIC® M17 female | 3.5 | 11 | 3+PE (2mm contacts) | 5 |
| 44423060 | EPIC® M17 male | 3.5 | 11 | 3+PE (2mm contacts) | 5 |
| 44423066 | EPIC® M17 female | 3.5 | 11 | 5+PE (1mm contacts) | 5 |
| 44423061 | EPIC® M17 male | 3.5 | 11 | 5+PE (1mm contacts) | 5 |
| 44423067 | EPIC® M17 female | 3.5 | 11 | 6+PE (1mm contacts) | 5 |
| 44423062 | EPIC® M17 male | 3.5 | 11 | 6+PE (1mm contacts) | 5 |
| 44423068 | EPIC® M17 female | 3.5 | 11 | 7+PE (1mm contacts) | 5 |
| 44423063 | EPIC® M17 male | 3.5 | 11 | 7+PE (1mm contacts) | 5 |
| 44423069 | EPIC® M17 female | 3.5 | 11 | 3+PE+5 (1mm/0.6mm contacts) | 5 |
| 44423064 | EPIC® M17 male | 3.5 | 11 | 3+PE+5 (1mm/0.6mm contacts) | 5 |

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## EPIC® SIGNAL M17 A1

Circular connectors for servomotors and power supply



**Info**

- Connector for shielded data cables

## EPIC® SIGNAL M17 A3

Circular connectors for servomotors and power supply



**Info**

- Rotateable with 310° cable outlet

## EPIC® SIGNAL M17 G4

Circular connectors for servomotors and power supply



**Info**

- For installation in existing hole

### Suitable contacts

- EPIC® M17 Contacts
- The contacts have to be ordered separately

### Benefits

- Sensor/ ac
- EMC protection

### Application range

- Feedback / signal cables

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
60 V

**Rated impulse voltage**
1.5 kV

**Rated current (A)**
3.6 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
Contacts: 8(1mm), 17(0.6mm)

**Termination methods**
Crimp termination: 0.06 - 0.56 mm² (0,6mm contacts)
Crimp termination: 0.06 - 1.0 mm² (1mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **Type M17 A1, front wall mounting** | | | | |
| 44423110 | EPIC® M17 female | Ø 2.7 mm (4x) | 8 | 5 |
| 44423108 | EPIC® M17 male | Ø 2.7 mm (4x) | 8 | 5 |
| 44423111 | EPIC® M17 female | Ø 2.7 mm (4x) | 17 | 5 |
| 44423109 | EPIC® M17 male | Ø 2.7 mm (4x) | 17 | 5 |
| **Type M17 A3, angled and rotateable** | | | | |
| 44423114 | EPIC® M17 female | Ø 2.7 mm (4x) | 8 | 5 |
| 44423112 | EPIC® M17 male | Ø 2.7 mm (4x) | 8 | 5 |
| 44423115 | EPIC® M17 female | Ø 2.7 mm (4x) | 17 | 5 |
| 44423113 | EPIC® M17 male | Ø 2.7 mm (4x) | 17 | 5 |
| **Type M17 G4, front wall mounting** | | | | |
| 44423118 | EPIC® M17 female | M18x0,75 (order counternut separately) | 8 | 5 |
| 44423116 | EPIC® M17 male | M18x0,75 (order counternut separately) | 8 | 5 |
| 44423119 | EPIC® M17 female | M18x0,75 (order counternut separately) | 17 | 5 |
| 44423117 | EPIC® M17 male | M18x0,75 (order counternut separately) | 17 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL M 17 D6

Circular connectors for servomotors and power supply

**Info**

- Connector for shielded data cables



# EPIC® SIGNAL M 17 F6

Circular connectors for servomotors and power supply



## Suitable contacts

- EPIC® M17 Contacts
- The contacts have to be ordered separately

## Benefits

- Sensor/ ac
- EMC protection

## Application range

- Feedback / signal cables

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
60 V

**Rated impulse voltage**
1.5 kV

**Rated current (A)**
3.6 A

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
Contacts: 8(1mm), 17(0.6mm)

**Termination methods**
Crimp termination: 0.06 - 0.56 mm² (0,6mm contacts)
Crimp termination: 0.06 - 1.0 mm² (1mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article description | Clamping range min | Clamping range max | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **Type M 17 D6, cable connector** | | | | | |
| 44423100 | EPIC® M17 female | 3.5 | 11 | 8 | 5 |
| 44423102 | EPIC® M17 male | 3.5 | 11 | 8 | 5 |
| 44423101 | EPIC® M17 female | 3.5 | 11 | 17 | 5 |
| 44423103 | EPIC® M17 male | 3.5 | 11 | 17 | 5 |
| **Type M 17 F6, cable coupler** | | | | | |
| 44423106 | EPIC® M17 female | 3.5 | 11 | 8 | 5 |
| 44423104 | EPIC® M17 male | 3.5 | 11 | 8 | 5 |
| 44423107 | EPIC® M17 female | 3.5 | 11 | 17 | 5 |
| 44423105 | EPIC® M17 male | 3.5 | 11 | 17 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® M17 Contacts

Contacts, tools, accessories for circular connectors



## EPIC® M17 Tools

Contacts, tools, accessories for circular connectors



## EPIC® M17 Accessories

Contacts, tools, accessories for circular connectors



### Technical data

ETIM

**Classification ETIM 5/6**
**EPIC® M17 Contacts**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
**EPIC® M17 Tools**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection
**EPIC® M17 Accessories**
ETIM 5.0/6.0 Class-ID: EC002314
ETIM 5.0/6.0 Class-Description: Cap for industrial connectors

| Article number | Article description | Version | Inserts | Version | Pieces / PU |
|---|---|---|---|---|---|
| **0.6mm contacts female** | | | | | |
| 44423125 | M17 BCM 0,6mm 0,06-0,25 | | | 0.06-0.25mm² | 10 |
| 44423126 | M17 BCM 0.6mm 0.14-0.34 | | | 0.14-0.34mm² | 10 |
| 44423127 | M17 BCM 0,6mm 0,34-0,5 | | | 0.34-0.5mm² | 10 |
| **1mm contacts female** | | | | | |
| 44423122 | M17 BCM 1mm 0,06-0,25 | | | 0.06-0.25mm² | 10 |
| 44423123 | M17 BCM 1mm 0.34-0.5 | | | 0.34-0.5mm² | 10 |
| 44423124 | M17 BCM 1mm 0,5-1,0 | | | 0.5-1.0mm² | 10 |
| **2mm contacts female** | | | | | |
| 44423120 | M17 BCM 2mm 0,25-1,0 | | | 0.25-1.0mm² | 10 |
| 44423121 | M17 BCM 2mm 1,0-2,5 | | | 1.0-2.5mm² | 10 |
| **0.6mm contacts male** | | | | | |
| 44423133 | M17 SCM 0,6mm 0,06-0,25 | | | 0.06-0.25mm² | 10 |
| 44423134 | M17 SCM 0,6mm 0,14-0,34 | | | 0.14-0.34mm² | 10 |
| 44423135 | M17 SCM 0,6mm 0,34-0,5 | | | 0.34-0.5mm² | 10 |
| **1mm contacts male** | | | | | |
| 44423130 | M17 SCM 1mm 0,06-0,25 | | | 0.06-0.25mm² | 10 |
| 44423131 | M17 SCM 1mm 0,34-0,5 | | | 0.34-0.5mm² | 10 |
| 44423132 | M17 SCM 1mm 0,5-1,0 | | | | 10 |
| **2mm contacts male** | | | | | |
| 44423128 | M17 SCM 2mm 0,25-1,0 | | | 0.25-1.0mm² | 10 |
| 44423129 | M17 SCM 2mm 1,0-2,5 | | | 1.0-2.5mm² | 10 |
| **Crimping tool** | | | | | |
| 44423136 | Crimptool M17 | Con localizador para EPIC® M17 | for EPIC® M17 POWER and SIGNAL | | 1 |
| **Accessories** | | | | | |
| 44423148 | | for M17 type G4 housing | Counternut M18x0.75 | | 10 |

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# EPIC® SIGNAL M23 A1

Circular connectors for Servo Cables and encoders



**Info**

- Coulour coding for easy connecting

# EPIC® SIGNAL M23 A1 D3.2

Circular connectors for Servo Cables and encoders



# EPIC® SIGNAL M23 A3

Circular connectors for Servo Cables and encoders



**Info**

- Rotateable with clearly defined adjustment positions

## Benefits

**EPIC® SIGNAL M23 A1**

- Safe fixing with 4 screws
- Permanent vibration protection

**EPIC® SIGNAL M23 A1 D3.2**

- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Permanent vibration protection

**EPIC® SIGNAL M23 A3**

- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Permanent vibration protection

## Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

## Product features

- Mounting: Ø2.7mm for screws M2.5. Ø3.2mm for screws M3

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Sealing: FPM

**Protection rating**
**EPIC® SIGNAL M23 A1**
IP68 (10h/1m)
**EPIC® SIGNAL M23 A1 D3.2**
IP68 (10h/1m)
**EPIC® SIGNAL M23 A3**
IP 65

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25 °C up to +125 °C

| Article number | Article | Coding | Fastening type | Pieces / PU |
|---|---|---|---|---|
| **Type M23 A1 panel-mount box, front wall mounting** | | | | |
| 72004000 | M23 A1 | black (N) | Ø 2.7 mm (4x) | 5 |
| 72004010 | M23 A1 | black (N) | Ø 2.7 mm (4x) | 20 |
| 72004200 | M23 A1 | red (+20°) | Ø 2.7 mm (4x) | 5 |
| 72004210 | M23 A1 | red (+20°) | Ø 2.7 mm (4x) | 20 |
| 72004100 | M23 A1 | blue (-20°) | Ø 2.7 mm (4x) | 5 |
| 72004110 | M23 A1 | blue (-20°) | Ø 2.7 mm (4x) | 20 |
| **Type M23 A1 D3.2 panel-mount box, front wall mounting** | | | | |
| 44420018 | M23 A1 D3,2 | black (N) | Ø 3.2 mm (4x) | 5 |
| 44420017 | M23 A1 D3,2 | black (N) | Ø 3.2 mm (4x) | 20 |
| 44420020 | M23 A1 D3,2 | red (+20°) | Ø 3.2 mm (4x) | 5 |
| 44420016 | M23 A1 D3,2 | blue (-20°) | Ø 3.2 mm (4x) | 5 |
| **Type M23 A3 panel-mount connector, angled, rotatable, front wall mounting** | | | | |
| 24420055 | M23 A3 | black (N) | Ø 2.7 mm (4x) | 5 |
| 24420054 | M23 A3 | black (N) | Ø 2.7 mm (4x) | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 G4

Circular connectors for Servo Cables and encoders



**Info**

- For mounting in existing M25 threads or boreholes

## EPIC® SIGNAL M23 G5

Circular connectors for Servo Cables and encoders



## EPIC® SIGNAL M23 G6

Circular connectors for Servo Cables and encoders



### Benefits

- Fast and easy assembly
- Only one M25 bore hole necessary

### Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Sealing: FPM

**Protection rating**
IP68 (10h/1m)

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25°C up to +125°C

| Article number | Article | Coding | Fastening type | Pieces / PU |
|---|---|---|---|---|
| **Type M23 G4 panel-mount box, front wall mounting** | | | | |
| 44420032 | M23 G4 | black (N) | M25 x 1.5 | 5 |
| 44420031 | M23 G4 | black (N) | M25 x 1.5 | 20 |
| 44420034 | M23 G4 | red (+20°) | M25 x 1.5 | 5 |
| 44420030 | M23 G4 | blue (-20°) | M25 x 1.5 | 5 |
| **Type M23 G5 panel-mount box, front wall mounting** | | | | |
| 44420046 | M23 G5 | black (N) | M25 x 1.5 (with nut) | 5 |
| 44420045 | M23 G5 | black (N) | M25 x 1.5 (with nut) | 20 |
| 44420048 | M23 G5 | red (+20°) | M25 x 1.5 (with nut) | 5 |
| 44420044 | M23 G5 | blue (-20°) | M25 x 1.5 (with nut) | 5 |
| **Type M23 G6 panel-mount box, rear wall mounting** | | | | |
| 44420071 | M23 G6 | black (N) | M25 x 1.5 (with nut) | 5 |
| 44420073 | M23 G6 | black (N) | M25 x 1.5 (with nut) | 20 |

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# EPIC® SIGNAL M23 B1

Circular connectors for Servo Cables and encoders



**Info**

- Housing for mounting at inner side to save space outside of device

# EPIC® SIGNAL M23 B2

Circular connectors for Servo Cables and encoders



## Benefits

**EPIC® SIGNAL M23 B1**

- Defined stop position when mounting at device prevents uncontrolled pressing of sealing
- Harnessed insulation body can easily inserted from back side in already mounted housing

**EPIC® SIGNAL M23 B2**

- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Harnessed insulation body can easily inserted from back side in already mounted housing

## Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Sealing: FPM

**Protection rating**
IP68 (10h/1m)

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25°C up to +125°C

| Article number | Article | Coding | Fastening type | Pieces / PU |
|---|---|---|---|---|
| **Type M23 B1 panel-mount box, rear wall mounting** | | | | |
| 44420024 | M23 B1 | black (N) | M2.5 (4x) | 5 |
| 44420023 | M23 B1 | black (N) | M2.5 (4x) | 20 |
| 44420026 | M23 B1 | red (+20°) | M2.5 (4x) | 5 |
| **Type M23 B2 panel-mount box, rear wall mounting** | | | | |
| 44420050 | M23 B2 | black (N) | Ø 2.7 mm (4x) | 5 |
| 44420051 | M23 B2 | black (N) | Ø 2.7 mm (4x) | 20 |
| 44420035 | M23 B2 | red (+20°) | Ø 2.7 mm (4x) | 5 |

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# EPIC® SIGNAL M23 C2

Circular connectors for Servo Cables and encoders





## Benefits

- Quick and easy separation of connection from both sides of a wall
- For connecting two pre-assembled M23 D6 cable connectors

## Application range

- Plant engineering
- Measurement and control technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Material**
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

**Protection rating**
IP 67

**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Version | Contacts included | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|
| **Type M23 C2 feed-through connector** | | | | | | |
| 00010108 | EPIC® M23 C2 12 | black (N) | 12 | Ø 2.7 mm (4x) | 12E male - 12P female | 5 |

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# EPIC® SIGNAL M23 D6

Circular connectors for Servo Cables and encoders

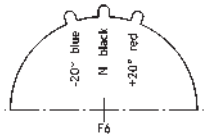


**Info**

- Robust metal connector with integrated EMC cable gland

# EPIC® SIGNAL M23 F6

Circular connectors for Servo Cables and encoders






**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Material**
Housing: nickel-plated zinc die-casting
Sealing: FPM

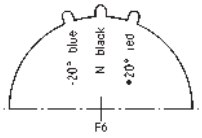
**Protection rating**
IP68 (10h/1m)

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25°C up to +125°C

# EPIC® SIGNAL M23 F7

Circular connectors for Servo Cables and encoders






**Benefits**

- Low-resistance screen contact, optimum EMC protection
- Use of high quality materials for increased reliability

**Application range**

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

| Article number | Article | Coding | Cable clamping range | Fastening type | Pieces / PU |
|---|---|---|---|---|---|
| **Type M23 D6 cable connector** | | | | | |
| 44420037 | M23 D6 | black (N) | 7.0 - 13.5 | | 5 |
| 72044030 | M23 D6 | black (N) | 7.0 - 10.0 | | 5 |
| 72044020 | M23 D6 | black (N) | 7.0 - 10.0 | | 20 |
| 72044000 | M23 D6 | black (N) | 9.5 - 13.5 | | 5 |
| 72044010 | M23 D6 | black (N) | 9.5 - 13.5 | | 20 |
| 44420038 | M23 D6 | red (+20°) | 7.0 - 13.5 | | 5 |
| 72044230 | M23 D6 | red (+20°) | 7.0 - 10.0 | | 5 |
| 72044220 | M23 D6 | red (+20°) | 7.0 - 10.0 | | 20 |
| 72044200 | M23 D6 | red (+20°) | 9.5 - 13.5 | | 5 |
| 72044210 | M23 D6 | red (+20°) | 9.5 - 13.5 | | 20 |
| 44420036 | M23 D6 | blue (-20°) | 7.0 - 13.5 | | 5 |
| 72044130 | M23 D6 | blue (-20°) | 7.0 - 10.0 | | 5 |
| 72044120 | M23 D6 | blue (-20°) | 7.0 - 10.0 | | 20 |
| 72044100 | M23 D6 | blue (-20°) | 9.5 - 13.5 | | 5 |
| 72044110 | M23 D6 | blue (-20°) | 9.5 - 13.5 | | 20 |
| **Type M23 F6 cable coupler** | | | | | |
| 44420040 | M23 F6 | black (N) | 7.0 - 13.5 | | 5 |
| 72064030 | M23 F6 | black (N) | 7.0 - 10.0 | | 5 |
| 72064020 | M23 F6 | black (N) | 7.0 - 10.0 | | 20 |
| 72064000 | M23 F6 | black (N) | 9.5 - 13.5 | | 5 |
| 72064010 | M23 F6 | black (N) | 9.5 - 13.5 | | 20 |
| 44420041 | M23 F6 | red (+20°) | 7.0 - 13.5 | | 5 |
| 72064230 | M23 F6 | red (+20°) | 7.0 - 10.0 | | 5 |
| 72064220 | M23 F6 | red (+20°) | 7.0 - 10.0 | | 20 |
| 72064200 | M23 F6 | red (+20°) | 9.5 - 13.5 | | 5 |
| 44420039 | M23 F6 | blue (-20°) | 7.0 - 13.5 | | 5 |
| 72064130 | M23 F6 | blue (-20°) | 7.0 - 10.0 | | 5 |
| 72064100 | M23 F6 | blue (-20°) | 9.5 - 13.5 | | 5 |
| **Type M23 F7 panel-mount connector, front/rear wall mounting** | | | | | |
| 44420009 | M23 F7 | black (N) | 7.0 - 10.0 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |
| 44420010 | M23 F7 | black (N) | 7.0 - 10.0 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 20 |
| 44420011 | M23 F7 | black (N) | 9.5 - 13.5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |
| 44420012 | M23 F7 | black (N) | 9.5 - 13.5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 20 |
| 44420001 | M23 F7 | red (+20°) | 7.0 - 10.0 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |
| 44420003 | M23 F7 | red (+20°) | 9.5 - 13.5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |
| 44420005 | M23 F7 | blue (-20°) | 7.0 - 10.0 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |
| 44420007 | M23 F7 | blue (-20°) | 9.5 - 13.5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5 |

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## EPIC® SIGNAL M23 Inserts 6 pole

Inserts for M23 circular connectors



## EPIC® SIGNAL M23 Inserts 7 pole

Inserts for M23 circular connectors



### Suitable housing

- EPIC® SIGNAL M23 A1
- EPIC® SIGNAL M23 A1 D3.2
- EPIC® SIGNAL M23 A3
- EPIC® SIGNAL M23 G4
- EPIC® SIGNAL M23 G5
- EPIC® SIGNAL M23 G6
- EPIC® SIGNAL M23 B1
- EPIC® SIGNAL M23 B2
- EPIC® SIGNAL M23 D6
- EPIC® SIGNAL M23 F6
- EPIC® SIGNAL M23 F7
- All inserts fit into all housings

### Suitable contacts

- EPIC® SIGNAL M23 Contacts male
- EPIC® SIGNAL M23 Contacts female
- Use 2 mm contacts

### Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

### Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description: Contact insert for industrial connectors

**Rated voltage (V)**
according to IEC 61984: 150 V

**Rated impulse voltage**
4 kV

**Rated current (A)**
18 A

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
**EPIC® SIGNAL M23 Inserts 6 pole**
6
**EPIC® SIGNAL M23 Inserts 7 pole**
7

**Termination methods**
Crimp termination: 1.0 - 2.5 mm²
Solder termination: up to 2.5 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Inserts | Contacts included | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **6-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 73002760 | P-part | without contacts | | 6 | 5 |
| 73002761 | P-part | without contacts | | 6 | 20 |
| 73002762 | P-part | + male contacts, solder | 6 | 6 | 5 |
| 73002763 | P-part | + male contacts, solder | 6 | 6 | 20 |
| 73002764 | P-part | + female contacts, solder | 6 | 6 | 5 |
| 73002765 | P-part | + female contacts, solder | 6 | 6 | 20 |
| **6-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 73002766 | E-Part | without contacts | | 6 | 5 |
| 73002767 | E-Part | without contacts | | 6 | 20 |
| 73002768 | E-Part | + male contacts, solder | 6 | 6 | 5 |
| 73002769 | E-Part | + male contacts, solder | 6 | 6 | 20 |
| 73002770 | E-Part | + female contacts, solder | 6 | 6 | 5 |
| 73002771 | E-Part | + female contacts, solder | 6 | 6 | 20 |
| **7-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 44420148 | P-part | without contacts | | 7 | 5 |
| 44420149 | P-part | without contacts | | 7 | 20 |
| 44420150 | P-part | + male contacts, solder | 7 | 7 | 5 |
| 44420151 | P-part | + male contacts, solder | 7 | 7 | 20 |
| 44420152 | P-part | + female contacts, solder | 7 | 7 | 5 |
| 44420153 | P-part | + female contacts, solder | 7 | 7 | 20 |
| **7-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 44420154 | E-Part | without contacts | | 7 | 5 |
| 44420155 | E-Part | without contacts | | 7 | 20 |
| 44420156 | E-Part | + male contacts, solder | 7 | 7 | 5 |
| 44420157 | E-Part | + male contacts, solder | 7 | 7 | 20 |
| 44420158 | E-Part | + female contacts, solder | 7 | 7 | 5 |
| 44420159 | E-Part | + female contacts, solder | 7 | 7 | 20 |

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL M23 Inserts 8+1 pole

Inserts for M23 circular connectors



## Suitable housing

- EPIC® SIGNAL M23 A1
- EPIC® SIGNAL M23 A1 D3.2
- EPIC® SIGNAL M23 A3
- EPIC® SIGNAL M23 G4
- EPIC® SIGNAL M23 G5
- EPIC® SIGNAL M23 G6
- EPIC® SIGNAL M23 B1
- EPIC® SIGNAL M23 B2
- EPIC® SIGNAL M23 D6
- EPIC® SIGNAL M23 F6
- EPIC® SIGNAL M23 F7
- All inserts fit into all housings

## Suitable contacts

- EPIC® SIGNAL M23 Contacts male
- EPIC® SIGNAL M23 Contacts female

**EPIC® SIGNAL M23 Inserts 8+1 pole**

- 8+1: 8*1 mm contact, 1*2 mm contact

**EPIC® SIGNAL M23 Inserts 9 pole**

- 9: 9*1 mm contact

## Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

## Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

# EPIC® SIGNAL M23 Inserts 9 pole

Inserts for M23 circular connectors



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
according to IEC 61984: 150 V

**Rated impulse voltage**
**EPIC® SIGNAL M23 Inserts 8+1 pole**
2.5 kV
**EPIC® SIGNAL M23 Inserts 9 pole**
1.5 kV

**Rated current (A)**
**EPIC® SIGNAL M23 Inserts 8+1 pole**
20 A (2 mm contact)
7 A (1 mm contacts)
**EPIC® SIGNAL M23 Inserts 9 pole**
7 A

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
**EPIC® SIGNAL M23 Inserts 8+1 pole**
8 + 1
**EPIC® SIGNAL M23 Inserts 9 pole**
9

**Termination methods**
**EPIC® SIGNAL M23 Inserts 8+1 pole**
Crimp termination: 0.14 - 1.0 mm²
(1.0 - 2.5 mm² for 2-mm contact)
Solder termination: up to 1.0 mm²
(up to 2.5 mm² for 2-mm contact)
**EPIC® SIGNAL M23 Inserts 9 pole**
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

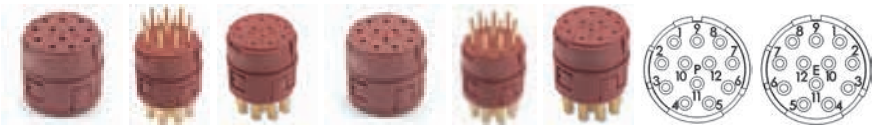
**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Inserts | Contacts included | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **8+1-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 73002736 | P-part | without contacts | | 8+1 | 5 |
| 73002737 | P-part | without contacts | | 8+1 | 20 |
| 73002738 | P-part | + male contacts, solder | 9 | 8+1 | 5 |
| 73002739 | P-part | + male contacts, solder | 9 | 8+1 | 20 |
| 73002740 | P-part | + female contacts, solder | 9 | 8+1 | 5 |
| 73002741 | P-part | + female contacts, solder | 9 | 8+1 | 20 |
| **8+1-pin inserts, E-part = rotation to the right (plugside clockwise)** | | | | | |
| 73002742 | E-Part | without contacts | | 8+1 | 5 |
| 73002743 | E-Part | without contacts | | 8+1 | 20 |
| 73002744 | E-Part | + male contacts, solder | 9 | 8+1 | 5 |
| 73002745 | E-Part | + male contacts, solder | 9 | 8+1 | 20 |
| 73002746 | E-Part | + female contacts, solder | 9 | 8+1 | 5 |
| 73002747 | E-Part | + female contacts, solder | 9 | 8+1 | 20 |
| **9-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 73002724 | P-part | Unpopulated | | 9 | 5 |
| 73002725 | P-part | Unpopulated | | 9 | 20 |
| 73002726 | P-part | + male contacts, solder | 9 | 9 | 5 |
| 73002727 | P-part | + male contacts, solder | 9 | 9 | 20 |
| 73002728 | P-part | + female contacts, solder | 9 | 9 | 5 |
| 73002729 | P-part | + female contacts, solder | 9 | 9 | 20 |
| **9-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 73002730 | E-Part | Unpopulated | | 9 | 5 |
| 73002731 | E-Part | Unpopulated | | 9 | 20 |
| 73002732 | E-Part | + male contacts, solder | 9 | 9 | 5 |
| 73002733 | E-Part | + male contacts, solder | 9 | 9 | 20 |
| 73002734 | E-Part | + female contacts, solder | 9 | 9 | 5 |
| 73002735 | E-Part | + female contacts, solder | 9 | 9 | 20 |

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 Inserts 12 pole

Inserts for M23 circular connectors



## EPIC® SIGNAL M23 Inserts 16 pole

Inserts for M23 circular connectors



### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
according to IEC 61984: 100 V

**Rated impulse voltage**
1.5 kV

**Rated current (A)**
7 A

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
**EPIC® SIGNAL M23 Inserts 12 pole**
13
**EPIC® SIGNAL M23 Inserts 16 pole**
16

**Termination methods**
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

**Temperature range**
-25°C up to +125°C

### Suitable housing

- EPIC® SIGNAL M23 A1
- EPIC® SIGNAL M23 A1 D3.2
- EPIC® SIGNAL M23 A3
- EPIC® SIGNAL M23 G4
- EPIC® SIGNAL M23 G5
- EPIC® SIGNAL M23 G6
- EPIC® SIGNAL M23 B1
- EPIC® SIGNAL M23 B2
- EPIC® SIGNAL M23 D6
- EPIC® SIGNAL M23 F6
- EPIC® SIGNAL M23 F7
- All inserts fit into all housings

### Suitable contacts

- EPIC® SIGNAL M23 Contacts male
- EPIC® SIGNAL M23 Contacts female

### Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

### Application range

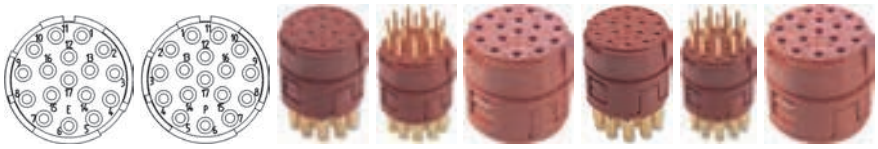
- Plant engineering
- Measurement and control technology
- Apparatus construction

| Article number | Article description | Inserts | Contacts included | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **12-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 73002712 | P-part | Unpopulated | | 12 | 5 |
| 73002713 | P-part | Unpopulated | | 12 | 20 |
| 73002714 | P-part | + male contacts, solder | 12 | 12 | 5 |
| 73002715 | P-part | + male contacts, solder | 12 | 12 | 20 |
| 73002716 | P-part | + female contacts, solder | 12 | 12 | 5 |
| 73002717 | P-part | + female contacts, solder | 12 | 12 | 20 |
| **12-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 73002718 | E-Part | Unpopulated | | 12 | 5 |
| 73002719 | E-Part | Unpopulated | | 12 | 20 |
| 73002720 | E-Part | + male contacts, solder | 12 | 12 | 5 |
| 73002721 | E-Part | + male contacts, solder | 12 | 12 | 20 |
| 73002722 | E-Part | + female contacts, solder | 12 | 12 | 5 |
| 73002723 | E-Part | + female contacts, solder | 12 | 12 | 20 |
| **16-pin inserts, P-part = rotation to the left (plug site anticlockwise)** | | | | | |
| 73002700 | P-part | Unpopulated | | 16 | 5 |
| 73002701 | P-part | Unpopulated | | 16 | 20 |
| 73002702 | P-part | + male contacts, solder | 16 | 16 | 5 |
| 73002703 | P-part | + male contacts, solder | 16 | 16 | 20 |
| 73002704 | P-part | + female contacts, solder | 16 | 16 | 5 |
| 73002705 | P-part | + female contacts, solder | 16 | 16 | 20 |
| **16-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 73002706 | E-Part | Unpopulated | | 16 | 5 |
| 73002707 | E-Part | Unpopulated | | 16 | 20 |
| 73002708 | E-Part | + male contacts, solder | 16 | 16 | 5 |
| 73002709 | E-Part | + male contacts, solder | 16 | 16 | 20 |
| 73002710 | E-Part | + female contacts, solder | 16 | 16 | 5 |
| 73002711 | E-Part | + female contacts, solder | 16 | 16 | 20 |

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL M23 Inserts 17 pole

Inserts for M23 circular connectors



## Suitable housing

- EPIC® SIGNAL M23 A1
- EPIC® SIGNAL M23 A1 D3.2
- EPIC® SIGNAL M23 A3
- EPIC® SIGNAL M23 G4
- EPIC® SIGNAL M23 G5
- EPIC® SIGNAL M23 G6
- EPIC® SIGNAL M23 B1
- EPIC® SIGNAL M23 B2
- EPIC® SIGNAL M23 D6
- EPIC® SIGNAL M23 F6
- EPIC® SIGNAL M23 F7
- All inserts fit into all housings

## Suitable contacts

- EPIC® SIGNAL M23 Contacts male
- EPIC® SIGNAL M23 Contacts female

## Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

## Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
according to IEC 61984: 50 V

**Rated impulse voltage**
0,8 kV

**Rated current (A)**
7 A

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
17

**Termination methods**
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

**Cycle of mechanical operation**
100

**VDE-tested**
Certified production control: VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

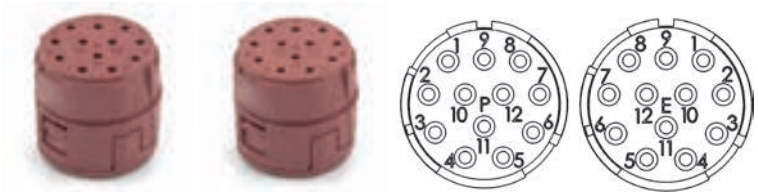
**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Inserts | Contacts included | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **17-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | | |
| 73008000 | P-part | Unpopulated | | 17 | 5 |
| 73008010 | P-part | Unpopulated | | 17 | 20 |
| 73028000 | P-part | + male contacts, solder | 17 | 17 | 5 |
| 73028010 | P-part | + male contacts, solder | 17 | 17 | 20 |
| 73018000 | P-part | + female contacts, solder | 17 | 17 | 5 |
| 73018010 | P-part | + female contacts, solder | 17 | 17 | 20 |
| **17-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | | |
| 73008500 | E-Part | Unpopulated | | 17 | 5 |
| 73008510 | E-Part | Unpopulated | | 17 | 20 |
| 73028500 | E-Part | + male contacts, solder | 17 | 17 | 5 |
| 73028510 | E-Part | + male contacts, solder | 17 | 17 | 20 |
| 73018500 | E-Part | + female contacts, solder | 17 | 17 | 5 |
| 73018510 | E-Part | + female contacts, solder | 17 | 17 | 20 |

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 Inserts 12 pole D-Sub

Inserts for M23 circular connectors

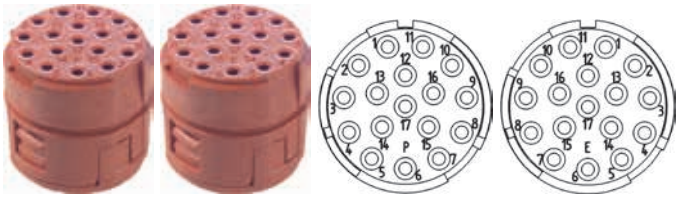


**Info**

- For D-Sub ribbon contacts
- For automated production with crimping machine

## EPIC® SIGNAL M23 Inserts 17 pole D-Sub

Inserts for M23 circular connectors



**Info**

- For D-Sub ribbon contacts
- For automated production with crimping machine

### Suitable housing

- EPIC® SIGNAL M23 A1
- EPIC® SIGNAL M23 A1 D3.2
- EPIC® SIGNAL M23 A3
- EPIC® SIGNAL M23 G4
- EPIC® SIGNAL M23 G5
- EPIC® SIGNAL M23 G6
- EPIC® SIGNAL M23 B1
- EPIC® SIGNAL M23 B2
- EPIC® SIGNAL M23 D6
- EPIC® SIGNAL M23 F6
- EPIC® SIGNAL M23 F7

### Suitable contacts

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel

### Benefits

- Efficient assembling due to the use of D-Sub contacts-on-reel

### Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
**EPIC® SIGNAL M23 Inserts 12 pole D-Sub**
according to IEC 61984: 100 V
**EPIC® SIGNAL M23 Inserts 17 pole D-Sub**
according to IEC 61984: 50 V

**Rated impulse voltage**
**EPIC® SIGNAL M23 Inserts 12 pole D-Sub**
1.5 kV
**EPIC® SIGNAL M23 Inserts 17 pole D-Sub**
0,8 kV

**Rated current (A)**
4 A

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Partly gold-plated brass

**Number of contacts**
**EPIC® SIGNAL M23 Inserts 12 pole D-Sub**
13
**EPIC® SIGNAL M23 Inserts 17 pole D-Sub**
17

**Termination methods**
Crimp termination: 0.08 - 0.56 mm²

**Cycle of mechanical operation**
50

**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Inserts | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **12-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | |
| 44420120 | E-Part | Unpopulated, for male D-Sub crimp-contacts on reel | 12 | 5 |
| 44420121 | E-Part | Unpopulated, for male D-Sub crimp-contacts on reel | 12 | 20 |
| 44420122 | E-Part | Unpopulated, for female D-Sub crimp-contacts on reel | 12 | 5 |
| 44420123 | E-Part | Unpopulated, for female D-Sub crimp-contacts on reel | 12 | 20 |
| **12-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | |
| 44420124 | P-part | Unpopulated, for male D-Sub crimp-contacts on reel | 12 | 5 |
| 44420125 | P-part | Unpopulated, for male D-Sub crimp-contacts on reel | 12 | 20 |
| 44420126 | P-part | Unpopulated, for female D-Sub crimp-contacts on reel | 12 | 5 |
| 44420127 | P-part | Unpopulated, for female D-Sub crimp-contacts on reel | 12 | 20 |
| **17-pin inserts, E-part = rotation to the right (plug side clockwise)** | | | | |
| 44420128 | E-Part | Unpopulated, for male D-Sub crimp-contacts on reel | 17 | 5 |
| 44420129 | E-Part | Unpopulated, for male D-Sub crimp-contacts on reel | 17 | 20 |
| 44420130 | E-Part | Unpopulated, for female D-Sub crimp-contacts on reel | 17 | 5 |
| 44420131 | E-Part | Unpopulated, for female D-Sub crimp-contacts on reel | 17 | 20 |
| **17-pin inserts, P-part = rotation to the left (plug side anticlockwise)** | | | | |
| 44420132 | P-part | Unpopulated, for male D-Sub crimp-contacts on reel | 17 | 5 |
| 44420133 | P-part | Unpopulated, for male D-Sub crimp-contacts on reel | 17 | 20 |
| 44420134 | P-part | Unpopulated, for female D-Sub crimp-contacts on reel | 17 | 5 |
| 44420135 | P-part | Unpopulated, for female D-Sub crimp-contacts on reel | 17 | 20 |

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 Contacts male

Contacts, tools, accessories for circular connectors M23

**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Contacts in solder or crimp version available



## EPIC® SIGNAL M23 Contacts female

Contacts, tools, accessories for circular connectors M23

**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Contacts in solder or crimp version available



| Article number | Article designation | Version | For design | Pieces / PU |
|---|---|---|---|---|
| **1mm contacts male** | | | | |
| 72400001 | SIGNAL M23 SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | M23 inserts (not D-Sub) | 10 |
| 72400000 | SIGNAL M23 SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | M23 inserts (not D-Sub) | 100 |
| 72402001 | SIGNAL M23 SLM 1mm AU 1.0 | 1 mm male solder | M23 inserts (not D-Sub) | 10 |
| 72402000 | SIGNAL M23 SLM 1mm AU 1.0 | 1 mm male solder | M23 inserts (not D-Sub) | 100 |
| 44423357 | D-SUB SCM 1mm AU 0.25-1.0 machined | 1mm male crimp 0.251.0mm² | M23 D-Sub 12/17, MC 20 module , MH Gigabit module | 100 |
| **2mm contacts male** | | | | |
| 72401000 | M23 SCM 2mm AU 1.0-2.5 | 2 mm male crimp | M23 inserts (not D-Sub) | 100 |
| 72403100 | SIGNAL M23 SLM 2mm AU 1.0-2.5 | 2 mm male solder | M23 inserts (not D-Sub) | 10 |
| 72403000 | SIGNAL M23 SLM 2mm AU 1.0-2.5 | 2 mm male solder | M23 inserts (not D-Sub) | 100 |
| **1mm contacts female** | | | | |
| 74020601 | M23/LS1 BCMS 1mm AU 0.14-1.0 | 1 mm female slot 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 10 |
| 74200600 | M23/LS1 BCMS 1mm AU 0.14-1.0 | 1 mm female slot 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 100 |
| 44423356 | D-SUB BCM 1mm AU 0,25-1,0 machined | 1mm female crimp 0.251.0mm² | M23 D-Sub 12/17, MC 20 module , MH Gigabit module | 100 |
| 72402601 | SIGNAL M23 BLMS 1mm AU 1.0 | 1 mm female slot solder | M23 inserts (not D-Sub) | 10 |
| 72402600 | SIGNAL M23 BLMS 1mm AU 1.0 | 1 mm female slot solder | M23 inserts (not D-Sub) | 100 |
| 74034500 | M23/LS1 BCMD 1mm AU 0.14-1.0 | 1 mm female hyperboloid 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 100 |
| 74034501 | M23/LS1 BCMD 1mm AU 0.14-1.0 | 1 mm female hyperboloid 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 10 |
| **2mm contacts female** | | | | |
| 72401601 | SIGNAL M23 BCMS 2mm AU 1,0-2,5 | 2 mm female 1.0 - 2.5 mm² | M23 inserts (not D-Sub) | 10 |
| 72401600 | | 2 mm female 1.0 - 2.5 mm² | M23 inserts (not D-Sub) | 100 |
| 72404100 | SIGNAL M23 BLMS 2mm AU 2.5 | 2 mm female solder | M23 inserts (not D-Sub) | 10 |
| 72404000 | SIGNAL M23 BLMS 2mm AU 2.5 | 2 mm female solder | M23 inserts (not D-Sub) | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 Tools

Contacts, tools, accessories for circular connectors M23






**Info**

- Universal 4-indent crimping tool
- Resolver Locator for quick changes in processing other contacts

| Article number | Article description | Inserts | Pieces / PU |
|---|---|---|---|
| **Tools** | | | |
| 11148000 | Crimping tool | In tool case, without locator | 1 |
| 11148001 | 4-mandrel digital crimping tool | In tool case, without locator | 1 |
| 11148300 | Locator for crimping tool LS1, M23 | | 1 |
| 44420078 | M23 removal tool for inserts | For housing type A, B, G, O | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SIGNAL M23 Accessories

Contacts, tools, accessories for circular connectors M23







**Info**

- Simple protective cover as transport protection
- Metall screw cap for safe covering
- SYLVIN® adapter for mounting a cable conduit or an additional cable gland

| Article number | Article description | Inserts | Pieces / PU |
|---|---|---|---|
| **EPIC® SIGNAL M23 Accessories** | | | |
| 75007810 | M23-LS1 A, B, F, G protective cap | Plastic cap for A1, B1, B2, F6, F7, G4, G5, G6 | 20 |
| 75007710 | M23 / LS1 D protective cap | Plastic cap for D6, A6 | 20 |
| 75018010 | M23 A, B protective cap, plastic cord with cable lug | Metal cap for A1, A3, B1, B2 | 20 |
| 75018110 | M23 A, B, G, F protective cap, plastic cord with variable loop | Metal cap for A1, A3, F6, F7, G4, G5 | 20 |
| 75018410 | M23 D screw cap, plastic cord with loop | Metal screw cap for D | 20 |
| 55001312 | SILVYN ADAPTER M23/M20x1,5 | For all integrated M23 cable glands | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL R 3.0 D PG16

Circular connectors with solder termination, 21-pin and 26-pin

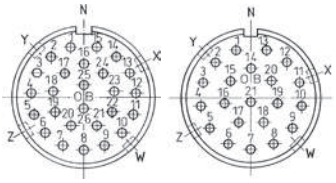
**Info**

- Compact and reliable connector for multicore signal cables



# EPIC® SIGNAL R 3.0 F PG16

Circular connectors with solder termination, 21-pin and 26-pin





# EPIC® SIGNAL R 3.0 A

Circular connectors with solder termination, 21-pin and 26-pin



## Benefits

- Highest contact density at small space requirements
- Connector in solder version for easy maintanance

## Application range

- Machine and equipment manufacturing
- Measurement and control technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
24V AC / 60VDC

**Rated impulse voltage**
1.5 kV

**Rated current (A)**
7.5 A

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, gold-plated

**Number of contacts**
21-pin / 26-pin

**Termination methods**
Solder termination: up to 1.0 mm²

**Material**
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

**Protection rating**
IP 67 (maximum, dependant on cable gland used)

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article | Version | Contacts | Pin configuration | Coding | Cable clamping range | Fastening type | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **R 3.0 D PG16** | | | | | | | | |
| 00009045 | SIGNAL R 3.0 D | male | 1 - 21 | E-Part | N | 6.5 - 16.0 | | 5 |
| 00008899 | SIGNAL R 3.0 D | male | 1 - 26 | E-Part | N | 6.5 - 16.0 | | 5 |
| 00008749 | SIGNAL R 3.0 D | female | 1 - 21 | P-Part | N | 6.5 - 16.0 | | 5 |
| 00008829 | SIGNAL R 3.0 D | female | 1 - 26 | P-Part | N | 6.5 - 16.0 | | 5 |
| **R 3.0 F PG16** | | | | | | | | |
| 00008854 | SIGNAL R 3.0 F | male | 1 - 21 | E-Part | N | 6.5 - 16.0 | | 5 |
| 00008822 | SIGNAL R 3.0 F | male | 1 - 26 | E-Part | N | 6.5 - 16.0 | | 5 |
| 00008779 | SIGNAL R 3.0 F | female | 1 - 21 | P-Part | N | 6.5 - 16.0 | | 5 |
| 00008979 | SIGNAL R 3.0 F | female | 1 - 26 | P-Part | N | 6.5 - 16.0 | | 5 |
| **R 3.0 A** | | | | | | | | |
| 00008747 | SIGNAL R 3.0 A | male | 1 - 21 | E-Part | N | | Ø 3.2 mm (4x) | 5 |
| 00008825 | SIGNAL R 3.0 A | male | 1 - 26 | E-Part | N | | Ø 3.2 mm (4x) | 5 |
| 00008867 | SIGNAL R 3.0 A | female | 1 - 21 | P-Part | N | | Ø 3.2 mm (4x) | 5 |
| 00008746 | SIGNAL R 3.0 A | female | 1 - 26 | P-Part | N | | Ø 3.2 mm (4x) | 5 |

The housing is available with male or female inserts. The pin configuration corresponds to the versions shown. Inserts with male contacts (E-component) are right turning (plug side clockwise). The female inserts have the opposite pin configuration (P-component = left turning, plug side anticlockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL R 3.0 B1

Circular connectors with solder termination, 21-pin and 26-pin



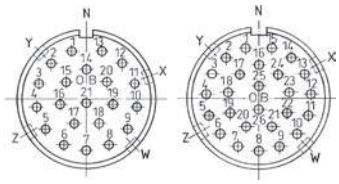
**Info**

- Compact and reliable connector for multicore signal cables

# EPIC® SIGNAL R 3.0 G1

Circular connectors with solder termination, 21-pin and 26-pin






## Benefits

- Highest contact density at small space requirements
- Connector in solder version for easy maintanance

## Application range

- Machine and equipment manufacturing
- Measurement and control technology

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
24V AC / 60VDC

**Rated impulse voltage**
1.5 kV

**Rated current (A)**
7.5 A

**Contact resistance**
< 3 mOhm

**Contacts**
Copper alloy, gold-plated

**Number of contacts**
21-pin / 26-pin

**Termination methods**
Solder termination: up to 1.0 mm²

**Material**
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

**Protection rating**
IP 67 (maximum, dependant on cable gland used)

**Cycle of mechanical operation**
500

**Temperature range**
-40 °C to +100 °C,
short-term up to +125 °C

| Article number | Article | Version | Contacts | Pin configuration | Coding | Fastening type | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **R 3.0 B1** | | | | | | | |
| 00009082 | SIGNAL R 3.0 B1 | male | 1 - 21 | E-Part | N | M3 (4x) | 5 |
| 00009135 | SIGNAL R 3.0 B1 | female | 1 - 21 | P-Part | N | M3 (4x) | 5 |
| 00008978 | SIGNAL R 3.0 B1 | female | 1 - 26 | P-Part | N | M3 (4x) | 5 |
| **R 3.0 G1** | | | | | | | |
| 00009371 | ZYLIN R 3.0 G1 | male | 1 - 21 | E-Part | N | Ø 25 mm (1x) | 5 |
| 00009894 | ZYLIN R 3.0 G1 | male | 1 - 26 | E-Part | N | Ø 25 mm (1x) | 5 |
| 00009057 | ZYLIN R 3.0 G1 | female | 1 - 21 | P-Part | N | Ø 25 mm (1x) | 5 |
| 00009005 | ZYLIN R 3.0 G1 | female | 1 - 26 | P-Part | N | Ø 25 mm (1x) | 5 |

The housing is available with male or female inserts. The pin configuration corresponds to the versions shown. Inserts with male contacts (E-component) are right turning (plug side clockwise). The female inserts have the opposite pin configuration (P-component = left turning, plug side anticlockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SIGNAL R 3.0 Tools

Contacts, tools, accessories for circular connectors



# EPIC® SIGNAL R 3.0 Accessories

Contacts, tools, accessories for circular connectors



## Technical data

ETIM

**Classification ETIM 5/6**
**EPIC® SIGNAL R 3.0 Tools**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection
**EPIC® SIGNAL R 3.0 Accessories**
ETIM 5.0/6.0 Class-ID: EC002314
ETIM 5.0/6.0 Class-Description: Cap for industrial connectors

| Article number | Article designation | For design | Pieces / PU |
|---|---|---|---|
| **EPIC® SIGNAL R 3.0 Tools** | | | |
| 50200800 | R3.0 assembly/disassembly tool | for type D, F | 1 |
| **Flat gasket** | | | |
| 50201203 | R3.0 A flat gasket | for type A1 | 5 |
| 50202203 | R3.0 B flat gasket | for type B | 5 |
| **Metal cap** | | | |
| 50201120 | R3.0 A metal screw-cap | for type A1 | 5 |

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# EPIC® M23P D6 Quickflex

Circular connectors for servomotors and power supply



381167769



381167773

## Suitable contacts

- EPIC® M23P
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- Particularly high power despite extremely space-saving design for very small device
- Stability thanks to die-cast zinc metal housing
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- Quickflex quick-locking system enables simple connection to the counterpart. Locking takes place after just one eighth of a turn. Quickflex can be plugged in with market standard plug connections
- The individual housing can be used with inserts for either sockets or male contacts (available separately)

## Application range

- For power supply connection of devices and machines in various applications
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
30 A
7 A (1 mm contacts)

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm), 5+PE (2mm), 3+PE+5 (2mm/1mm)

**Termination methods**
Crimp termination: 0.35 - 4.0 mm² (2mm)
Crimp termination: 0.05 - 1.5 mm² (1mm)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-20°C up to +130°C

| Article number | Article description | Contacts included | Clamping range in mm | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® M23P D6 Quickflex** | | | | | |
| 381167770 | EPIC® M23P D6 | | 10,5 - 15,5 | | 20 |
| 381167771 | EPIC® M23P D6 | | 15 - 17 | | 20 |
| 381167828 | EPIC®M23P D6 | | 3,5 - 5,6 | | 20 |
| 381167829 | EPIC® M23P D6 | | 4,5 - 8,5 | | 20 |
| 381167772 | EPIC® M23P D6 | 6 | 7,5 - 15,5 | 6 | 1 |
| 381167769 | EPIC® M23P D6 | | 07 - 12 | | 20 |
| 381167773 | EPIC® M23P D6 | 8 | 7,5 - 15,5 | 8 | 1 |
| 381167774 | EPIC® M23P D6 | 9 | 7,5 - 15,5 | 9 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® M23P D6

Circular connectors for servomotors and power supply



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381167779

## Suitable contacts

- EPIC® M23P
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- Particularly high power despite extremely space-saving design for very small device
- Stability thanks to die-cast zinc metal housing
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- Housing is available separately or including inser
- The individual housing can be used with inserts for either sockets or male contacts (available separately)

## Application range

- For power supply connection of devices and machines in various applications
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
30 A
7 A (1 mm contacts)

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm), 5+PE (2mm), 3+PE+5 (2mm/1mm)

**Termination methods**
Crimp termination: 0.35 - 4.0 mm² (2mm)
Crimp termination: 0.05 - 1.5 mm² (1mm)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-20°C up to +130°C

| Article number | Article description | Contacts included | Clamping range in mm | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® M23P D6** | | | | | |
| 381167776 | EPIC® M23P D6 | | 10,5 - 15,5 | | 20 |
| 381167777 | EPIC® M23P D6 | | 15 - 17 | | 20 |
| 381167826 | EPIC® M23P D6 | | 3,5 - 5,6 | | 20 |
| 381167827 | EPIC® M23P D6 | | 4,5 - 8,5 | | 20 |
| 381167778 | EPIC® M23P D6 | 6 | 7,5 - 15,5 | 6 | 1 |
| 381167775 | EPIC® M23P D6 | | 7,5 - 12 | | 20 |
| 381167779 | EPIC® M23P D6 | 8 | 7,5 - 15,5 | 8 | 1 |
| 381167780 | EPIC® M23P D6 | 9 | 7,5 - 15,5 | 9 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® M23P F6 Quickflex

Circular connectors for servomotors and power supply



381167781 381167785

## Suitable contacts

- EPIC® M23P Contacts male
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- Particularly high power despite extremely space-saving design for very small device
- F6 coupling connector for use with D6 cable connector
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- Quickflex quick-locking system enables simple connection to the counterpart. Locking takes place after just one eighth of a turn. Quickflex can be plugged in with market standard plug connections
- The individual housing can be used with inserts for either sockets or male contacts (available separately)

## Application range

- For power supply connection of devices and machines in various applications
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
30 A
7 A (1 mm contacts)

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm), 5+PE (2mm), 3+PE+5 (2mm/1mm)

**Termination methods**
Crimp termination: 0.35 - 4.0 mm² (2mm)
Crimp termination: 0.05 - 1.5 mm² (1mm)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-20°C up to +130°C

| Article number | Article description | Contacts included | Clamping range in mm | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® M23P F6 Quickflex** | | | | | |
| 381167782 | EPIC® M23P F6 | | 10,5 - 15,5 | | 20 |
| 381167783 | EPIC® M23P F6 | | 15 - 17 | | 20 |
| 381167830 | EPIC® M23P F6 | | 3,5 - 4,6 | | 20 |
| 381167831 | EPIC® M23P F6 | | 4,5 - 8,5 | | 20 |
| 381167784 | EPIC® M23P F6 | 6 | 7,5 - 15,5 | 6 | 1 |
| 381167781 | EPIC® M23P F6 | | 7,5 - 12 | | 20 |
| 381167785 | EPIC® M23P F6 | 8 | 7,5 - 15,5 | 8 | 1 |
| 381167786 | EPIC® M23P F6 | 9 | 7,5 - 15,5 | 9 | 1 |

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# EPIC® M23P A3

Circular connectors for servomotors and power supply



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**Info**

- Rotateable with clearly defined adjustment positions

## Suitable contacts

- EPIC® M23P Contacts male
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

## Application range

- Plant engineering
- Servo drives and servo assemblies

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
30 A
7 A (1 mm contacts)

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm), 5+PE (2mm), 3+PE+5 (2mm/1mm)

**Termination methods**
Crimp termination: 0.35 - 4.0 mm² (2mm)
Crimp termination: 0.05 - 1.5 mm² (1mm)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-20°C up to +130°C

| Article number | Article description | Contacts included | Clamping range in mm | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|
| **EPIC® M23P A3** | | | | | | |
| 381167851 | EPIC® M23P A3 | | - | Ø 2.7 mm (x) | | 20 |
| 381167849 | EPIC® M23P A3 | | - | Ø 2.7 mm (x) | | 20 |
| 381167852 | EPIC® M23P A3 | | - | Ø 3.2 mm (4x) | | 20 |
| 381167850 | EPIC® M23P A3 | | - | Ø 3.2 mm (4x) | | 20 |
| 381167845 | EPIC® M23P A3 | 6 | - | Ø 2.7 mm (x) | 6 | 1 |
| 381167789 | EPIC® M23P A3 | 6 | - | Ø 2.7 mm (x)) | 6 | 1 |
| 381167846 | EPIC® M23P A3 | 6 | - | Ø 3.2 mm (4x) | 6 | 1 |
| 381167790 | EPIC® M23P A3 | 6 | - | Ø 3.2 mm (4x) | 6 | 1 |
| 381167823 | EPIC® M23P A3 | 8 | - | Ø 3.2 mm (4x) | 8 | 1 |
| 381167791 | EPIC® M23P A3 | 8 | - | Ø 2.7 mm (x) | 8 | 1 |
| 381167824 | EPIC® M23P A3 | 8 | - | Ø 3.2 mm (4x) | 8 | 1 |
| 381167792 | EPIC® M23P A3 | 8 | - | Ø 3.2 mm (4x) | 8 | 1 |
| 381167847 | EPIC® M23P A3 | 9 | - | Ø 2.7 mm (x) | 9 | 1 |
| 381167793 | EPIC® M23P A3 | 9 | - | Ø 2.7 mm (x) | 9 | 1 |
| 381167848 | EPIC® M23P A3 | 9 | - | Ø 3.2 mm (4x) | 9 | 1 |
| 381167794 | EPIC® M23P A3 | 9 | - | Ø 3.2 mm (4x) | 9 | 1 |
| 381167843 | EPIC® M23P A3 | | - | Ø 2.7 mm (x) | | 20 |
| 381167787 | EPIC® M23P A3 | | - | Ø 2.7 mm (x) | | 20 |
| 381167844 | EPIC® M23P A3 | | - | Ø 3.2 mm (4x) | | 20 |
| 381167788 | EPIC® M23P A3 | | - | Ø 3.2 mm (4x) | | 20 |

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article list 381167787, 381167789, 381167791, 381167793, 381167843, 381167845, 381167847, 381167849, 381167851,

# EPIC® M23P Inserts

Circular connectors for servomotors and power supply



381167796 381167804

## Suitable contacts

- EPIC® M23P
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- For individual fitting with sockets or male contacts
- Inserts for sockets and inserts for male contacts fit equally in D6 and F6 housings and can be exchanged as desired (housings available separately

## Application range

- For manufacturing an EPIC® POWER M23 circular connector
- For use with housings of the EPIC® POWER M23 series

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630V or 1000V (HV)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
30 A
7 A (1 mm contacts)

**Pollution degree**
3

**Flammability**
UL94 V-0

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm), 5+PE (2mm), 3+PE+5 (2mm/1mm)

**Termination methods**
Crimp termination: 0.35 - 4.0 mm² (2mm)
Crimp termination: 0.05 - 1.5 mm² (1mm)

**Material**
PA Polyamid

**Cycle of mechanical operation**
500

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Pin configuration | Pieces / PU |
|---|---|---|---|
| **EPIC® M23P Inserts** | | | |
| 381167795 | EPIC® POWER M23 5+PE FEMALE | 6 | 20 |
| 381167797 | EPIC® POWER M23 5+PE MALE | 6 | 20 |
| 381167798 | EPIC® POWER M23 5+PE MALE | 6 | 20 |
| 381167799 | EPIC® POWER M23 5+PE MALE | 6 | 20 |
| 381167800 | EPIC® POWER M23 5+PE MALE | 6 | 20 |
| 381167796 | EPIC® POWER M23 3+PE+4 MALE | 8 | 20 |
| 381167801 | EPIC® POWER M23 3+PE+4 MALE | 8 | 20 |
| 381167802 | EPIC® POWER M23 3+PE+4 MALE | 8 | 20 |
| 381167803 | EPIC® POWER M23 3+PE+4 MALE | 8 | 20 |
| 381167804 | EPIC® POWER M23 3+PE+4 MALE | 8 | 20 |
| 381167805 | EPIC® POWER M23 3+PE+5 FEMALE | 9 | 20 |
| 381167806 | EPIC® POWER M23 3+PE+5 MALE | 9 | 20 |
| 381167807 | EPIC® POWER M23 3+PE+5 MALE | 9 | 20 |
| 381167808 | EPIC® POWER M23 3+PE+5 MALE | 9 | 20 |
| 381167809 | EPIC® POWER M23 3+PE+5 MALE | 9 | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® M23P Contacts male

Contacts, tools, accessories for circular connectors



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381167761



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**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants

| Article number | Article description | Pieces / PU |
|---|---|---|
| **EPIC® POWER LS1 Contacts male** | | |
| 381167761 | EPIC® M23P CONTACT PIN 1MM 0.14-1 | 100 |
| 381167762 | EPIC® M23P CONTACT PIN 1MM 0.5-1.5 | 100 |
| 381167759 | EPIC® M23P CONTACT PIN 2MM 0.35-2.5 | 100 |
| 381167760 | EPIC® M23P CONTACT PIN 2MM 2.5-4 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® M23P Socket contacts

Contacts, tools, accessories for circular connectors



381167756



381167757



381167758

**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Made in Germany

| Article number | Article description | Version | Inserts | Pieces / PU |
|---|---|---|---|---|
| **EPIC® M23P Socket contacts** | | | | |
| 381167757 | EPIC® M23P CONTACT SOCKET 1MM 0.14-1 | for type D6 | Female contacts | 100 |
| 381167758 | EPIC® M23P CONTACT SOCKET 1MM 0.5-1.5 | for type D6 | Female contacts | 100 |
| 381167755 | EPIC® M23P CONTACT SOCKET 2MM 0.35-2.5 | for type D6 | Female contacts | 100 |
| 381167756 | EPIC® M23P CONTACT SOCKET 2MM 2.5-4 | for type D6 | Female contacts | 100 |

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## EPIC® M23P marking rings

Contacts, tools, accessories for circular connectors



381167763



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| Article number | Article description | Inserts | Pieces / PU |
|---|---|---|---|
| **EPIC® M23P marking rings** | | | |
| 381167765 | EPIC® M23P MARKING RING BLACK | Marking Ring | 20 |
| 381167766 | EPIC® M23P MARKING RING GREEN | Marking Ring | 20 |
| 381167763 | EPIC® M23P MARKING RING ORANGE | Marking Ring | 20 |
| 381167764 | EPIC® M23P MARKING RING RED | Marking Ring | 20 |
| 381167767 | EPIC® M23P MARKING RING YELLOW | Marking Ring | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® M23P mounting flange

Contacts, tools, accessories for circular connectors







| Article number | Article description | Pieces / PU |
|---|---|---|
| **EPIC® M23P mounting flange** | | |
| 381167768 | EPIC® M23P WALL MOUNT FLANGE HINGED | 1 |

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# EPIC® POWER M23 D6

Circular connectors for servomotors and power supply



**Info**

- From LS1 to M23
- New style, same properties

## Benefits

- High power with extreme space-saving design for small devices
- Stability thanks to die-cast zinc metal housing
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- Housing is available separately or including insert
- The housing can be used with insert for either female or male contacts (available separately)

## Application range

- For connecting the power supply of devices and machines with higher voltages and currents
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
25 A (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm)
5+PE (2mm)

**Termination methods**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: Nickel-plated zinc die-casting
Coupling sleeve: Nickel-plated zinc die-casting
Clamping ring: Spring steel coated
Cable clamp: PA
Seal: CRNBR
O-ring: FKM
Cap Nut: Nickel-plated Copper Alloy

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Pin configuration | Clamping range (mm) | Contact included | Pieces / PU |
|---|---|---|---|---|---|
| **M23 D6, single unit, 3 + PE + 4** | | | | | |
| 381166102 | EPIC® POWER M23 D6 3+PE+4 CF 8,5-11 (1) | 3 + PE + 4 | 8,5 - 11 | 8 | 1 |
| 381166103 | EPIC® POWER M23 D6 3+PE+4 CF 10,5-15,5 (1) | 3 + PE + 4 | 10,5 - 15,5 | 8 | 1 |
| 381166104 | EPIC® POWER M23 D6 3+PE+4 CF 7,5-15,5 (1) | 3 + PE + 4 | 7,5 - 15,5 | 8 | 1 |
| **M23 D6, single unit, 5 + PE** | | | | | |
| 381166121 | EPIC® POWER M23 D6 5+PE CF 8,5-11 (1) | 5 + PE | 8,5 - 11 | 6 | 1 |
| 381166122 | EPIC® POWER M23 D6 5+PE CF 10,5-15,5 (1) | 5 + PE | 10,5 - 15,5 | 6 | 1 |
| 381166101 | EPIC® POWER M23 D6 5+PE CF 7,5-15,5 (1) | 5 + PE | 7,5 - 15,5 | 6 | 1 |
| **M23 D6, 20 units** | | | | | |
| 24441133 | EPIC® POWER M23 D6 8,5-11 (20) | - | 8,5 - 11 | - | 20 |
| 24441134 | EPIC® POWER M23 D6 10,5-15,5 (20) | - | 10,5 - 15,5 | - | 20 |
| 381166119 | EPIC® POWER M23 D6 7,5-15,5 (20) | - | 7,5 - 15,5 | - | 20 |
| 24441135 | EPIC® POWER M23 D6 14-17 (20) | - | 14 - 17 | - | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products. To connect stranded conductors, use a end sleeve.

# EPIC® POWER M23 D6 TWIST

Circular connectors for servomotors and power supply



**Info**

- From LS1 to M23
- New style, same properties
- TWIST version for quick connection

## Benefits

- High power with extreme space-saving design for small devices
- Stability thanks to die-cast zinc metal housing
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- TWIST quick-locking enables easy connection to the counterpart (locking takes place after a quarter rotation)
- TWIST can be connected to market-standard connector
- Housing is available separately or including insert
- The housing can be used with insert for either female or male contacts (available separately)

## Application range

- For use with matching TWIST counterparts of the EPIC® POWER M23 series
- For connecting the power supply of devices and machines with higher voltages and currents
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
25 A (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm)
5+PE (2mm)

**Termination methods**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: Nickel-plated zinc die-casting
Coupling sleeve: Nickel-plated zinc die-casting
Clamping ring: Spring steel coated
Cable clamp: PA
Seal: CRNBR
O-ring: FKM
Cap Nut: Nickel-plated Copper Alloy

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Pin configuration | Clamping range (mm) | Contact included | Pieces / PU |
|---|---|---|---|---|---|
| **M23 D6 TWIST, single unit, 3 + PE + 4** | | | | | |
| 381166108 | EPIC® POWER M23 D6 3+PE+4 CF TWIST 8,5-11 (1) | 3 + PE + 4 | 8,5 - 11 | 8 | 1 |
| 381166109 | EPIC® POWER M23 D6 3+PE+4 CF TWIST 10,5-15,5 (1) | 3 + PE + 4 | 10,5 - 15,5 | 8 | 1 |
| 381166110 | EPIC® POWER M23 D6 3+PE+4 CF TWIST 7,5-15,5 (1) | 3 + PE + 4 | 7,5 - 15,5 | 8 | 1 |
| **M23 D6 TWIST, single unit, 5 + PE** | | | | | |
| 381166105 | EPIC® POWER M23 D6 5+PE CF TWIST 8,5-11 (1) | 5 + PE | 8,5 - 11 | 6 | 1 |
| 381166106 | EPIC® POWER M23 D6 5+PE CF TWIST 10,5-15,5 (1) | 5 + PE | 10,5 - 15,5 | 6 | 1 |
| 381166107 | EPIC® POWER M23 D6 5+PE CF TWIST 7,5-15,5 (1) | 5 + PE | 7,5 - 15,5 | 6 | 1 |
| **M23 D6 TWIST, 20 units** | | | | | |
| 24441141 | EPIC® POWER M23 D6 TWIST 8,5-11 (20) | - | 8,5 - 11 | - | 20 |
| 24441142 | EPIC® POWER M23 D6 TWIST 10,5-15,5 (20) | - | 10,5 - 15,5 | - | 20 |
| 381166120 | EPIC® POWER M23 D6 TWIST 7,5-15,5 (20) | - | 7,5 - 15,5 | - | 20 |
| 24441143 | EPIC® POWER M23 D6 TWIST 14-17 (20) | - | 14 - 17 | - | 20 |

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# EPIC® POWER M23 F6 TWIST

Circular connectors for servomotors and power supply







**Info**

- From LS1 to M23
- New style, same properties
- TWIST version for quick connection

## Benefits

- High power with extreme space-saving design for small devices
- Stability thanks to die-cast zinc metal housing
- Reliable protection against electromagnetic interference thanks to integrated EMC cable gland
- TWIST quick-locking enables easy connection to the counterpart (locking takes place after a quarter rotation)
- TWIST can be connected to market-standard connector
- Housing is available separately or including insert
- The housing can be used with insert for either female or male contacts (available separately)

## Application range

- For use with matching TWIST counterparts of the EPIC® POWER M23 series
- For connecting the power supply of devices and machines with higher voltages and currents
- Typical areas of application are electric motors and servo drives
- Especially for environments where electromagnetic compatibility (EMC) is required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
25 A (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4 (2mm/1mm)
5+PE (2mm)

**Termination methods**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: Nickel-plated zinc die-casting
Coupling sleeve: Nickel-plated zinc die-casting
Clamping ring: Spring steel coated
Cable clamp: PA
Seal: CRNBR
O-ring: FKM
Cap Nut: Nickel-plated Copper Alloy

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Pin configuration | Clamping range (mm) | Contact included | Pieces / PU |
|---|---|---|---|---|---|
| **M23 F6 TWIST, single unit, 3 + PE + 4** | | | | | |
| 381166147 | EPIC® POWER M23 F6 3+PE+4 CM TWIST 7,5-15,5 (1) | 3 + PE + 4 | 7,5 - 15,5 | 8 | 1 |
| **M23 F6 TWIST, single unit, 5 + PE** | | | | | |
| 381166146 | EPIC® POWER M23 F6 5+PE CM TWIST 7,5-15,5 (1) | 5 + PE | 7,5 - 15,5 | 6 | 1 |
| **M23 F6 TWIST, 20 units** | | | | | |
| 381166142 | EPIC® POWER M23 F6 TWIST 8,5-11 (20) | - | 8,5 - 11 | - | 20 |
| 381166143 | EPIC® POWER M23 F6 TWIST 10,5-15,5 (20) | - | 10,5 - 15,5 | - | 20 |
| 381166144 | EPIC® POWER M23 F6 TWIST 7,5-15,5 (20) | - | 7,5 - 15,5 | - | 20 |
| 381166145 | EPIC® POWER M23 F6 TWIST 14-17 (20) | - | 14 - 17 | - | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products. To connect stranded conductors, use a end sleeve.

# EPIC® POWER M23 Inserts 3+PE+4

Inserts for POWER M23 circular connectors



**24441170** **24441171**

# EPIC® POWER M23 Inserts 5+PE

Inserts for POWER M23 circular connectors



**24441168** **24441169**

## Suitable housing

- EPIC® POWER M23 D6
- EPIC® POWER M23 D6 TWIST
- EPIC® POWER M23 F6 TWIST

## Suitable contacts

- EPIC® POWER LS1 Contacts

## Benefits

- For individual fitting with sockets or male contacts
- Insert for sockets and inserts for male contacts fit equally in D and F housings and can be exchanged as desired (housings available separately)

## Application range

- For manufacturing an EPIC® POWER M23 circular connector
- For use with housings of the EPIC® POWER M23 series

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
25 A (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Number of contacts**
3+PE+4 (2mm/1mm)
5+PE (2mm)
(Contacts not included)

**Termination methods**
Crimp termination: 0.5 - 2.5 mm²
(2 mm contacts)
Crimp termination: 0.14 - 1.0 mm²
(1 mm contacts)

**Material**
Contact carrier: PA
Insulating sleeve: PA
PE spring: Copper Alloy

**Cycle of mechanical operation**
500

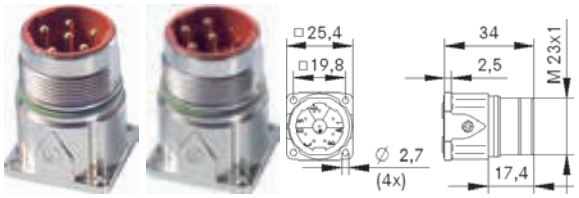
**Temperature range**
-25°C up to +125°C

| Article number | Article description | Type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **EPIC® POWER M23 Inserts 3+PE+4** | | | | |
| 24441170 | EPIC® POWER M23 3+PE+4 FEMALE | Female | 3 + PE + 4 | 20 |
| 24441171 | EPIC® POWER M23 3+PE+4 MALE | Male | 3 + PE + 4 | 20 |
| **EPIC® POWER M23 Inserts 5+PE** | | | | |
| 24441168 | EPIC® POWER M23 5+PE FEMALE | Female | 5 + PE | 20 |
| 24441169 | EPIC® POWER M23 5+PE MALE | Male | 5 + PE | 20 |

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## EPIC® POWER LS1 A1

Circular connectors for servomotors and power supply




## EPIC® POWER LS1 A3

Circular connectors for servomotors and power supply




**Info**

- Rotateable with clearly defined adjustment positions

### Suitable contacts

- EPIC® POWER LS1 Contacts male
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

### Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

### Application range

- Plant engineering
- Servo drives and servo assemblies

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4(2mm/1mm)
5+PE(2mm)

**Termination methods**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
**EPIC® POWER LS1 A1**
IP68 (10h/1m)
**EPIC® POWER LS1 A3**
IP 65

**Cycle of mechanical operation**
500

**VDE-tested**
**EPIC® POWER LS1 A1**
Certified production control: VDE-REG. no. B25

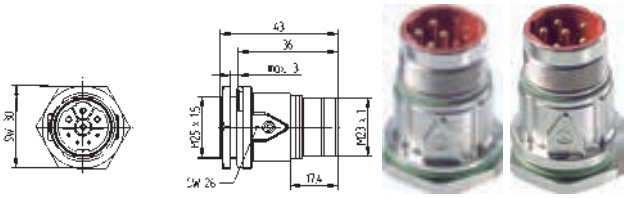
**Temperature range**
-25°C up to +125°C

| Article number | Article description | Contacts included | Clamping range in mm | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|
| **Type LS1 A1, front wall mounting, 6-pin, for male contacts** | | | | | | |
| 76003000 | LS1 A1 | 6 | - | Ø 2.7 mm (4x) | 5+PE | 5 |
| 76003510 | LS1 A1 | | - | Ø 2.7 mm (4x) | 5+PE | 20 |
| **Type LS1 A1, front wall mounting, 8-pin, for male contacts** | | | | | | |
| 76004000 | LS1 A1 | 8 | - | Ø 2.7 mm (4x) | 3+PE+4 | 5 |
| 76004510 | LS1 A1 | | - | Ø 2.7 mm (4x) | 3+PE+4 | 20 |
| **Type LS1 A3, angled, rotatable, 6-pin, for male contacts** | | | | | | |
| 24420058 | LS1 A3 | 6 | - | Ø 2.7 mm (4x) | 5+PE | 5 |
| 24420059 | LS1 A3 | | - | Ø 2.7 mm (4x) | 5+PE | 20 |
| **Type LS1 A3, angled, rotatable, 8-pin, for male contacts** | | | | | | |
| 24420056 | LS1 A3 | 8 | - | Ø 2.7 mm (4x) | 3+PE+4 | 5 |
| 24420057 | LS1 A3 | | - | Ø 2.7 mm (4x) | 3+PE+4 | 20 |

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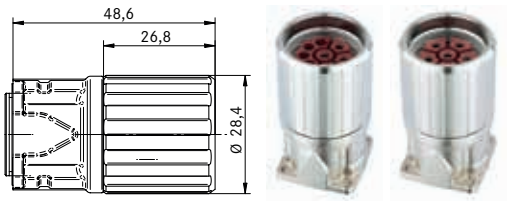
# EPIC® POWER LS1 G5

Circular connectors for servomotors and power supply



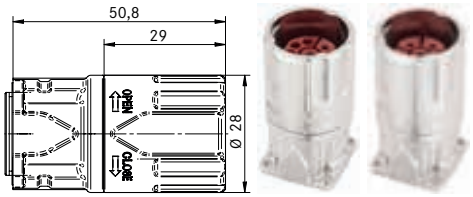

# EPIC® POWER LS1 A6

Circular connectors for servomotors and power supply




# EPIC® POWER LS1 A6 TWIST

Circular connectors for servomotors and power supply




**Info**

- TWIST quick-lock technology
- Connector with 1/4 turn safely locked
- Vibration-proof

## Suitable contacts

**EPIC® POWER LS1 G5**

- EPIC® POWER LS1 Contacts male

**EPIC® POWER LS1 A6**

- EPIC® POWER LS1 Contacts female
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

**EPIC® POWER LS1 G5**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

**EPIC® POWER LS1 A6**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

**EPIC® POWER LS1 A6 TWIST**

- Locking 70% faster
- EMC-optimised design
- Safety use in field environment by high protection class

## Application range

**EPIC® POWER LS1 G5**

- Plant engineering
- Servo drives and servo assemblies

**EPIC® POWER LS1 A6**

- Plant engineering
- Servo drives and servo assemblies

**EPIC® POWER LS1 A6 TWIST**

- Plant engineering
- Servo drives and servo assemblies
- Not pluggable with standard EPIC POWER LS1 counterparts type A1,A3,F6,F7,G4,G6

## Product features

**EPIC® POWER LS1 A6 TWIST**

- UL pending

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4(2mm/1mm)
5+PE(2mm)

**Termination methods**
**EPIC® POWER LS1 G5**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)
**EPIC® POWER LS1 A6**
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)
**EPIC® POWER LS1 A6 TWIST**
Crimp termination: 0.5 - 4.0 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**VDE-tested**
Certified production control: VDE-REG. no. B25

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Contacts included | Clamping range in mm | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|
| **Type LS1 G5,front wall mounting, 6-pin, for male contacts** | | | | | | |
| 76153000 | LS1 G5 | 6 | - | M25 x 1.5 (with nut) | 5+PE | 5 |
| 76153510 | LS1 G5 | | - | M25 x 1.5 (with nut) | 5+PE | 20 |
| **Type LS1 G5, front wall mouning, 8-pin, for male contacts** | | | | | | |
| 76154000 | LS1 G5 | 8 | - | M25 x 1.5 (with nut) | 3+PE+4 | 5 |
| 76154510 | LS1 G5 | | - | M25 x 1.5 (with nut) | 3+PE+4 | 20 |
| **Type LS1 A6, front wall mounting, 6-pin, for female contacts** | | | | | | |
| 76083000 | LS1 A6 | 6 | - | Ø 2.7 mm (4x) | 5+PE | 5 |
| 76083510 | LS1 A6 | | - | Ø 2.7 mm (4x) | 5+PE | 20 |
| **Type LS1 A6, front wall mounting, 8-pin, for female contacts** | | | | | | |
| 76084000 | LS1 A6 | 8 | - | Ø 2.7 mm (4x) | 3+PE+4 | 5 |
| **Type LS1 A6 TWIST, front wall mounting, 6-pin, for female contacts** | | | | | | |
| 24441291 | LS1 A6 | 6 | - | Ø 2.7 mm (4x) | 5+PE | 5 |
| **Type LS1 A6 TWIST, front wall mounting, 8-pin, for female contacts** | | | | | | |
| 24441292 | LS1 A6 | 8 | - | Ø 2.7 mm (4x) | 3+PE+4 | 5 |

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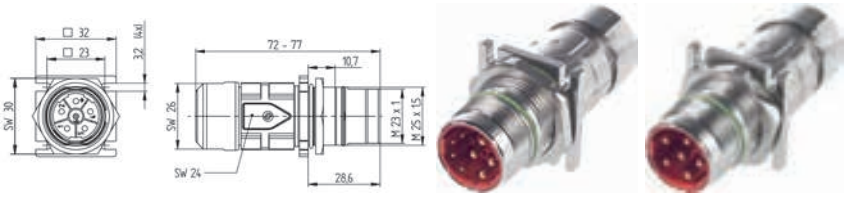
# EPIC® POWER LS1 F6

Circular connectors for servomotors and power supply




# EPIC® POWER LS1 F7

Circular connectors for servomotors and power supply




**Info**

- For fast and safe wall mounting of a cable extension

## Suitable contacts

- EPIC® POWER LS1 Contacts male
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

## Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

## Application range

- Plant engineering
- Servo drives and servo assemblies

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (2 mm contacts)
250 V (1 mm contacts)

**Rated impulse voltage**
6 kV (2 mm contacts)
4 kV (1 mm contacts)

**Rated current (A)**
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

**Pollution degree**
3

**Contact resistance**
< 4 mOhm

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+4(2mm/1mm)
5+PE(2mm)

**Termination methods**
Crimp termination: 0.5 - 4.0 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
500

**VDE-tested**
**EPIC® POWER LS1 F6**
Certified production control: VDE-REG. no. B25

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Contacts included | Clamping range min | Clamping range max | Clamping range in mm | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **Type LS1 F6, cable coupler, 6-pin, for male contacts** | | | | | | | | |
| 73000012 | LS1 F6 | 6 | 8.5 | 11 | 8,5 - 11 | | 5+PE | 5 |
| 73000014 | LS1 F6 | | 8.5 | 11 | 8,5 - 11 | | 5+PE | 20 |
| 73000013 | LS1 F6 | 6 | 10.5 | 15.5 | 10,5 - 15,5 | | 5+PE | 5 |
| 73000015 | LS1 F6 | | 10.5 | 15.5 | 10,5 - 15,5 | | 5+PE | 20 |
| 76133000 | LS1 F6 | 6 | 7.5 | 15.5 | 7,5 - 15,5 | | 5+PE | 5 |
| 76133510 | LS1 F6 | | 7.5 | 15.5 | 7,5 - 15,5 | | 5+PE | 20 |
| 44420095 | LS1 F6 with 2mm contact for 4mm² termination | 6 | 14 | 17 | 14 - 17 | | 5+PE | 5 |
| 44420094 | LS1 F6 | | 14 | 17 | 14 - 17 | | 5+PE | 20 |
| **Type LS1 F6, cable coupler, 8-pin, for male contacts** | | | | | | | | |
| 73000008 | LS1 F6 | 8 | 8.5 | 11 | 8,5 - 11 | | 3+PE+4 | 5 |
| 73000010 | LS1 F6 | | 8.5 | 11 | 8,5 - 11 | | 3+PE+4 | 20 |
| 73000009 | LS1 F6 | 8 | 10.5 | 15.5 | 10,5 - 15,5 | | 3+PE+4 | 5 |
| 73000011 | LS1 F6 | | 10.5 | 15.5 | 10,5 - 15,5 | | 3+PE+4 | 20 |
| 76134000 | LS1 F6 | 8 | 7.5 | 15.5 | 7,5 - 15,5 | | 3+PE+4 | 5 |
| 76134510 | LS1 F6 | | 7.5 | 15.5 | 7,5 - 15,5 | | 3+PE+4 | 20 |
| 44420093 | LS1 F6 with 2mm contact for 4mm² termination | 8 | 14 | 17 | 14 - 17 | | 3+PE+4 | 5 |
| 44420092 | LS1 F6 | | 14 | 17 | 14 - 17 | | 3+PE+4 | 20 |
| **Type LS1 F7, cable coupler wih mounting flange, 6-pin, for male contacts** | | | | | | | | |
| 73000020 | LS1 F7 | 6 | 8.5 | 11 | 8,5 - 11 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5+PE | 5 |
| 73000021 | LS1 F7 | 6 | 10.5 | 15.5 | 10,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5+PE | 5 |
| 73000023 | LS1 F7 | | 10.5 | 15.5 | 10,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5+PE | 20 |
| 76143000 | LS1 F7 | 6 | 7.5 | 15.5 | 7,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 5+PE | 5 |
| **Type LS1 F7, 8-pin, for male contacts** | | | | | | | | |
| 73000016 | LS1 F7 | 8 | 8.5 | 11 | 8,5 - 11 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 3+PE+4 | 5 |
| 73000017 | LS1 F7 | 8 | 10.5 | 15.5 | 10,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 3+PE+4 | 5 |
| 76144000 | LS1 F7 | 8 | 7.5 | 15.5 | 7,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 3+PE+4 | 5 |
| 76144510 | LS1 F7 | | 7.5 | 15.5 | 7,5 - 15,5 | Ø 3.2 mm (4x), M25 x 1.5 (with nut) | 3+PE+4 | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® POWER LS1 Contacts male

Contacts, tools, accessories for circular connectors



**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Only available as crimp version due to the high mechanical stress in servo applications

## EPIC® POWER LS1 Contacts female

Contacts, tools, accessories for circular connectors



**Info**

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Only available as crimp version due to the high mechanical stress in servo applications

| Article number | Article designation | Version | For design | Pieces / PU |
|---|---|---|---|---|
| **1mm contacts male** | | | | |
| 74033001 | POWER LS1 A SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | LSI A1, A3, G5 | 10 |
| 74033000 | POWER LS1 A SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | LSI A1, A3, G5 | 100 |
| 74034001 | POWER LS1 F SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | LS1 F6, F7 | 10 |
| 74034000 | POWER LS1 F SCM 1mm AU 0.14-1.0 | 1 mm male 0.14 - 1.0 mm² | LS1 F6, F7 | 100 |
| **2mm contacts male** | | | | |
| 74033101 | POWER LS1 A SCM 2mm AU 0.5-2.5 | 2 mm male 0.5 - 2.5 mm² | LSI A1, A3, G5 | 10 |
| 74033100 | POWER LS1 A SCM 2mm AU 0.5-2.5 | 2 mm male 0.5 - 2.5 mm² | LSI A1, A3, G5 | 100 |
| 74034101 | POWER LS1 F SCM 2mm AU 0.5-2.5 | 2 mm male 0.5 - 2.5 mm² | LS1 F6, F7 | 10 |
| 74034100 | POWER LS1 F SCM 2mm AU 0.5-2.5 | 2 mm male 0.5 - 2.5 mm² | LS1 F6, F7 | 100 |
| 44420103 | POWER LS1 F SCM 2mm AU 4.0 | 2 mm male 4.0 mm² | LS1 F6, F7 | 100 |
| **1mm contacts female** | | | | |
| 74020601 | M23/LS1 BCMS 1mm AU 0.14-1.0 | 1 mm female slot 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 10 |
| 74200600 | M23/LS1 BCMS 1mm AU 0.14-1.0 | 1 mm female slot 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 100 |
| 74034501 | M23/LS1 BCMD 1mm AU 0.14-1.0 | 1 mm female hyperboloid 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 10 |
| 74034500 | M23/LS1 BCMD 1mm AU 0.14-1.0 | 1 mm female hyperboloid 0.14 - 1.0 mm² | per inserts M23 (not D-Sub), LS1 D6, LS1 A6 | 100 |
| **2mm contacts female** | | | | |
| 44429371 | POWER LS1 D BCMF 2mm AU 0.5-2.5 | 2 mm female spring 0,5-2,5mm² | LS1 D6, A6 | 10 |
| **2mm contacts female** | | | | |
| 44429370 | POWER LS1 D BCMF 2mm AU 0.5-2.5 | 2 mm female spring 0,5-2,5mm² | LS1 D6, A6 | 100 |
| 44420104 | POWER LS1 D BCMD 2mm AU 4.0 | 2 mm female hyperboloid 4 mm² | for type D6, A6 | 10 |
| 44420105 | POWER LS1 D BCMD 2mm AU 4.0 | 2 mm female hyperboloid 4 mm² | for type D6, A6 | 100 |
| 44429001 | POWER LS1 BCBG 2mm 1.0-2.5 (3000) RE | 2 mm female 1.0 - 2.5 mm² | LS1 D6, A6 | 1 |

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## EPIC® POWER LS1 Tools

Contacts, tools, accessories for circular connectors







| Article number | Article | Version | Pieces / PU |
|---|---|---|---|
| **Tools** | | | |
| 11148000 | Crimping tool | In tool case, without locator | 1 |
| 11148001 | 4-mandrel digital crimping tool | In tool case, without locator | 1 |
| 11148300 | Locator for crimping tool LS1, M23 | | 1 |
| 75017400 | LS1 removal tool for 1 mm contacts | For housing type A, G | 1 |
| 75017500 | LS1 removal tool for 2 mm contacts | For housing type A, G | 1 |
| 11161000 | Removal tool | LS1 removal tool for 1 mm contacts | 1 |
| 11182500 | Removal tool | LS1 removal tool for 2 mm contacts | 1 |

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## EPIC® POWER LS1 Accessories

Contacts, tools, accessories for circular connectors







| Article number | Article | Version | Pieces / PU |
|---|---|---|---|
| **EPIC® POWER LS1 Accessories** | | | |
| 75007810 | M23-LS1 A, B, F, G protective cap | Plastic cap for A1, B1, B2, F6, F7, G4, G5, G6 | 20 |
| 75007710 | M23 / LS1 D protective cap | Plastic cap for D6, A6 | 20 |
| 75018010 | M23 A, B protective cap, plastic cord with cable lug | Metal cap for A1, A3, B1, B2 | 20 |
| **Accessories** | | | |
| 55001310 | SILVYN Adapter LS1/M25x1,5 | For integrated cable glands 8.5 - 11mm, 10.5 - 15.5mm | 1 |

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## EPIC® POWER LS 1.5 A1

Circular connectors for servomotors and power supply




## EPIC® POWER LS 1.5 A3

Circular connectors for servomotors and power supply



**Info**

- Rotateable with 310° cable outlet

## EPIC® POWER LS 1.5 A6

Circular connectors for servomotors and power supply



### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (3.6 mm contacts)
250 V (2 mm contacts)

**Rated impulse voltage**
6 kV (3.6 mm contacts)
4 kV (2 mm contacts)

**Rated current (A)**
70 A (3.6-mm contacts) at 25 °C
30 A (2-mm contacts) at 25 °C

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+2(3.6mm/2mm)
3+PE+4(3.6mm/2mm)

**Termination methods**
Crimp termination: 0.75 - 10 mm² (3.6 mm contacts)
Crimp termination: 0.14 - 4.0 mm² (2 mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
50

**Temperature range**
-20 °C to +125 °C

### Suitable contacts

**EPIC® POWER LS 1.5 A1**
- EPIC® POWER LS 1.5 Contacts male

**EPIC® POWER LS 1.5 A3**
- EPIC® POWER LS 1.5 Contacts male

**EPIC® POWER LS 1.5 A6**
- EPIC® POWER LS 1.5 Contacts female
- The contacts have to be ordered separately

### Benefits

- More power for servo motors
- Vibration-proof rugged design
- EMC version for cables with large cross-sections

### Application range

- Plant engineering
- Servo drives and servo assemblies

### Suitable tools

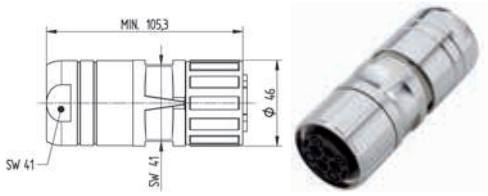
- EPIC® POWER LS 1.5 Tools

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **Type LS 1.5 A1 for male contacts** | | | | |
| 44429308 | EPIC® POWER LS 1.5 A1 | Ø 4.2 mm (4x) | 3+PE+2 | 1 |
| 44429309 | EPIC® POWER LS 1.5 A1 | Ø 4.2 mm (4x) | 3+PE+4 | 1 |
| **Type LS 1.5 A3 for male contacts** | | | | |
| 44429306 | EPIC® POWER LS 1.5 A3 | Ø 4.2 mm (4x) | 3+PE+2 | 1 |
| 44429307 | EPIC® POWER LS 1.5 A3 | Ø 4.2 mm (4x) | 3+PE+4 | 1 |
| **Type LS 1.5 A6 for female contacts** | | | | |
| 44429316 | EPIC® POWER LS 1.5 A6 | Ø 4.2 mm (4x) | 3+PE+2 | 1 |
| 44429317 | EPIC® POWER LS 1.5 A6 | Ø 4.2 mm (4x) | 3+PE+4 | 1 |

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# EPIC® POWER LS1.5 D6

Circular connectors for servomotors and power supply




**Info**

- EMC protection

# EPIC® POWER LS1.5 F6

Circular connectors for servomotors and power supply



## Suitable contacts

**EPIC® POWER LS1.5 D6**

- EPIC® POWER LS1.5 Contacts female

**EPIC® POWER LS1.5 F6**

- EPIC® POWER LS1.5 Contacts male
- The contacts have to be ordered separately

## Benefits

- More power for servo motors
- Vibration-proof rugged design
- EMC version for cables with large cross-sections

## Application range

- Plant engineering
- Servo drives and servo assemblies

## Suitable tools

- EPIC® POWER LS1.5 Tools

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (3.6 mm contacts)
250 V (2 mm contacts)

**Rated impulse voltage**
6 kV (3.6 mm contacts)
4 kV (2 mm contacts)

**Rated current (A)**
70 A (3.6-mm contacts) at 25 °C
30 A (2-mm contacts) at 25 °C

**Pollution degree**
3

**Contacts**
Gold-plated brass

**Number of contacts**
3+PE+2(3.6mm/2mm)
3+PE+4(3.6mm/2mm)

**Termination methods**
Crimp termination: 0.75 - 10 mm² (3.6 mm contacts)
Crimp termination: 0.14 - 4.0 mm² (2 mm contacts)

**Material**
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
50

**Temperature range**
-20 °C to +125 °C

| Article number | Article description | Clamping range min | Clamping range max | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|
| **Type LS1.5 D6 for female contacts** | | | | | |
| 44429310 | EPIC® POWER LS1.5 D6 | 9 | 14 | 3+PE+2 | 1 |
| 44429311 | EPIC® POWER LS1.5 D6 | 14 | 20.5 | 3+PE+2 | 1 |
| 44429312 | EPIC® POWER LS1.5 D6 | 20.5 | 26.5 | 3+PE+2 | 1 |
| 44429313 | EPIC® POWER LS1.5 D6 | 9 | 14 | 3+PE+4 | 1 |
| 44429314 | EPIC® POWER LS1.5 D6 | 14 | 20.5 | 3+PE+4 | 1 |
| 44429315 | EPIC® POWER LS1.5 D6 | 20.5 | 26.5 | 3+PE+4 | 1 |
| **Type LS1.5 F6 for male contacts** | | | | | |
| 44429300 | EPIC® POWER LS1.5 F6 | 9 | 14 | 3+PE+2 | 1 |
| 44429301 | EPIC® POWER LS1.5 F6 | 14 | 20.5 | 3+PE+2 | 1 |
| 44429302 | EPIC® POWER LS1.5 F6 | 20.5 | 26.5 | 3+PE+2 | 1 |
| 44429303 | EPIC® POWER LS1.5 F6 | 9 | 14 | 3+PE+4 | 1 |
| 44429304 | EPIC® POWER LS1.5 F6 | 14 | 20.5 | 3+PE+4 | 1 |
| 44429305 | EPIC® POWER LS1.5 F6 | 20.5 | 26.5 | 3+PE+4 | 1 |

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## EPIC® POWER LS1.5 Contacts male

Contacts, tools, accessories for circular connectors



**Info**

- All contacts are high quality gold plated
- Only available as crimp version due to the high mechanical stress in servo applications

## EPIC® POWER LS1.5 Contacts female

Contacts, tools, accessories for circular connectors



**Info**

- All contacts are high quality gold plated
- Slotted contacts with external pressure spring

## EPIC® POWER LS1.5 Tools

Contacts, tools, accessories for circular connectors



**Info**

- Universal 4-indent crimping tool
- 2 different Crimping tool for contacts up to 6mm² and from 6mm²

### Suitable tools

**EPIC® POWER LS1.5 Contacts female**

- Crimping tool for termination of 16 mm² wires are available upon request

### Technical data

ETIM

**Classification ETIM 5/6**
**EPIC® POWER LS1.5 Contacts male**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
**EPIC® POWER LS1.5 Contacts female**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
**EPIC® POWER LS1.5 Tools**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | Description | Version | For design | Pieces / PU |
|---|---|---|---|---|---|
| **3.6 mm male contacts** | | | | | |
| 44429334 | LS1.5 A SCEM 3,6MM AU 0,75-1,5 | | 3.6 mm male 0.75 - 1.5 | for type A1, A3 | 10 |
| 44429337 | LS1.5 A SCEM 3,6MM AU 4,0-6,0 | | 3.6 mm male 4.0 - 6.0 mm² | for type A1, A3 | 10 |
| 44429338 | LS1.5 A SCEM 3,6MM AU 6,0-10,0 | | 3.6 mm male 6.0 - 10.0 mm² | for type A1, A3 | 10 |
| 44429326 | LS1.5 F SCEM 3,6MM AU 1,0-2,5 | | 3.6 mm male 1.0 - 2.5 mm² | for type F6 | 10 |
| 44429327 | LS1.5 F SCEM 3,6MM AU 2,5-4,0 | | 3.6 mm male 2.5 - 4.0 mm² | for type F6 | 10 |
| 44429328 | LS1.5 F SCEM 3,6MM AU 4,0-6,0 | | 3.6 mm male 4.0 - 6.0 mm² | for type F6 | 10 |
| 44429329 | LS1.5 F SCEM 3,6MM AU 6,0-10,0 | | 3.6 mm male 6.0 - 10.0 mm² | for type F6 | 10 |
| **2 mm male contacts** | | | | | |
| 44429340 | LS1.5 A SCEM 2MM AU 0,25-1,0 | | 2 mm male 0.25 - 1.0 mm² | for type A1, A3 | 10 |
| 44429341 | LS1.5 A SCEM 2MM AU 0,75-1,5 | | 2 mm male 0.75 - 1.5 mm² | for type A1, A3 | 10 |
| 44429343 | LS1.5 A SCEM 2MM AU 4,0 | | 2 mm male 2.5-4.0 mm² | for type A1, A3 | 10 |
| 44429330 | LS1.5 F SCEM 2MM AU 0,25-1,0 | | 2 mm male 0.25 - 1.0 mm² | for type F6 | 10 |
| 44429331 | LS1.5 F SCEM 2MM AU 0,75-1,5 | | 2 mm male 0.75 - 1.5 mm² | for type F6 | 10 |
| 44429332 | LS1.5 F SCEM 2MM AU 1,0-2,5 | | 2 mm male 1.0 - 2.5 mm² | for type F6 | 10 |
| 44429333 | LS1.5 F SCEM 2MM AU 2,5-4,0 | | 2 mm male 2.5-4.0 mm² | for type F6 | 10 |
| **3.6 mm female contacts** | | | | | |
| 44429318 | LS1.5 D BCEM 3,6MM AU 1,0-2,5 | | 3.6 mm female 1.0 - 2.5 mm² | for type D6, A6 | 10 |
| 44429319 | LS1.5 D BCEM 3,6MM AU 2,5-4,0 | | 3.6 mm female 2.5 - 4.0 mm² | for type D6, A6 | 10 |
| 44429320 | LS1.5 D BCEM 3,6MM AU 4,0-6,0 | | 3.6 mm female 4.0 - 6.0 mm² | for type D6, A6 | 10 |
| 44429321 | LS1.5 D BCEM 3,6MM AU 6,0-10,0 | | 3.6 mm female 6.0 - 10.0 mm² | for type D6, A6 | 10 |
| **2 mm female contacts** | | | | | |
| 44429322 | LS1.5 D BCEM 2MM AU 0,25-1,0 | | 2 mm female 0.25 - 1.0 mm² | for type D6, A6 | 10 |
| 44429323 | LS1.5 D BCEM 2MM AU 0,75-1,5 | | 2 mm female 0.75 - 1.5 mm² | for type D6, A6 | 10 |
| 44429324 | LS1.5 D BCEM 2MM AU 1,0-2,5 | | 2 mm female 1.0 - 2.5 mm² | for type D6, A6 | 10 |
| 44429325 | LS1.5 D BCEM 2MM AU 4,0 | | 2 mm female 4.0 mm² | for type D6, A6 | 10 |
| **Crimping tool** | | | | | |
| 44429367 | LS1.5 CRIMPING TOOL 0.08 - 6.0 | 4-mandrel digital crimping tool including locator | 0.14 - 6.0 mm² | for LS1.5, LS3 | 1 |

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# EPIC® POWER LS3 A1

Circular connectors for servomotors and power supply

**Info**

- Robust power supply connector




# EPIC® POWER LS3 D6

Circular connectors for servomotors and power supply



# EPIC® POWER LS3 F6

Circular connectors for servomotors and power supply



## Suitable contacts

**EPIC® POWER LS3 A1**

- EPIC® POWER LS3 male contacts

**EPIC® POWER LS3 D6**

- EPIC® POWER LS3 female contacts

**EPIC® POWER LS3 F6**

- EPIC® POWER LS3 male contacts
- The contacts have to be ordered separately

## Benefits

- More power for servo motors
- Robust against mechanical impacts
- EMC protection

## Application range

- Plant engineering
- Servo drives and servo assemblies

## Suitable tools

- EPIC® POWER LS3 Tools

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
630 V (10 mm contacts)
250 V (1.6 mm contacts)

**Rated impulse voltage**
6 KV (10 mm contacts)
4 kV (1.6 mm contacts)

**Rated current (A)**
150 A (10-mm contacts) at 25 °C
12 A (1.6-mm contacts) at 25 °C

**Pollution degree**
3

**Contacts**
Silver-plated brass
Gold-plated brass

**Number of contacts**
3+PE+2(10mm/1.6mm)
3+PE+4(10mm/1.6mm)

**Termination methods**
Crimp termination 10 - 50 mm²
(10 mm contacts)
Crimp termination 0.75 - 1.5 mm²
(1.6 mm contacts)

**Material**
Housing: anodised aluminium
Insert: PA
Seal: FPM

**Protection rating**
IP 67

**Cycle of mechanical operation**
50

**Temperature range**
-20 °C až la +120 °C

| Article number | Article description | Clamping range min | Clamping range max | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|---|---|
| **Type LS3 A1 for male contacts** | | | | | | |
| 44429352 | LS3 A1 | | | Ø 4.2 mm (4x) | 3+PE+2 | 1 |
| 44429353 | LS3 A1 | | | Ø 4.2 mm (4x) | 3+PE+4 | 1 |
| **Type LS3 D6 for female contacts** | | | | | | |
| 44429344 | LS3 D6 | 17 | 25 | | 3+PE+2 | 1 |
| 44429345 | LS3 D6 | 25 | 36 | | 3+PE+2 | 1 |
| 44429346 | LS3 D6 | 17 | 25 | | 3+PE+4 | 1 |
| 44429347 | LS3 D6 | 25 | 36 | | 3+PE+4 | 1 |
| **Type LS3 F6 for male contacts** | | | | | | |
| 44429348 | LS3 F6 | 17 | 25 | | 3+PE+2 | 1 |
| 44429349 | LS3 F6 | 25 | 36 | | 3+PE+2 | 1 |
| 44429350 | LS3 F6 | 17 | 25 | | 3+PE+4 | 1 |
| 44429351 | LS3 F6 | 25 | 36 | | 3+PE+4 | 1 |

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## EPIC® POWER LS3 male contacts

Contacts, tools, accessories for circular connectors





**Info**

- Only available as crimp version due to the high mechanical stress in servo applications
- Power contacts silver plated, signal contacts gold plated

## EPIC® POWER LS3 female contacts

Contacts, tools, accessories for circular connectors





**Info**

- Only available as crimp version due to the high mechanical stress in servo applications
- Power contacts silver plated, signal contacts gold plated

## EPIC® POWER LS3 Tools

Contacts, tools, accessories for circular connectors





**Info**

- Complete tool set for all cable cross-sections
- Individual components available on request
- For the signal contacts crimping tool 44429367 is used

### Technical data

ETIM

**Classification ETIM 5/6**
**EPIC® POWER LS3 male contacts**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors
**EPIC® POWER LS3 female contacts**
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors
**EPIC® POWER LS3 Tools**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | Description | Version | For design | Pieces / PU |
|---|---|---|---|---|---|
| **EPIC® POWER LS3 male contacts** | | | | | |
| 44429360 | LS3 A, F SCEM 10MM AG 10 | | 10 mm male 10 mm² | for type A1, F6 | 4 |
| 44429361 | LS3 A, F SCEM 10MM AG 16 | | 10 mm male 16 mm² | for type A1, F6 | 4 |
| 44429362 | LS3 A, F SCEM 10MM AG 25 | | 10 mm male 25 mm² | for type A1, F6 | 4 |
| 44429363 | LS3 A, F SCEM 10MM AG 35 | | 10 mm male 35 mm² | for type A1, F6 | 4 |
| 44429364 | LS3 A, F SCEM 10MM AG 50 | | 10 mm male 50 mm² | for type A1, F6 | 4 |
| 44429365 | LS3 A, F SCEM 1.6MM AU 0.75-1.5 | | 1.6 mm male 0.75 - 1.5 mm² | for type A1, F6 | 4 |
| **EPIC® POWER LS3 female contacts** | | | | | |
| 44429354 | LS3 D BCEM 10MM AG 10 | | 10 mm female 10 mm² | for type D6 | 4 |
| 44429355 | LS3 D BCEM 10MM AG 16 | | 10 mm female 16 mm² | for type D6 | 4 |
| 44429356 | LS3 D BCEM 10MM AG 25 | | 10 mm female 25 mm² | for type D6 | 4 |
| 44429357 | LS3 D BCEM 10MM AG 35 | | 10 mm female 50 mm² | for type D6 | 4 |
| 44429358 | LS3 D BCEM 10MM AG 50 | | 10 mm female 35 mm² | for type D6 | 4 |
| 44429359 | LS3 D BCEM 1.6MM AU 0.75-1.5 | | 1.6 mm female 0.75 - 1.5 mm² | for type D6 | 4 |
| **Crimping tool** | | | | | |
| 44429381 | LS3 Crimp Die 10mm² | Crimp dies for electro hydraulic crimp tool | 10 mm male 10 mm² | for LS3 | 1 |
| 44429382 | LS3 Crimp Die 16mm² | Crimp dies for electro hydraulic crimp tool | 10 mm male 16 mm² | for LS3 | 1 |
| 44429383 | LS3 Crimp Die 25mm² | Crimp dies for electro hydraulic crimp tool | 10 mm male 25 mm² | for LS3 | 1 |
| 44429384 | LS3 Crimp Die 35mm² | Crimp dies for electro hydraulic crimp tool | 10 mm male 35 mm² | for LS3 | 1 |
| 44429385 | LS3 Crimp Die 50mm² | Crimp dies for electro hydraulic crimp tool | 10 mm male 50 mm² | for LS3 | 1 |
| **Crimping tool (tongs)** | | | | | |
| 44429380 | LS3 crimping tool 10.0 - 50.0 | Crimping tool | 10.0 - 50.0 mm² | for LS3 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWERLOCK A1 S

Single-pin circular connector for mobile power distribution, electro motors and generators



# EPIC® POWERLOCK A6 S

Single-pin circular connector for mobile power distribution, electro motors and generators



**Info**

- Connector for unscreened single-core power cables

## Suitable contacts

- EPIC® POWERLOCK Screw contacts
- Housing without contact, order contact separately

## Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

## Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

## Product features

- Panel-mount base, straight entry, flat gasket included
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
Screw max. 400 A

**Pollution degree**
3

**Contacts**
Screw termination: silver-plated brass

**Number of contacts**
1

**Termination methods**
Screw termination: 50 - 120 mm²

**Material**
Housing: PBT
Contact retention pin: PA

**Protection rating**
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

**Cycle of mechanical operation**
500

**VDE-tested**
VDE Reg. No. D42

**Temperature range**
-25 °C up to +125 °C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK panel-mount box without contact** | | | | |
| **Panel-mount box A1, drain** | | | | |
| 44420272 | POWERLOCK A1 PE/GN | Ø 5.5 mm (4x) | PE, Green | 1 |
| 44420273 | POWERLOCK A1 N/BL | Ø 5.5 mm (4x) | N, Blue | 1 |
| 44420274 | POWERLOCK A1 L1/BN | Ø 5.5 mm (4x) | L1, Brown | 1 |
| 44420275 | POWERLOCK A1 L2/BK | Ø 5.5 mm (4x) | L2, Black | 1 |
| 44420276 | POWERLOCK A1 L3/GY | Ø 5.5 mm (4x) | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420320 | POWERLOCK A1 L1/RD | Ø 5.5 mm (4x) | L1, Red | 1 |
| **Panel-mount box A6, source** | | | | |
| 44420277 | POWERLOCK A6 PE/GN | Ø 5.5 mm (4x) | PE, Green | 1 |
| 44420278 | POWERLOCK A6 N/BL | Ø 5.5 mm (4x) | N, Blue | 1 |
| 44420279 | POWERLOCK A6 L1/BN | Ø 5.5 mm (4x) | L1, Brown | 1 |
| 44420280 | POWERLOCK A6 L2/BK | Ø 5.5 mm (4x) | L2, Black | 1 |
| 44420281 | POWERLOCK A6 L3/GY | Ø 5.5 mm (4x) | L3, Grey | 1 |
| **Type A6, source - for direct current applications in conjunction with L2/black** | | | | |
| 44420321 | POWERLOCK A6 L1/RD | Ø 5.5 mm (4x) | L1, Red | 1 |

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## EPIC® POWERLOCK D6 S

Single-pin circular connector for mobile power distribution, electro motors and generators



## EPIC® POWERLOCK F6 S

Single-pin circular connector for mobile power distribution, electro motors and generators



**Info**

- Connector for unscreened single-core power cables

### Suitable contacts

- EPIC® POWERLOCK Screw contacts
- Housing without contact, order contact separately

### Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

### Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

### Product features

- Straight connector with M40 thread
- Order SKINTOP® ST-M 40 or STR-M 40 separately
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
Screw max. 400 A

**Pollution degree**
3

**Contacts**
Screw termination: silver-plated brass

**Number of contacts**
1

**Termination methods**
Screw termination: 50 - 120 mm²

**Material**
Housing: PBT
Contact retention pin: PA

**Protection rating**
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

**Cycle of mechanical operation**
500

**VDE-tested**
VDE Reg. No. D42

**Temperature range**
-25°C up to +125°C

| Article number | Article description | M | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK cable coupler /cable connector without contact (for screw contact)** | | | | |
| **Cable connector D6, source** | | | | |
| 44420267 | POWERLOCK D6 PE/GN | 40 | PE, Green | 1 |
| 44420268 | POWERLOCK D6 N/BL | 40 | N, Blue | 1 |
| 44420269 | POWERLOCK D6 L1/BN | 40 | L1, Brown | 1 |
| 44420270 | POWERLOCK D6 L2/BK | 40 | L2, Black | 1 |
| 44420271 | POWERLOCK D6 L3/GY | 40 | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420305 | POWERLOCK D6 L1/RD | 40 | L1, Red | 1 |
| **Cable coupler F6, drain** | | | | |
| 44420262 | POWERLOCK F6 PE/GN | 40 | PE, Green | 1 |
| 44420263 | POWERLOCK F6 N/BL | 40 | N, Blue | 1 |
| 44420264 | POWERLOCK F6 L1/BN | 40 | L1, Brown | 1 |
| 44420265 | POWERLOCK F6 L2/BK | 40 | L2, Black | 1 |
| 44420266 | POWERLOCK F6 L3/GY | 40 | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420301 | POWERLOCK F6 L1/RD | 40 | L1, Red | 1 |

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# POWERLOCK BOX S*

Circular connectors for servomotors and power supply

**Info**

- Can be locked to prevent unauthorised disconnection



## Benefits

- Guarantees the correct sequence is followed when connecting and disconnecting a set of connectors (PE, N, L1, L2, L3)
- Every colour has a different coding to prevent incorrect plugging
- IP 20 finger-protected
- Integrated micro-switch that can be connected to circuit breaker or alarm circuit

## Application range

- Alternative energy installations
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

## Housings

- Sealed security lid is optional

## Product features

- Included: Contacts with M12 threaded post
- Cable connector for microswitch optional
- 19“ housing with height unit 2HE/2U

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
1000 V

**Rated current (A)**
Screw max. 400 A

**Pollution degree**
3

**Contacts**
Screw termination: silver-plated brass

**Number of contacts**
4 + PE

**Termination methods**
Screw termination: 50 - 120 mm²

**Protection rating**
IP 65 (latched)

**Cycle of mechanical operation**
500

**Temperature range**
-20 °C ... +85 °C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK BOX, panel-mount base with contacts (M12 threaded posts)** | | | | |
| **Type A1, drain** | | | | |
| 44420282 | POWERLOCK BOX A1 S | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A1, drain, with cover** | | | | |
| 44420283 | POWERLOCK BOX A1 SD | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A6, source** | | | | |
| 44420286 | POWERLOCK BOX A6 S | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A6, source, with cover** | | | | |
| 44420287 | POWERLOCK BOX A6 SD | Ø 6.5 mm (4x) | 4+PE | 1 |

* Trade product, no Lapp product
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# EPIC® POWERLOCK Screw contacts

Contacts, tools, accessories for circular connectors



**Info**

- Screw max. 400 A
- Do not plug with crimp-type (660 A)

| Article number | Article designation | Version | For design | PU |
|---|---|---|---|---|
| **M12 threaded post contact, contact retaining pin included** | | | | |
| **Drain - for type A1 S** | | | | |
| 44420241 | POWERLOCK SP M12 | Contact Drain, M12 Thread for cable lugs | for type A1 | 1 |
| **Source - for type A6 S** | | | | |
| 44420242 | POWERLOCK QP M12 | Lamella contact source, M12 thread for cable lug | for type A6 | 1 |
| **Screw contact, contact retaining pin included** | | | | |
| **Source - for type D6 S** | | | | |
| 44420237 | POWERLOCK QS 120 | 120 mm² | for type D6 | 1 |
| **Drain - for type F6 S** | | | | |
| 44420232 | POWERLOCK SS 120 | 120 mm² | for type F6 | 1 |

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# EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors



| Article number | Article description | Version | PU |
|---|---|---|---|
| **Tools** | | | |
| 44420243 | Disconnection tool | for mated connection | 1 |

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# EPIC® POWERLOCK Accessories

Contacts, tools, accessories for circular connectors



| Article number | Article | For design | Version | PU |
|---|---|---|---|---|
| **Protective caps** | | | | |
| 44420252 | POWERLOCK PROTECTION CAP A1 | for type A1 | IP54 | 1 |
| 44420253 | POWERLOCK PROTECTION CAP A6 | for type A6 | IP54 | 1 |
| 44420251 | POWERLOCK PROTECTION CAP D6 | for type D6 | IP54 | 1 |
| 44420250 | POWERLOCK PROTECTION CAP F6 | for type F6 | IP54 | 1 |
| **Spare part: Contact retention pin** | | | | |
| 44420259 | POWERLOCK RETENTION PIN A1, A6 | for type A1, A6 | | 1 |
| 44420255 | POWERLOCK RETENTION PIN D6 | for type D6 | | 1 |
| 44420254 | POWERLOCK RETENTION PIN F6 | for type F6 | | 1 |
| **Conductor end sleeves for POWERLOCK screw contact** | | | | |
| 44420244 | POWERLOCK WIRE SLEEVE 120 | Spare part for POWERLOCK 120 SS/QS contact | 120 mm² | 1 |
| 44420245 | POWERLOCK WIRE SLEEVE SET 95 | Reduction set for POWERLOCK 120 SS/QS screw contact | 95mm² | 1 |
| 44420246 | POWERLOCK WIRE SLEEVE SET 70 | Reduction set for POWERLOCK 120 SS/QS screw contact | 70 mm² | 1 |
| 44420247 | POWERLOCK WIRE SLEEVE SET 50 | Reduction set for POWERLOCK 120 SS/QS screw contact | 50 mm² | 1 |

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# EPIC® POWERLOCK A1 C

Single-pin circular connector for mobile power distribution, electro motors and generators



# EPIC® POWERLOCK A6 C

Single-pin circular connector for mobile power distribution, electro motors and generators



**Info**

- Connector for unscreened single-core power cables

## Suitable contacts

- EPIC® POWERLOCK Crimp contacts
- Housing without contact, order contact separately

## Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

## Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

## Product features

- Panel-mount base, straight entry, flat gasket included
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
Max. crimp 660 A

**Pollution degree**
3

**Contacts**
Crimp termination: copper, silver-plated

**Number of contacts**
1

**Termination methods**
Crimp termination: 35 - 240 mm²

**Material**
Housing: PBT
Contact retention pin: PA

**Protection rating**
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

**Cycle of mechanical operation**
500

**VDE-tested**
VDE Reg. No. D42

**Temperature range**
-25°C up to +125°C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK panel-mount box without contact** | | | | |
| **Panel-mount box A1, drain** | | | | |
| 44420221 | POWERLOCK A1 PE/GN | Ø 5.5 mm (4x) | PE, Green | 1 |
| 44420222 | POWERLOCK A1 N/BL | Ø 5.5 mm (4x) | N, Blue | 1 |
| 44420223 | POWERLOCK A1 L1/BN | Ø 5.5 mm (4x) | L1, Brown | 1 |
| 44420224 | POWERLOCK A1 L2/BK | Ø 5.5 mm (4x) | L2, Black | 1 |
| 44420225 | POWERLOCK A1 L3/GY | Ø 5.5 mm (4x) | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420316 | POWERLOCK A1 L1/RD | Ø 5.5 mm (4x) | L1, Red | 1 |
| **POWERLOCK panel-mount box without contact** | | | | |
| **Panel-mount box A6, source** | | | | |
| 44420226 | POWERLOCK A6 PE/GN | Ø 5.5 mm (4x) | PE, Green | 1 |
| 44420227 | POWERLOCK A6 N/BL | Ø 5.5 mm (4x) | N, Blue | 1 |
| 44420228 | POWERLOCK A6 L1/BN | Ø 5.5 mm (4x) | L1, Brown | 1 |
| 44420229 | POWERLOCK A6 L2/BK | Ø 5.5 mm (4x) | L2, Black | 1 |
| 44420230 | POWERLOCK A6 L3/GY | Ø 5.5 mm (4x) | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420317 | POWERLOCK A6 L1/RD | Ø 5.5 mm (4x) | L1, Red | 1 |

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## EPIC® POWERLOCK D6 C

Single-pin circular connector for mobile power distribution, electro motors and generators



## EPIC® POWERLOCK F6 C

Single-pin circular connector for mobile power distribution, electro motors and generators



**Info**

- Connector for unscreened single-core power cables

### Suitable contacts

- EPIC® POWERLOCK Crimp contacts
- Housing without contact, order contact separately

### Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

### Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

### Product features

- Straight connector with M40 thread
- Order SKINTOP® ST-M 40 or STR-M 40 separately
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description: Housing for industrial connectors

**Rated voltage (V)**
1000 V

**Rated impulse voltage**
8 kV

**Rated current (A)**
Max. crimp 660 A

**Pollution degree**
3

**Contacts**
Crimp termination: copper, silver-plated

**Number of contacts**
1

**Termination methods**
Crimp termination: 35 - 240 mm²

**Material**
Housing: PBT
Contact retention pin: PA

**Protection rating**
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

**Cycle of mechanical operation**
500

**VDE-tested**
VDE Reg. No. D42

**Temperature range**
-25°C up to +125°C

| Article number | Article description | M | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK cable connector/cable coupler without contact (for crimp contact)** | | | | |
| **Cable connector D6, source** | | | | |
| 44420216 | POWERLOCK D6 PE/GN | 40 | PE, Green | 1 |
| 44420217 | POWERLOCK D6 N/BL | 40 | N, Blue | 1 |
| 44420218 | POWERLOCK D6 L1/BN | 40 | L1, Brown | 1 |
| 44420219 | POWERLOCK D6 L2/BK | 40 | L2, Black | 1 |
| 44420220 | POWERLOCK D6 L3/GY | 40 | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420319 | POWERLOCK D6 L1/RD | 40 | L1, Red | 1 |
| **POWERLOCK connector without contacts (for crimp contact)** | | | | |
| **Cable coupler POWERLOCK F6, drain** | | | | |
| 44420211 | POWERLOCK F6 PE/GN | 40 | PE, Green | 1 |
| 44420212 | POWERLOCK F6 N/BL | 40 | N, Blue | 1 |
| 44420213 | POWERLOCK F6 L1/BN | 40 | L1, Brown | 1 |
| 44420214 | POWERLOCK F6 L2/BK | 40 | L2, Black | 1 |
| 44420215 | POWERLOCK F6 L3/GY | 40 | L3, Grey | 1 |
| **For direct current applications in conjunction with L2/black** | | | | |
| 44420318 | POWERLOCK F6 L1/RD | 40 | L1, Red | 1 |

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# POWERLOCK BOX C*

Circular connectors for servomotors and power supply



**Info**

- Can be locked to prevent unauthorised disconnection

## Benefits

- Guarantees the correct sequence is followed when connecting and disconnecting a set of connectors (PE, N, L1, L2, L3)
- Every colour has a different coding to prevent incorrect plugging
- IP 20 finger-protected
- Integrated micro-switch that can be connected to circuit breaker or alarm circuit

## Application range

- Alternative energy installations
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

## Housings

- Sealed security lid is optional

## Product features

- Included: Contacts with M12 threaded post
- Cable connector for microswitch optional
- 19“ housing with height unit 2HE/2U

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
1000 V

**Rated current (A)**
Max. crimp 660 A

**Pollution degree**
3

**Contacts**
Crimp termination: copper, silver-plated

**Number of contacts**
4 + PE

**Termination methods**
Crimp termination: 35 - 240 mm²

**Protection rating**
IP 65 (latched)

**Cycle of mechanical operation**
500

**Temperature range**
-25°C ... +85°C

| Article number | Article description | Fastening type | Pin configuration | Pieces / PU |
|---|---|---|---|---|
| **POWERLOCK BOX, panel-mount base with contacts (M12 threaded posts)** | | | | |
| **Panel-mount box A1, drain** | | | | |
| 44420288 | POWERLOCK BOX A1 C | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A1, drain, with cover** | | | | |
| 44420289 | POWERLOCK BOX A1 CD | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A6, source** | | | | |
| 44420284 | POWERLOCK BOX A6 C | Ø 6.5 mm (4x) | 4+PE | 1 |
| **Type A6, source, with cover** | | | | |
| 44420285 | POWERLOCK BOX A6 CD | Ø 6.5 mm (4x) | 4+PE | 1 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWERLOCK Crimp contacts

Contacts, tools, accessories for circular connectors



**Info**

- Max. crimp 660 A
- Do not plug with screw-type (400 A)

| Article number | Article designation | Version | Crimp sunk | PU |
|---|---|---|---|---|
| **M12 threaded post contact, contact retaining pin included** | | | | |
| **Drain - for type A1 C** | | | | |
| 44420260 | POWERLOCK SP M12 | Contact Drain, M12 Thread for cable lugs | | 1 |
| **Source - for type A6 C** | | | | |
| 44420261 | POWERLOCK QP M12 | Lamella contact source, M12 thread for cable lug | | 1 |
| **Drain - for type F6 C and A1 C** | | | | |
| 44420293 | POWERLOCK SCM 35 | 35 mm² | 35 | 1 |
| 44420294 | POWERLOCK SCM 50 | 50 mm² | 50 | 1 |
| 44420295 | POWERLOCK SCM 70 | 70 mm² | 70 | 1 |
| 44420231 | POWERLOCK SCM 95 | 95mm² | 95 | 1 |
| 44420233 | POWERLOCK SCM 120 | 120 mm² | 120 | 1 |
| 44420256 | POWERLOCK SCM 150 | 150 mm² | 150 | 1 |
| 44420234 | POWERLOCK SCM 185 | 185 mm² | 185 | 1 |
| 44420339 | POWERLOCK SCM 240 NEW | 240 mm² | 240 | 1 |
| 44420235 | POWERLOCK SCM 240 | 240mm²/300mm² | 240 | 1 |
| **Crimp contact, contact retaining pin included** | | | | |
| **Source - for type D6 C and A6 C** | | | | |
| 44420290 | POWERLOCK QCM 35 | 35 mm² | 35 | 1 |
| 44420291 | POWERLOCK QCM 50 | 50 mm² | 50 | 1 |
| 44420292 | POWERLOCK QCM 70 | 70 mm² | 70 | 1 |
| 44420236 | POWERLOCK QCM 95 | 95mm² | 95 | 1 |
| 44420238 | POWERLOCK QCM 120 | 120 mm² | 120 | 1 |
| 44420257 | POWERLOCK QCM 150 | 150 mm² | 150 | 1 |
| 44420239 | POWERLOCK QCM 185 | 185 mm² | 185 | 1 |
| 44420324 | POWERLOCK QCM 240 NEW | 240 mm² | 240 | 1 |
| 44420240 | POWERLOCK QCM 240 | 240mm²/300mm² | 240 | 1 |

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# EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors



| Article number | Article description | Version | PU |
|---|---|---|---|
| **Tools** | | | |
| 44420243 | Disconnection tool | for mated connection | 1 |
| 44420337 | Crimping tool | | 1 |
| 44420330 | Crimp die for Crimp tool | 50 mm² | 1 |
| 44420331 | Crimp die for Crimp tool | 70 mm² | 1 |
| 44420332 | Crimp die for Crimp tool | 95mm² | 1 |
| 44420333 | Crimp die for Crimp tool | 120 mm² | 1 |
| 44420334 | Crimp die for Crimp tool | 150 mm² | 1 |
| 44420335 | Crimp die for Crimp tool | 185 mm² | 1 |
| 44420336 | Crimp die for Crimp tool | 240 mm² | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® POWERLOCK Accessories

Contacts, tools, accessories for circular connectors



| Article number | Article | For design | Version | PU |
|---|---|---|---|---|
| **Protective caps** | | | | |
| 44420252 | POWERLOCK PROTECTION CAP A1 | for type A1 | IP54 | 1 |
| 44420253 | POWERLOCK PROTECTION CAP A6 | for type A6 | IP54 | 1 |
| 44420251 | POWERLOCK PROTECTION CAP D6 | for type D6 | IP54 | 1 |
| 44420250 | POWERLOCK PROTECTION CAP F6 | for type F6 | IP54 | 1 |
| **Spare part: Contact retention pin** | | | | |
| 44420259 | POWERLOCK RETENTION PIN A1, A6 | for type A1, A6 | | 1 |
| 44420255 | POWERLOCK RETENTION PIN D6 | for type D6 | | 1 |
| 44420254 | POWERLOCK RETENTION PIN F6 | for type F6 | | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# EPIC® SOLAR 4 GEN2

Connector system for weatherproof cabling of photovoltaic systems

**Info**

- 4 mm connector system with double hook
- For photovoltaic plants up to 1.5kV system voltage
- Patch cables on request



**381166698**



**381166699**



**44428269**



**44428268**

## Benefits

- Weather-resistant and durable thanks to high-quality materials and solid construction
- Connectable with other systems on the market
- Optimally suited for fully automated connector assembly
- Self-locking cap nut and contact receptacle, each with haptic feedback, simplify assembly and ensure tamper resistance
- Double snap-in hooks fix the crimp contact to the plug connection
- Low contact resistance at the contact point between plug and socket for efficient power supply
- With TÜV test mark

## Application range

- For cabling solar modules, inverters and stand-alone systems
- For modern, powerful photovoltaic systems up to 1500 V
- Can be used with many ÖLFLEX® solar cables
- Plugged connections have protection class IP 68 (1 m for 1 h)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
1500 V DC

**Rated impulse voltage**
16 kV

**Contact resistance**
< 0.5 mOhm

**Flammability**
UL94 V-0

**Contact resistance**
< 0.5 mOhm

**Material**
PInsulating Body: Polycarbonate
Nut: Polyamid
Contact: Copper alloy, tin plated

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
100

**Protection class**
II

**Temperature range**
-40°C to +85°C

| Article number | Article | Type | Cross-section (mm²) | Clamping range in (mm) | Rated current (A) | PU |
|---|---|---|---|---|---|---|
| **EPIC® SOLAR 4 GEN2 field-mountable, with contacts** | | | | | | |
| 44428277 | EPIC® SOLAR 4 GEN2 M 4-6 5.2-7.0mm | Male | 4 - 6 | 5.2 - 7 | 50 | 100 |
| 44428278 | EPIC® SOLAR 4 GEN2 F 4-6 5.2-7.0mm | Female | 4 - 6 | 5.2 - 7 | 50 | 100 |
| 44428268 | EPIC® SOLAR 4 GEN2 M 10 mm² | Male | 10 | 7 - 7.4 | 70 | 100 |
| 44428269 | EPIC® SOLAR 4 GEN2 F 10 mm² | Female | 10 | 7 - 7.4 | 70 | 100 |
| **EPIC® SOLAR 4 GEN2 field-mountable, without contacts** | | | | | | |
| 44428270 | EPIC® SOLAR 4 GEN2 M 5.2-7.0mm (100) | Male | - | 5.2 - 7 | 50 | 100 |
| 44428271 | EPIC® SOLAR 4 GEN2 F 5.2-7.0mm (100) | Female | - | 5.2 - 7 | 50 | 100 |
| 381166461 | EPIC® SOLAR 4 GEN2 M 5.2-7.0mm (700) | Male | - | 5.2 - 7 | 50 | 700 |
| 381166462 | EPIC® SOLAR 4 GEN2 F 5.2-7.0mm (700) | Female | - | 5.2 - 7 | 50 | 700 |
| **EPIC® SOLAR 4 GEN2 panelmount, with contacts** | | | | | | |
| 381166698 | EPIC® SOLAR 4 GEN2 Panelmount M 4-6 mm² | Male | 4 - 6 | 5.2 - 7 | 50 | 100 |
| 381166699 | EPIC® SOLAR 4 GEN2 Panelmount F 4-6 mm² | Female | 4 - 6 | 5.2 - 7 | 50 | 100 |
| **EPIC® SOLAR 4 GEN2 contacts on reel** | | | | | | |
| 44428272 | EPIC® SOLAR 4 GEN2 PIN M 4-6mm² | Male | 4 - 6 | - | - | 2500 |
| 44428273 | EPIC® SOLAR 4 GEN2 PIN F 4-6mm² | Female | 4 - 6 | - | - | 2500 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SOLAR 4 GEN2 Splitter

Connector system for weatherproof cabling of photovoltaic systems



**Info**

- 4 mm connector system with double hook
- Splitter for parallel connection of photovoltaic modules

### Benefits

- Extremely weatherproof and durable thanks to the Easy to handle due to flexible connection options and high-quality materials and solid construction compact design
- Low contact resistance at the contact point between plug and socket for efficient power supply

### Application range

- For parallel switching of solar modules and strings
- For modern, high-performance photovoltaic systems
- For use with the EPIC SOLAR 4 GEN2 solar connectors
- Plugged connections have protection class IP 68 (1 m for 1 h)

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

**Rated voltage (V)**
1500 V DC

**Rated current (A)**
30 A

**Protection rating**
IP 68 (1m/1h)

**Temperature range**
-40 °C to +85 °C

| Article number | Article designation | PU |
|---|---|---|
| 44428274 | EPIC® SOLAR 4 GEN2 SPLITTER FMM | 10 |
| 44428275 | EPIC® SOLAR 4 GEN2 SPLITTER MFF | 10 |

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## EPIC® SOLAR 4 GEN2 Assembly tool

Tool for assembling connectors of photovoltaic systems



**Info**

- For assembling and disassembling EPIC® SOLAR 4 GEN2 solar connectors

| Article number | Article designation | PU |
|---|---|---|
| 44428276 | EPIC® SOLAR 4 GEN2 ASSEMBLY TOOL | 2 |

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## EPIC® SOLAR 4 GEN2 Caps

Tool for assembling connectors of photovoltaic systems




**Info**

- Prevents the penetration of dirt and moisture connectors
- With eyelet for attaching a securing cord for fastening to the cable

| Article number | Article designation | PU |
|---|---|---|
| 381166463 | EPIC® SOLAR 4 GEN2 M CAP | 100 |
| 381166464 | EPIC® SOLAR 4 GEN2 F CAP | 100 |

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# EPIC® SOLAR TOOL CSC

Cutting, stripping and crimping with just one tool

**Info**

- Cutting, stripping and crimping with just one tool





### Application range

- For crimping of the photovoltaic connector EPIC® SOLAR 4Plus and EPIC® SOLAR 4 in the field

### Product features

- Multifunctional die for cutting, stripping and crimping with just one tool
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

### Suitable cables

- H1Z2Z2-K
- H1Z2Z2-K, optimized version
- ÖLFLEX® SOLAR XLWP 131
- ÖLFLEX® SOLAR XLS-R

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article description | Cross-section (min) in mm² | Cross-section (max) in mm² | Version | PU |
|---|---|---|---|---|---|
| **Tools** | | | | | |
| 11147000 | Crimping tool | | | In tool case | 1 |
| **Multi-functional die CSC** | | | | | |
| 44428992 | EPIC® SOLAR TOOL CSC DIE 4mm² | | 4 | | 1 |
| 44428993 | EPIC® SOLAR Tool CSC DIE 6mm² | | 6 | | 1 |
| 44428994 | EPIC® SOLAR TOOL LOC 4, 6mm² | 4 | 6 | | 1 |

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# EPIC® SOLAR TOOL

3 cross section in one tool

**Info**

- 3 cross section in one tool





### Application range

- For crimping of the photovoltaic connector EPIC® SOLAR 4Plus and EPIC® SOLAR 4 in the field

### Product features

- Crimping die (DIE) for the cable cross sections of 2.5mm² up to 10mm²
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

### Suitable cables

- H1Z2Z2-K
- H1Z2Z2-K, optimized version
- ÖLFLEX® SOLAR XLWP 131
- ÖLFLEX® SOLAR XLS-R

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article description | Cross-section (min) in mm² | Cross-section (max) in mm² | PU |
|---|---|---|---|---|
| **Tools** | | | | |
| 11147000 | Crimping tool | | | 1 |
| **Crimping die** | | | | |
| 44428995 | EPIC® SOLAR Tool DIE 2.5, 4, 6mm² | 2.5 | 6 | 1 |
| 44428996 | EPIC® SOLAR Tool LOC 2.5, 4, 6mm² | 2.5 | 6 | 1 |
| 44428243 | EPIC® SOLAR Tool DIE 4, 6, 10mm² | 4 | 10 | 1 |

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# EPIC® BATTERY M

High-voltage battery connector for energy storage systems



## Benefits

- Cable connector for rated currents up to 350 A and voltages up to 1,500 V
- Reliable locking system offers security against loosening of the plug connection under load as well as flexible maintenance options
- Mechanical coding of the connector face and colour coding of the housing prevent mismating when connecting batteries (black for negative pole and red/orange for positive pole)
- Can be rotated freely through 360° and is therefore ideal for flexible wiring with different cable outlets
- With TÜV Rheinland test mark

## Application range

- For the front connection of battery modules within energy storage systems
- For Battery Energy Storage System (BESS)
- For use with matching housing connector

## Technical data

**Rated voltage (V)**
1500 V DC

**Pollution degree**
3

**Flammability**
UL94 V-0

**Material**
Polyamide

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article | Colour / Coding | Rated current (A) | PU |
|---|---|---|---|---|
| **EPIC® BATTERY 120 A** | | | | |
| 381167151 | EPIC® BATTERY 120RB7RB01 | Black / Circular | 120 | 1 |
| 381167153 | EPIC® BATTERY 120HB7RB01 | Red / Hexagonal | 120 | 1 |
| 381167155 | EPIC® BATTERY 120HO7RB01 | Orange / Hexagonal | 120 | 1 |
| **EPIC® BATTERY 250 A** | | | | |
| 381167157 | EPIC® BATTERY 250RB7RB01 | Black / Circular | 250 | 1 |
| 381167159 | EPIC® BATTERY 250HB7RB01 | Red / Hexagonal | 250 | 1 |
| 381167161 | EPIC® BATTERY 250HO7RB01 | Orange / Hexagonal | 250 | 1 |
| **EPIC® BATTERY 250 A** | | | | |
| 381167163 | EPIC® BATTERY 350RB7RB01 | Black / Circular | 350 | 1 |
| 381167165 | EPIC® BATTERY 350HB7RB01 | Red / Hexagonal | 350 | 1 |
| 381167167 | EPIC® BATTERY 350HO7RB01 | Orange / Hexagonal | 350 | 1 |

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# EPIC® BATTERY F

High-voltage battery connector for energy storage systems



## Benefits

- Cable connector for rated currents up to 350 A and voltages up to 1,500 V
- Reliable locking system offers security against loosening of the plug connection under load as well as flexible maintenance options
- Mechanical coding of the connector face and colour coding of the housing prevent mismating when connecting batteries (black for negative pole and red/orange for positive pole)
- Can be rotated freely through 360° and is therefore ideal for flexible wiring with different cable outlets
- With TÜV Rheinland test mark

## Application range

- For the front connection of battery modules within energy storage systems
- For Battery Energy Storage System (BESS)
- For use with matching housing connector

## Technical data

**Rated voltage (V)**
1500 V DC

**Pollution degree**
3

**Flammability**
UL94 V-0

**Material**
Polyamide

**Protection rating**
IP68 (10h/1m)

**Cycle of mechanical operation**
100

**Temperature range**
-40°C to +125°C

| Article number | Article | Colour / Coding | Cross-section (mm²) | Rated current (A) | PU |
|---|---|---|---|---|---|
| **EPIC® BATTERY 120 A** | | | | | |
| 381167152 | EPIC® BATTERY 120RB7PC02 | Black / Circular | 25 | 120 | 1 |
| 381167154 | EPIC® BATTERY 120HR7PC02 | Red / Hexagonal | 25 | 120 | 1 |
| 381167156 | EPIC® BATTERY 120HO7PC02 | Orange / Hexagonal | 25 | 120 | 1 |
| **EPIC® BATTERY 250 A** | | | | | |
| 381167158 | EPIC® BATTERY 250RB7PC02 | Black / Circular | 70 | 250 | 1 |
| 381167160 | EPIC® BATTERY 250HR7PC02 | Red / Hexagonal | 70 | 250 | 1 |
| 381167162 | EPIC® BATTERY 250HO7PC02 | Orange / Hexagonal | 70 | 250 | 1 |
| **EPIC® BATTERY 350 A** | | | | | |
| 381167164 | EPIC® BATTERY 350RB7PC02 | Black / Circular | 120 | 350 | 1 |
| 381167166 | EPIC® BATTERY 350HR7PC02 | Red / Hexagonal | 120 | 350 | 1 |
| 381167168 | EPIC® BATTERY 350HO7PC02 | Orange / Hexagonal | 120 | 350 | 1 |

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# SKINTOP®

## Cable glands

Simply feed in the cable and twist – that's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

**Application range**

- Industrial machinery and plant engineering
- Drive systems
- Measurement and control technology
- Renewable energies
- Wherever cables need to be fastened securely and quickly

## SKINTOP® cable glands plastic metric

**Standard**
SKINTOP® ST-M / SKINTOP® STR-M 808
**CLICK System**
SKINTOP® CLICK / SKINTOP® CLICK-R 810
**Bending protection**
SKINTOP® BS-M 811
SKINTOP® BT-M 812
SKINTOP® CLICK BS 813
**Photovoltaics**
SKINTOP® SOLAR / SKINTOP® SOLAR plus 814
**Halogen-free**
SKINTOP® ST-HF-M 815
**Explosion-proof**
SKINTOP® K-M ATEX plus / SKINTOP® KR-M ATEX plus 816
SKINTOP® K-M ATEX plus blue / SKINTOP® KR-M ATEX plus blue 817
**L-BOXX**
SKINTOP® ST-M L-BOXX 818
SKINTOP® CLICK L-BOXX 819

## SKINTOP® cable glands nickel-plated brass metric

**Standard**
SKINTOP® MS-M / SKINTOP® MSR-M 820
SKINTOP® MS-M LF 821
SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL 823
SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL 824
SKINTOP® GRIP-M / SKINTOP® GRIP-M-XL 825
**EMC**
SKINTOP® BRUSH ADD-ON 826
SKINTOP® MS-SC-M 827
SKINTOP® MS-M BRUSH / SKINTOP® MS-M BRUSH XL 828
SKINTOP® BS-SC-M METAL / SKINTOP® BSR-SC-M METAL 829
**Cold-resistant**
SKINTOP® COLD / SKINTOP® COLD-R 831
**Industrial connectors**
SKINTOP® MS-IS-M 832
**Halogen-free**
SKINTOP® MS-HF-M 833
SKINTOP® MS-HF-M GRIP 834
SKINTOP® MS-HF-M SC 835
SKINTOP® MS-HF-M BRUSH 836
**Explosion-proof**
SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX 837
SKINTOP® MS-M ATEX BRUSH 838
SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX 839
**Flat cable**
SKINTOP® FLAT 840

## SKINTOP® cable glands stainless steel metric

**Standard**
SKINTOP® INOX / SKINTOP® INOX-R 841
SKINTOP® INOX SC 842
SKINTOP® HYGIENIC / SKINTOP® HYGIENIC-R 843
SKINTOP® HYGIENIC SC 844

## SKINTOP® cable gland accessories metric

**Counter nuts**
SKINTOP® GMP-GL-M 845
SKINTOP® GMP-HF-M 846
**Multiple sealing inserts/dust protection**
SKINTOP® DIX-M 847
SKINTOP® DIX-M 848
SKINTOP® DIX-M AUTOMATION 850
SKINTOP® DIX-DV / SKINTOP® SD-M / SKINTOP® DV-M 851

## SKINTOP® cable bushing systems

**Cable bushing systems**
SKINTOP® MULTI-M 852
SKINTOP® MULTI 853
SKINTOP® MULTI VENT 854
SKINTOP® CUBE 855
SKINTOP® CUBE MULTI 857
**EMC**
SKINTOP® BRUSH ADD-ON 24 858
SKINTOP® MULTI FLANGE FL21 858

## SKINDICHT® plastic or metal cable glands metric

**Standard**
SKINDICHT® SVRN-M / SKINDICHT® SVRE-M 859
SKINDICHT® SVRX 860
**Flat cable**
SKINDICHT® SVFK-M 861
SKINDICHT® SVF-M 862
**Strain relief/bending protection**
SKINDICHT® SKZ-M 863
SKINDICHT® SHZ-M 864
SKINDICHT® SR-M 865
SKINDICHT® SR-SV-M 866
**EMC**
SKINDICHT® SHVE-M 867
SKINDICHT® SRE-M 868
**Special sealing cable glands**
SKINDICHT® SHV-M 869
SKINDICHT® SHV-M FKM 870
SKINDICHT® MINI NBR / SKINDICHT® MINI FKM
SKINDICHT® MINI COLD 871
SKINDICHT® CN-M 872
**Angle cable glands**
SKINDICHT® KW-M 873
SKINDICHT® RWV-M 874
SKINDICHT® RWV-M without E+D 875
SKINDICHT® SE-M 876
SKINDICHT® SE-M without E+D 877

## SKINDICHT® cable gland accessories metric

**Counter nuts**
SKINDICHT® SM-M / SKINDICHT® SM-PE-M 878
SKINDICHT® SM-M INOX 879
**Blind plugs**
SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M 880
SKINTOP® CLICK BLK 881
SKINDICHT® BL-M 882
SKINDICHT® BL-M hex. 883
SKINDICHT® BL-M ATEX 883
SKINDICHT® HYGIENIC BL-M 884
**Pressure compensation**
SKINDICHT® VENT PA6 885
SKINDICHT® VENT INOX 886
Drainage elements 887
**Reducers**
SKINDICHT® KU-M 888
SKINDICHT® MR-M 889
SKINDICHT® MR-M hex. 890
SKINDICHT® MR-M ATEX 891
SKINDICHT® EKU-M 891
SKINDICHT® R-M HYGIENIC 892
**Enlargers**
SKINDICHT® ME-M 893
SKINDICHT® ME-M ATEX 893
SKINDICHT® E-M HYGIENIC 894
**Adapter**
SKINDICHT® MA-M/PG / SKINDICHT® MA-M/NPT 895
SKINDICHT® ZS-M / SKINDICH® ZS-M-XL 896
SKINDICHT® ZSE-M / SKINDICH® ZSE-M-XL 897
**Coupler**
SKINDICHT® TWIST-M 898
**Sealing rings/incised seals**
SKINDICHT® O-Ring NBR metric 899
SKINDICHT® O-ring FKM metric 899
SKINDICHT® JT PTFE metric 900
SKINDICHT® WN-M 900
**Ducts**
SKINDICHT® DTN 901
SKINDICHT® LA 901

## SKINTOP® cable glands plastic and metal NPT

**Plastic**
SKINTOP® ST NPT / BS NPT 902
**Nickel-plated brass**
SKINTOP® MS NPT 903
SKINTOP® COLD NPT 904
SKINTOP® MS-SC NPT 905

SKINTOP® MS-NPT BRUSH 906
**Stainless steel**
SKINTOP® INOX NPT 907
SKINTOP® HYGIENIC NPT 908

## SKINDICHT® cable gland accessories NPT

**Counter nuts**
SKINTOP® GMP-GL NPT 909
SKINDICHT® SM-NPT 910
SKINDICHT® SM-NPT INOX 910
**Blind plugs**
SKINDICHT® HYGIENIC BL-NPT 911

## SKINTOP® cable glands plastic PG

**Standard**
SKINTOP® ST / SKINTOP® STR 912
**Bending protection**
SKINTOP® BS 914
SKINTOP® BT 915

## SKINTOP® cable glands nickel-plated brass PG

**Standard**
SKINTOP® MS / SKINTOP® MSR 916
SKINTOP® MS-XL / SKINTOP® MSR-XL 917
**EMC**
SKINTOP® MS-SC 918

## SKINDICHT® cable gland accessories PG

**Counter nuts**
SKINTOP® GMP-GL 919
**Multiple sealing inserts/dust protection**
SKINTOP® DIX 920
SKINTOP® DIX-AUTOMATION 921
SKINTOP® DIX-DV / SKINTOP® SD / SKINTOP® DV 922

## SKINDICHT® cable glands plastic or metal PG

**Standard**
SKINDICHT® SVRN / SKINDICHT® SVRE 923
**Flat cable**
SKINDICHT® SVFK 924
SKINDICHT® SVF 925
SKINDICHT® FL 926
**Strain relief/bending protection**
SKINDICHT® SH 927
SKINDICHT® SHZ 928
SKINDICHT® SK 929
SKINDICHT® SKZ 930
SKINDICHT® SR 931
SKINDICHT® SR-SV 932
**EMC**
SKINDICHT® SHVE 933
SKINDICHT® SRE 934
**Special sealing cable glands**
SKINDICHT® SHV 935
SKINDICHT® SHV FKM 936
SKINDICHT® CN 937
**Angle cable glands**
SKINDICHT® RWV 938

## SKINDICHT® cable gland accessories PG

**Counter nuts**
SKINDICHT® GMK 940
SKINDICHT® SM / SKINDICHT® SM-PE 941
SKINDICHT® SM INOX 941
**Blind plugs**
SKINDICHT® BLK / BLK-GL 942
SKINDICHT® BL / SKINDICHT® BL FKM 943
**Reducers**
SKINDICHT® KU, KUS, KUK 944
SKINDICHT® MR 945
**Enlargers**
SKINDICHT® EKU 946
SKINDICHT® ME 946
**Adapter**
SKINDICHT® A-PG/M 947
SKINDICHT® MA-PG/M 948
**Sealing rings/incised seals**
SKINDICHT® O-Ring NBR PG 949
SKINDICHT® O-Ring FKM PG 949
SKINDICHT® JT PTFE PG 950

## SKINMATIC® mounting tools

**SKINMATIC® metric mounting tools**
SKINMATIC® QUICK Set 1 951
SKINMATIC® MH Set 951
SKINMATIC® KB-M 952
SKINMATIC® SB-M 952
SKINMATIC® GB-M 952
SKINMATIC® RZ 952

# Cable glands

LAPP

## At a glance

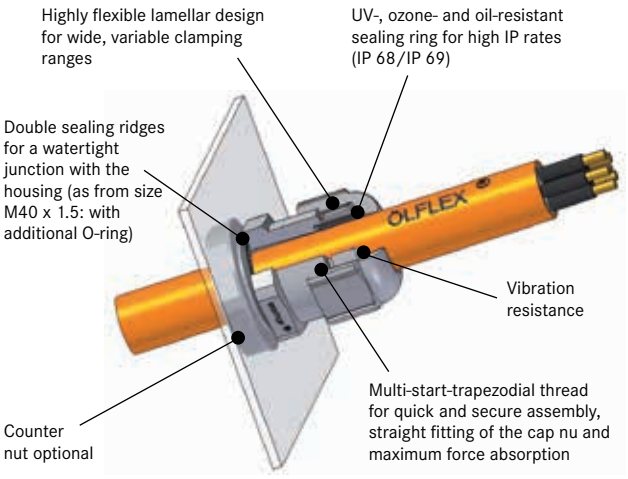
| Characteristics  | Protection class IP | Protection class NEMA | Connection thread metric | Connection thread PG | Connection thread NPT | For round cables | For flat cables | Plastic | Metal | Stainless steel | Angled | Strain relief | Vibration protection | Kink protection | Screen connection | Hazardous areas | Halogen free | Approvals | ATEX | cULus | cURus | DNV-GL | ECOLAB | EHEDG | EN 45545 | FDA | NSF | TÜV | VDE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cable glands** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SKINTOP® BS-M / BS-NPT / BS | 68 | ●* | ● | ● | ● | ● | | ● | | | | ● | ● | ● | | | | | | ● | ● | ●* | | | | | | | ●* |
| SKINTOP® BS-M METALL | 68/69 | | ● | | | ● | | | ● | | | ● | | ● | | | | | | | | | | | | | | | |
| SKINTOP® BT-M / BT | 68 | | ● | ● | | ● | | ● | | | | ● | ● | ● | | | | | | ● | ●* | | | | | | | | |
| SKINTOP® CLICK | 68 | | | | | ● | | ● | | | | ● | ● | | | | | | | ● | ● | ● | | | | | | | ● |
| SKINTOP® CLICK BS | 68 | | | | | ● | | ● | | | | ● | ● | ● | | | | | | ● | ● | ● | | | | | | | ● |
| SKINTOP® COLD / COLD NPT | 68 | ●* | ● | | ● | ● | | | ● | | | ● | | | | | | | | ●* | ● | | | | | | | | ● |
| SKINTOP® CUBE | 64 | | | | | ● | | ● | | | | ● | ● | | | | | | | | ● | | | | | | | | |
| SKINTOP® CUBE MULTI | 66 | | | | | ● | | ● | | | | ● | ● | | | | | | | | ● | | | | | | | | |
| SKINTOP® FLAT | 68 | | ● | | | | ● | | ● | | | ● | | | | | ● | | | | | | | | | | | | |
| SKINTOP® GRIP-M | 68/69 | | ● | | | ● | | | ● | | | ● | | ● | | | | | | | | | | | | | | | |
| SKINTOP® HYGIENIC / HYGIENIC NPT | 68/69 | ● | ● | | ● | ● | | | | ● | | ● | | | | | | | | | ● | | ● | ● | | ● | ● | | |
| SKINTOP® HYGIENIC SC | 68/69 | ● | ● | | | ● | | | | ● | | ● | | | ● | | | | | | ● | | ● | ● | | | ● | | |
| SKINTOP® INOX / INOX NPT | 68/69 | ● | ● | | ● | ● | | | | ● | | ● | | | | | | | | ● | ● | | ● | | | | ● | | |
| SKINTOP® INOX SC | 68/69 | ● | ● | | | ● | | | | ● | | ● | | | ● | | | | | ● | ● | | ● | | | | ● | | |
| SKINTOP® K-M ATEX plus / blue | 68 | | ● | | | ● | | ● | | | | ● | ● | | | ● | | | ● | | | ● | | | | | | | |
| SKINTOP® MS-M / MS NPT / MS | 68/69* | ●* | ● | ● | ● | ● | | | ● | | | ● | | | | | | | | ●* | ●* | ●* | | | | | | | ●* |
| SKINTOP® MS-M ATEX | 68 | ● | ● | | | ● | | | ● | | | ● | | | | ● | | | ● | ● | ● | ● | | | | | | | |
| SKINTOP® MS-HF-M / BRUSH / GRIP / SC | 68 | | ● | | | ● | | | ● | | | ● | | ●* | ●* | | ● | | | | | | | | ● | | | | |
| SKINTOP® MS-IS-M | 68 | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINTOP® MS-M ATEX BRUSH | 68 | | ● | | | ● | | | ● | | | ● | | | ● | ● | | | ● | | | ● | | | | | | | |
| SKINTOP® MS-M BRUSH / MS-NPT BRUSH | 68/69* | ● | ● | | ● | ● | | | ● | | | ● | | | ● | | | | | ● | | ● | | | | | | | ●* |
| SKINTOP® MS-SC-M / MS-SC-NPT / MS-SC | 68 | ●* | ● | ● | ● | ● | | | ● | | | ● | | | ● | | | | | ●* | ●* | ●* | | | | | | | |
| SKINTOP® MULTI | 68 | | | | | ● | | ● | | | | ● | ● | | | | ● | | | | ● | | | | ● | | | | |
| SKINTOP® MULTI VENT | 68 | | | | | ● | | ● | | | | ● | ● | | | | ● | | | | | | | | | | | | |
| SKINTOP® MULTI-M | 68 | | ● | | | ● | | ● | | | | ● | ● | | | | ● | | | | ● | | | | ● | | | | |
| SKINTOP® SOLAR / SOLAR plus | 68 | | ● | | | ● | | ● | | | | ● | ● | | | | | | | | ● | | | | | | | | |
| SKINTOP® ST-M / ST NPT / ST | 68/69* | ● | ● | ● | ● | ● | | ● | | | | ● | ● | | | | | | | ● | ● | ●* | | | | | | ●* | ●* |
| SKINTOP® ST-HF-M | 68 | | ● | | | ● | | ● | | | | ● | ● | | | | ● | | | | | | | | ● | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SKINDICHT® CN-M / CN | 68/69 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® FL | 65 | | | ● | | | ● | | ● | | | | | | | | | | | | | | | | | | | | |
| SKINDICHT® KW-M | 55 | | ● | | | ● | | ● | | | ● | | | | | | | | | | | | | | | | | | |
| SKINDICHT® MINI NBR / FKM / COLD | 68/69 | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® RWV-M / RWV | 55 | | ● | ● | | ● | | | ● | | ● | | | | | | | | | | | | | | | | | | |
| SKINDICHT® SE-M / SE | 55 | | ● | ● | | ● | | | ● | | ● | | | | | | | | | | | | | | | | | | |
| SKINDICHT® SH | 20 | | | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SHVE-M / SHVE | 68 | | ● | ● | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | |
| SKINDICHT® SHVE-M ATEX | 68 | | ● | | | ● | | | ● | | | ● | | | ● | ● | | | | | | | | | | | | | |
| SKINDICHT® SHV-M / SHV | 68 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SHV-M-FKM / SHV-FKM | 68 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SHZ-M / SHZ | 55 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SK | 20 | | | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SKZ-M / SKZ | 55 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SR-M / SR | 65 | | ● | ● | | ● | | | ● | | | ● | | ● | | | | | | | | | | | | | | | |
| SKINDICHT® SRE-M / SRE | 65 | | ● | ● | | ● | | | ● | | | ● | | ● | ● | | | | | | | | | | | | | | |
| SKINDICHT® SR-SV-M / SR-SV | 65 | | ● | ● | | ● | | | ● | | | ● | | ● | | | | | | | | | | | | | | | |
| SKINDICHT® SVF-M / SVF | 54 | | ● | ● | | | ● | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SVFK-M / SVFK | 54 | | ● | ● | | | ● | ● | | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SVRE-M / SVRE | 54 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SVRN-M / SVRN | 54 | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SVRX-W | 56 | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | | |
| SKINDICHT® SVRX-Z | 56 | | ● | | | ● | | | ● | | | ● | | | ● | | | | | | | | | | | | | | |

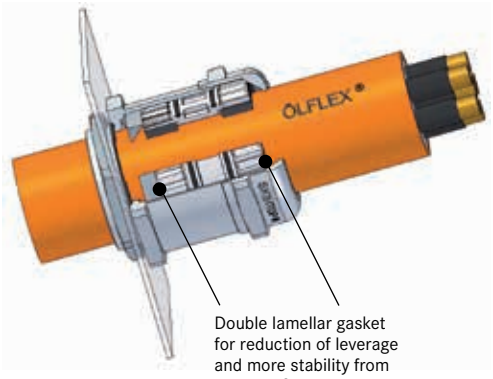
* depending on the size/version, please check in the product information

## SKINTOP® Single entry systems

Secured in next to no time

With SKINTOP® you can fix the cable in place in an instant. Just feed it in, turn it until – and you're done. Your cable is fixed, centered, hermetically sealed and completely strain-relieved with a simple turn of the hand. With SKINTOP® you can always achieve maximum reliablity. To ensure consistent quality, SKINTOP® products are continously monitored.
This quality has brought us numerous international approvals.

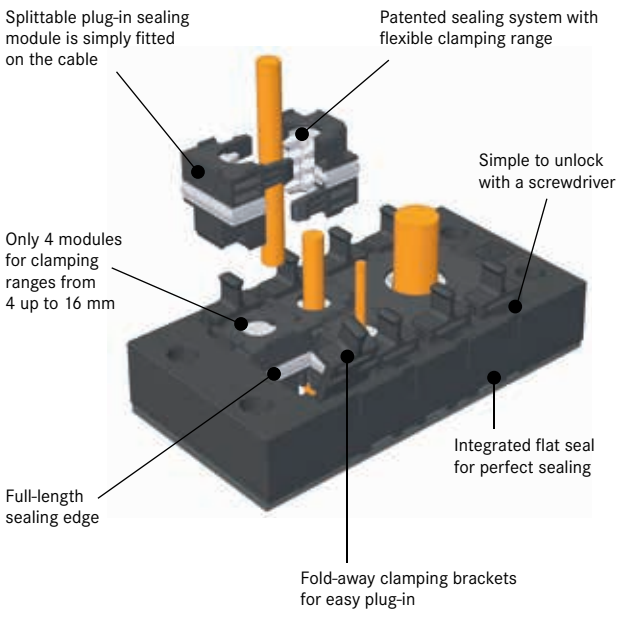


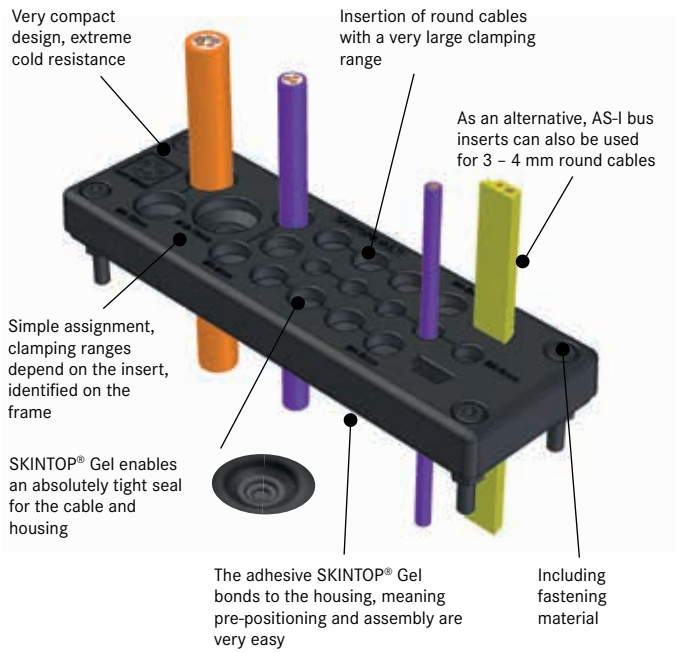

## SKINTOP® Multi-cable entry systems

The SKINTOP® multi-cable entry system is used for assembled and non-assembled cables and wires. It stands out with large clamping ranges, high packing density and good tensile strength since the sealing technology adapts itself perfectly to the surface and shape of the cables.

### SKINTOP® CUBE




### SKINTOP® MULTI

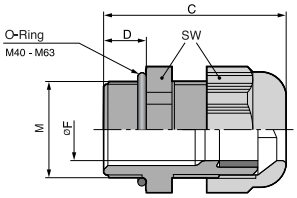


# SKINTOP® ST-M / SKINTOP® STR-M










**Info**

- With IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

## Benefits

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

## Application range

**SKINTOP® ST-M**

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and shipyards

**SKINTOP® STR-M**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903
- GGVS: TÜ.EGG.020-95

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINTOP® ST(R) M ISO types have an extra-long connection thread
- SKINTOP® ST(R) M ISO versions with extra-long connection thread, see table, no DNV approval

## Suitable cables

- The following cables are recommended for IP 69 applications:
  ÖLFLEX® ROBUST 200
  H07RN8-F
  H07RN-F

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques
Size M 40 x 1,5 up to
M 63 x 1,5 with O-ring

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Body: Polyamide
Seal: CR

**Tests**
GGVS: TÜ.EGG.020-95

**Protection rating**
IP 68 - 5 bar
IP 69
NEMA Type 1, 12

**Temperature range**
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

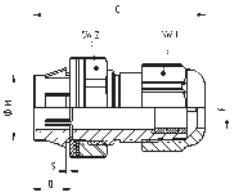
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® ST-M silver grey** | | | | | | |
| 53111000 | M 12 x 1,5 | 3,5-7 | 15 | 30.0 | 8 | 100 |
| 53111010 | M 16 x 1,5 | 4-10 | 19 | 34.0 | 8 | 100 |
| 53111020 | M 20 x 1,5 | 6-13 | 25 | 37.0 | 9 | 100 |
| 53111030 | M 25 x 1,5 | 8-17 | 30 | 40.0 | 10 | 50 |
| 53111040 | M 32 x 1,5 | 9-21 | 36 | 47.0 | 10 | 25 |
| 53111050 | M 40 x 1,5 | 16-28 | 46 | 52.0 | 10 | 10 |
| 53111060 | M 50 x 1,5 | 27-34 | 55 | 62.0 | 12 | 5 |
| 53111070 | M 63 x 1,5 | 34-45 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® ST-M black** | | | | | | |
| 53111200 | M 12 x 1,5 | 3,5-7 | 15 | 30.0 | 8 | 100 |
| 53111210 | M 16 x 1,5 | 4-10 | 19 | 34.0 | 8 | 100 |
| 53111220 | M 20 x 1,5 | 6-13 | 25 | 37.0 | 9 | 100 |
| 53111230 | M 25 x 1,5 | 8-17 | 30 | 40.0 | 10 | 50 |
| 53111240 | M 32 x 1,5 | 9-21 | 36 | 47.0 | 10 | 25 |
| 53111250 | M 40 x 1,5 | 16-28 | 46 | 52.0 | 10 | 10 |
| 53111260 | M 50 x 1,5 | 27-34 | 55 | 62.0 | 12 | 5 |
| 53111270 | M 63 x 1,5 | 34-45 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® ST-M light grey** | | | | | | |
| 53111400 | M 12 x 1,5 | 3,5-7 | 15 | 30.0 | 8 | 100 |
| 53111410 | M 16 x 1,5 | 4-10 | 19 | 34.0 | 8 | 100 |
| 53111420 | M 20 x 1,5 | 6-13 | 25 | 37.0 | 9 | 100 |
| 53111430 | M 25 x 1,5 | 8-17 | 30 | 40.0 | 10 | 50 |
| 53111440 | M 32 x 1,5 | 9-21 | 36 | 47.0 | 10 | 25 |
| 53111450 | M 40 x 1,5 | 16-28 | 46 | 52.0 | 10 | 10 |
| 53111460 | M 50 x 1,5 | 27-34 | 55 | 62.0 | 12 | 5 |
| 53111470 | M 63 x 1,5 | 34-45 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® ST M ISO silver-grey (with long metric connecting thread)** | | | | | | |
| 53017010 | M 16 x 1,5 ISO | 3,5-8 | 19 | 40.0 | 12 | 100 |
| 53017030 | M 20 x 1,5 ISO | 5-12 | 24 | 45.0 | 13 | 100 |
| 53017040 | M 25 x 1,5 ISO | 9-14 | 27 | 47.0 | 13 | 50 |

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® ST M ISO black (with long metric connecting thread)** | | | | | | |
| 53010000 | M 12 x 1,5 ISO | 3,5-7 | 15 | 36.7 | 15 | 100 |
| 53017210 | M 16 x 1,5 ISO | 3,5-8 | 19 | 40.0 | 12 | 100 |
| 53017230 | M 20 x 1,5 ISO | 5-12 | 24 | 45.0 | 13 | 100 |
| 53017240 | M 25 x 1,5 ISO | 9-14 | 27 | 47.0 | 13 | 50 |
| **SKINTOP® STR-M silver grey** | | | | | | |
| 53111100 | M 12 x 1,5 | 2-5 | 15 | 30.0 | 8 | 100 |
| 53111110 | M 16 x 1,5 | 3,5-7 | 19 | 34.0 | 8 | 100 |
| 53111120 | M 20 x 1,5 | 4-10 | 25 | 37.0 | 9 | 100 |
| 53111130 | M 25 x 1,5 | 5-13 | 30 | 40.0 | 10 | 50 |
| 53111140 | M 32 x 1,5 | 6-15 | 36 | 47.0 | 10 | 25 |
| 53111150 | M 40 x 1,5 | 9-23 | 46 | 52.0 | 10 | 10 |
| 53111160 | M 50 x 1,5 | 24-29 | 55 | 62.0 | 12 | 5 |
| 53111170 | M 63 x 1,5 | 28-39 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® STR-M black** | | | | | | |
| 53111300 | M 12 x 1,5 | 2-5 | 15 | 30.0 | 8 | 100 |
| 53111310 | M 16 x 1,5 | 3,5-7 | 19 | 34.0 | 8 | 100 |
| 53111320 | M 20 x 1,5 | 4-10 | 25 | 37.0 | 9 | 100 |
| 53111330 | M 25 x 1,5 | 5-13 | 30 | 40.0 | 10 | 50 |
| 53111340 | M 32 x 1,5 | 6-15 | 36 | 47.0 | 10 | 25 |
| 53111350 | M 40 x 1,5 | 9-23 | 46 | 52.0 | 10 | 10 |
| 53111360 | M 50 x 1,5 | 24-29 | 55 | 62.0 | 12 | 5 |
| 53111370 | M 63 x 1,5 | 28-39 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® STR-M light grey** | | | | | | |
| 53111500 | M 12 x 1,5 | 2-5 | 15 | 30.0 | 8 | 100 |
| 53111510 | M 16 x 1,5 | 3,5-7 | 19 | 34.0 | 8 | 100 |
| 53111520 | M 20 x 1,5 | 4-10 | 25 | 37.0 | 9 | 100 |
| 53111530 | M 25 x 1,5 | 5-13 | 30 | 40.0 | 10 | 50 |
| 53111540 | M 32 x 1,5 | 6-15 | 36 | 47.0 | 10 | 25 |
| 53111550 | M 40 x 1,5 | 9-23 | 46 | 52.0 | 10 | 10 |
| 53111560 | M 50 x 1,5 | 24-29 | 55 | 62.0 | 12 | 5 |
| 53111570 | M 63 x 1,5 | 28-39 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® STR M ISO silver-grey (with long metric connecting thread)** | | | | | | |
| 53017110 | M 16 x 1,5 ISO | 2-6 | 19 | 40.0 | 12 | 100 |
| 53017130 | M 20 x 1,5 ISO | 4-9 | 24 | 45.0 | 13 | 100 |
| 53017140 | M 25 x 1,5 ISO | 6-12 | 27 | 47.0 | 13 | 50 |
| **SKINTOP® STR M ISO black (with long metric connecting thread)** | | | | | | |
| 53017310 | M 16 x 1,5 ISO | 2-6 | 19 | 40.0 | 12 | 100 |
| 53017330 | M 20 x 1,5 ISO | 4-9 | 24 | 45.0 | 13 | 100 |
| 53017340 | M 25 x 1,5 ISO | 6-12 | 27 | 47.0 | 13 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® CLICK / SKINTOP® CLICK-R



## Info

- In practical box available in the web catalogue
- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.

## Benefits

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

## Application range

**SKINTOP® CLICK**

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Air-conditioning technology

**SKINTOP® CLICK-R**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Included

- Included: disassembly tool

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Body: special polyamide
Seal: special elastomer

**Protection rating**
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

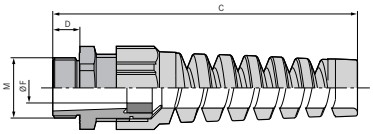
**Temperature range**
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | M (hole in mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Wall thickness, S (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINTOP® CLICK light grey** | | | | | | | | |
| 53112692 | CLICK 12 | 4.5 - 7.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112686 | CLICK 16 | 5.0 - 9.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112687 | CLICK 20 | 7.0 - 13.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112688 | CLICK 25 | 9.0 - 17.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112694 | CLICK 32 | 11.0 - 20.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK silver grey** | | | | | | | | |
| 53112921 | CLICK 12 | 4.5 - 7.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112876 | CLICK 16 | 5.0 - 9.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112877 | CLICK 20 | 7.0 - 13.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112878 | CLICK 25 | 9.0 - 17.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112922 | CLICK 32 | 11.0 - 20.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK black** | | | | | | | | |
| 53112923 | CLICK 12 | 4.5 - 7.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112882 | CLICK 16 | 5.0 - 9.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112883 | CLICK 20 | 7.0 - 13.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112884 | CLICK 25 | 9.0 - 17.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112924 | CLICK 32 | 11.0 - 20.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK-R light grey** | | | | | | | | |
| 53112925 | CLICK-R 12 | 3.5 - 5.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112689 | CLICK-R 16 | 4.0 - 7.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112690 | CLICK-R 20 | 5.0 - 10.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112691 | CLICK-R 25 | 6.0 - 13.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112926 | CLICK-R 32 | 7.0 - 15.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK-R silver grey** | | | | | | | | |
| 53112927 | CLICK-R 12 | 3.5 - 5.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112879 | CLICK-R 16 | 4.0 - 7.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112880 | CLICK-R 20 | 5.0 - 10.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112881 | CLICK-R 25 | 6.0 - 13.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112928 | CLICK-R 32 | 7.0 - 15.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK-R black** | | | | | | | | |
| 53112929 | CLICK-R 12 | 3.5 - 5.0 | 12.3 (-0.2) | 15.0 / 18.0 | 40.0 | 8 | 1.0 - 4.0 | 50 |
| 53112885 | CLICK-R 16 | 4.0 - 7.0 | 16.3 (-0.2) | 19.0 / 22.0 | 42.0 | 8 | 1.0 - 4.0 | 50 |
| 53112886 | CLICK-R 20 | 5.0 - 10.0 | 20.3 (-0.2) | 25.0 / 27.0 | 45.0 | 8 | 1.0 - 4.0 | 25 |
| 53112887 | CLICK-R 25 | 6.0 - 13.0 | 25.3 (-0.2) | 30.0 / 32.0 | 48.0 | 8 | 1.0 - 4.0 | 25 |
| 53112931 | CLICK-R 32 | 7.0 - 15.0 | 32.3 (-0.2) | 36.0 / 40.0 | 56.0 | 8 | 1.0 - 4.0 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® BS-M






## Benefits
- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

## Application range
- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Robotics industry
- Light and sound applications
- Moving machine parts

## Norm references / Approvals
- UL File Nr. E79903

## Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note
- Version with reducing insert to seal smaller cable cross-sections SKINTOP® BSR-M on request
- SKINTOP® BS M ISO versions with extra-long connection thread, see table, no DNV approval

## Suitable tools
- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**On request**
with reducing sealing ring

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Body: Polyamide
Seal: CR

**Protection rating**
IP 68 - 5 bar
NEMA Type 1, 12

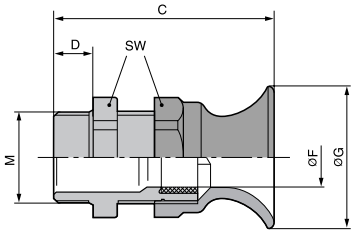
**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BS-M silver grey** | | | | | | |
| 53111600 | M 12 x 1,5 | 3,5-7 | 15 | 64.0 | 8 | 100 |
| 53111610 | M 16 x 1,5 | 4,5-10 | 19 | 86.0 | 8 | 100 |
| 53111620 | M 20 x 1,5 | 7-13 | 25 | 101.0 | 9 | 50 |
| 53111630 | M 25 x 1,5 | 9-17 | 30 | 125.0 | 10 | 25 |
| 53111640 | M 32 x 1,5 | 11-21 | 36 | 149.0 | 10 | 25 |
| **SKINTOP® BS-M black** | | | | | | |
| 53111700 | M 12 x 1,5 | 3,5-7 | 15 | 64.0 | 8 | 100 |
| 53111710 | M 16 x 1,5 | 4,5-10 | 19 | 86.0 | 8 | 100 |
| 53111720 | M 20 x 1,5 | 7-13 | 25 | 101.0 | 9 | 50 |
| 53111730 | M 25 x 1,5 | 9-17 | 30 | 125.0 | 10 | 25 |
| 53111740 | M 32 x 1,5 | 11-21 | 36 | 149.0 | 10 | 25 |
| **SKINTOP® BS-M light grey** | | | | | | |
| 53111800 | M 12 x 1,5 | 3,5-7 | 15 | 64.0 | 8 | 100 |
| 53111810 | M 16 x 1,5 | 4,5-10 | 19 | 86.0 | 8 | 100 |
| 53111820 | M 20 x 1,5 | 7-13 | 25 | 101.0 | 9 | 50 |
| 53111830 | M 25 x 1,5 | 9-17 | 30 | 125.0 | 10 | 25 |
| 53111840 | M 32 x 1,5 | 11-21 | 36 | 149.0 | 10 | 25 |
| **SKINTOP® BS M ISO silver-grey (with long metric connecting thread)** | | | | | | |
| 53017610 | M 16 x 1,5 ISO | 3,5-8 | 19 | 77.5 | 12 | 100 |
| 53017630 | M 20 x 1,5 ISO | 5-12 | 24 | 102.0 | 13 | 50 |
| 53017640 | M 25 x 1,5 ISO | 9-14 | 27 | 114.5 | 13 | 50 |
| **SKINTOP® BS M ISO black (with long metric connecting thread)** | | | | | | |
| 53017810 | M 16 x 1,5 ISO | 3,5-8 | 19 | 77.5 | 12 | 100 |
| 53017830 | M 20 x 1,5 ISO | 5-12 | 24 | 102.0 | 13 | 50 |
| 53017840 | M 25 x 1,5 ISO | 9-14 | 27 | 114.5 | 13 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® BT-M






## Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Apparatus construction
- Light and sound applications
- Moving machine parts

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Body: Polyamide
Seal: CR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-20°C to +100°C

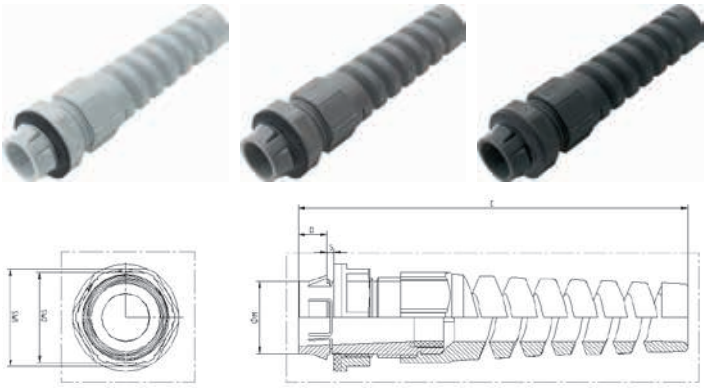
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BT-M** | | | | | | |
| 53017420 | M 16 x 1,5 | 3,5-8 | 19 | 45.0 | 12 | 100 |
| 53017430 | M 20 x 1,5 | 5-12 | 24 | 54.0 | 13 | 50 |
| 53017440 | M 25 x 1,5 | 9-14 | 27 | 57.0 | 13 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® CLICK BS

**Info**

- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.



## Benefits

- Reliable bending protection for cable conservation and functional reliability
- Save up to 70% of the time with the innovative CLICK system
- No thread required
- To protect flexible cables
- Fewer parts, counter nut no longer needed

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Robotics industry
- Moving machine parts
- Apparatus construction
- Light and sound applications

## Norm references / Approvals

- UL File Nr. E79903

## Included

- Included: disassembly tool

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Body: special polyamide
Seal: special elastomer

**Protection rating**
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

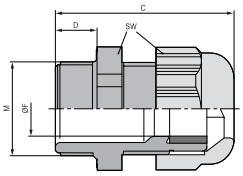
**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | M (hole in mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Wall thickness, S (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINTOP® CLICK BS light grey** | | | | | | | | |
| 53112932 | CLICK BS 12 | 3,5-7 | 12.3 (-0.2) | 18.0 / 15.0 | 74.0 | 8 | 1.0 - 4.0 | 50 |
| 53112888 | CLICK BS 16 | 5-9 | 16.3 (-0.2) | 22.0 / 19.0 | 94.0 | 8 | 1.0 - 4.0 | 50 |
| 53112889 | CLICK BS 20 | 7-13 | 20.3 (-0.2) | 27.0 / 25.0 | 108.0 | 8 | 1.0 - 4.0 | 25 |
| 53112890 | CLICK BS 25 | 9-17 | 25.3 (-0.2) | 32.0 / 30.0 | 127.0 | 8 | 1.0 - 4.0 | 25 |
| 53112933 | CLICK BS 32 | 11-20 | 32.3 (-0.2) | 40.0 / 36.0 | 156.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK BS silver grey** | | | | | | | | |
| 53112934 | CLICK BS 12 | 3,5-7 | 12.3 (-0.2) | 18.0 / 15.0 | 74.0 | 8 | 1.0 - 4.0 | 50 |
| 53112906 | CLICK BS 16 | 5-9 | 16.3 (-0.2) | 22.0 / 25.0 | 94.0 | 8 | 1.0 - 4.0 | 50 |
| 53112907 | CLICK BS 20 | 7-13 | 20.3 (-0.2) | 27.0 / 25.0 | 108.0 | 8 | 1.0 - 4.0 | 25 |
| 53112908 | CLICK BS 25 | 9-17 | 25.3 (-0.2) | 32.0 / 30.0 | 127.0 | 8 | 1.0 - 4.0 | 25 |
| 53112935 | CLICK BS 32 | 11-20 | 32.3 (-0.2) | 40.0 / 36.0 | 156.0 | 8 | 1.0 - 4.0 | 25 |
| **SKINTOP® CLICK BS black** | | | | | | | | |
| 53112936 | CLICK BS 12 | 3,5-7 | 12.3 (-0.2) | 18.0 / 15.0 | 74.0 | 8 | 1.0 - 4.0 | 50 |
| 53112909 | CLICK BS 16 | 5-9 | 16.3 (-0.2) | 22.0 / 19.0 | 94.0 | 8 | 1.0 - 4.0 | 50 |
| 53112911 | CLICK BS 20 | 7-13 | 20.3 (-0.2) | 27.0 / 25.0 | 108.0 | 8 | 1.0 - 4.0 | 25 |
| 53112912 | CLICK BS 25 | 9-17 | 25.3 (-0.2) | 32.0 / 30.0 | 127.0 | 8 | 1.0 - 4.0 | 25 |
| 53112937 | CLICK BS 32 | 11-20 | 32.3 (-0.2) | 40.0 / 36.0 | 156.0 | 8 | 1.0 - 4.0 | 25 |

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# SKINTOP® SOLAR / SKINTOP® SOLAR plus






**Info**

- Cable gland for photovoltaik applications, based on EN 62444, EN 50548 and UL 1703
- Extended temperature range

## Benefits

- UV and ozone-resistant
- UL 746 C - UL F1 outdoor use
- High strain relief
- Permanent vibration protection
- Extremely flame-retardant according to UL 94V-0 / 94-5VA

## Application range

- Photovoltaic plants

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable cables

- ÖLFLEX® SOLAR

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
**SKINTOP® SOLAR**
Body: Polycarbonate
Seal: CR
**SKINTOP® SOLAR plus**
Body: Polycarbonate
Seal: Silicone
O-Ring: Silicone

**Tests**
Cold impact test according to UL 1703/UL 746 C

**Protection rating**
IP 68 - 5 bar

**Temperature range**
**SKINTOP® SOLAR**
-40°C to +100°C
**SKINTOP® SOLAR plus**
-40°C to +125°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® SOLAR** | | | | | | |
| 53113300 | M 12 x 1,5 | 5,4-7 | 15 | 37.5 | 15 | 100 |
| 53113310 | M 16 x 1,5 | 7-9 | 19 | 34.0 | 8 | 100 |
| **SKINTOP® SOLAR plus** | | | | | | |
| 53113321 | M 12 x 1,5 | 5,4-7 | 15 | 37.5 | 15 | 100 |
| 53113331 | M 16 x 1,5 | 7-9 | 19 | 34.0 | 8 | 100 |

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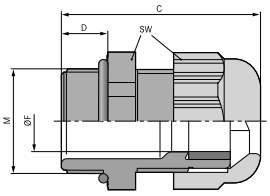
# SKINTOP® ST-HF-M

Halogen-free plastic cable gland

**Info**

- Cable gland for railway applications
- Hazard Level: HL 3






## Benefits

- Maximum reliability
- Extremely flame-retardant according to UL 94 V0
- Completely halogen-free (including sealing material)
- Self-extinguishing, no dripping
- Permanent vibration protection

## Application range

- Underground railways and trains
- When the protection of people and property is a priority
- Public buildings
- Ventilation systems
- Tunnel construction

## Norm references / Approvals

- DIN EN 45545-2 (HL3)
- Filament testing according to EN 60695-2-1/1 +960°C

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
RAL 7035 light grey
Black (RAL 9005), UV-resistant

**Material**
Body: polyamide
Sealing ring: special elastomer
O-ring: special elastomer

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® ST-HF-M light grey** | | | | | | |
| 53111407 | M 12 x 1,5 | 4-5,5 | 15 | 30.0 | 8 | 100 |
| 53111417 | M 16 x 1,5 | 4,5-9 | 19 | 34.0 | 8 | 100 |
| 53111427 | M 20 x 1,5 | 7-13 | 25 | 37.0 | 9 | 100 |
| 53111437 | M 25 x 1,5 | 9-17 | 30 | 40.0 | 10 | 50 |
| 53111447 | M 32 x 1,5 | 11-21 | 36 | 47.0 | 10 | 25 |
| 53111457 | M 40 x 1,5 | 19-28 | 46 | 52.0 | 10 | 10 |
| 53111467 | M 50 x 1,5 | 27-35 | 55 | 62.0 | 12 | 5 |
| 53111477 | M 63 x 1,5 | 34-45 | 66 | 71.0 | 12 | 5 |
| **SKINTOP® ST-HF-M black** | | | | | | |
| 53111408 | M 12 x 1,5 | 4-5,5 | 15 | 30.0 | 8 | 100 |
| 53111418 | M 16 x 1,5 | 4,5-9 | 19 | 34.0 | 8 | 100 |
| 53111422 | M 20 x 1,5 | 7-13 | 25 | 37.0 | 9 | 100 |
| 53111438 | M 25 x 1,5 | 9-17 | 30 | 40.0 | 10 | 50 |
| 53111448 | M 32 x 1,5 | 11-21 | 36 | 47.0 | 10 | 25 |
| 53111458 | M 40 x 1,5 | 19-28 | 46 | 52.0 | 10 | 10 |
| 53111468 | M 50 x 1,5 | 27-35 | 55 | 62.0 | 12 | 5 |
| 53111478 | M 63 x 1,5 | 34-45 | 66 | 70.0 | 12 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

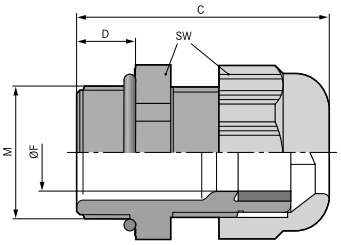
# SKINTOP® K-M ATEX plus / SKINTOP® KR-M ATEX plus



SKINTOP® K-M ATEX plus



SKINTOP® KR-M ATEX plus




## Benefits

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

## Application range

**SKINTOP® K-M ATEX plus**

- Devices, machines and apparatus of enhanced safety protection type “e”, dust ignition proof “t”
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

**SKINTOP® KR-M ATEX plus**

- With reducing seal insert, to seal cables with smaller outer diameters

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0027X

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Body: special polyamide
Seal: special elastomer
O-ring: CR

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Clamping range ØF mm | Thread M | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® K-M ATEX plus** | | | | | | | |
| 54115200 | K-M 12 ATEX plus | 3-5,5 | 12 x 1.5 | 15 | 30 | 8 | 50 |
| 54115210 | K-M 16 ATEX plus | 7-9 | 16 x 1.5 | 19 | 34 | 8 | 50 |
| 54115220 | K-M 20 ATEX plus | 7-13 | 20 x 1.5 | 25 | 38 | 9 | 50 |
| 54115230 | K-M 25 ATEX plus | 11-17 | 25 x 1.5 | 30 | 40 | 10 | 25 |
| 54115240 | K-M 32 ATEX plus | 12-21 | 32 x 1.5 | 36 | 47 | 10 | 25 |
| 54115250 | K-M 40 ATEX plus | 19-28 | 40 x 1.5 | 46 | 52 | 10 | 10 |
| 54115260 | K-M 50 ATEX plus | 27-35 | 50 x 1.5 | 55 | 62 | 12 | 5 |
| 54115270 | K-M 63 ATEX plus | 37-45 | 63 x 1.5 | 66 | 71 | 12 | 5 |
| **SKINTOP® KR-M ATEX plus** | | | | | | | |
| 54115205 | KR-M 12 ATEX plus | 2-4 | 12 x 1.5 | 15 | 30 | 8 | 50 |
| 54115215 | KR-M 16 ATEX plus | 4-6 | 16 x 1.5 | 19 | 34 | 8 | 50 |
| 54115225 | KR-M 20 ATEX plus | 5-10 | 20 x 1.5 | 25 | 38 | 9 | 50 |
| 54115235 | KR-M 25 ATEX plus | 6-13 | 25 x 1.5 | 30 | 40 | 10 | 25 |
| 54115245 | KR-M 32 ATEX plus | 9-15 | 32 x 1.5 | 36 | 47 | 10 | 25 |
| 54115255 | KR-M 40 ATEX plus | 16-23 | 40 x 1.5 | 46 | 52 | 10 | 10 |
| 54115265 | KR-M 50 ATEX plus | 22-29 | 50 x 1.5 | 55 | 62 | 12 | 5 |
| 54115275 | KR-M 63 ATEX plus | 29-39 | 63 x 1.5 | 66 | 71 | 12 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

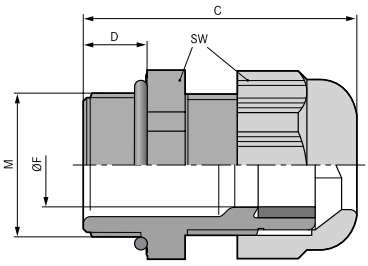
# SKINTOP® K-M ATEX plus blue / SKINTOP® KR-M ATEX plus blue



SKINTOP® K-M ATEX plus blue



SKINTOP® KR-M ATEX plus blue




## Benefits

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

## Application range

**SKINTOP® K-M ATEX plus blue**

- Intrinsically safe circuits (class “i”) as well as in housings and devices that require class “e” safety.
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

**SKINTOP® KR-M ATEX plus blue**

- With reducing seal insert, to seal cables with smaller outer diameters

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0027X

**Colour delivered**
Blue (RAL 5015)

**Material**
Body: special polyamide
Seal: special elastomer
O-ring: CR

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

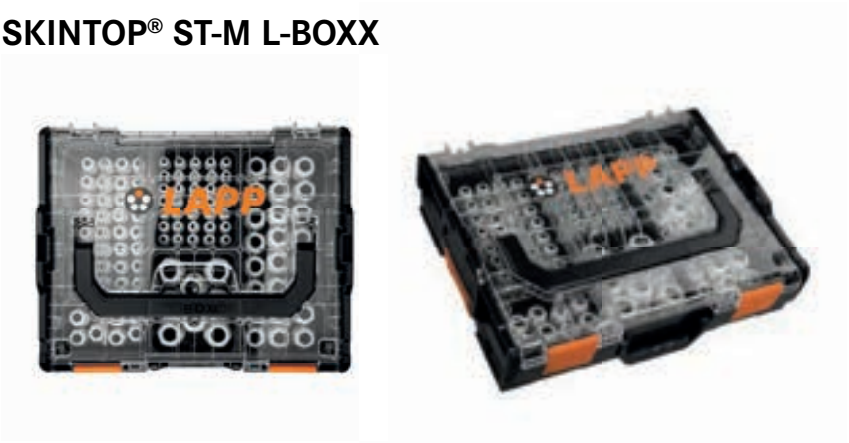
**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Clamping range ØF mm | Thread M | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® K-M ATEX plus blue** | | | | | | | |
| 54115400 | K-M 12 ATEX plus blue | 3-5,5 | 12 x 1.5 | 15 | 30 | 8 | 50 |
| 54115410 | K-M 16 ATEX plus blue | 7-9 | 16 x 1.5 | 19 | 34 | 8 | 50 |
| 54115420 | K-M 20 ATEX plus blue | 7-13 | 20 x 1.5 | 25 | 38 | 9 | 50 |
| 54115430 | K-M 25 ATEX plus blue | 11-17 | 25 x 1.5 | 30 | 40 | 10 | 25 |
| 54115440 | K-M 32 ATEX plus blue | 12-21 | 32 x 1.5 | 36 | 47 | 10 | 25 |
| 54115450 | K-M 40 ATEX plus blue | 19-28 | 40 x 1.5 | 46 | 52 | 10 | 10 |
| 54115460 | K-M 50 ATEX plus blue | 27-35 | 50 x 1.5 | 55 | 62 | 12 | 5 |
| 54115470 | K-M 63 ATEX plus blue | 37-45 | 63 x 1.5 | 66 | 71 | 12 | 5 |
| **SKINTOP® KR-M ATEX plus blue** | | | | | | | |
| 54115405 | KR-M 12 ATEX plus blue | 2-4 | 12 x 1.5 | 15 | 30 | 8 | 50 |
| 54115415 | KR-M 16 ATEX plus blue | 4-6 | 16 x 1.5 | 19 | 34 | 8 | 50 |
| 54115425 | KR-M 20 ATEX plus blue | 5-10 | 20 x 1.5 | 25 | 38 | 9 | 50 |
| 54115435 | KR-M 25 ATEX plus blue | 6-13 | 25 x 1.5 | 30 | 40 | 10 | 25 |
| 54115445 | KR-M 32 ATEX plus blue | 9-15 | 32 x 1.5 | 36 | 47 | 10 | 25 |
| 54115455 | KR-M 40 ATEX plus blue | 16-23 | 40 x 1.5 | 46 | 52 | 10 | 10 |
| 54115465 | KR-M 50 ATEX plus blue | 22-29 | 50 x 1.5 | 55 | 62 | 12 | 5 |
| 54115475 | KR-M 63 ATEX plus blue | 29-39 | 63 x 1.5 | 66 | 71 | 12 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINTOP® ST-M L-BOXX



### Benefits

- Inset for loose components ensures optimum organisation and prevents mixing of the items
- Case made of light and robust, shock- and impact-resistant ABS plastic
- Intelligent snap system allows quick connection, combination and disconnection of cases, saving time and energy during transport
- Easy integration in vehicle equipment systems of numerous manufacturers
- Transparent lid allows a perfect overview even when closed

### Application range

- For safe transport and storage of SKINTOP® ST-M cable glands (sizes M12 to M32)
- Especially for assembly use, e.g. on the construction site

### Product Make-up

- Two robust locking mechanisms ensure a secure closure
- Case can be refilled with standard packaging units
- Mounting instruction and dismounting tool included

| Article number | Article designation / size | Colour |
|---|---|---|
| **SKINTOP® ST-M L-BOXX** | | |
| 53110050 | SKINTOP® ST-M M12/50 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | SGY |
| 53110051 | SKINTOP® ST-M M12/50 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | LGY |
| 53110052 | SKINTOP® ST-M M12/50 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | BK |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® CLICK L-BOXX



## Benefits

- Inset for loose components ensures optimum organisation and prevents mixing of the items
- Case made of light and robust, shock- and impact-resistant ABS plastic
- Intelligent snap system allows quick connection, combination and disconnection of cases, saving time and energy during transport
- Easy integration in vehicle equipment systems of numerous manufacturers
- Transparent lid allows a perfect overview even when closed

## Application range

- For safe transport and storage of SKINTOP® CLICK cable glands (sizes M12 to M32)
- Especially for assembly use, e.g. on the construction site

## Product Make-up

- Two robust locking mechanisms ensure a secure closure
- Case can be refilled with standard packaging units
- Mounting instruction and dismounting tool included

| Article number | Article designation / size | Colour |
|---|---|---|
| **SKINTOP® CLICK L-BOXX** | | |
| 53110053 | SKINTOP® CLICK M12/25 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | SGY |
| 53110054 | SKINTOP® CLICK M12/25 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | LGY |
| 53110055 | SKINTOP® CLICK M12/25 pcs + M16/50 pcs + M20/25 pcs + M25/25 pcs + M32/5 pcs + disassembly tool | BK |

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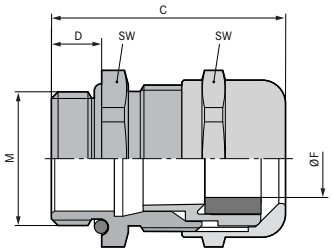
# SKINTOP® MS-M / SKINTOP® MSR-M



SKINTOP® MS-M



SKINTOP® MSR-M




## Info

- SKINTOP® MS-M sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters
- With IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!
- For item names with the addition "PLUS„, the clamping range corresponds to the next higher thread size. The extended clamping range allows cables with larger diameters to be inserted with the same connection thread

## Benefits

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

**SKINTOP® MS-M**

- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

**SKINTOP® MSR-M**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-M** | | | | | | |
| 53112000 | M 12 x 1,5 | 3.5 - 7.0 | 16 | 26.5 | 6,5 | 100 |
| 53112010 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 33.0 | 7 | 100 |
| 53112020 | M 20 x 1,5 | 7 - 13.0 | 24 | 37.0 | 8 | 50 |
| 53112030 | M 25 x 1,5 | 9 - 17.0 | 29 | 38.5 | 8 | 25 |
| 53112040 | M 32 x 1,5 | 11 - 21.0 | 36 | 45.5 | 9 | 25 |
| 53112116 | M 32 x 1,5 PLUS | 19 - 28.0 | 45 | 48.0 | 9 | 10 |
| 53112050 | M 40 x 1,5 | 19 - 28.0 | 45 | 48.0 | 9 | 10 |
| 53112083 | M 40 x 1,5 PLUS | 27 - 35.0 | 54 | 55.5 | 15 | 5 |
| 53112060 | M 50 x 1,5 | 27 - 35.0 | 54 | 55.5 | 10 | 5 |
| 53112070 | M 63 x 1,5 | 34 - 45.0 | 67 | 67.0 | 15 | 5 |
| 53112080 | M 63 x 1,5 PLUS | 44 - 55.0 | 75 | 65.5 | 15 | 5 |
| 53112510 | M 75 x 1,5 | 58 - 68.0 | 95 | 105.0 | 15 | 1 |
| 53112512 | M 90 x 2 | 66 - 78.0 | 115 | 135.5 | 20 | 1 |
| 53112514 | M 110 x 2 | 86 - 98.0 | 135 | 154.0 | 25 | 1 |
| **SKINTOP® MSR-M** | | | | | | |
| 53112100 | M 12 x 1,5 | 2 - 5.0 | 16 | 26.5 | 6,5 | 100 |
| 53112110 | M 16 x 1,5 | 2 - 7.0 | 20 | 33.0 | 7 | 100 |
| 53112120 | M 20 x 1,5 | 5 - 10.0 | 24 | 37.0 | 8 | 50 |
| 53112130 | M 25 x 1,5 | 6 - 13.0 | 29 | 38.5 | 8 | 25 |
| 53112140 | M 32 x 1,5 | 7 - 15.0 | 36 | 45.5 | 9 | 25 |
| 53112150 | M 40 x 1,5 | 15 - 23.0 | 45 | 48.0 | 9 | 10 |
| 53112160 | M 50 x 1,5 | 22 - 29.0 | 54 | 55.5 | 10 | 5 |
| 53112170 | M 63 x 1,5 | 28 - 39.0 | 67 | 61.3 | 15 | 5 |
| 53112511 | M 75 x 1,5 | 53 - 63.0 | 95 | 105.0 | 15 | 1 |
| 53112515 | M 110 x 2 | 76 - 88.0 | 135 | 154.0 | 25 | 1 |

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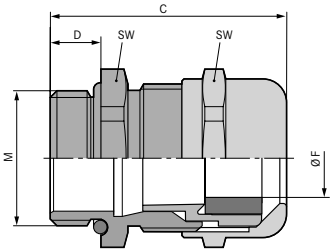
# SKINTOP® MS-M LF

**Info**

- Item numbers ending with “LF” are lead-free product alternatives with otherwise identical product properties. “Lead-free” items do not include lead, which is currently permitted to account for up to four per cent in copper alloys, but could in future be banned in accordance with the RoHS directive.
- With IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!



**SKINTOP® MS-M LF**




## Benefits

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

**SKINTOP® MS-M**

- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

**SKINTOP® MSR-M**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: Lead free Brass, nickel-plated
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
IP 69
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-M LF** | | | | | | |
| 53112000LF | M 12 x 1,5 | 3.5 - 7.0 | 16 | 26.5 | 6,5 | 100 |
| 53112010LF | M 16 x 1,5 | 4.5 - 10.0 | 20 | 33.0 | 7 | 100 |
| 53112020LF | M 20 x 1,5 | 7 - 13.0 | 24 | 37.0 | 8 | 50 |
| 53112030LF | M 25 x 1,5 | 9 - 17.0 | 29 | 38.5 | 8 | 25 |
| 53112040LF | M 32 x 1,5 | 11 - 21.0 | 36 | 45.5 | 9 | 25 |
| 53112050LF | M 40 x 1,5 | 19 - 28.0 | 45 | 48.0 | 9 | 10 |
| 53112060LF | M 50 x 1,5 | 27 - 35.0 | 54 | 55.5 | 10 | 5 |
| 53112070LF | M 63 x 1,5 | 34 - 45.0 | 67 | 67.0 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.


ROHS
7 x 0,25
LAPP KABEL STUTTGART

# SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL

**Info**

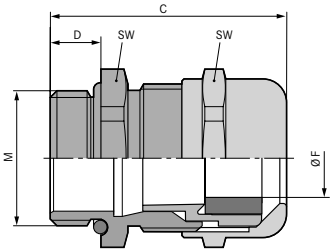
- With IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!



SKINTOP® MS-M-XL



SKINTOP® MSR-M-XL




## Benefits

- Especially for thick walls
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

**SKINTOP® MS-M-XL**

- With long connection thread for applications involving a thicker wall
- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing

**SKINTOP® MSR-M-XL**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
IP 69
NEMA Type 1, 4x, 6, 12

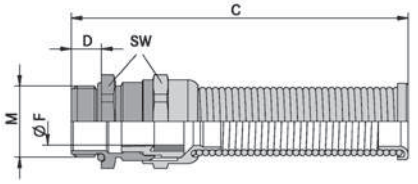
**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-M-XL** | | | | | | |
| 53112005 | M 12 x 1,5 | 3.5 - 7.0 | 16 | 32.0 | 12 | 100 |
| 53112015 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 38.0 | 12 | 50 |
| 53112025 | M 20 x 1,5 | 7 - 13.0 | 24 | 41.0 | 12 | 50 |
| 53112035 | M 25 x 1,5 | 9 - 17.0 | 29 | 42.5 | 12 | 25 |
| 53112045 | M 32 x 1,5 | 11 - 21.0 | 36 | 51.5 | 15 | 25 |
| 53112055 | M 40 x 1,5 | 19 - 28.0 | 45 | 54.5 | 15 | 10 |
| 53112065 | M 50 x 1,5 | 27 - 35.0 | 54 | 60.5 | 15 | 5 |
| **SKINTOP® MSR-M-XL** | | | | | | |
| 53112105 | M 12 x 1,5 | 2 - 5.0 | 16 | 32.0 | 12 | 100 |
| 53112115 | M 16 x 1,5 | 2 - 7.0 | 20 | 38.0 | 12 | 50 |
| 53112125 | M 20 x 1,5 | 5 - 10.0 | 24 | 41.0 | 12 | 50 |
| 53112135 | M 25 x 1,5 | 6 - 13.0 | 29 | 42.5 | 12 | 25 |
| 53112145 | M 32 x 1,5 | 7 - 15.0 | 36 | 51.5 | 15 | 25 |
| 53112155 | M 40 x 1,5 | 15 - 23.0 | 45 | 54.5 | 15 | 10 |
| 53112165 | M 50 x 1,5 | 22 - 29.0 | 54 | 60.5 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL






**Info**

- Permanent bending protection under high mechanical stress

## Benefits

- High mechanical stability
- Long service life
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

## Application range

- In areas where mechanical stability are critical
- Portable equipment
- Building sites
- Machine and equipment manufacturing
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

## Norm references / Approvals

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- M32 x 1,5 on request

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR
Spiral - springs made of stainless steel

**Protection rating**
IP 68 - 10 bar
IP 69

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

| Article number | Article designation / size | Ø F mm | Thread length D mm | SW wrench size mm | Overall length C mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BS-M METAL** | | | | | | |
| 53806759 | M 12 x 1,5 | 3.5 - 7.0 | 6.5 | 16 | 65.0 | 25 |
| 53806760 | M 16 x 1,5 | 4.5 - 10.0 | 7 | 20 | 79.0 | 25 |
| 53806761 | M 20 x 1,5 | 7 - 13.0 | 8.5 | 24 | 95.0 | 25 |
| 53806762 | M 25 x 1,5 | 9 - 17.0 | 8 | 29 | 109.0 | 25 |
| **SKINTOP® BSR-M METAL** | | | | | | |
| 53806769 | M 12 x 1,5 | 1 - 5.0 | 6.5 | 16 | 65.0 | 25 |
| 53806770 | M 16 x 1,5 | 2 - 7.0 | 7 | 20 | 79.0 | 25 |
| 53806771 | M 20 x 1,5 | 5 - 10.0 | 8.5 | 24 | 95.0 | 25 |
| 53806772 | M 25 x 1,5 | 6 - 13.0 | 8 | 29 | 109.0 | 25 |

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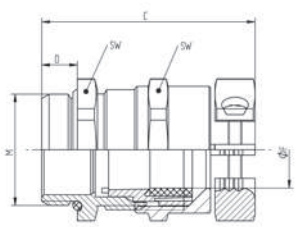
# SKINTOP® GRIP-M / SKINTOP® GRIP-M-XL

**Info**

- New: now also available with long connection thread








## Benefits

- Protection against kinking and rip out of cables
- High strain relief
- For high mechanical stress
- Reliable bending and anti-kink protection

## Application range

- Saddle clamp strain relief gland for harsh application conditions
- Portable equipment
- Machines and systems on building sites
- Crane and conveying machinery
- Charging infrastructure for EV´s

## Norm references / Approvals

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444
- Tested according to IEC 62196-1: Conductive charging of electric vehicles

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
IP 69

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

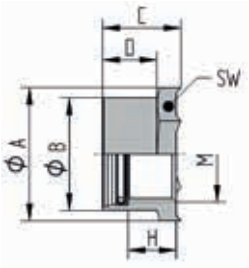
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® GRIP-M** | | | | | | |
| 53113180 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 41.0 | 7 | 25 |
| 53113200 | M 20 x 1,5 | 7 - 13.0 | 24 | 46.0 | 8.5 | 25 |
| 53113210 | M 25 x 1,5 | 9 - 17.0 | 29 | 48.5 | 8 | 25 |
| 53113220 | M 32 x 1,5 | 11 - 21.0 | 36 | 56.6 | 9 | 25 |
| **SKINTOP® GRIP-M-XL** | | | | | | |
| 53113185 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 46.0 | 12 | 25 |
| 53113205 | M 20 x 1,5 | 7 - 13.0 | 24 | 49.5 | 12 | 25 |
| 53113215 | M 25 x 1,5 | 9 - 17.0 | 29 | 52.5 | 12 | 25 |
| 53113225 | M 32 x 1,5 | 11 - 21.0 | 36 | 62.6 | 15 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® BRUSH ADD-ON








## Benefits

- Optimum, low-resistance 360° screen contact
- Cutting edges cut through the insulating layer of the housing or switch cabinets, thus guaranteeing an optimum EMC contact
- Easy disassembling
- Visible, large-scale screen contact
- Uncomplicated and reliable

## Application range

- For EMC-compliant earthing of the copper braiding
- For EMC-contact at through bore-holes
- Control cabinet manufacturing
- Automation systems
- Conveyor and transport systems

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Info

- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques
Apply SKINTOP® ST-M torques

**Certifications**
UL pending

**Material**
Body: nickel-plated brass
EMC brush: brass

**Temperature range**
Dynamic: -20°C to +100°C
Depending on the combination of the used cable gland

| Article number | Article designation / size | Minimum Ø above braiding (mm) | SW wrench size mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINTOP® BRUSH ADD-ON** | | | | | |
| 54110839 | M 12 x 1,5 | 4 | 24 | 10 | 25 |
| 54110840 | M 16 x 1,5 | 4 | 24 | 10 | 25 |
| 54110841 | M 20 x 1,5 | 4 | 24 | 10 | 10 |
| 54110842 | M 25 x 1,5 | 5 | 30 | 10 | 10 |
| 54110843 | M 32 x 1,5 | 6 | 39 | 12 | 10 |
| 54110844 | M 40 x 1,5 | 10 | 47 | 12 | 5 |
| 54110845 | M 50 x 1,5 | 12 | 56 | 12 | 5 |
| 54110846 | M 63 x 1,5 | 16 | 66 | 12 | 5 |

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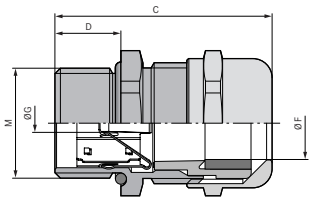


# SKINTOP® MS-SC-M

**Info**

- Item numbers ending with “LF” are lead-free product alternatives with otherwise identical product properties. “Lead-free” items do not include lead, which is currently permitted to account for up to four per cent in copper alloys, but could in future be banned in accordance with the RoHS directive






## Benefits

- Low-resistance screen contact, optimum EMC protection
- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

## Application range

- For EMC-compliant earthing of the copper braiding
- Telecommunication
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Note**
In stainless steel V2A available

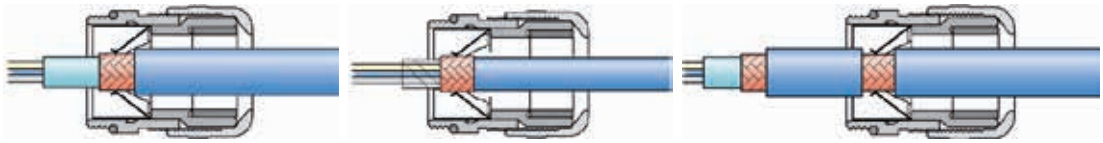
**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

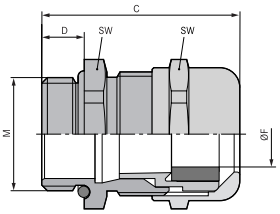
| Article number | Article designation / size | Outer Ø (mm), from - to | Minimum Ø above braiding (mm) | SW wrench size mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-SC-M** | | | | | | |
| 53112610 | M 12 x 1,5 | 3.5 - 7.0 | 1 | 16 | 6.5 | 50 |
| 53112620 | M 16 x 1,5 | 4.5 - 10.0 | 4 | 20 | 7 | 50 |
| 53112630 | M 20 x 1,5 | 7.0 - 13.0 | 5 | 24 | 8 | 25 |
| 53112640 | M 25 x 1,5 | 9.0 - 17.0 | 7.5 | 29 | 8 | 25 |
| 53112650 | M 32 x 1,5 | 11.0 - 21.0 | 9 | 36 | 9 | 25 |
| 53112660 | M 40 x 1,5 | 19.0 - 28.0 | 15 | 45 | 9 | 10 |
| 53112670 | M 50 x 1,5 | 27.0 - 35.0 | 21 | 54 | 10 | 5 |
| **SKINTOP® MS-SC-M-XL** | | | | | | |
| 53112625 | M 16 x 1,5 | 4.5 - 10.0 | 4 | 20 | 12 | 50 |
| 53112635 | M 20 x 1,5 | 7.0 - 13.0 | 5 | 24 | 12 | 25 |
| 53112645 | M 25 x 1,5 | 9.0 - 17.0 | 7.5 | 29 | 12 | 25 |
| 53112655 | M 32 x 1,5 | 11.0 - 21.0 | 9 | 36 | 15 | 25 |
| 53112665 | M 40 x 1,5 | 19.0 - 28.0 | 15 | 45 | 15 | 10 |
| 53112675 | M 50 x 1,5 | 27.0 - 35.0 | 21 | 54 | 15 | 5 |
| **SKINTOP® MS-SC-M LF** | | | | | | |
| 53112610LF | M 12 x 1,5 | 3.5 - 7.0 | 1 | 16 | 6.5 | 50 |
| 53112620LF | M 16 x 1,5 | 4.5 - 10.0 | 4 | 20 | 7 | 50 |
| 53112630LF | M 20 x 1,5 | 7.0 - 13.0 | 5 | 24 | 8 | 25 |
| 53112640LF | M 25 x 1,5 | 9.0 - 17.0 | 7.5 | 29 | 8 | 25 |
| 53112650LF | M 32 x 1,5 | 11.0 - 21.0 | 9 | 36 | 9 | 25 |
| 53112660LF | M 40 x 1,5 | 19.0 - 28.0 | 15 | 45 | 9 | 10 |
| 53112670LF | M 50 x 1,5 | 27.0 - 35.0 | 21 | 54 | 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINTOP® MS-M BRUSH / SKINTOP® MS-M BRUSH XL








## Benefits

- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

## Application range

- For EMC-compliant earthing of the copper braiding
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Info

- NEW: Now also available in size M16x1.5
- SKINTOP® MS-M sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide
EMC brush: brass wire
Sealing ring: elastomer
O-ring: elastomer

**Protection rating**
IP 68 - 10 bar (M12 - M110)
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Outer Ø (mm), from - to | Minimum Ø above braiding (mm) | SW wrench size mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-M BRUSH** | | | | | | |
| 53112506 | M 16 x 1,5 | 4.5 - 10 | 2 | 20 | 7 | 25 |
| 53112507 | M 20 x 1,5 | 7.0 - 13.0 | 3 | 24 | 8 | 25 |
| 53112676 | M 25 x 1,5 | 9.0 - 17.0 | 6 | 29 | 8 | 10 |
| 53112677 | M 32 x 1,5 | 11.0 - 21.0 | 8 | 36 | 9 | 5 |
| 53112678 | M 40 x 1,5 | 19.0 - 28.0 | 10 | 45 | 9 | 5 |
| 53112679 | M 50 x 1,5 | 27.0 - 35.0 | 14 | 54 | 10 | 5 |
| 53112680 | M 63 x 1,5 | 34.0 - 45.0 | 20 | 67 | 15 | 1 |
| 53112681 | M 63 x 1,5 PLUS | 44.0 - 55.0 | 25 | 75 | 15 | 1 |
| 53112501 | M 75 x 1,5 | 53.0 - 63.0 | 25 | 95 | 15 | 1 |
| 53112500 | M 75 x 1,5 PLUS | 58.0 - 68.0 | 25 | 95 | 15 | 1 |
| 53112503 | M 90 x 2 | 66.0 - 78.0 | 40 | 115 | 20 | 1 |
| 53112505 | M 110 x 2 | 76.0 - 88.0 | 50 | 135 | 25 | 1 |
| 53112504 | M 110 x 2 PLUS | 86.0 - 98.0 | 50 | 135 | 25 | 1 |
| **SKINTOP® MS-M BRUSH XL** | | | | | | |
| 53112516 | M 16 x 1,5 | 4.5 - 10 | 2 | 20 | 12 | 25 |
| 53112527 | M 20 x 1,5 | 7.0 - 13.0 | 3 | 24 | 12 | 25 |
| 53113727 | M 25 x 1,5 | 9.0 - 17.0 | 6 | 29 | 12 | 10 |
| 53113728 | M 32 x 1,5 | 11.0 - 21.0 | 8 | 36 | 15 | 5 |
| 53113729 | M 40 x 1,5 | 19.0 - 28.0 | 10 | 45 | 15 | 5 |
| 53112673 | M 50 x 1,5 | 27.0 - 35.0 | 14 | 54 | 15 | 5 |

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# SKINTOP® BS-SC-M METAL / SKINTOP® BSR-SC-M METAL



**Info**

- Permanent bending protection under high mechanical stress

## Benefits

- High mechanical stability
- Long service life
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability
- Otimum EMC protection thanks to integrated, highly conductive and flexible contact spring, which creates a low-resistance transition between the copper braided screening and the gland

## Application range

- In areas where mechanical stability are critical
- Portable equipment
- Building sites
- Machine and equipment manufacturing
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

## Norm references / Approvals

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR
Spiral - springs made of stainless steel

**Protection rating**
IP 68 - 10 bar
IP 69

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

| Article number | Article designation / size | Outer Ø (mm), from - to | Minimum Ø above braiding (mm) | Thread length D mm | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BS-SC-M METAL** | | | | | | |
| 53806825 | M 12 x 1,5 | 3.5 - 7.0 | 1 | 16 | 6.5 | 25 |
| 53806826 | M 16 x 1,5 | 4.5 - 10.0 | 4 | 20 | 7 | 25 |
| 53806827 | M 20 x 1,5 | 7.0 - 13.0 | 5 | 24 | 8 | 25 |
| 53806828 | M 25 x 1,5 | 9.0 - 17.0 | 7.5 | 29 | 8 | 25 |
| **SKINTOP® BSR-SC-M METAL** | | | | | | |
| 53806829 | M 12 x 1,5 | 2.0 - 5.0 | 1 | 16 | 6.5 | 25 |
| 53806830 | M 16 x 1,5 | 2.0 - 7.0 | 4 | 20 | 7 | 25 |
| 53806831 | M 20 x 1,5 | 5.0 - 10.0 | 5 | 24 | 8 | 25 |
| 53806832 | M 25 x 1,5 | 6.0 - 13.0 | 7.5 | 29 | 8 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINTOP® COLD / SKINTOP® COLD-R

**Info**

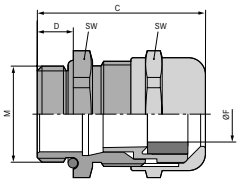
- For extreme sub-zero temperatures



SKINTOP® COLD



SKINTOP® COLD-R




## Benefits

- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

**SKINTOP® COLD**

- In areas where mechanical stability and high cold-resistance are critical
- Air-conditioning technology
- Freezing plants, cold storage
- Offshore sector
- Plant engineering

**SKINTOP® COLD-R**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: special polyamide
Sealing ring: silicone
O-ring: silicone

**Protection rating**
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M63)
NEMA Type 1, 2, 4x, 6, 12

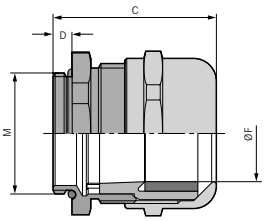
**Temperature range**
-70°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® COLD** | | | | | | |
| 53113500 | M 12 x 1,5 | 3,5-7 | 16 | 26.5 | 6.5 | 100 |
| 53113510 | M 16 x 1,5 | 4,5-10 | 20 | 33.0 | 7 | 100 |
| 53113520 | M 20 x 1,5 | 7-13 | 24 | 37.0 | 8.5 | 50 |
| 53113530 | M 25 x 1,5 | 9-17 | 29 | 38.5 | 8 | 25 |
| 53113540 | M 32 x 1,5 | 11-21 | 36 | 45.5 | 9 | 25 |
| 53113550 | M 40 x 1,5 | 19-28 | 45 | 48.0 | 9 | 10 |
| 53113560 | M 50 x 1,5 | 27-35 | 54 | 55.5 | 10 | 5 |
| 53113570 | M 63 x 1,5 | 34-45 | 67 | 67.0 | 15 | 5 |
| **SKINTOP® COLD-R** | | | | | | |
| 53113600 | M 12 x 1,5 | 1-5 | 16 | 26.5 | 6.5 | 100 |
| 53113610 | M 16 x 1,5 | 2-7 | 20 | 33.0 | 7 | 100 |
| 53113620 | M 20 x 1,5 | 5-10 | 24 | 37.0 | 8.5 | 50 |
| 53113630 | M 25 x 1,5 | 6-13 | 29 | 38.5 | 8 | 25 |
| 53113640 | M 32 x 1,5 | 7-15 | 36 | 45.5 | 9 | 25 |
| 53113650 | M 40 x 1,5 | 15-23 | 45 | 48.0 | 9 | 10 |
| 53113660 | M 50 x 1,5 | 22-29 | 54 | 55.5 | 10 | 5 |
| 53113670 | M 63 x 1,5 | 28-39 | 67 | 67.0 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-IS-M






## Benefits

- Short connection thread for more space inside the industrial connectors
- Wide, variable clamping ranges
- Optimum strain relief

## Application range

- Specially designed for use on industrial connectors

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Included

- Rectangular connector is not included, just the cable gland

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-IS-M** | | | | | | |
| 53112780 | M 25 x 1,5 | 11-18 | 30 | 37.0 | 5 | 25 |
| 53112790 | M 32 x 1,5 | 16-25 | 40 | 43.0 | 5 | 25 |

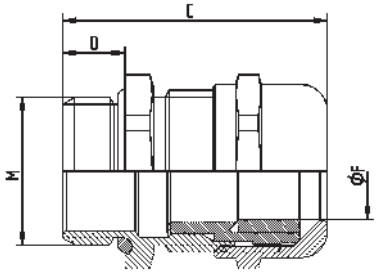
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-HF-M

**Info**

- Cable gland for railway applications
- Hazard Level: HL 3






## Benefits

- Halogen-free and flame-retardant
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

## Application range

- Underground railways and trains
- In areas where mechanical and chemical stability are critical
- When the protection of people and property is a priority

## Norm references / Approvals

- DIN EN 45545-2 (HL3)
- DIN EN 45545-3 (E30)

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: halogenfree polyamide acc. to UL 94 V0
Sealing: special elastomere
O-ring: special elastomere

**Protection rating**
IP 68 - 5 bar

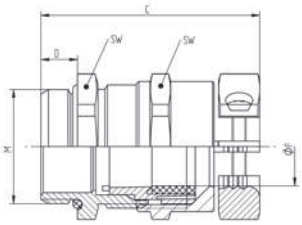
**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-HF-M** | | | | | | |
| 53112570 | M 12 x 1,5 | 3,5-7 | 16 | 26.5 | 6.5 | 100 |
| 53112571 | M 16 x 1,5 | 4,5-10 | 20 | 33.0 | 7 | 100 |
| 53112572 | M 20 x 1,5 | 7-13 | 24 | 37.0 | 8 | 50 |
| 53112573 | M 25 x 1,5 | 9-17 | 29 | 38.5 | 8 | 25 |
| 53112574 | M 32 x 1,5 | 11-21 | 36 | 45.5 | 9 | 25 |
| 53112575 | M 40 x 1,5 | 19-28 | 45 | 48.0 | 9 | 10 |
| 53112576 | M 50 x 1,5 | 27-35 | 54 | 55.5 | 10 | 5 |
| 53112577 | M 63 x 1,5 | 34-45 | 67 | 67.0 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-HF-M GRIP





## Info

- Cable gland for railway applications
- Hazard Level: HL 3

## Benefits

- Halogen-free and flame-retardant
- Reliable bending and anti-kink protection
- High strain relief
- For high mechanical stress

## Application range

- Saddle clamp strain relief gland for harsh application conditions
- Portable equipment
- Machines and systems on building sites
- Crane and conveying machinery
- Plant engineering

## Norm references / Approvals

- DIN EN 45545-2 (HL3)
- DIN EN 45545-3 (E30)

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Material**
Body: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing: special elastomer
O-ring: special elastomer

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

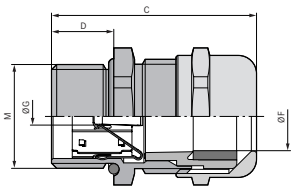
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-HF-M GRIP** | | | | | | |
| 53112551 | M 16 x 1,5 | 4,5-10 | 20 | 41.0 | 7 | 25 |
| 53112552 | M 20 x 1,5 | 7-13 | 24 | 46.0 | 8.5 | 25 |
| 53112553 | M 25 x 1,5 | 9-17 | 29 | 48.5 | 8 | 25 |
| 53112554 | M 32 x 1,5 | 11-21 | 36 | 56.6 | 9 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-HF-M SC

**Info**

- Cable gland for railway applications
- Hazard Level: HL 3






## Benefits

- Halogen-free and flame-retardant
- Suitable for cables with and without inner sheath
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

## Application range

- Underground railways and trains
- For EMC-compliant earthing of the copper braiding
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

## Norm references / Approvals

- DIN EN 45545-2 (HL3)
- DIN EN 45545-3 (E30)

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

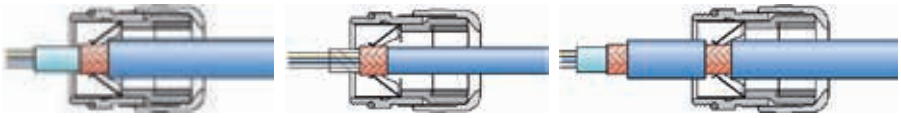
**Material**
Body: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing: special elastomer
O-ring: special elastomer

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

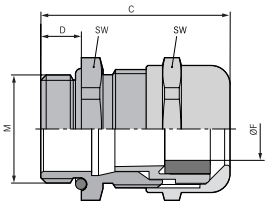
| Article number | Article designation / size | Ø F mm | Minimum Ø above braiding (mm) | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® MS-HF-M SC** | | | | | | | |
| 53112530 | M 12 x 1,5 | 3,5-7 | 1 | 16 | 26.5 | 6.5 | 50 |
| 53112531 | M 16 x 1,5 | 4,5-10 | 4 | 20 | 33.0 | 7 | 50 |
| 53112532 | M 20 x 1,5 | 7-13 | 5 | 24 | 37.0 | 8.5 | 25 |
| 53112533 | M 25 x 1,5 | 9-17 | 7.5 | 29 | 38.5 | 8 | 25 |
| 53112534 | M 32 x 1,5 | 11-21 | 9 | 36 | 45.5 | 9 | 25 |
| 53112535 | M 40 x 1,5 | 19-28 | 15 | 45 | 48.0 | 9 | 10 |
| 53112536 | M 50 x 1,5 | 27-35 | 21 | 54 | 55.5 | 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINTOP® MS-HF-M BRUSH






**Info**

- Cable gland for railway applications
- Hazard Level: HL 3

## Benefits

- Halogen-free and flame-retardant
- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Maximum reliability
- Maximum assembly freedom during adjustment

## Application range

- Underground railways and trains
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

## Norm references / Approvals

- DIN EN 45545-2 (HL3)
- DIN EN 45545-3 (E30)

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickle plated brass
Insert: haolgen-free polyamide acc. to UL 94 V0
EMC-brush: brass wire
Sealing: special elastomere
O-ring: special elastomere

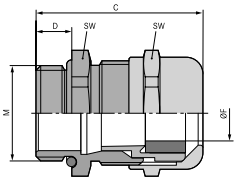
**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | Minimum Ø above braiding (mm) | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® MS-HF-M BRUSH** | | | | | | | |
| 53112541 | M 16 x 1,5 | 4,5-10 | 2 | 20 | 31.0 | 7 | 25 |
| 53112542 | M 20 x 1,5 | 7-13 | 3 | 24 | 33.0 | 8 | 25 |
| 53112543 | M 25 x 1,5 | 9-17 | 6 | 29 | 36.0 | 8 | 10 |
| 53112544 | M 32 x 1,5 | 11-21 | 8 | 36 | 42.2 | 9 | 5 |
| 53112545 | M 40 x 1,5 | 19-28 | 10 | 45 | 49.5 | 9 | 5 |
| 53112546 | M 50 x 1,5 | 27-35 | 14 | 54 | 52.0 | 10 | 5 |
| 53112547 | M 63 x 1,5 | 34-45 | 20 | 67 | 61.3 | 15 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX






SKINTOP® MS-M ATEX



SKINTOP® MSR-M ATEX

## Benefits

- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Maximum reliability

## Application range

**SKINTOP® MS-M ATEX**

- Devices, machines and apparatus of enhanced safety protection type “e”, dust ignition proof “t”
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

**SKINTOP® MSR-M ATEX**

- With reducing seal insert, to seal cables with smaller outer diameters

## Product features

**SKINTOP® MS-M ATEX**

- SKINTOP® MS-M-XL ATEX is similar to the SKINTOP® MS-M ATEX, but has an extended connection thread for thick walls

## Norm references / Approvals

**SKINTOP® MS-M ATEX**

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0026X

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

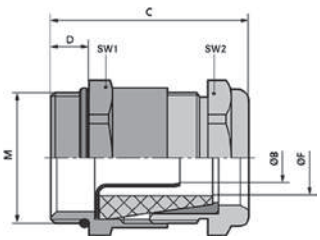
**Protection rating**
IP 68 - 10 bar
IP 66
NEMA Type 1, 4x, 6, 12

**Temperature range**
-30°C to +90°C

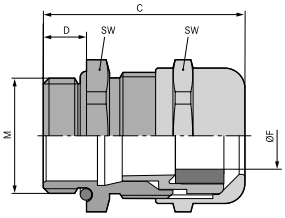
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-M ATEX** | | | | | | |
| 53112700 | M 12 x 1,5 | 3.0 - 7.0 | 16 | 26.5 | 6.5 | 100 |
| 53112710 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 33.0 | 7 | 100 |
| 53112720 | M 20 x 1,5 | 7.0 - 13.0 | 24 | 37.0 | 8 | 50 |
| 53112730 | M 25 x 1,5 | 9.0 - 17.0 | 29 | 38.5 | 8 | 25 |
| 53112740 | M 32 x 1,5 | 11.0 - 21.0 | 36 | 45.5 | 9 | 25 |
| 53112750 | M 40 x 1,5 | 19.0 - 28.0 | 45 | 48.0 | 9 | 10 |
| 53112760 | M 50 x 1,5 | 26.0 - 35.0 | 54 | 55.5 | 10 | 5 |
| 53112770 | M 63 x 1,5 | 34.0 - 45.0 | 67 | 67.0 | 15 | 5 |
| 53112779 | M 63 x 1,5 plus | 44.0 - 55.0 | 75 | 65.5 | 15 | 1 |
| **SKINTOP® MS-M-XL ATEX** | | | | | | |
| 53112800 | M 12 x 1,5 | 3.0 - 7.0 | 16 | 26.0 | 12 | 100 |
| 53112810 | M 16 x 1,5 | 4.5 - 10.0 | 20 | 33.0 | 12 | 100 |
| 53112820 | M 20 x 1,5 | 7.0 - 13.0 | 24 | 37.0 | 12 | 50 |
| 53112830 | M 25 x 1,5 | 9.0 - 17.0 | 29 | 38.5 | 12 | 25 |
| 53112840 | M 32 x 1,5 | 11.0 - 21.0 | 36 | 45.5 | 15 | 25 |
| 53112850 | M 40 x 1,5 | 19.0 - 28.0 | 45 | 48.0 | 15 | 10 |
| 53112860 | M 50 x 1,5 | 26.0 - 35.0 | 54 | 55.5 | 15 | 5 |
| **SKINTOP® MSR-M ATEX** | | | | | | |
| 53112705 | M 12 x 1,5 | 2.0 - 5.0 | 16 | 26.5 | 6.5 | 100 |
| 53112715 | M 16 x 1,5 | 4.0 - 7.0 | 20 | 33.0 | 7 | 100 |
| 53112725 | M 20 x 1,5 | 5.0 - 10.0 | 24 | 37.0 | 8 | 50 |
| 53112735 | M 25 x 1,5 | 6.0 - 13.0 | 29 | 38.5 | 8 | 25 |
| 53112745 | M 32 x 1,5 | 7.0 - 15.0 | 36 | 45.5 | 9 | 25 |
| 53112755 | M 40 x 1,5 | 16.0 - 23.0 | 45 | 48.0 | 9 | 10 |
| 53112765 | M 50 x 1,5 | 19.0 - 29.0 | 54 | 55.5 | 10 | 5 |
| 53112775 | M 63 x 1,5 | 32.0 - 39.0 | 67 | 67.0 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-M ATEX BRUSH








## Benefits

- Faster and less complicated assembling than any other system
- Optimum, low-resistance 360° screen contact
- Simple cable adjustment
- Easy to uninstall
- Anti-static, safe, and impact-resistant at cold temperatures

## Application range

- For EMC-compliant earthing of the copper braiding
- Chemical and petrochemical industry
- Plant engineering
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus of enhanced safety protection type “e”, dust ignition proof “t”

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SHVE-M 20 x 1.5 ATEX design with EMC earthing sleeve to cover smaller cable clamping ranges
- SKINDICHT® SHVE-M 20x1,5 ATEX is not IECex certified

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0026X

**Material**
SKINTOP® MS-M ATEX BRUSH
Body: nickel plated brass
Insert: special polyamide
EMV-Brush: brass
Seal: special elastomer
O-Ring: special elastomer

SKINDICHT® SHVE-M ATEX
Body: nickel plated brass
Earthing sleeve: brass
Seal: special elastomer
O-Ring: special elastomer

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

**Protection rating**
IP 68 - 10 bar

**Temperature range**
SKINTOP® MS-M ATEX BRUSH
-30°C to +90°C
SKINDICHT® SHVE-M ATEX
-20°C to +80°C

| Article number | Article designation / size | Outer Ø (mm), from - to | Minimum Ø above braiding (mm) | SW wrench size mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® SHVE-M ATEX** | | | | | | |
| 52107102 | M 20 x 1,5 | 6.9 - 8.9 | 5 | 22 | 6 | 10 |
| **SKINTOP® MS-M ATEX BRUSH** | | | | | | |
| 52110029 | M 20 x 1,5 | 7 - 13 | 3 | 24 | 8 | 10 |
| 52110022 | M 16 x 1,5 | 4.5 - 10.0 | 2 | 20 | 7 | 10 |
| 52110023 | M 25 x 1,5 | 9.0 - 17.0 | 6 | 29 | 8 | 10 |
| 52110024 | M 32 x 1,5 | 11.0 - 21.0 | 8 | 36 | 9 | 5 |
| 52110025 | M 40 x 1,5 | 19.0 - 28.0 | 10 | 45 | 9 | 5 |
| 52110026 | M 50 x 1,5 | 27.0 - 35.0 | 14 | 54 | 10 | 5 |
| 52110027 | M 63 x 1,5 | 34.0 - 45.0 | 20 | 67 | 15 | 1 |
| 52110028 | M 63 x 1,5 plus | 44.0 - 55.0 | 25 | 75 | 15 | 1 |

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# SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX




## Benefits

- Permanent and secure sealing for areas with risks of explosion
- Easy to assemble
- High degree of protection

## Application range

**SKINTOP® SDV-M ATEX**

- SKINTOP® SDV-M is used together with SKINTOP® MS-M ATEX, MS-M ATEX BRUSH or SKINTOP® K-M ATEX plus (blue)
- Equipment group II / Category 2G+1D

**SKINTOP® SDVR-M ATEX**

- SKINTOP® SDVR-M is used together with SKINTOP® MSR-M ATEX or SKINTOP® KR-M ATEX plus (blue)
- Equipment group II / Category 2G+1D

## Note

**SKINTOP® SDV-M ATEX**

- Outside areas with a risk of explosion, also suitable for use in combination with SKINTOP® ST-M and SKINTOP® MS-M

**SKINTOP® SDVR-M ATEX**

- Outside areas with a risk of explosion, also suitable for use in combination with SKINTOP® STR-M and SKINTOP® MSR-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Material**
CR

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-30°C to +70°C
Short-term: up to +90°C

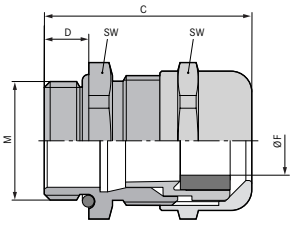
| Article number | Article designation / size | Visible height (mm) | Pieces / PU |
|---|---|---|---|
| **SKINTOP® SDV-M ATEX** | | | |
| 54113002 | M 12 ATEX | 3.0 | 50 |
| 54113012 | M 16 ATEX | 3.0 | 50 |
| 54113022 | M 20 ATEX | 3.5 | 50 |
| 54113032 | M 25 ATEX | 3.5 | 50 |
| 54113042 | M 32 ATEX | 4.0 | 25 |
| 54113052 | M 40 ATEX | 4.0 | 25 |
| 54113062 | M 50 ATEX | 4.5 | 10 |
| 54113072 | M 63 ATEX | 4.5 | 5 |
| **SKINTOP® SDVR-M ATEX** | | | |
| 54113013 | M 16 ATEX | 4.0 | 50 |
| 54113023 | M 20 ATEX | 5.0 | 50 |
| 54113033 | M 25 ATEX | 5.0 | 50 |
| 54113043 | M 32 ATEX | 5.5 | 25 |

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# SKINTOP® FLAT

Cable gland with sealing insert for flat cables






**Info**

- Innovative, patented sealing construction enables IP68 over the entire clamping range

## Benefits

- Specially designed sealing insert enables very high IP protection
- Wide, variable clamping ranges
- Suitable for both angular and round cable contours
- Even pressure distribution on the flat cable
- Halogen-free

## Application range

- For inserting flat cables
- Conveyor and transport systems, indoor cranes and high-rack facilities
- Lifts
- Cable trolley systems
- Submersible pumps

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Technical information referring to DIN IEC 62444

## Note

- Size M 63 x 1.5 and M 63 x 1.5 plus in preparation

## Suitable tools

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Tightening torques see installation instructions

**Material**
Body: Nickel-plated brass
Insert: Polyamid
Sealing: NBR
O-Ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Cable width min. / max. mm | Cable thickness min. / max. mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® FLAT** | | | | | | | |
| 53119375 | M 25 x 1,5 | 11-16 | 3-6 | 29 | 37.5 | 8 | 5 |
| 53119376 | M 32 x 1,5 | 15 - 20 | 3 - 7 | 36 | 42.2 | 9 | 5 |
| 53119377 | M 40 x 1,5 | 18 - 28 | 3 - 9 | 45 | 49.5 | 9 | 5 |
| 53119378 | M 50 x 1,5 | 26 - 33 | 5 - 11 | 54 | 52.0 | 10 | 5 |
| 53119379 | M 63 x 1,5 | 34 - 40 | 4,5 - 8 | 67 | 61.3 | 15 | 1 |
| 53119391 | M 63 x 1,5 plus | 34 - 42 | 7 - 13 | 67 | 61.3 | 15 | 1 |

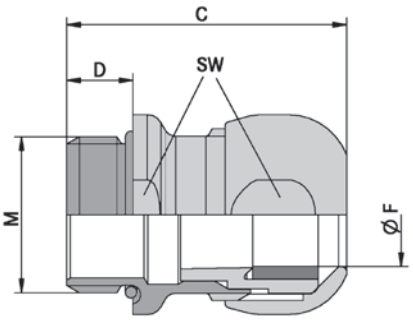
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® INOX / SKINTOP® INOX-R

**Info**

- Stainless steel version with compact design
- For use in the splash zone in the food production




## Benefits

- Corrosion-resistant
- Sea water-resistant
- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges

## Application range

- Onshore and offshore applications
- Bottling plants and breweries
- Food industry (product-free zone, splash zone)

## Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: stainless steelV4A (1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

**Protection rating**
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M50)
IP 69
NEMA Type 1, 2, 4x, 6, 12

**Temperature range**
-40°C to +100°C

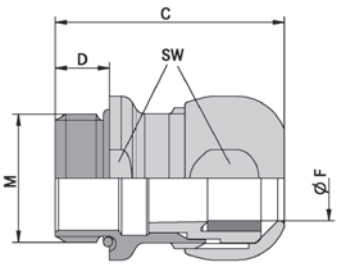
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® INOX** | | | | | | |
| 53806739 | M 12 x 1,5 | 4-7 | 16 | 29.3 | 6.5 | 5 |
| 53806740 | M 16 x 1,5 | 6-10 | 20 | 32.4 | 7 | 5 |
| 53806741 | M 20 x 1,5 | 7-13 | 24 | 35.5 | 8 | 5 |
| 53806742 | M 25 x 1,5 | 9-17 | 29 | 39.2 | 8 | 5 |
| 53806743 | M 32 x 1,5 | 11-21 | 36 | 44.6 | 9 | 5 |
| 53806744 | M 40 x 1,5 | 19-28 | 45 | 51.2 | 9 | 5 |
| 53806745 | M 50 x 1,5 | 27-35 | 54 | 56.2 | 10 | 5 |
| **SKINTOP® INOX-R** | | | | | | |
| 53806749 | M 12 x 1,5 | 3-5 | 16 | 29.3 | 6.5 | 5 |
| 53806750 | M 16 x 1,5 | 5-7 | 20 | 32.4 | 7 | 5 |
| 53806751 | M 20 x 1,5 | 6-10 | 24 | 35.5 | 8 | 5 |
| 53806752 | M 25 x 1,5 | 7-13 | 29 | 39.2 | 8 | 5 |
| 53806753 | M 32 x 1,5 | 8-15 | 36 | 44.6 | 9 | 5 |
| 53806754 | M 40 x 1,5 | 15-23 | 45 | 51.2 | 9 | 5 |
| 53806755 | M 50 x 1,5 | 22-29 | 54 | 56.2 | 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® INOX SC








**Info**

- Stainless steel version with compact design
- Optimum EMC protection

## Benefits

- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters

## Application range

- For EMC-compliant earthing of the copper braiding
- Pharmaceutical industry
- Food industry (product-free zone, splash zone)
- Onshore and offshore applications
- Bottling plants and breweries

## Norm references / Approvals

- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery
- DIN EN 1672-2
  Guideline for the design of machinery
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to the instruction leaflet for the installation dimensions and torques

**Material**
Body: stainless steelV4A
(1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

**Protection rating**
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M50)
IP 69
NEMA Type 1, 2, 4x, 6, 12

**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® INOX SC** | | | | | | |
| 53806720 | M 12 x 1,5 | 4 - 7 | 16 | 29.3 | 6.5 | 5 |
| 53806722 | M 16 x 1,5 | 6 - 10 | 20 | 32.4 | 7 | 5 |
| 53806724 | M 20 x 1,5 | 7 - 13 | 24 | 35.5 | 8 | 5 |
| 53806726 | M 25 x 1,5 | 9 - 17 | 29 | 39.2 | 8 | 5 |
| 53806728 | M 32 x 1,5 | 11 - 21 | 36 | 44.6 | 9 | 5 |
| 53806731 | M 40 x 1,5 | 19 - 28 | 45 | 51.2 | 9 | 5 |
| 53806732 | M 50 x 1,5 | 27 - 35 | 54 | 56.2 | 10 | 5 |

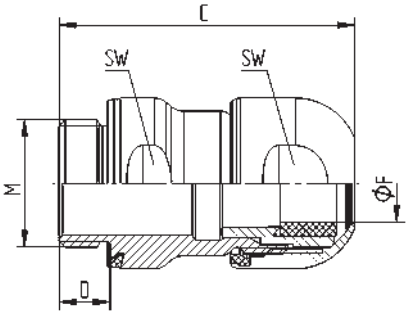
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® HYGIENIC / SKINTOP® HYGIENIC-R

**Info**

- New: Available up to size M40x1,5
- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components




## Benefits

- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

## Application range

- Food machinery, equipment and components
- For use in **product zone**
- Pharmaceutical industry

## Norm references / Approvals

- EHEDG (TYPE EL Class I AUX)
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- One complete assembly is easily mounted from the outside
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Installation wrench for very high packing density on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
UL approval for M32x1,5 and M40x1,5 pending

**Material**
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

**Protection rating**
IP 68 - 10 bar
IP 69
NEMA Type 1, 2, 4x, 6, 12

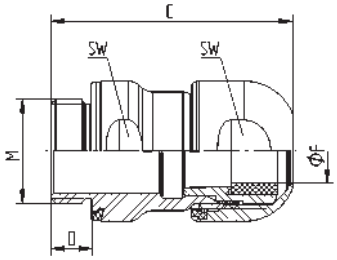
**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® HYGIENIC** | | | | | | |
| 53105100 | M 12 x 1,5 | 4-6 | 16 | 38.4 | 6.5 | 5 |
| 53105110 | M 16 x 1,5 | 6,5-9 | 20 | 41.4 | 7 | 5 |
| 53105120 | M 20 x 1,5 | 9-12 | 24 | 46.4 | 8 | 5 |
| 53105130 | M 25 x 1,5 | 11,5-15,5 | 29 | 48.9 | 8 | 5 |
| 53105140 | M 32 x 1,5 | 16-20 | 36 | 56.0 | 9 | 5 |
| 53105141 | M 40 x 1,5 | 22-27 | 45 | 62.0 | 9 | 5 |
| **SKINTOP® HYGIENIC-R** | | | | | | |
| 53105200 | M 12 x 1,5 | 3-4,5 | 16 | 38.4 | 6.5 | 5 |
| 53105210 | M 16 x 1,5 | 4,5-7 | 20 | 41.4 | 7 | 5 |
| 53105220 | M 20 x 1,5 | 7-10 | 24 | 46.4 | 8 | 5 |
| 53105230 | M 25 x 1,5 | 9-12,5 | 29 | 48.9 | 8 | 5 |
| 53105240 | M 32 x 1,5 | 12,5-16,5 | 36 | 56.0 | 9 | 5 |
| 53105142 | M 40 x 1,5 | 18-23 | 45 | 62.0 | 9 | 5 |

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® HYGIENIC SC






**Info**

- New: Available up to size M40x1,5
- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components

## Benefits

- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

## Application range

- For EMC-compliant earthing of the copper braiding
- Food machinery, equipment and components
- For use in **product zone**
- Pharmaceutical industry

## Norm references / Approvals

- EHEDG (TYPE EL Class I AUX)
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- One complete assembly is easily mounted from the outside
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Installation wrench for very high packing density on request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
UL approval for M32x1,5 and M40x1,5 pending

**Material**
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

**Protection rating**
IP 68 - 10 bar
IP 69
NEMA Type 1, 2, 4x, 6, 12

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® HYGIENIC SC** | | | | | | |
| 53105300 | M 12 x 1,5 | 4-6 | 16 | 38.4 | 6.5 | 5 |
| 53105301 | M 16 x 1,5 | 6,5-9 | 20 | 41.4 | 7 | 5 |
| 53105302 | M 20 x 1,5 | 9-12 | 24 | 46.4 | 8 | 5 |
| 53105303 | M 25 x 1,5 | 11,5-15,5 | 29 | 48.9 | 8 | 5 |
| 53105314 | M 32 x 1,5 | 16-20 | 36 | 56.0 | 9 | 5 |
| 53105315 | M 40 x 1,5 | 22-27 | 45 | 62.0 | 9 | 5 |

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® GMP-GL-M



## Benefits

- Glass fibre-reinforced for maximum mechanical stability
- Supporting surface for spanner means scratches on the housing are avoided

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**On request**
Available without collar
(without surface for assembling tool)

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

| Article number | Article designation / size | SW wrench size mm | Pieces / PU |
|---|---|---|---|
| **SKINTOP® GMP-GL-M silver grey** | | | |
| 53119000 | M 12 x 1,5 | 17 | 100 |
| 53119010 | M 16 x 1,5 | 22 | 100 |
| 53119020 | M 20 x 1,5 | 27 | 100 |
| 53119030 | M 25 x 1,5 | 34 | 100 |
| 53119040 | M 32 x 1,5 | 41 | 100 |
| 53119050 | M 40 x 1,5 | 50 | 25 |
| 53119060 | M 50 x 1,5 | 60 | 25 |
| 53119070 | M 63 x 1,5 | 75 | 25 |
| **SKINTOP® GMP-GL-M black** | | | |
| 53119100 | M 12 x 1,5 | 17 | 100 |
| 53119110 | M 16 x 1,5 | 22 | 100 |
| 53119120 | M 20 x 1,5 | 27 | 100 |
| 53119130 | M 25 x 1,5 | 34 | 100 |
| 53119140 | M 32 x 1,5 | 41 | 100 |
| 53119150 | M 40 x 1,5 | 50 | 25 |
| 53119160 | M 50 x 1,5 | 60 | 25 |
| 53119170 | M 63 x 1,5 | 75 | 25 |
| **SKINTOP® GMP-GL-M light grey** | | | |
| 53119003 | M 12 x 1,5 | 17 | 100 |
| 53119013 | M 16 x 1,5 | 22 | 100 |
| 53119023 | M 20 x 1,5 | 27 | 100 |
| 53119033 | M 25 x 1,5 | 34 | 100 |
| 53119043 | M 32 x 1,5 | 41 | 100 |
| 53119053 | M 40 x 1,5 | 50 | 25 |
| 53119063 | M 50 x 1,5 | 60 | 25 |
| 53119073 | M 63 x 1,5 | 75 | 25 |

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# SKINTOP® GMP-HF-M



## Benefits

- Halogen-free
- Extremely flame-retardant according to UL 94 V0
- Self-extinguishing, no dripping

## Application range

- Airports
- Tunnel construction
- Underground railways
- Public buildings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Designed for use with SKINTOP® ST-HF-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Colour delivered**
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
halogenfree polyamide acc. to UL 94 V0

**Temperature range**
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

| Article number | Article designation / size | SW wrench size mm | Pieces / PU |
|---|---|---|---|
| **SKINTOP® GMP-HF-M Light Grey** | | | |
| 53119200 | M 12 x 1,5 | 17 | 100 |
| 53119210 | M 16 x 1,5 | 22 | 100 |
| 53119220 | M 20 x 1,5 | 27 | 100 |
| 53119230 | M 25 x 1,5 | 34 | 100 |
| 53119240 | M 32 x 1,5 | 41 | 100 |
| 53119250 | M 40 x 1,5 | 50 | 25 |
| 53119260 | M 50 x 1,5 | 60 | 25 |
| 53119270 | M 63 x 1,5 | 75 | 25 |
| **SKINTOP® GMP-HF-M Black** | | | |
| 53119205 | M 12 x 1,5 | 17 | 100 |
| 53119215 | M 16 x 1,5 | 22 | 100 |
| 53119225 | M 20 x 1,5 | 27 | 100 |
| 53119235 | M 25 x 1,5 | 34 | 100 |
| 53119245 | M 32 x 1,5 | 41 | 100 |
| 53119255 | M 40 x 1,5 | 50 | 25 |
| 53119265 | M 50 x 1,5 | 60 | 25 |
| 53119275 | M 63 x 1,5 | 75 | 25 |

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# SKINTOP® DIX-M

## Benefits

- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

## Application range

- For use in SKINTOP® cable glands
- A sealing ring with several holes is used in place of the inner sealing insert
- SKINTOP® DIX-M FKM is resistant to oil, water, alkaline solutions, acids, solvents etc.

## Note

- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**On request**
Special shapes

**Colour delivered**
Black, RAL 9005

**Material**
NBR
FKM

**Protection rating**
IP 54

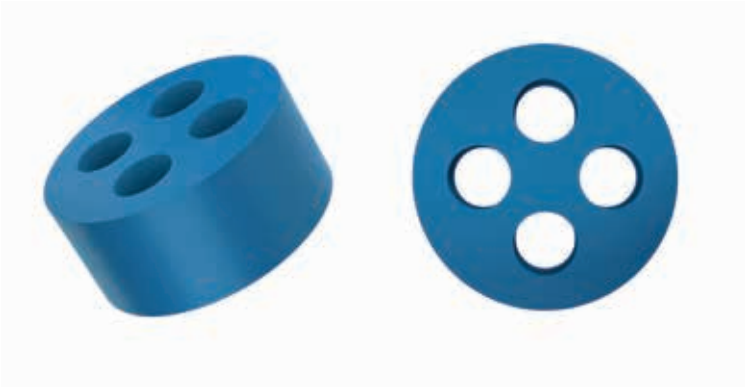
**Temperature range**
-50°C to +100°C



| Article number | Article designation / size | Size M | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® DIX-M** | | | | |
| 53316220 | 16220 | M 16 | 2 x 2.0 | 100 |
| 53316230 | 16230 | M 16 | 2 x 3.0 | 100 |
| 53316240 | 16240 | M 16 | 2 x 4.0 | 100 |
| 53316420 | 16420 | M 16 | 4 x 2.0 | 100 |
| 53320250 | 20250 | M 20 | 2 x 5.0 | 100 |
| 53320260 | 20260 | M 20 | 2 x 6.0 | 100 |
| 53320340 | 20340 | M 20 | 3 x 4.0 | 100 |
| 53320353 | 20353 | M 20 | 3 x 5.3 | 100 |
| 53320440 | 20440 | M 20 | 4 x 4.0 | 100 |
| 53320920 | 20920 | M 20 | 9 x 2.0 | 100 |
| 53320430 | 20430 | M 20 | 4 x 3.0 | 100 |
| 53325260 | 25260 | M 25 | 2 x 6.0 | 50 |
| 53325250 | 25250 | M 25 | 2 x 5.0 | 50 |
| 53325350 | 25350 | M 25 | 3 x 5.0 | 50 |
| 53325360 | 25360 | M 25 | 3 x 6.0 | 50 |
| 53325370 | 25370 | M 25 | 3 x 7.0 | 50 |
| 53325450 | 25450 | M 25 | 4 x 5.0 | 50 |
| 53325540 | 25540 | M 25 | 5 x 4.0 | 50 |
| 53325640 | 25640 | M 25 | 6 x 4.0 | 50 |
| 53332270 | 32270 | M 32 | 2 x 7.0 | 50 |
| 53332280 | 32280 | M 32 | 2 x 8.0 | 50 |
| 53332290 | 32290 | M 32 | 2 x 9.0 | 50 |
| 53332370 | 32370 | M 32 | 3 x 7.0 | 50 |
| 53332380 | 32380 | M 32 | 3 x 8.0 | 50 |
| 53332460 | 32460 | M 32 | 4 x 6.0 | 50 |
| 53332470 | 32470 | M 32 | 4 x 7.0 | 50 |
| 53332560 | 32560 | M 32 | 5 x 6.0 | 50 |
| 53332650 | 32650 | M 32 | 6 x 5.0 | 50 |
| 53332840 | 32840 | M 32 | 8 x 4.0 | 50 |
| 53332850 | 32850 | M 32 | 8 x 5.0 | 50 |
| 53332940 | 32940 | M 32 | 9 x 4.0 | 50 |
| 53340290 | 40290 | M 40 | 2 x 9.0 | 25 |
| 53340310 | 40310 | M 40 | 3 x 10.0 | 25 |
| 53340480 | 40480 | M 40 | 4 x 8.0 | 25 |
| 53340490 | 40490 | M 40 | 4 x 9.0 | 25 |
| 53340580 | 40580 | M 40 | 5 x 8.0 | 25 |
| 53340590 | 40590 | M 40 | 5 x 9.0 | 25 |
| 53340670 | 40670 | M 40 | 6 x 7.0 | 25 |
| 53340860 | 40860 | M 40 | 8 x 6.0 | 25 |
| 53340969 | 40969 | M 40 | 9 x 6.9 | 25 |
| 53350118 | 50118 | M 50 | 11 x 8.0 | 10 |
| 53350680 | 50680 | M 50 | 6 x 8.0 | 10 |
| 53350780 | 50780 | M 50 | 7 x 8.0 | 10 |
| 53350870 | 50870 | M 50 | 8 x 7.0 | 10 |
| 53350147 | 50147 | M 50 | 14 x 7.0 | 10 |
| 53350164 | 50164 | M 50 | 16 x 4.0 | 10 |
| 53350166 | 50166 | M 50 | 16 x 6.0 | 10 |
| **SKINTOP® DIX-M FKM** | | | | |
| 53420250 | 20250 | M 20 | 2 x 5.0 | 100 |
| 53420260 | 20260 | M 20 | 2 x 6.0 | 100 |
| 53440969 | 40969 | M 40 | 9 x 6.9 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® DIX-M



## Benefits

- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

## Application range

- For use in SKINTOP® cable glands
- A sealing ring with several holes is used in place of the inner sealing insert
- The silicone variants are resistant to ECOLAB® cleaning agents and disinfectants and are highly chemical resistant. They comply with FDA 21 CFR 177.2600 and are therefore approved for use in the food and beverage industry. Their blue colour makes them easy to distinguish from foodstuffs. They are also extremely flexible at cold temperatures and suitable for use at extreme sub-zero temperatures (down to -50°C)

## Note

- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**On request**
Special shapes

**Colour delivered**
Blue, RAL 5017

**Material**
Silicone

**Protection rating**
IP 54

**Temperature range**
-50°C to +200°C

| Article number | Article designation / size | Size M | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® DIX-M SILICONE** | | | | |
| 53316300 | 16220 | M 16 | 2 x 2.0 | 100 |
| 53316301 | 16230 | M 16 | 2 x 3.0 | 100 |
| 53316302 | 20250 | M 20 | 2 x 5.0 | 100 |
| 53316303 | 20260 | M 20 | 2 x 6.0 | 100 |
| 53316305 | 25260 | M 25 | 2 x 6.0 | 50 |
| 53316306 | 25360 | M 25 | 3 x 6.0 | 50 |
| 53316307 | 25370 | M 25 | 3 x 7.0 | 50 |
| 53316304 | 25450 | M 25 | 4 x 5.0 | 50 |
| 53316308 | 32470 | M 32 | 4 x 7.0 | 50 |

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# SKINTOP® DIX-M AUTOMATION



## Benefits

- Optimal seal when using AS-I bus cables
- Easy insertion of pre-assembled cables (with fieldbus or RJ-45 connector)
- Strain relief

## Application range

- For use in SKINTOP® cable glands
- A sealing ring with several holes is used in place of the inner sealing insert
- Control cabinets
- Control panels
- Automation technology

## Note

- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I bus cables

## Product Make-up

- Precise cut for AS-I bus cables
- Seal with hole and cut for easy insertion of pre-assembled field bus cables

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Colour delivered**
Black, RAL 9005

**Material**
NBR

**Protection rating**
IP 54

**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|
| **SKINTOP® DIX-M ASI** | | | |
| 53611001 | M 20 | 1 x AS-I | 50 |
| **SKINTOP® DIX-M ASI DUO** | | | |
| 53611004 | M 25 | 2 x AS-I | 50 |
| **SKINTOP® DIX-M CUT** | | | |
| 53440982 | M 25 | 1 x 3.0 - 7.0 | 50 |
| 53440983 | M 25 | 1 x 4.0 - 9.0 | 50 |
| 53440980 | M 25 | 1 x 5.4 - 5.4 | 50 |
| 53440970 | M 32 | 1 x 4.5 - 6.5 | 50 |
| 53611006 | M 32 | 1 x 5.0 - 8.5 | 50 |
| 53611005 | M 32 | 1 x 6.0 - 11.0 | 50 |
| 53611007 | M 32 | 3 x 6.0 - 8.0 | 50 |
| 53310444 | M 40 | 3 x 7.0 - 10.0 | 25 |
| 53611008 | M 40 | 4 x 6.5 - 9.0 | 25 |

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# SKINTOP® DIX-DV / SKINTOP® SD-M / SKINTOP® DV-M



SKINTOP® DIX-DV



SKINTOP® SD-M



SKINTOP® DV-M

## Benefits

**SKINTOP® DIX-DV**

- Prevents water and dust penetrating into unused bore holes of SKINTOP® DIX-M multiple sealing inserts

**SKINTOP® SD-M**

- Prevents dust and dirt from getting into the housing

**SKINTOP® DV-M**

- Prevents humidity from seeping into the housing

## Application range

**SKINTOP® DIX-DV**

- For inserting into unoccupied holes of the SKINTOP® DIX-M multiple sealing inserts, to ensure protection class

**SKINTOP® SD-M**

- This dust protector can be placed under the cap nut of the cable gland
- Preparations
- Protection of unused connection points

**SKINTOP® DV-M**

- These seals are placed into the sealing ring of the SKINTOP® cable glands
- Preparations
- Protection of unused connection points

## Note

**SKINTOP® DIX-DV**

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**SKINTOP® SD-M**

- Easy to handle, without disassembly - push cable through
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**SKINTOP® DV-M**

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Colour delivered**
**SKINTOP® DIX-DV**
Natural
**SKINTOP® SD-M**
Black
**SKINTOP® DV-M**
Black

**Material**
**SKINTOP® DIX-DV**
Polyamide
**SKINTOP® SD-M**
PE foam
**SKINTOP® DV-M**
CR

**Protection rating**
**SKINTOP® DIX-DV**
IP 54

**Temperature range**
**SKINTOP® DIX-DV**
-30 °C to +100 °C
**SKINTOP® SD-M**
-70 °C to +100 °C
**SKINTOP® DV-M**
-30 °C to +100 °C

| Article number | Article designation / size | Ø F mm | Height (mm) | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® DIX-DV** | | | | |
| 53100003 | DIX-DV 3 x 9 | 3.0 | 9.0 | 100 |
| 53100004 | DIX-DV 4 x 9 | 4.0 | 9.0 | 100 |
| 53100005 | DIX-DV 5 x 11 | 5.0 | 11.0 | 100 |
| 53100055 | DIX-DV 5,5 x 11 | 5.5 | 11.0 | 100 |
| 53100006 | DIX-DV 6 x 14 | 6.0 | 14.0 | 100 |
| 53100007 | DIX-DV 7 x 14 | 7.0 | 14.0 | 100 |
| 53100008 | DIX-DV 8 x 14 | 8.0 | 14.0 | 100 |
| 53100009 | DIX-DV 9 x 14 | 9.0 | 14.0 | 100 |
| **SKINTOP® SD-M** | | | | |
| 54113100 | SD-M 12 | 11.5 | 2.0 | 100 |
| 54113110 | SD-M 16 | 15.0 | 2.0 | 100 |
| 54113120 | SD-M 20 | 20.0 | 2.0 | 100 |
| 54113130 | SD-M 25 | 25.0 | 2.0 | 50 |
| 54113140 | SD-M 32 | 30.0 | 2.0 | 50 |
| 54113150 | SD-M 40 | 40.0 | 2.0 | 25 |
| 54113160 | SD-M 50 | 49.0 | 2.0 | 25 |
| 54113170 | SD-M 63 | 58.0 | 2.0 | 25 |
| **SKINTOP® DV-M** | | | | |
| 54113000 | DV-M 12 | 7.2 | 7.0 | 500 |
| 54113010 | DV-M 16 | 10.0 | 8.0 | 500 |
| 54113020 | DV-M 20 | 13.2 | 8.4 | 250 |
| 54113030 | DV-M 25 | 17.2 | 9.5 | 250 |
| 54113040 | DV-M 32 | 21.2 | 12.0 | 250 |
| 54113050 | DV-M 40 | 28.2 | 14.5 | 100 |
| 54113060 | DV-M 50 | 35.8 | 18.0 | 100 |
| 54113070 | DV-M 63 | 45.6 | 20.0 | 50 |

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# SKINTOP® MULTI-M

Cable bushing system with metric thread





**Info**

- Compact, round multi cable bushing system with innovative gel technology

## Benefits

- Large clamping range of 4 mm per bushing due to elastic gel technology with innovative membrane technology
- Easy installation of the cables even for high packing density
- Optimum strain relief at the entire cable bundle
- Not used bushings remain securely sealed

## Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

## Product features

- Cables can be inserted directly without using a pricking awl
- Secure sealing at the cable & housing
- High packing density
- Halogen-free and silicone-free
- UV-, ozone- and oil-resistant

## Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

## Included

- SKINTOP® MULTI-M including locknut and O-ring

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

**Certifications**
UL pending
Fire behaviour acc. to UL94 V-2
Hazard Level HL 2 acc. to EN 45545-2

**Note**
On request:
- individual bushing configuration
- other metric thread sizes

**Material**
Frame: Polycarbonat
Sealing: Gel
Locknut: Polyamide, glass fibre-reinforced
O-Ring: NBR

**Protection rating**
IP 68

**Temperature range**
With O-ring: -20°C to +100°C
Without O-ring: -30°C to +110°C

| Article number | Article designation / size | Max. number of executions | Number of cables x cable Ø | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINTOP® MULTI-M** | | | | | |
| 52220140 | M 25 x 1,5 | 4 | 4 x 2-6 mm | 30 | 1 |
| 52220143 | M 25 x 1,5 | 3 | 1 x 6-10mm, 2 x 2-6mm | 30 | 1 |
| 52220146 | M 32 x 1,5 | 8 | 8 x 2-6mm | 36 | 1 |
| 52220149 | M 32 x 1,5 | 6 | 3 x 6-10mm, 3 x 1-4mm | 36 | 1 |
| 52220110 | M 40 x 1,5 | 12 | 2 x 1-4 mm, 10 x 2-6 mm | 46 | 1 |
| 52220113 | M 40 x 1,5 | 6 | 5 x 6-10mm, 1 x 4-8mm | 46 | 1 |
| 52220111 | M 50 x 1,5 | 18 | 18 x 2-6 mm | 55 | 1 |
| 52220114 | M 50 x 1,5 | 8 | 8 x 6-10mm | 55 | 1 |
| 52220112 | M 63 x 1,5 | 30 | 30 x 2-6 mm | 66 | 1 |
| 52220115 | M 63 x 1,5 | 14 | 14 x 6-10mm | 66 | 1 |

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# SKINTOP® MULTI

**Info**

- Compact multi cable bushing system with innovative gel technology



## Benefits

- Large clamping range of 4 mm and AS-I BUS entry system by elastic gel technology with innovative membrane technology
- Easy installation of the cables even for high packing density
- Optimum strain relief at the entire cable bundle
- Error reduction through clear assignment of cable to be installed by a clear marker of implementing points
- Not used bushings remain securely sealed

## Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

## Product features

- Cables can be inserted directly without using a pricking awl
- Integrated seal for the cable & housing (captive)
- Halogen-free and silicone-free
- UV-, ozone- and oil-resistant
- The adhesive gel provides a very easy positioning at the enclosure during the assembling

## Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

## Product Make-up

- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

## Included

- SKINTOP® MULTI including mounting material

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

**Certifications**
UL File No. E349737
Fire behaviour acc. to UL94 V-2
Hazard Level HL 2 acc. to EN 45545-2

**Note**
Individual hole configuration on request

**Material**
Frame: Polycarbonat
Sealing: Gel

**Protection rating**
IP 68

**Temperature range**
-30°C to +110°C

| Article number | Article designation / size | Max. number of executions | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® MULTI** | | | | |
| 52220065 | SKINTOP® MULTI Version 1 | 22 | 16 x 3-7 mm, 6 x 8-12 mm | 1 |
| 52220073 | SKINTOP® MULTI Version 2 | 21 | 5 x 2-6 mm, 8 x 4-8 mm, 3 x 5-9 mm, 2 x 8-12 mm, 1 x 12-16 mm, 2 x AS-I BUS / 2 x 2-4 mm | 1 |
| 52220080 | SKINTOP® MULTI Version 3 | 30 | 30 x 2-6 mm | 1 |
| 52220085 | SKINTOP® MULTI Version 4 | 11 | 8 x 8-12 mm, 2 x 12-16 mm, 1 x 16-20 mm | 1 |
| 52220101 | SKINTOP® MULTI Version 5 | 27 | 27 x 4-8 mm | 1 |
| 52220104 | SKINTOP® MULTI Version 6 | 24 | 10 x 2-6 mm, 8 x 4-8 mm, 4 x 7-11mm, 2 x 10-14mm | 1 |
| 52220107 | SKINTOP® MULTI Version 7 | 14 | 14 x 12 mm | 1 |
| 52220180 | SKINTOP® MULTI Version 8 | 12 | 12 x 14 mm | 1 |
| 52220183 | SKINTOP® MULTI Version 9 | 15 | 5 x 20 mm, 10 x 3-7 mm | 1 |
| 52220186 | SKINTOP® MULTI Version 10 | 12 | 3 x 20-24 mm, 1 x 16-20 mm, 8 x 2-6 mm | 1 |

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# SKINTOP® MULTI VENT



**Info**

- Compact multi cable bushing system with innovative gel technology
- Breathable pressure compensation element with membrane technology

## Benefits

- Large clamping range of 4 mm and AS-I BUS entry system by elastic gel technology with innovative membrane technology
- Easy installation of the cables even for high packing density
- Optimum strain relief at the entire cable bundle
- Error reduction through clear assignment of cable to be installed by a clear marker of implementing points
- Not used bushings remain securely sealed

## Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

## Product features

- Special integrated membrane equalize the pressure balance and enables humidity to stay out of the junction box
- Integrated seal for the cable & housing (captive)
- Halogen-free
- UV-, ozone- and oil-resistant
- The adhesive gel provides a very easy positioning at the enclosure during the assembling

## Product Make-up

- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

## Note

- Air flow rates: 0.65 l/min

## Included

- SKINTOP® MULTI VENT including mounting material

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

**Note**
Individual hole configuration on request

**Material**
Frame: Polycarbonat
Sealing: Gel
Pressure compensation unit: PBT, PTFE, NBR

**Protection rating**
IP 68

**Temperature range**
-30°C to +100°C

| Article number | Article designation / size | Max. number of executions | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® MULTI VENT** | | | | |
| 52220092 | SKINTOP® MULTI VENT Version 1 | 21 | 6 x 8-12 mm, 15 x 3-7 mm | 1 |
| 52220093 | SKINTOP® MULTI VENT Version 2 | 20 | 4 x 2-6 mm, 8 x 4-8 mm, 3 x 5-9 mm, 2 x 8-12 mm, 1 x 12-16 mm, 2 x AS-I BUS / 2 x 2-4 mm | 1 |
| 52220094 | SKINTOP® MULTI VENT Version 3 | 29 | 29 x 2-6 mm | 1 |
| 52220095 | SKINTOP® MULTI VENT Version 4 | 11 | 8 x 8-12 mm, 2 x 12-16 mm, 1 x 16-20 mm | 1 |
| 52220160 | SKINTOP® MULTI VENT Version 5 | 26 | 26 x4-8 mm | 1 |
| 52220162 | SKINTOP® MULTI VENT Version 6 | 23 | 9 x 2-6 mm, 8 x 4-8 mm, 4 x 7 x 11 mm - 2 x 10-14 mm | 1 |

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# SKINTOP® CUBE

**Info**

- Innovative multi-cable bushing system with variable clamping ranges for high flexibility in assembling.
- When disassembling, the frame can remain on the housing and the plug-in module remains securely on the cable.





## Benefits

- Variable clamping range
- Vibration-safe module fixation
- Strain relief
- Oil resistance
- Simplified servicing due to easy assembling and disassembling

## Application range

- For installation of harnessed cables
- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

## Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

## Product Make-up

- The SKINTOP® CUBE system consists of the SKINTOP® CUBE FRAME and the clip modules SKINTOP® CUBE MODULE.
- For cut-outs for industrial connectors with standard defined boreholes.
- For cut-outs for 16-pin industrial connectors (36 x 86 mm)
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

## Note

- SKINTOP® CUBE MODULE 20x20 BLIND can be used as a blind module and for clamping ranges 1 - 3 mm
- For better strain relief, the cable bundle can be fixed with help of a cable tie

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

**Certifications**
UL File No. E349737
Fire behaviour according to UL94 V-2

**Note**
The installation dimensions and possible module combinations can be found in appendix T21

**Material**
Frame: glass fibre-reinforced polyamide
Frame seal: CR
Clip module: special polypropylene
Clip module seal: LSE 2

**Protection rating**
IP 64

**Temperature range**
Dynamic: -20°C up to +80°C
Static: -40°C up to +80°C

| Article number | Article designation / size | Ø F mm | Max. number of executions | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® CUBE Frame** | | | | |
| 52220000 | SKINTOP® CUBE FRAME 16 | | 8 | 1 |
| 52220001 | SKINTOP® CUBE FRAME 24 | | 10 | 1 |
| **SKINTOP® CUBE clip modules** | | | | |
| 52220004 | SKINTOP® CUBE MODULE 20x20 BLIND | 1.0 - 3.0 | | 5 |
| 52220002 | SKINTOP® CUBE MODULE 20x20 SMALL | 4.0 - 6.0 | | 5 |
| 52220003 | SKINTOP® CUBE MODULE 20x20 LARGE | 6.0 - 9.0 | | 5 |
| 52220040 | SKINTOP® CUBE MODULE 20x20 AS-I BUS | | | 5 |
| 52220005 | SKINTOP® CUBE MODULE 40x40 SMALL | 9.0 - 12.0 | | 5 |
| 52220006 | SKINTOP® CUBE MODULE 40x40 LARGE | 12.0 - 16.0 | | 5 |
| 52220007 | SKINTOP® CUBE MODULE 40x40 BLIND | | | 5 |

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ÖLFLEX® SERVO
LAPP KABEL UNITRONIC® LiYCY
LAPP KABEL ETHERLINE® P FLEX CAT.5E
LAPP KABEL HITRONIC® POF SIMPLEX FD PE-PUR
LAPP KABEL HITRONIC® POF SIMPLEX FD PE-PUR

# SKINTOP® CUBE MULTI

**Info**

- Push the cable through the gel membrane and connect directly
- Huge potential of savings through quick installation



## Benefits

- Large, variable clamping ranges due to elastic gel technology
- Easy installation of the cables even for high packing density
- Optimum strain relief at the entire cable bundle
- Simplified servicing due to easy assembling and disassembling
- Not used bushings remain securely sealed

## Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

## Product features

- SKINTOP® CUBE MULTI Version 1
  Number of cable bushings:
  9 x 3-6 mm clamping range
  9 x 6-9 mm clamping range
  2 x 9-13 mm clamping range
  1 x 13-16 mm clamping range
- SKINTOP® CUBE MULTI Version 2
  Number of cable bushings:
  23 x 5-8 mm clamping range

## Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

## Product Make-up

- The system consists of SKINTOP® CUBE FRAME and a gel insert SKINTOP® CUBE MULTI.
- Removal of the gel insert by opening the holder
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

## Note

- For better strain relief, the cable bundle can be fixed with help of a cable tie

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

**Certifications**
UL File No. E349737
Fire behaviour according to UL94 V-2

**Note**
Individual hole configuration on request

**Material**
Frame: Glass fiber reinforced polyamide
Frame seal: CR
Gel insert: PC / Gel

**Protection rating**
IP 66

**Temperature range**
-30 °C to +100 °C

| Article number | Article designation / size | Max. number of executions | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® CUBE MULTI** | | | | |
| 52220001 | SKINTOP® CUBE FRAME 24 | | | 1 |
| **SKINTOP® CUBE MULTI Gel-insert** | | | | |
| 52220050 | SKINTOP® CUBE MULTI Version 1 | 21 | 9 x 3-6 mm; 9 x 6-9 mm; 2 x 9-13 mm; 1 x 13-16 mm | 1 |
| 52220053 | SKINTOP® CUBE MULTI Version 2 | 23 | 23 x 5-8 mm | 1 |
| **SKINTOP® CUBE MULTI Gel-insert incl. frame** | | | | |
| 52220056 | SKINTOP® CUBE MULTI Version 1 incl. frame | 21 | 9 x 3-6 mm; 9 x 6-9 mm; 2 x 9-13 mm; 1 x 13-16 mm | 1 |
| 52220057 | SKINTOP® CUBE MULTI Version 2 incl. frame | 23 | 23 x 5-8 mm | 1 |

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## SKINTOP® BRUSH ADD-ON 24



**Info**

- EMC Kit with brush technology suitable for the SKINTOP® multi cable bushing systems for the 24 pin cut-outs

### Benefits

- Faster, easier screen contact
- Optimum EMC protection
- Quicker installation and EMC contacting compared with other systems
- Maximum assembly freedom during adjustment
- Usable with different cable diameters at the same time

### Application range

- For the EMC screen contacting of cables when using the SKINTOP® multi-cable entry systems
- For EMC-compliant earthing of the copper braiding
- Control cabinet manufacturing
- Automation systems

### Product features

- Low-resistance screen contact
- Visible, large-scale screen contact

### Included

- Brush frame
- Spacers
- Mounting material

### Technical data

**Material**
Frame: Aluminium
EMC brush: brass

**Temperature range**
-30°C to +110°C

| Article number | Dimensions overall | Executions range | Borehole | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® BRUSH ADD-ON 24** | | | | |
| 52220089 | 40x120 mm | 47.0 - 120.0 | 4.2 | 1 |

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## SKINTOP® MULTI FLANGE FL21



### Application range

- A flange plate with an attached gasket. The outer dimensions are in Accordance with the Swedish standard SEN 28 09 01. The inner opening is suited for the SKINTOP® MULTI and SKINTOP® CUBE

### Technical data

**Material**
Steel plate, powder-coated
Stainless steel
Sealing: NBR

**Protection rating**
IP 66

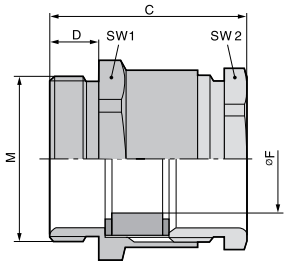
**Temperature range**
-10°C to +70 °C

| Article number | Size | Material | Colour |
|---|---|---|---|
| **SKINTOP® MULTI FLANGE FL21** | | | |
| 52220030 | FL21 | Powder coated steel | RAL7035 |
| 52220031 | FL21 | Stainless steel | Rolled stainless steel |

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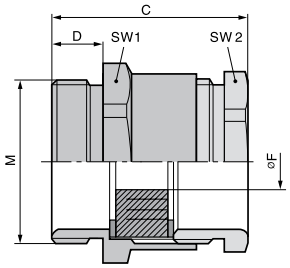
# SKINDICHT® SVRN-M / SKINDICHT® SVRE-M






SKINDICHT® SVRN-M






SKINDICHT® SVRE-M

## Benefits

**SKINDICHT® SVRN-M**

- High mechanical stability
- Optimum strain relief

**SKINDICHT® SVRE-M**

- With incised sealing ring for adjustment to several cable diameters
- Fewer sizes need to be kept in stock

## Application range

**SKINDICHT® SVRN-M**

- Brass cable gland with hexagonal fitting, for fast assembly with a flat spanner.

**SKINDICHT® SVRE-M**

- Brass cable gland with hexagonal fitting and variable incised sealing ring.

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

**SKINDICHT® SVRN-M**

- Counter nut to be used: SKINDICHT® SM-M
- Example order identification:
  SVRN-M 12 / 7 / 5
  12 = Connection thread metric
  7 = Function thread PG
  5 = Clear width F

**SKINDICHT® SVRE-M**

- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
**SKINDICHT® SVRN-M**
Available with long connection thread
**SKINDICHT® SVRE-M**
Available with long connection thread
Available with FKM incised ring

**Material**
**SKINDICHT® SVRN-M**
Body: nickel-plated brass
Sealing ring: CR/NBR
**SKINDICHT® SVRE-M**
Body: nickel-plated brass
Incised seal: CR/NBR

**Protection rating**
IP 54

**Temperature range**
**SKINDICHT® SVRN-M**
-20°C to +100°C
**SKINDICHT® SVRE-M**
-20°C to +80°C

| Article number | Article designation / size | Incised sealing ring ØF (mm) | Max. internal Ø (mm) | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVRN-M** | | | | | | | | | |
| 52104800 | M 12 x 1.5 | | | 7 | 14.0 / 13.0 | 20.6 | 5 | 5 | 100 |
| 52104810 | M 12 x 1.5 | | | 7 | 14.0 / 13.0 | 20.6 | 5 | 6 | 100 |
| 52104820 | M 12 x 1.5 | | | 7 | 14.0 / 13.0 | 20.6 | 5 | 7 | 100 |
| 52104830 | M 16 x 1.5 | | | 9 | 18.0 / 15.0 | 21.6 | 5 | 7 | 100 |
| 52104840 | M 16 x 1.5 | | | 9 | 18.0 / 15.0 | 21.6 | 5 | 8 | 100 |
| 52104850 | M 16 x 1.5 | | | 9 | 18.0 / 15.0 | 21.6 | 5 | 9 | 100 |
| 52104860 | M 20 x 1.5 | | | 11 | 22.0 / 18.0 | 23.6 | 6 | 10 | 50 |
| 52104870 | M 20 x 1.5 | | | 11 | 22.0 / 18.0 | 23.6 | 6 | 11 | 50 |
| 52104890 | M 20 x 1.5 | | | 13.5 | 22.0 / 20.0 | 25.6 | 6 | 12 | 50 |
| 52104900 | M 20 x 1.5 | | | 16 | 24.0 / 22.0 | 26.6 | 6 | 13 | 50 |
| 52104910 | M 20 x 1.5 | | | 16 | 24.0 / 22.0 | 26.6 | 6 | 14 | 50 |
| 52104920 | M 25 x 1.5 | | | 21 | 30.0 / 28.0 | 29.6 | 7 | 18 | 50 |
| 52104930 | M 32 x 1.5 | | | 29 | 40.0 / 37.0 | 32.6 | 8 | 27 | 50 |
| 52104940 | M 40 x 1.5 | | | 36 | 50.0 / 47.0 | 37.6 | 8 | 34 | 20 |
| **SKINDICHT® SVRE-M** | | | | | | | | | |
| 52104980 | M 16 x 1.5 | 5/8 | 10 | 9 | 18.0 / 15.0 | 21.6 | 5 | | 100 |
| 52104990 | M 20 x 1.5 | 7/10/12.5 | 12 | 11 | 22.0 / 18.0 | 23.6 | 6 | | 50 |
| 52105000 | M 20 x 1.5 | 7/10.5/13/16 | 14 | 13.5 | 22.0 / 20.0 | 25.6 | 6 | | 50 |
| 52105010 | M 20 x 1.5 | 8/10.5/13.5/16 | 15 | 16 | 24.0 / 22.0 | 26.6 | 6 | | 50 |
| 52105002 | M 25 x 1.5 | 11/15/18/20 | 20 | 21 | 30.0 / 28.0 | 29.6 | 7 | | 50 |
| 52105003 | M 32 x 1.5 | 19/23/27/31 | 27 | 29 | 40.0 / 37.0 | 32.6 | 8 | | 50 |
| 52105004 | M 40 x 1.5 | 25/28/31/35 | 34 | 36 | 50.0 / 47.0 | 37.6 | 8 | | 20 |
| 52105005 | M 50 x 1.5 | 35.5/39/42.5/46 | 43 | 42 | 57.0 / 54.0 | 42.6 | 9 | | 5 |
| 52105006 | M 63 x 1.5 | 40.5/44/47/50.5 | 48 | 48 | 66.0 / 60.0 | 45.1 | 10 | | 5 |

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# SKINDICHT® SVRX





## Benefits

- EMC version for cables with large cross-sections
- SKINDICHT® SVRX 105 x 2 for cable diameters up to 83 mm

## Application range

- The cable gland is in accordance with DIN 89280, with round intermediate supports made from brass, plain
- Shipbuilding
- Off-Shore
- High-power drives
- Wind power plants

## Note

- EMC counter nuts (with claw) SKINDICHT® SM-PE / SVRX M24-M56 for painted, anodised or powder-coated housing on request
- For more EMC cable glands, refer to SKINTOP® MS-SC-M and MS-M BRUSH, and compatible counter nut SKINDICHT® SM-PE-M

## Product Make-up

- Type “W” for cable without screen (figure 1)
- Type “Z” for cables with screen (figure 2)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
DIN 89280

**Material**
Body: Blank brass
Seal: EPDM

**Protection rating**
IP 56

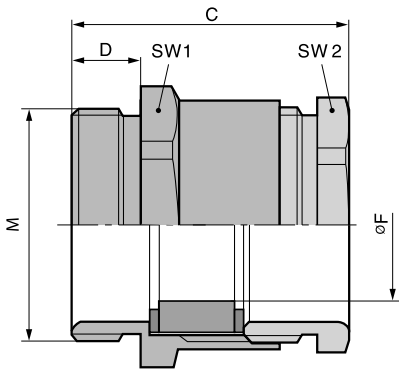
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | PG size | SW wrench size mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® SVRX - version W** | | | | | |
| 52006460 | SVRX 5635 | M 56 x 2 | 55 | 32 - 35 | 1 |
| 52006470 | SVRX 5638 | M 56 x 2 | 55 | 35 - 38 | 1 |
| 52006480 | SVRX 5641 | M 56 x 2 | 55 | 38 - 41 | 1 |
| 52006490 | SVRX 7244 | M 72 x 2 | 70 | 41 - 44 | 1 |
| 52006500 | SVRX 7248 | M 72 x 2 | 70 | 44 - 48 | 1 |
| 52006510 | SVRX 7252 | M 72 x 2 | 70 | 48 - 52 | 1 |
| 52006520 | SVRX 7256 | M 72 x 2 | 70 | 52 - 56 | 1 |
| 52006564 | SVRX 8059 | M 80 x 2 | 85 | 56 - 59 | 1 |
| 52006530 | SVRX 8066 | M 80 x 2 | 85 | 62 - 66 | 1 |
| 52006540 | SVRX 10573 | M 105 x 2 | 104 | 68 - 73 | 1 |
| 52006550 | SVRX 10572 | M 105 x 2 | 104 | 78 - 83 | 1 |
| **SKINDICHT® SVRX - version Z** | | | | | |
| 52006345 | SVRX 2412 | M 24 x 1.5 | 24 | 10 - 12 | 1 |
| 52006355 | SVRX 2414 | M 24 x 1.5 | 24 | 12 - 14 | 1 |
| 52006365 | SVRX 2416 | M 24 x 1.5 | 24 | 14 - 16 | 1 |
| 52006375 | SVRX 2417 | M 24 x 1.5 | 24 | 16 - 17 | 1 |
| 52006425 | SVRX 3626 | M 36 x 2 | 36 | 24 - 26 | 1 |
| 52006465 | SVRX 5635 | M 56 x 2 | 55 | 32 - 35 | 1 |
| 52006475 | SVRX 5638 | M 56 x 2 | 55 | 35 - 38 | 1 |
| 52006485 | SVRX 5641 | M 56 x 2 | 55 | 38 - 41 | 1 |
| 52006495 | SVRX 7244 | M 72 x 2 | 70 | 41 - 44 | 1 |
| 52006505 | SVRX 7248 | M 72 x 2 | 70 | 44 - 48 | 1 |
| 52006515 | SVRX 7252 | M 72 x 2 | 70 | 48 - 52 | 1 |
| 52006565 | SVRX 8059 | M 80 x 2 | 85 | 56 - 59 | 1 |
| 52006535 | SVRX 8066 | M 80 x 2 | 85 | 62 - 66 | 1 |
| 52006545 | SVRX 10573 | M 105 x 2 | 104 | 68 - 73 | 1 |
| **SKINDICHT® SM/SVRX Counter nuts** | | | | | |
| 52006321 | SM 24 | M24 | 30 | | 1 |
| 52006401 | SM 36 | M36 | 41 | | 1 |
| 52006461 | SM 56 | M56 | 65 | | 1 |
| 52006491 | SM 72 | M72 | 85 | | 1 |
| 52006531 | SM 80 | M80 | 90 | | 1 |
| 52006541 | SM 105 | M105 | 120 | | 1 |

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# SKINDICHT® SVFK-M






## Benefits

- Economical type
- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Tolerance
- Large opening allows clamping of up to two flat cables

## Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications
- Counter nut to be used: SKINTOP® GMP-GL-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Colour delivered**
Light grey (RAL 7035)

**Material**
Body: Polyamide
Special sealing insert: CR

**Protection rating**
IP 54

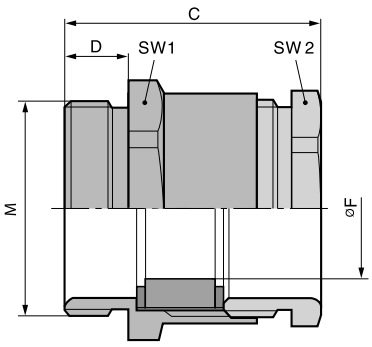
**Temperature range**
-30°C to +80°C

| Article number | Article designation / size | Min./max. flat cable width | Min./max. cable thickness (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVFK-M** | | | | | | | |
| 52107900 | M 25 x 1.5 | - / 15.0 | - / 5.0 | 27.0 / 23.0 | 41.0 | 11 | 25 |
| 52107901 | M 32 x 1.5 | 10.0 / 21.0 | 3.0 - 8.0 | 36.0 / 30.0 | 39.0 | 10 | 25 |
| 52107902 | M 40 x 1.5 | 16.0 / 28.0 | 4.0 - 11.5 | 42.0 / 40.0 | 44.0 | 11 | 25 |
| 52107903 | M 50 x 1.5 | 26.0 / 35.0 | 4.0 - 11.5 | 53.0 / 50.0 | 50.5 | 11 | 5 |
| 52107904 | M 50 x 1.5 | 30.0 / 40.0 | 5.0 - 12.0 | 60.0 / 55.0 | 53.5 | 11 | 5 |
| 52107905 | M 63 x 1.5 | 36.0 / 45.0 | 5.0 - 12.0 | 65.0 / 60.0 | 54.5 | 11 | 5 |

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# SKINDICHT® SVF-M






## Benefits

- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Large opening allows clamping of up to two flat cables
- Optimum strain relief
- Tolerance

## Application range

- For inserting flat cables
- Control cabinet manufacturing
- Conveyor systems
- Pumps
- Lifts

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications
- Counter nut to be used: SKINDICHT® SM-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Special sealing insert: CR

**Protection rating**
IP 54

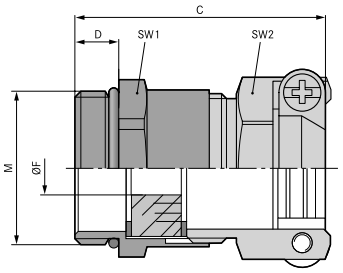
**Temperature range**
-30°C to +100°C

| Article number | Article designation / size | Min./max. flat cable width | Function thread PG | Min./max. cable thickness (mm) | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVF-M** | | | | | | | |
| 52107320 | M 20 x 1.5 | - / 15.0 | 16 | - / 5 | 27.0 | 6 | 25 |
| 52107340 | M 25 x 1.5 | 9.0 / 20.0 | 21 | 3 / 8 | 30.5 | 7 | 25 |
| 52107350 | M 32 x 1.5 | 14.0 / 27.0 | 29 | 4 / 11 | 32.0 | 8 | 10 |
| 52107360 | M 40 x 1.5 | 24.0 / 34.0 | 36 | 4 / 11 | 35.0 | 8 | 10 |
| 52107370 | M 50 x 1.5 | 29.0 / 44.0 | 42 | 5 / 12 | 40.0 | 9 | 5 |
| 52107380 | M 63 x 1.5 | 34.0 / 50.0 | 48 | 5 / 12 | 42.0 | 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SKZ-M






## Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- High mechanical stability

## Application range

- Saddle clamp strain relief gland for harsh application conditions
- Building sites
- Plant engineering
- Electric motor manufacturing

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SHZ-M-XL is similar to the SKINDICHT® SHZ-M, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SKZ-M 16/9
  16 = connection thread
  9 = PG function thread

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR

**Protection rating**
IP 55

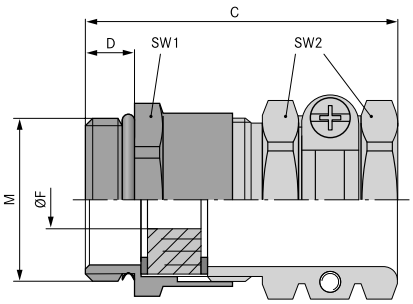
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Clamping range ØF mm | Max. fitting size for installation (mm) | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SKZ-M** | | | | | | | | |
| 52106800 | M 16 x 1.5 | 5.0 - 8.0 | 24 | 9 | 18 / 17 | 29.0 | 5 | 50 |
| 52106810 | M 20 x 1.5 | 7.0 - 12.0 | 27 | 11 | 22 / 20 | 30.0 | 6 | 50 |
| 52106820 | M 20 x 1.5 | 11.0 - 13.0 | 30 | 13.5 | 22 / 22 | 33.5 | 6 | 25 |
| 52106830 | M 20 x 1.5 | 13.0 - 15.0 | 33 | 16 | 24 / 24 | 34.5 | 6 | 25 |
| 52106840 | M 25 x 1.5 | 16.0 - 19.3 | 42 | 21 | 30 / 30 | 41.0 | 7 | 25 |
| 52106850 | M 32 x 1.5 | 19.0 - 27.0 | 58 | 29 | 40 / 41 | 46.0 | 8 | 10 |
| **SKINDICHT® SKZ-M-XL** | | | | | | | | |
| 52106805 | M 16 x 1.5 | 5.0 - 8.0 | 24 | 9 | 18 / 17 | 34.0 | 10 | 50 |
| 52106815 | M 20 x 1.5 | 7.0 - 12.0 | 27 | 11 | 22 / 20 | 34.0 | 10 | 50 |
| 52106825 | M 20 x 1.5 | 11.0 - 13.0 | 30 | 13.5 | 22 / 22 | 37.5 | 10 | 25 |
| 52106835 | M 20 x 1.5 | 13.0 - 15.0 | 33 | 16 | 24 / 24 | 38.5 | 10 | 25 |
| 52106845 | M 25 x 1.5 | 16.0 - 19.3 | 42 | 21 | 30 / 30 | 45.0 | 11 | 25 |
| 52106855 | M 32 x 1.5 | 19.0 - 27.0 | 58 | 29 | 40 / 41 | 51.0 | 13 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SHZ-M






## Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- Robust
- For cables with large outer diameters

## Application range

- Compact brass cable gland for reliable strain relief, solid, for large cable diameters.

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SHZ-M-XL is similar to the SKINDICHT® SHZ-M, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SHZ-M 16/9
  16 = metric connection thread
  9 = PG function thread

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Sealing ring: CR/NBR
O-ring: NBR

**Protection rating**
IP 55

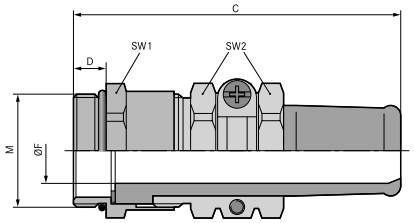
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Clamping range ØF mm | Max. fitting size for installation (mm) | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHZ-M** | | | | | | | | |
| 52106700 | M 12 x 1.5 | 5.5 - 6.5 | 21 | 7 | 14 / 15 | 30.0 | 5 | 50 |
| 52106710 | M 16 x 1.5 | 5.0 - 8.0 | 25 | 9 | 18 / 17 | 33.0 | 5 | 50 |
| 52106720 | M 20 x 1.5 | 8.0 - 12.0 | 28 | 11 | 22 / 20 | 35.0 | 6 | 25 |
| 52106730 | M 20 x 1.5 | 8.5 - 13.0 | 32 | 13.5 | 22 / 22 | 39.5 | 6 | 25 |
| 52106740 | M 20 x 1.5 | 8.0 - 15.0 | 35 | 16 | 24 / 24 | 41.5 | 6 | 25 |
| 52106750 | M 25 x 1.5 | 14.0 - 19.3 | 46 | 21 | 30 / 30 | 47.0 | 7 | 25 |
| 52106760 | M 32 x 1.5 | 19.0 - 27.0 | 58 | 29 | 40 / 41 | 53.0 | 8 | 10 |
| 52106770 | M 40 x 1.5 | 27.0 - 34.0 | 70 | 36 | 50 / 50 | 60.0 | 8 | 10 |
| 52106780 | M 50 x 1.5 | 35.0 - 43.0 | 78 | 42 | 57 / 57 | 65.0 | 9 | 5 |
| 52106790 | M 63 x 1.5 | 40.0 - 47.5 | 86 | 48 | 66 / 64 | 68.0 | 10 | 5 |
| **SKINDICHT® SHZ-M-XL** | | | | | | | | |
| 52106705 | M 12 x 1.5 | 5.5 - 6.5 | 21 | 7 | 14 / 15 | 35.0 | 10 | 50 |
| 52106715 | M 16 x 1.5 | 5.0 - 8.0 | 25 | 9 | 18 / 17 | 38.0 | 10 | 50 |
| 52106725 | M 20 x 1.5 | 8.0 - 12.0 | 28 | 11 | 22 / 20 | 39.0 | 10 | 25 |
| 52106735 | M 20 x 1.5 | 8.5 - 13.0 | 32 | 13.5 | 22 / 22 | 43.5 | 10 | 25 |
| 52106745 | M 20 x 1.5 | 9.0 - 14.5 | 35 | 16 | 24 / 24 | 45.5 | 10 | 25 |
| 52106755 | M 25 x 1.5 | 14.0 - 19.3 | 46 | 21 | 30 / 30 | 51.0 | 11 | 25 |
| 52106765 | M 32 x 1.5 | 19.0 - 27.0 | 58 | 29 | 40 / 41 | 58.0 | 13 | 10 |
| 52106775 | M 40 x 1.5 | 27.0 - 34.0 | 70 | 36 | 50 / 50 | 67.0 | 13 | 10 |
| 52106785 | M 50 x 1.5 | 35.0 - 43.0 | 78 | 42 | 57 / 57 | 70.0 | 14 | 5 |
| 52106795 | M 63 x 1.5 | 40.0 - 47.5 | 86 | 48 | 66 / 64 | 73.0 | 14 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SR-M






## Benefits

- Reliable bending and anti-kink protection
- High strain relief
- Robust
- For cables with large outer diameters
- High degree of protection

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Portable equipment
- Building sites
- Moving machine parts

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Counter nut to be used: SKINDICHT® SM-M
- For EMC version, refer to SKINDICHT® SRE-M
- Example description:
  SR-M 12/7/5
  12 = metric connection thread
  7 = PG function thread
  5 = clear opening of seal

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Metal parts: nickel-plated brass
O-ring: NBR
Anti-kink protection: CR/NBR

**Protection rating**
IP 65

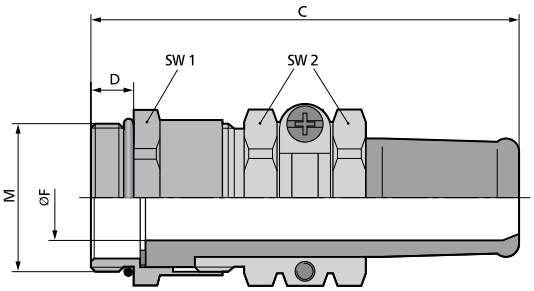
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SR-M** | | | | | | | | | |
| 52106410 | M 12 x 1.5 | 4.0 - 5.0 | 23 | 7 | 14 / 15 | 49.0 | 5 | 5 | 50 |
| 52106420 | M 16 x 1.5 | 5.5 - 7.0 | 25 | 9 | 18 / 17 | 50.0 | 5 | 7 | 50 |
| 52106430 | M 20 x 1.5 | 5.5 - 7.0 | 28 | 11 | 22 / 20 | 55.0 | 6 | 7 | 25 |
| 52106440 | M 20 x 1.5 | 7.5 - 9.0 | 28 | 11 | 22 / 20 | 55.0 | 6 | 9 | 25 |
| 52106450 | M 20 x 1.5 | 7.5 - 9.0 | 32 | 13.5 | 22 / 22 | 60.0 | 6 | 9 | 25 |
| 52106460 | M 20 x 1.5 | 9.0 - 11.0 | 32 | 13.5 | 22 / 22 | 60.0 | 6 | 11 | 25 |
| 52106470 | M 20 x 1.5 | 11.0 - 13.0 | 32 | 13.5 | 22 / 22 | 60.0 | 6 | 13 | 25 |
| 52106480 | M 20 x 1.5 | 12.0 - 13.0 | 35 | 16 | 24 / 24 | 65.0 | 6 | 13 | 25 |
| 52106481 | M 20 x 1.5 | 13.0 - 15.0 | 35 | 16 | 24 / 24 | 66.0 | 6 | 15 | 25 |
| 52106490 | M 25 x 1.5 | 12.5 - 15.0 | 46 | 21 | 30 / 30 | 78.5 | 7 | 15 | 25 |
| 52106500 | M 25 x 1.5 | 14.0 - 17.0 | 46 | 21 | 30 / 30 | 78.5 | 7 | 17 | 25 |
| 52106510 | M 25 x 1.5 | 17.0 - 19.0 | 46 | 21 | 30 / 30 | 78.5 | 7 | 19 | 25 |
| 52106520 | M 25 x 1.5 | 17.0 - 20.0 | 46 | 21 | 30 / 30 | 78.5 | 7 | 20 | 25 |
| 52106530 | M 32 x 1.5 | 19.0 - 20.0 | 59 | 29 | 40 / 41 | 90.5 | 8 | 20 | 10 |
| 52106540 | M 32 x 1.5 | 22.0 - 23.0 | 59 | 29 | 40 / 41 | 90.5 | 8 | 23 | 10 |
| 52106550 | M 32 x 1.5 | 23.0 - 25.0 | 59 | 29 | 40 / 41 | 90.5 | 8 | 25 | 10 |
| 52106560 | M 40 x 1.5 | 24.0 - 26.0 | 70 | 36 | 50 / 50 | 108.0 | 8 | 26 | 5 |
| 52106570 | M 40 x 1.5 | 28.0 - 30.0 | 70 | 36 | 50 / 50 | 108.0 | 8 | 30 | 5 |
| 52106580 | M 40 x 1.5 | 31.0 - 33.0 | 70 | 36 | 50 / 50 | 108.0 | 8 | 33 | 5 |
| 52106590 | M 40 x 1.5 | 33.0 - 34.5 | 70 | 36 | 50 / 50 | 108.0 | 8 | 35 | 5 |
| 52106600 | M 50 x 1.5 | 31.0 - 34.5 | 75 | 42 | 57 / 57 | 111.0 | 9 | 35 | 5 |
| 52106610 | M 50 x 1.5 | 32.0 - 38.0 | 75 | 42 | 57 / 57 | 111.0 | 9 | 38 | 5 |
| 52106620 | M 50 x 1.5 | 37.0 - 40.0 | 75 | 42 | 57 / 57 | 111.0 | 9 | 40 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SR-SV-M






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- High strain relief
- Robust

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Special cable gland with FKM anti-kink sleeve. Our own reinforced acid-resistant FKM receptacle does not show any effects of aging even after an extended period of use at a temperature of +165°C.
- Machine and turbine manufacturing
- Power plant engineering
- Laboratory

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Counter nut to be used: SKINDICHT® SM-M
- EMC version is available upon request
- Example description:
  SR-SV-M 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of seal

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass
O-ring: FKM
Anti-kink protection: FKM

**Protection rating**
IP 65

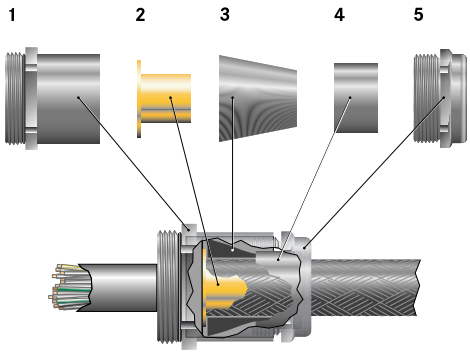
**Temperature range**
-20°C to +165°C

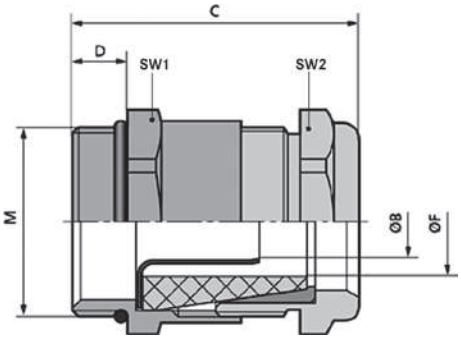
| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SR-SV-M** | | | | | | | | | |
| 52105820 | M 20 x 1.5 | 5.5 - 7.0 | 28 | 11 | 22 / 20 | 56.0 | 6 | 7 | 25 |
| 52105830 | M 20 x 1.5 | 7.5 - 9.0 | 28 | 11 | 22 / 20 | 56.0 | 6 | 9 | 25 |
| 52105840 | M 20 x 1.5 | 7.5 - 9.0 | 32 | 13.5 | 22 / 22 | 61.5 | 6 | 9 | 25 |
| 52105850 | M 20 x 1.5 | 8.5 - 11.0 | 32 | 13.5 | 22 / 22 | 61.5 | 6 | 11 | 25 |
| 52105860 | M 20 x 1.5 | 10.5 - 13.0 | 32 | 13.5 | 22 / 22 | 61.5 | 6 | 13 | 25 |
| 52105870 | M 20 x 1.5 | 11.0 - 13.0 | 35 | 16 | 24 / 24 | 66.5 | 6 | 13 | 10 |
| 52105880 | M 20 x 1.5 | 12.0 - 15.0 | 35 | 16 | 24 / 24 | 66.5 | 6 | 15 | 10 |
| 52105890 | M 25 x 1.5 | 13.5 - 15.0 | 40 | 21 | 30 / 30 | 79.0 | 7 | 15 | 10 |
| 52105900 | M 25 x 1.5 | 15.5 - 17.0 | 46 | 21 | 30 / 30 | 79.0 | 7 | 17 | 10 |
| 52105910 | M 25 x 1.5 | 16.5 - 19.0 | 46 | 21 | 30 / 30 | 79.0 | 7 | 19 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SHVE-M






## Benefits

- Optimum, low-resistance 360° screen contact
- High degree of protection
- High strain relief

## Application range

- Earthing gland, for applications where electrical interference fields can occur.
- Medical engineering
- Frequency converters
- Airports
- Measurement and control technology

## Product Make-up

- 1 fitting
- 2 earth sleeves
- 3 sealing cones
- 4 cone, brass
- 5 compression screws

## Note

- Counter nut to be used: SKINDICHT® SM-M
- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- For more EMC cable glands, refer to SKINTOP® MS-SC-M and MS-M BRUSH, and compatible counter nut SKINDICHT® SM-PE-M
- Example order identification:
  SHVE-M 20 / 16 / 15 / 11
  20 = Connection thread metric
  16 = Function thread PG
  15 = Clear width of sealing cone (F)
  11 = Clear width of earthing sleeve (B)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Earthing sleeve: blank brass
Sealing cone: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar

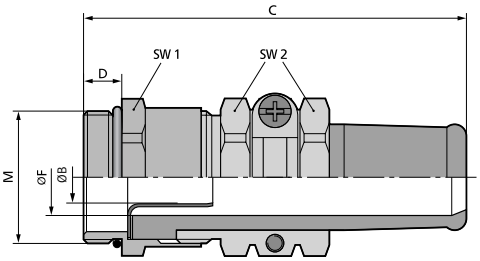
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Function thread PG | Outer sheath clamping range ØF mm | Inner sheath clamping range (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening earthing sleeve ØB | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHVE-M** | | | | | | | | | | |
| 52106860 | M 16 x 1.5 | 9 | 4.5 - 5.8 | 2.2 - 3.2 | 18 / 17 | 26.5 | 5 | 3.2 | 6 | 25 |
| 52106870 | M 16 x 1.5 | 9 | 4.5 - 6.8 | 2.2 - 3.2 | 18 / 17 | 26.5 | 5 | 3.2 | 7 | 25 |
| 52106880 | M 16 x 1.5 | 9 | 5.5 - 5.8 | 2.6 - 3.6 | 18 / 17 | 26.5 | 5 | 3.6 | 6 | 25 |
| 52106890 | M 16 x 1.5 | 9 | 5.5 - 6.8 | 2.6 - 3.6 | 18 / 17 | 26.5 | 5 | 3.6 | 7 | 25 |
| 52106910 | M 20 x 1.5 | 11 | 3.0 - 6.8 | 3.5 - 4.5 | 22 / 20 | 31.0 | 6 | 4.5 | 7 | 25 |
| 52106920 | M 20 x 1.5 | 11 | 6.0 - 8.8 | 3.5 - 4.5 | 22 / 20 | 31.0 | 6 | 4.5 | 9 | 25 |
| 52106930 | M 20 x 1.5 | 13.5 | 6.5 - 8.8 | 3.5 - 5.0 | 22 / 22 | 32.0 | 6 | 5 | 9 | 25 |
| 52106940 | M 20 x 1.5 | 13.5 | 6.0 - 8.8 | 4.5 - 6.0 | 22 / 22 | 32.0 | 6 | 6 | 9 | 25 |
| 52106950 | M 20 x 1.5 | 13.5 | 8.0 - 10.8 | 5.5 - 7.0 | 22 / 22 | 32.0 | 6 | 7 | 11 | 25 |
| 52106960 | M 20 x 1.5 | 16 | 8.5 - 10.8 | 6.0 - 8.0 | 24 / 24 | 34.5 | 6 | 8 | 11 | 25 |
| 52106970 | M 20 x 1.5 | 16 | 10.0 - 12.8 | 7.0 - 9.0 | 24 / 24 | 34.5 | 6 | 9 | 13 | 25 |
| 52106980 | M 20 x 1.5 | 16 | 10.0 - 12.8 | 8.0 - 10.0 | 24 / 24 | 34.5 | 6 | 10 | 13 | 25 |
| 52106990 | M 20 x 1.5 | 16 | 12.5 - 14.8 | 9.00 - 11.0 | 24 / 24 | 34.5 | 6 | 11 | 15 | 25 |
| 52107000 | M 25 x 1.5 | 21 | 13.0 - 15.8 | 100 - 12.0 | 30 / 30 | 39.0 | 7 | 12 | 16 | 25 |
| 52107010 | M 25 x 1.5 | 21 | 13.0 - 15.8 | 11.0 - 13.0 | 30 / 30 | 39.0 | 7 | 13 | 16 | 25 |
| 52107020 | M 25 x 1.5 | 21 | 15.5 - 17.8 | 12.0 - 14.0 | 30 / 30 | 39.0 | 7 | 14 | 18 | 25 |
| 52107030 | M 25 x 1.5 | 21 | 15.0 - 17.8 | 13.0 - 15.0 | 30 / 30 | 39.0 | 7 | 15 | 18 | 25 |
| 52107040 | M 25 x 1.5 | 21 | 17.5 - 19.8 | 14.0 - 16.0 | 30 / 30 | 39.0 | 7 | 16 | 20 | 25 |
| 52107050 | M 32 x 1.5 | 29 | 19.0 - 21.8 | 15.0 - 17.0 | 40 / 40 | 45.5 | 8 | 17 | 22 | 10 |
| 52107060 | M 32 x 1.5 | 29 | 18.0 - 23.8 | 16.0 - 18.0 | 40 / 40 | 45.5 | 8 | 18 | 22 | 10 |
| 52107070 | M 32 x 1.5 | 29 | 20.0 - 23.8 | 17.0 - 19.0 | 40 / 40 | 45.5 | 8 | 19 | 24 | 10 |
| 52107080 | M 32 x 1.5 | 29 | 23.0 - 25.8 | 17.0 - 19.0 | 40 / 40 | 45.5 | 8 | 19 | 26 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SRE-M






## Benefits

- Perfect seal with anti-kink protection
- Optimum, low-resistance 360° screen contact
- Cable-protecting strain relief
- Gentle cable clamping
- High degree of protection

## Application range

- Earthing gland with additional anti-kink protection. For applications where electrical interference fields can occur.
- Moving machine parts
- Conveyor and transport systems
- Production lines
- Measurement and control technology

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Example description:
  SRE-M 20/13.5/9/6
  20 = metric connection thread
  13.5 = PG function thread
  9 = clear opening of anti-kink sleeve (F)
  6 = clear opening of earthing sleeve (B)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass
Earthing sleeve: plain brass
Anti-kink sleeve: CR/NBR
O-ring: NBR

**Protection rating**
IP 65

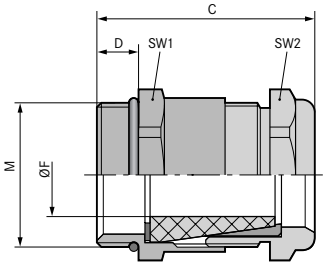
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Function thread PG | Outer sheath clamping range ØF mm | Inner sheath clamping range (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening earthing sleeve ØB | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SRE-M** | | | | | | | | | | |
| 52105600 | M 20 x 1.5 | 13.5 | 7.5 - 9.0 | 4.5 - 6.0 | 22 / 22 | 59.5 | 6 | 6 | 9 | 25 |
| 52105610 | M 20 x 1.5 | 13.5 | 9.0 - 11.0 | 5.5 - 7.0 | 22 / 22 | 59.5 | 6 | 7 | 11 | 25 |
| 52105620 | M 20 x 1.5 | 16 | 11.0 - 13.0 | 7.0 - 9.0 | 24 / 24 | 64.5 | 6 | 9 | 13 | 25 |
| 52105630 | M 20 x 1.5 | 16 | 11.0 - 13.0 | 8.0 - 10.0 | 24 / 24 | 64.5 | 6 | 10 | 13 | 25 |
| 52105640 | M 20 x 1.5 | 16 | 13.5 - 15.0 | 9.0 - 11.0 | 24 / 24 | 64.5 | 6 | 11 | 15 | 25 |
| 52105650 | M 25 x 1.5 | 21 | 13.5 - 15.0 | 10.0 - 12.0 | 30 / 30 | 78.0 | 7 | 12 | 15 | 25 |
| 52105660 | M 25 x 1.5 | 21 | 15.0 - 17.0 | 12.0 - 14.0 | 30 / 30 | 78.0 | 7 | 14 | 17 | 25 |
| 52105670 | M 25 x 1.5 | 21 | 17.0 - 19.0 | 13.0 - 15.0 | 30 / 30 | 78.0 | 7 | 15 | 19 | 25 |
| 52105680 | M 25 x 1.5 | 21 | 18.0 - 20.0 | 14.0 - 16.0 | 30 / 30 | 78.0 | 7 | 16 | 20 | 25 |
| 52105690 | M 32 x 1.5 | 29 | 18.0 - 20.0 | 15.0 - 17.0 | 40 / 40 | 90.0 | 8 | 17 | 20 | 10 |
| 52105700 | M 32 x 1.5 | 29 | 21.0 - 23.0 | 17.0 - 19.0 | 40 / 40 | 90.0 | 8 | 19 | 23 | 10 |
| 52105710 | M 40 x 1.5 | 36 | 23.5 - 26.0 | 20.0 - 22.0 | 50 / 50 | 108.0 | 8 | 22 | 26 | 5 |
| 52105720 | M 40 x 1.5 | 36 | 27.0 - 30.0 | 22.0 - 24.0 | 50 / 50 | 108.0 | 8 | 24 | 30 | 5 |
| 52105730 | M 40 x 1.5 | 36 | 30.0 - 33.0 | 26.0 - 28.0 | 50 / 50 | 108.0 | 8 | 28 | 33 | 5 |
| 52105740 | M 40 x 1.5 | 36 | 32.0 - 35.0 | 28.0 - 30.0 | 50 / 50 | 108.0 | 8 | 30 | 35 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SHV-M






## Benefits

- Watertight
- Gentle cable clamping
- Robust
- High strain relief

## Application range

- Watertight cable gland with conical sealing element.
- Pumps
- Floater switches

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Counter nut to be used: SKINDICHT® SM-M
- Suitable accessory: SKINDICHT® SHV sealing cones
- Example description:
  SHV-M 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of sealing cone

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Sealing cone: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +80°C

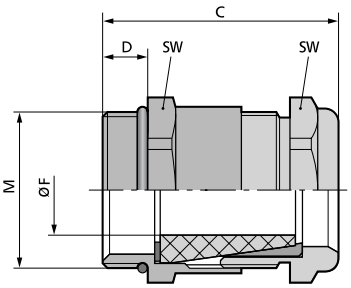
| Article number | Article designation / size | Ø F mm | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHV-M** | | | | | | | | |
| 52105270 | M 12 x 1.5 | 3 - 4.8 | 7 | 14.0 / 14.0 | 26.0 | 5 | 5 | 50 |
| 52105280 | M 16 x 1.5 | 4.5 - 5.8 | 9 | 18.0 / 17.0 | 26.5 | 5 | 6 | 50 |
| 52105290 | M 16 x 1.5 | 5.5 - 6.8 | 9 | 18.0 / 17.0 | 26.5 | 5 | 7 | 50 |
| 52105300 | M 20 x 1.5 | 6 - 6.8 | 11 | 22.0 / 20.0 | 31.0 | 6 | 7 | 25 |
| 52105310 | M 20 x 1.5 | 6.5 - 8.8 | 11 | 22.0 / 20.0 | 31.0 | 6 | 9 | 25 |
| 52105320 | M 20 x 1.5 | 6.5 - 8.8 | 13.5 | 22.0 / 22.0 | 32.5 | 6 | 9 | 25 |
| 52105330 | M 20 x 1.5 | 9 - 10.8 | 13.5 | 22.0 / 22.0 | 32.5 | 6 | 11 | 25 |
| 52105340 | M 20 x 1.5 | 9 - 10.8 | 16 | 24.0 / 24.0 | 34.5 | 6 | 11 | 25 |
| 52105350 | M 20 x 1.5 | 9.5 - 12.8 | 16 | 24.0 / 24.0 | 34.5 | 6 | 13 | 25 |
| 52105360 | M 20 x 1.5 | 13 - 14.8 | 16 | 24.0 / 24.0 | 34.5 | 6 | 15 | 25 |
| 52105370 | M 25 x 1.5 | 13.5 - 15.8 | 21 | 30.0 / 30.0 | 38.5 | 7 | 16 | 25 |
| 52105380 | M 25 x 1.5 | 15 - 17.8 | 21 | 30.0 / 30.0 | 38.5 | 7 | 18 | 25 |
| 52105390 | M 25 x 1.5 | 17.5 - 19.8 | 21 | 30.0 / 30.0 | 38.5 | 7 | 20 | 25 |
| 52105400 | M 32 x 1.5 | 17.5 - 21.8 | 29 | 40.0 / 40.0 | 42.5 | 8 | 22 | 10 |
| 52105410 | M 32 x 1.5 | 19 - 23.8 | 29 | 40.0 / 40.0 | 42.5 | 8 | 24 | 10 |
| 52105420 | M 32 x 1.5 | 23 - 25.8 | 29 | 40.0 / 40.0 | 42.5 | 8 | 26 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINDICHT® SHV-M FKM






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Watertight
- High strain relief
- Robust

## Application range

- Watertight and high temperature-resistant cable gland with special conical FKM sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

## Product Make-up

- 1 fitting
- 2 washers
- 3 FKM sealing cone
- 4 brass cones
- 5 compression screws

## Note

- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SHV-M-FKM 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of sealing cone

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Sealing cone: FKM
O-ring: FKM

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +200°C

| Article number | Article designation / size | Ø F mm | Function thread PG | SW1/SW2 mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHV-M FKM** | | | | | | | | |
| 52105430 | M 12 x 1.5 | 3.8 - 4.8 | 7 | 14.0 / 14.0 | 26.0 | 5 | 5 | 50 |
| 52105440 | M 16 x 1.5 | 4.8 - 5.8 | 9 | 18.0 / 17.0 | 27.5 | 5 | 6 | 50 |
| 52105450 | M 16 x 1.5 | 5.8 - 6.8 | 9 | 18.0 / 17.0 | 27.5 | 5 | 7 | 50 |
| 52105460 | M 20 x 1.5 | 5.8 - 6.8 | 11 | 22.0 / 20.0 | 31.0 | 6 | 7 | 25 |
| 52105470 | M 20 x 1.5 | 6.8 - 8.8 | 11 | 22.0 / 20.0 | 31.0 | 6 | 9 | 25 |
| 52105480 | M 20 x 1.5 | 8.5 - 10.8 | 13.5 | 22.0 / 22.0 | 32.5 | 6 | 11 | 25 |
| 52105490 | M 20 x 1.5 | 6.8 - 8.8 | 13.5 | 22.0 / 22.0 | 32.5 | 6 | 9 | 25 |
| 52105500 | M 20 x 1.5 | 10.8 - 12.8 | 16 | 24.0 / 24.0 | 34.5 | 6 | 13 | 25 |
| 52105510 | M 20 x 1.5 | 13.8 - 14.8 | 16 | 24.0 / 24.0 | 34.5 | 6 | 15 | 25 |
| 52105520 | M 25 x 1.5 | 15.8 - 17.8 | 21 | 30.0 / 30.0 | 38.0 | 7 | 18 | 25 |
| 52105530 | M 25 x 1.5 | 17.5 - 19.8 | 21 | 30.0 / 30.0 | 38.0 | 7 | 20 | 25 |
| 52105540 | M 32 x 1.5 | 19.5 - 21.8 | 29 | 40.0 / 40.0 | 44.5 | 8 | 22 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINDICHT® MINI NBR / SKINDICHT® MINI FKM / SKINDICHT® MINI COLD



SKINDICHT® MINI NBR



SKINDICHT® MINI FKM



SKINDICHT® MINI COLD

## Benefits

- High degree of protection
- For the smallest conductor sizes
- Low height
- Gentle cable clamping
- High packing density

## Application range

- For use wherever there is limited assembly space
- Sensors
- Measurement and control technology

## Product features

**SKINDICHT® MINI NBR**

- Suitable for use in oily surroundings

**SKINDICHT® MINI FKM**

- Suitable for high temperature and aggressive media surroundings

**SKINDICHT® MINI COLD**

- Suitable for extreme minus temperatures

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Recommendation of torque
M 6 x 1 1,5 Nm
M 8 x 1 3,0 Nm
M 10 x 1 6,0 Nm

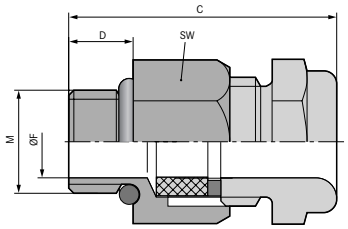
**Material**
**SKINDICHT® MINI NBR**
Body: Nickel-plated brass
Sealing: CR/NBR
**SKINDICHT® MINI FKM**
Body: Nickel-plated brass
Sealing: FKM
**SKINDICHT® MINI COLD**
Body: Nickel-plated brass
Sealing: Silicone

**Protection rating**
IP 66
IP 68 - 5 bar

**Temperature range**
**SKINDICHT® MINI NBR**
-20°C to +100°C
**SKINDICHT® MINI FKM**
-20°C up to +200°C
**SKINDICHT® MINI COLD**
-60°C to +100°C

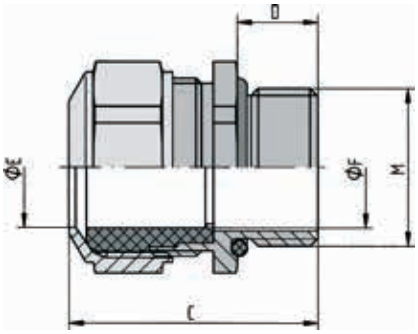
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Clear opening F (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® MINI NBR** | | | | | | | |
| 52001860 | M 6 x 1 | 2 - 3 | 9 | 19.7 | 5 | 3 | 50 |
| 52001880 | M 8 x 1 | 3.5 - 5.5 | 11 | 21.5 | 5 | 5 | 50 |
| 52001895 | M 10 x 1 | 5.5 - 7 | 14 | 22.3 | 5 | 7 | 50 |
| **SKINDICHT® MINI FKM** | | | | | | | |
| 52001889 | M 6 x 1 | 2 - 3 | 9 | 19.7 | 5 | 3 | 50 |
| 52001887 | M 8 x 1 | 3.5 - 5.5 | 11 | 21.5 | 5 | 5 | 50 |
| 52001894 | M 10 x 1 | 5.5 - 7 | 14 | 22.3 | 5 | 7 | 50 |
| **SKINDICHT® MINI COLD** | | | | | | | |
| 52001877 | M 6 x 1 | 2 - 3 | 9 | 19.7 | 5 | 3 | 50 |
| 52001878 | M 8 x 1 | 3.5 - 5.5 | 11 | 21.5 | 5 | 5 | 50 |
| 52001879 | M 10 x 1 | 5.5 - 7 | 14 | 22.3 | 5 | 7 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINDICHT® CN-M






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- For high mechanical stress
- High corrosion-resistance

## Application range

- Chromium nickel steel cable gland with FPM seal, specially designed for use under tough conditions
- Pharmaceutical and petrochemical industry
- Offshore sector
- Wind power plants
- Brickworks

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM-M INOX

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: chrome-nickel steel in accordance with DIN, material no. 1.4305
Inner seal: FPM
O-ring: FPM

**Protection rating**
IP 68 - 5 bar
IP 69

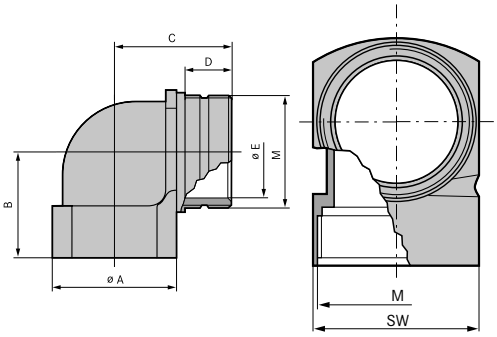
**Temperature range**
-40°C to +200°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® CN-M** | | | | | | |
| 52032580 | M 12 x 1.5/1 | 3.5 - 5 | 17 | 27.0 | 10 | 5 |
| 52032590 | M 12 x 1.5/2 | 5 - 6.5 | 17 | 27.0 | 10 | 5 |
| 52032600 | M 12 x 1.5/3 | 6.5 - 8 | 17 | 27.0 | 10 | 5 |
| 52032610 | M 16 x 1.5 | 8 - 10.5 | 18 | 30.0 | 10 | 5 |
| 52032620 | M 20 x 1.5 | 11 - 15 | 24 | 31.0 | 10 | 5 |
| 52032630 | M 25 x 1.5 | 16 - 20.5 | 30 | 36.0 | 11 | 5 |
| 52032640 | M 32 x 1.5 | 21 - 25.5 | 36 | 41.0 | 13 | 5 |
| 52032650 | M 40 x 1.5 | 28.5 - 33 | 46 | 44.0 | 13 | 1 |
| 52032660 | M 50 x 1.5 | 37 - 42 | 55 | 48.0 | 14 | 1 |
| 52032670 | M 63 x 1.5 | 46 - 52 | 70 | 51.0 | 14 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® KW-M






## Benefits

- Space- and weight-saving application due to thin cable diameters
- Decrease in installation height

## Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Light and sound applications
- Control cabinet manufacturing

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Refer to SKINDICHT® O-ring NBR for suitable O-rings
- SKINDICHT® KW-M can be combined with any cable gland, in particular with SKINTOP® ST-M
- Counter nut to be used: SKINTOP® GMP-GL-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Polyamide, glass fibre-reinforced

**Protection rating**
IP 55

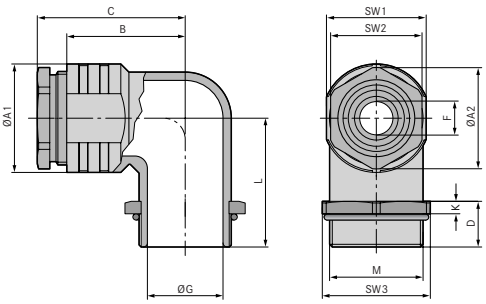
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | A mm | B in mm | Ø E mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® KW-M** | | | | | | | | |
| 52106210 | M 16 x 1.5 | 19 | 21.5 | 11 | 19 | 24.0 | 13 | 25 |
| 52106220 | M 20 x 1.5 | 25 | 24.5 | 15 | 25 | 29.5 | 15 | 25 |
| 52106230 | M 25 x 1.5 | 30 | 28 | 20 | 30 | 33.5 | 16 | 25 |
| 52106240 | M 32 x 1.5 | 36 | 31.5 | 26 | 36 | 38.0 | 17 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® RWV-M






## Benefits

- Sealed by incised sealing ring
- Corrosion-resistant
- Decrease in installation height
- Seawater-resistant

## Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- Counter nut to be used: SKINDICHT® SM-M

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: zinc die-casting, nickel-plated
Compression screw and hexagon nut: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR

**Protection rating**
IP 55

**Temperature range**
-20°C to +100°C

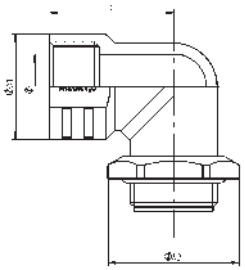
| Article number | Article designation / size | Ø F mm | L | SW1 | Ø A1 | SW2 | Ø A2 | Ø G | Height (mm) | Overall length C mm | Thread length D mm | SW3 | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® RWV-M** | | | | | | | | | | | | | |
| 52107800 | M 12 x 1.5 | 5.0 | 20.5 | 14.0 | 16 | 12.0 | 13.2 | 8 | 5.0 | 26.1 | 11.5 | 17 | 25 |
| 52107810 | M 16 x 1.5 | 9.0 - 3.0 | 23.5 | 18.0 | 20 | 16.0 | 17.6 | 12 | 5.0 | 28.6 | 11.5 | 22 | 25 |
| 52107820 | M 20 x 1.5 | 13.0 - 4.0 | 28.5 | 22.0 | 24 | 20.0 | 22.2 | 15 | 5.0 | 35.1 | 12.5 | 27 | 25 |
| 52107830 | M 25 x 1.5 | 17.5 - 8.5 | 31 | 27.0 | 29 | 25.0 | 27.5 | 20 | 5.0 | 38.1 | 13.5 | 32 | 10 |
| 52107840 | M 32 x 1.5 | 25.0 - 16.0 | 33 | 34.0 | 36 | 32.0 | 35.2 | 27 | 5.0 | 44.6 | 13.5 | 41 | 10 |
| 52107850 | M 40 x 1.5 | 32.0 - 23.0 | 43 | 42.0 | 45 | 40.0 | 43.5 | 35 | 5.0 | 53.1 | 15.5 | 46 | 5 |

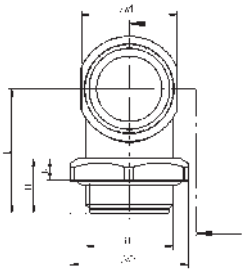
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINDICHT® RWV-M without E+D







## Benefits

- Combination of different conduit glands is possible
- Space- and weight-saving application due to thin cable diameters
- Decrease in installation height
- Cable runs parallel to the housing wall
- Corrosion-resistant

## Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Note

- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.
- Counter nut to be used: SKINDICHT® SM-M
- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® RWV-M without incised sealing ring (E) and compression screw (D)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: zinc die-casting
Hexagon nut: nickel-plated brass
O-ring: NBR

**Protection rating**
IP 55

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | B in mm | Thread length D mm | K | L | SW1 | Ø A1 | SW2 | Ø A2 | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® RWV-M without E+D** | | | | | | | | | | |
| 52107801 | M 12 x 1.5 | 21 | 11.5 | 5 | 21 | 14.0 | 16 | 17.0 | 18.9 | 25 |
| 52107811 | M 16 x 1.5 | 23 | 11.5 | 5 | 24 | 18.0 | 20 | 22.0 | 24.5 | 25 |
| 52107821 | M 20 x 1.5 | 28.5 | 12.5 | 5 | 29 | 22.0 | 24 | 27.0 | 30.1 | 25 |
| 52107831 | M 25 x 1.5 | 30 | 13.5 | 5 | 31 | 27.0 | 29 | 32.0 | 35.7 | 10 |
| 52107841 | M 32 x 1.5 | 33.5 | 13.5 | 5 | 33 | 34.0 | 33.5 | 41.0 | 45.6 | 10 |
| 52107851 | M 40 x 1.5 | 43 | 15.5 | 5 | 43 | 42.0 | 43 | 46.0 | 50.6 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SE-M



SKINDICHT® SE-M

## Benefits

**SKINDICHT® SE-M**

- Sealed by incised sealing ring
- Corrosion-resistant
- Easy to install
- Completely safe cable entry
- Low overall height

## Application range

- For high mechanical stress
- When no connection thread is provided

## Product Make-up

**SKINDICHT® SE-M**

- M20 x 1.5 - M25 x 1.5 with 2 screw holes
  M32 x 1.5 with 4 screw holes
- With incised sealing ring

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
**SKINDICHT® SE-M**
Body: zinc die-casting, grey, hammer tone finish
Compression screw: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR

**Protection rating**
IP 55

**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Incised sealing ring ØF (mm) | Overall height (mm) | SW wrench size mm | Overall length C mm | Overall width (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SE-M** | | | | | | | |
| 52108000 | M 20 x 1.5 | 4/7/10/13 | 31 | 20 | 49.2 | 42 | 10 |
| 52108010 | M 25 x 1.5 | 8.5/11.5/14.5/17.5 | 40 | 25 | 68.2 | 60 | 5 |
| 52108020 | M 32 x 1.5 | 16/19/22/25 | 51.5 | 32 | 84.2 | 66 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SE-M without E+D



## Benefits

- Combination of different conduit glands is possible
- Corrosion-resistant
- Easy to install
- Completely safe cable entry
- Low overall height

## Application range

- The flange angle gland can be combined with all glands (including O-ring) e.g. strain relief, bending protection and conduit glands
- For high mechanical stress
- When no connection thread is provided

## Product Make-up

- M20 x 1.5 - M25 x 1.5 with 2 screw holes M32 x 1.5 with 4 screw holes

## Note

- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.
- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® SE-M without incised sealing ring (E) and compression screw (D)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: zinc die-casting, grey, hammer tone finish
O-ring: NBR

**Protection rating**
IP 55

**Temperature range**
-20 °C to +100 °C

| Article number | Article designation / size | Height (mm) | Overall width (mm) | Length (mm) | PU |
|---|---|---|---|---|---|
| **SKINDICHT® SE-M without E+D** | | | | | |
| 52108001 | M 20 x 1.5 | 31.0 | 42 | 42.0 | 10 |
| 52108011 | M 25 x 1.5 | 40.0 | 60 | 60.0 | 5 |
| 52108021 | M 32 x 1.5 | 51.5 | 66 | 76.0 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SM-M / SKINDICHT® SM-PE-M



SKINDICHT® SM-M



SKINDICHT® SM-PE-M

## Benefits

**SKINDICHT® SM-PE-M**

- Cutting edges cut through the insulating layer, thus guaranteeing an optimum EMC contact
- Suitable for all metric glands used in earthing and EMC applications

## Application range

**SKINDICHT® SM-M**

- Used when a gland has to be countered, or in through-holes on thin-walled housings

**SKINDICHT® SM-PE-M**

- For lacquered, anodised or powder-coated housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number
- Item numbers ending with “LF” are lead-free product alternatives with otherwise identical product properties. “Lead-free” items do not include lead, which is currently permitted to account for up to four per cent in copper alloys, but could in future be banned in accordance with the RoHS directive

| Article number | Article designation / size | Thickness (mm) | SW wrench size mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® SM-M** | | | | | |
| 52102998 | M 6 x 1 | 3.2 | 10 | 11.1 | 100 |
| 52102997 | M 8 x 1 | 4.0 | 13 | 14.4 | 100 |
| 52102999 | M 10 x 1 | 5.0 | 17 | 19.1 | 100 |
| 52103000 | M 12 x 1.5 | 3.0 | 15 | 16.5 | 100 |
| 52103010 | M 16 x 1.5 | 3.0 | 19 | 20.9 | 100 |
| 52103020 | M 20 x 1.5 | 3.5 | 24 | 26.4 | 100 |
| 52103030 | M 25 x 1.5 | 4.0 | 30 | 33.0 | 100 |
| 52103040 | M 32 x 1.5 | 4.0 | 36 | 39.6 | 100 |
| 52103050 | M 40 x 1.5 | 5.0 | 46 | 50.6 | 50 |
| 52103060 | M 50 x 1.5 | 5.0 | 60 | 65.0 | 50 |
| 52103070 | M 63 x 1.5 | 5.0 | 70 | 77.0 | 25 |
| 52103071 | M 75 x 1.5 | 8.0 | 85 | 95.0 | 1 |
| 52103072 | M 90 x 2 | 10.0 | 102 | 114.0 | 1 |
| 52103073 | M 110 x 2 | 12.0 | 124 | 135.0 | 1 |
| **SKINDICHT® SM-PE-M** | | | | | |
| 52103300 | M 12 x 1.5 | 4.7 | 15 | 17.3 | 100 |
| 52103310 | M 16 x 1.5 | 4.7 | 19 | 21.9 | 100 |
| 52103320 | M 20 x 1.5 | 4.7 | 24 | 27.7 | 100 |
| 52103330 | M 25 x 1.5 | 5.2 | 30 | 34.6 | 50 |
| 52103340 | M 32 x 1.5 | 5.7 | 36 | 41.5 | 50 |
| 52103350 | M 40 x 1.5 | 6.5 | 46 | 53.1 | 25 |
| 52103360 | M 50 x 1.5 | 6.5 | 60 | 69.3 | 10 |
| 52103370 | M 63 x 1.5 | 7.0 | 70 | 80.8 | 10 |
| 52103371 | M 75 x 1.5 | 8.0 | 85 | 95.0 | 1 |
| 52006494 | M 72 x 2 | 10.0 | 85 | 98.0 | 1 |
| 52103372 | M 90 x 2 | 10.0 | 102 | 114.0 | 1 |
| 52103373 | M 110 x 2 | 12.0 | 124 | 135.0 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SM-M INOX

**Info**

- Metric threaded, stainless steel counter nut



## Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Material**
Stainless steel 303

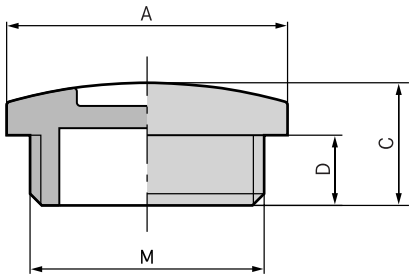
**Temperature range**
-60°C to +200°C

| Article number | Article designation / size | Thickness (mm) | SW wrench size mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® SM-M INOX** | | | | | |
| 52032585 | M 12 x 1.5 | 2.8 | 17 | 16.5 | 10 |
| 52032615 | M 16 x 1.5 | 2.8 | 19 | 20.9 | 10 |
| 52032625 | M 20 x 1.5 | 3.0 | 24 | 26.7 | 10 |
| 52032635 | M 25 x 1.5 | 3.5 | 30 | 33.0 | 10 |
| 52032645 | M 32 x 1.5 | 4.0 | 36 | 39.0 | 10 |
| 52032655 | M 40 x 1.5 | 5.0 | 46 | 50.0 | 10 |
| 52032665 | M 50 x 1.5 | 5.0 | 55 | 60.0 | 10 |
| 52032675 | M 63 x 1.5 | 6.0 | 70 | 78.0 | 10 |

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# SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M






## Benefits

**SKINDICHT® BLK-M**
- For closing pre-threaded holes
- Cost-effective solution

**SKINDICHT® BLK-GL-M**
- For closing pre-threaded holes
- High stability due to glass fibre reinforcement

## Application range
- Control cabinet manufacturing
- Distribution box
- Junction boxes

## Product features
- Assembling with screwdriver

## Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Norm refrences / Approvals
- UL File Nr. E79903

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**SKINDICHT® BLK-GL-M**
UL pending

**Colour delivered**
**SKINDICHT® BLK-M**
Light grey (RAL 7035)
**SKINDICHT® BLK-GL-M**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005)

**Material**
**SKINDICHT® BLK-M**
Impact-resistant polystyrene
**SKINDICHT® BLK-GL-M**
Polyamide, glass fibre-reinforced
O-Ring: NBR

**Protection rating**
IP 54
IP 68 (with O-ring)

**Temperature range**
**SKINDICHT® BLK-M**
-25°C to +60°C
**SKINDICHT® BLK-GL-M**
With O-ring: -20°C to +100°C
Without O-ring: -40°C to +100°C

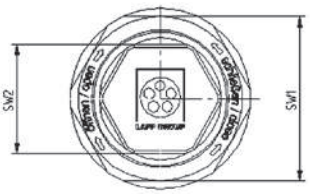
| Article number | Article designation / size | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® BLK-M** | | | | | |
| 52006600 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006610 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006620 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006630 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006640 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006650 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006660 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006670 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |
| **SKINDICHT® BLK-GL-M silver-grey** | | | | | |
| 52006101 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006111 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006121 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006131 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006141 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006151 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006161 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006171 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |
| **SKINDICHT® BLK-GL-M light grey** | | | | | |
| 52006100 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006110 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006120 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006130 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006140 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006150 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006160 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006170 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |

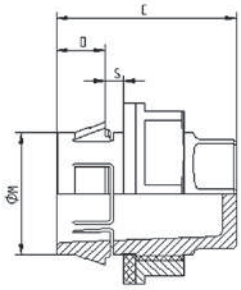
| Article number | Article designation / size | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® BLK-GL-M black** | | | | | |
| 52006103 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006113 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006123 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006133 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006143 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006153 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006163 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006173 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |
| **SKINDICHT® BLK-GL-M silver-grey mounted with O-ring** | | | | | |
| 52006109 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006119 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006129 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006139 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006149 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006159 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006169 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006179 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |
| **SKINDICHT® BLK-GL-M light grey mounted with O-ring** | | | | | |
| 52006107 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006117 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006127 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006137 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006147 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006157 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006167 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006177 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |
| **SKINDICHT® BLK-GL-M black mounted with O-ring** | | | | | |
| 52006106 | M 12 x 1.5 | 8.0 | 6 | 15.0 | 100 |
| 52006116 | M 16 x 1.5 | 9.0 | 6 | 20.0 | 100 |
| 52006126 | M 20 x 1.5 | 9.5 | 6 | 24.0 | 100 |
| 52006136 | M 25 x 1.5 | 11.5 | 8 | 30.0 | 100 |
| 52006146 | M 32 x 1.5 | 12.0 | 8 | 37.0 | 50 |
| 52006156 | M 40 x 1.5 | 13.0 | 8 | 46.0 | 25 |
| 52006166 | M 50 x 1.5 | 15.0 | 10 | 56.0 | 25 |
| 52006176 | M 63 x 1.5 | 17.0 | 12 | 70.0 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINTOP® CLICK BLK






### Benefits

- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Fewer parts, counter nut no longer needed
- No thread required

### Application range

- Dummy plug with innovative CLICK system for fast installation in hard-to-reach locations. Perfect solution for closing pre-made bore holes that are no longer required.
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Automation technology
- Plant engineering, machinery manufacturing

### Included

- Included: disassembly tool

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)

**Material**
Body: special polyamide
Seal: special elastomer

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | M (hole in mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Wall thickness, S (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® CLICK BLK light grey** | | | | | | | |
| 52109013 | CLICK BLK 16 | 16.3 (-0.2) | 14.0 / 22.0 | 28.5 | 8 | 1.0 - 4.0 | 50 |
| 52109014 | CLICK BLK 20 | 20.3 (-0.2) | 18.0 / 27.0 | 29.5 | 8 | 1.0 - 4.0 | 25 |
| 52109015 | CLICK BLK 25 | 25.3 (-0.2) | 22.0 / 14.0 | 30.5 | 8 | 1.0 - 4.0 | 25 |

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# SKINDICHT® BL-M





## Benefits

- For closing pre-threaded holes

## Application range

- Machine and equipment manufacturing
- Electric motor manufacturing

## Product features

- Assembling with screwdriver

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Norm refrences / Approvals

- UL File Nr. E79903

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number
- Item numbers ending with “LF” are lead-free product alternatives with otherwise identical product properties. “Lead-free” items do not include lead, which is currently permitted to account for up to four per cent in copper alloys, but could in future be banned in accordance with the RoHS directive

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Certifications**
UL pending

**On request**
Fitted with FKM O-ring
(-20°C to +200°C)

**Material**
Body: nickel-plated brass
O-ring: NBR

**Protection rating**
IP 54
IP 68 (with O-ring)

**Temperature range**
With O-ring: -20°C to +100°C
Without O-ring: -60°C to +200°C

| Article number | Article designation / size | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® BL-M** | | | | | |
| 52103100 | M 12 x 1.5 | 7.5 | 5 | 14.0 | 100 |
| 52103110 | M 16 x 1.5 | 8.0 | 5 | 18.0 | 100 |
| 52103120 | M 20 x 1.5 | 9.5 | 6 | 22.0 | 100 |
| 52103130 | M 25 x 1.5 | 11.0 | 7 | 28.0 | 100 |
| 52103140 | M 32 x 1.5 | 12.0 | 8 | 35.0 | 50 |
| 52103150 | M 40 x 1.5 | 13.0 | 9 | 44.0 | 25 |
| 52103160 | M 50 x 1.5 | 15.0 | 9 | 54.0 | 10 |
| 52103170 | M 63 x 1.5 | 16.0 | 10 | 70.0 | 10 |
| 52103190 | M 75 x 1.5 | 17.0 | 11 | 80.0 | 1 |
| **SKINDICHT® BL-M with O-ring** | | | | | |
| 52103105 | M 12 x 1.5 | 7.5 | 5 | 14.0 | 100 |
| 52103115 | M 16 x 1.5 | 8.0 | 5 | 18.0 | 100 |
| 52103125 | M 20 x 1.5 | 9.5 | 6 | 22.0 | 100 |
| 52103135 | M 25 x 1.5 | 11.0 | 7 | 28.0 | 100 |
| 52103145 | M 32 x 1.5 | 12.0 | 8 | 35.0 | 50 |
| 52103155 | M 40 x 1.5 | 13.0 | 9 | 44.0 | 25 |
| 52103165 | M 50 x 1.5 | 15.0 | 9 | 54.0 | 10 |
| 52103175 | M 63 x 1.5 | 16.0 | 10 | 70.0 | 10 |
| **SKINDICHT® BL-M FKM** | | | | | |
| 52123100 | M 12 x 1.5 | 7.5 | 5.0 | 14.0 | 50 |
| 52123110 | M 16 x 1.5 | 8.0 | 5.0 | 18.0 | 50 |
| 52123120 | M 20 x 1.5 | 9.5 | 6.0 | 22.0 | 50 |
| 52123130 | M 25 x 1.5 | 11.0 | 7.0 | 28.0 | 50 |
| 52123140 | M 32 x 1.5 | 12.0 | 8.0 | 35.0 | 25 |
| 52123150 | M 40 x 1.5 | 13.0 | 9.0 | 44.0 | 25 |
| 52123160 | M 50 x 1.5 | 15.0 | 9.0 | 54.0 | 5 |
| 52123170 | M 63 x 1.5 | 16.0 | 10.0 | 70.0 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® BL-M hex.

### Benefits
- For closing pre-threaded holes
- High degree of protection

### Application range
- Machine and equipment manufacturing
- Electric motor manufacturing

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Note
- Dummy plug made of stainless steel on request

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**On request**
Fitted with FKM O-ring (-20°C to +200°C)

**Material**
Body: nickel-plated brass
O-ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-20°C to +100°C



NEW

- Also available with FKM o-ring: SKINDICHT® BL-M FKM
- For the Lead-free version, the “LF” suffix is added to the end of the Article number

| Article number | Article designation / size | SW wrench size mm | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® BL-M hex.** | | | | | | |
| 52103405 | M 12 x 1.5 | 16 | 8.0 | 5 | 17.8 | 50 |
| 52103415 | M 16 x 1.5 | 20 | 8.0 | 5 | 22.0 | 50 |
| 52103425 | M 20 x 1.5 | 24 | 9.5 | 6 | 26.4 | 50 |
| 52103435 | M 25 x 1.5 | 29 | 11.0 | 7 | 31.9 | 50 |
| 52103445 | M 32 x 1.5 | 36 | 12.0 | 8 | 39.6 | 25 |
| 52103455 | M 40 x 1.5 | 45 | 13.0 | 8 | 49.5 | 25 |
| 52103465 | M 50 x 1.5 | 54 | 15.0 | 9 | 59.0 | 10 |
| 52103475 | M 63 x 1.5 | 67 | 16.0 | 10 | 73.5 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® BL-M ATEX

### Benefits
- High degree of protection
- Cold impact resistance

### Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0029X

**Material**
Body: nickel-plated brass
O-ring: NBR

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-30°C to +90°C



| Article number | Article designation / size | SW wrench size mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® BL-M ATEX** | | | | | |
| 52103103 | M 12 x 1.5 | 16 | 5 | 17.8 | 50 |
| 52103113 | M 16 x 1.5 | 20 | 5 | 22.0 | 50 |
| 52103123 | M 20 x 1.5 | 24 | 6 | 26.4 | 50 |
| 52103133 | M 25 x 1.5 | 29 | 7 | 31.9 | 50 |
| 52103143 | M 32 x 1.5 | 36 | 8 | 39.6 | 25 |
| 52103153 | M 40 x 1.5 | 45 | 8 | 49.5 | 25 |
| 52103163 | M 50 x 1.5 | 54 | 9 | 59.0 | 10 |
| 52103173 | M 63 x 1.5 | 67 | 10 | 73.5 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® HYGIENIC BL-M




**Info**

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components

## Benefits

- For closing pre-threaded holes
- Assembling with a wrench

## Application range

- Food machinery, equipment and components
- For use in **product zone**
- Pharmaceutical industry

## Norm references / Approvals

- NSF/ANSI 169
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Material**
Body: stainless steel - V4A (1.4404 / 316L)
Sealing: special elastomer (FKM)

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | SW wrench size mm | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® HYGIENIC BL-M** | | | | | | |
| 52103490 | M 12 x 1.5 | 16 | 16.9 | 6.5 | 18.8 | 5 |
| 52103491 | M 16 x 1.5 | 20 | 17.9 | 7 | 22.8 | 5 |
| 52103492 | M 20 x 1.5 | 24 | 19.9 | 8 | 26.8 | 5 |
| 52103493 | M 25 x 1.5 | 29 | 20.7 | 8 | 31.8 | 5 |
| 52103488 | M 32 x 1.5 | 36 | 22.5 | 9 | 36.9 | 5 |
| 52103489 | M 40 x 1.5 | 45 | 23.5 | 9 | 49.0 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® VENT PA6

**Info**

- Breathable pressure compensation element with membrane technology



M6 and M8



M12



Locknut

## Benefits

- Ventilation system for housing
- Formation of condensation in electronic housings is prevented
- Pressure compensation elements guarantee a trouble-free and maintenance-free operation

## Application range

- Lighting engineering
- Railway applications
- Weather station
- Housing and distribution boxes
- Manufacturing of control cabinets and equipment

## Product features

- Closure element and a pressure equalization in one system
- Lower space requirement
- High air flow

## Norm references / Approvals

- Optionally approved acc. to UL 508 A

## Note

- Refer to data sheet for more details

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
Metric thread acc. to EN 60423

**Note**
Membrane: Acryl - copolymere

**Material**
Polyamide 6 - Standard version / UL 94 V2
Polyamide 66 - UL Version / UL 94 V0
Flat sealing NBR - Standard version
O-Ring NBR - UL version

**Protection rating**
Standard: IP66 / IP68 / IP69
UL: IP66 / IP67 / IP69

**Temperature range**
-20°C to +100°C

| Article number | Thread size | Air volume (max.) | Colour | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® VENT PA6** | | | | |
| 51730188 | M 6 | 0.1 l/min | black | 25 |
| 51730190 | M 6 | 0.1 l/min | light grey | 25 |
| 51730192 | M 6 | 0.1 l/min | silver grey | 25 |
| 51730194 | M 8 | 0.2 l/min | black | 25 |
| 51730196 | M 8 | 0.2 l/min | light grey | 25 |
| 51730198 | M 8 | 0.2 l/min | silver grey | 25 |
| 51730200 | M 12 | 0.8 l/min | black | 25 |
| 51730202 | M 12 | 0.8 l/min | light grey | 25 |
| **SKINDICHT® VENT PA6 certified cURus** | | | | |
| 51730201 | M 12 | 3.5 l/min | black | 25 |
| 51730203 | M 12 | 3.5 l/min | light grey | 25 |

| Article number | Article designation / size | Thread length D mm | Pieces / PU |
|---|---|---|---|
| **Locknut** | | | |
| 51730210 | PA-Locknut M6x0.75 BK | 5.0 | 25 |
| 51730211 | PA-Locknut M6x0.75 LGY | 5.0 | 25 |
| 51730213 | PA-Locknut M8x1.0 BK | 5.0 | 25 |
| 51730214 | PA-Locknut M8x1.0 LGY | 5.0 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® VENT INOX



**Info**

- Breathable pressure compensation element with membrane technology

## Benefits

- Ventilation system for housing
- Formation of condensation in electronic housings is prevented
- Pressure compensation elements guarantee a trouble-free and maintenance-free operation

## Application range

- Lighting engineering
- Railway applications
- Weather station
- Manufacturing of control cabinets and equipment
- Housing and distribution boxes

## Product features

- Closure element and a pressure equalization in one system
- Lower space requirement
- High air flow

## Norm references / Approvals

- Optionally approved acc. to UL 508 A

## Product Make-up

- Air flow rates: 100mbar=0.4 l/min - Standard version
  Air flow rates: 100mbar=2.4 l/min - UL version

## Note

- Refer to data sheet for more details

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
Metric thread acc. to EN 60423

**Note**
Membrane: Acryl - copolymere

**Material**
Stainless steel 303
O-ring - NBR

**Protection rating**
Standard: IP66 / IP68 / IP69
UL: IP66 / IP67 / IP69

**Temperature range**
-40 °C to +105 °C

| Article number | Article designation / size | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|
| **Not certified version** | | | | |
| 51730204 | SKINDICHT® VENT INOX 12x1,5 | 21.0 | 10 | 10 |
| **cURus certified version** | | | | |
| 51730205 | SKINDICHT® VENT INOX 12x1,5 plus | 21.0 | 10 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# DRAINAGE ELEMENTS



## Benefits

- For discharging condensation water on the housing floor that occurs due to high humidity, large temperature fluctuations or pressure differences
- The early discharge of condensation water reduces the risk of failure of the application and minimises maintenance work
- Provides a high drainage capacity of at least 1.8 l per hour
- The protection function of the housing is retained thanks to IP56
- Ideal for tight spaces thanks to the small connection thread

## Application range

- Especially for closed housings with a high protection class
- For use in the housing floor (threaded/ through bore)
- Good oil and chemical resistance

| Article number | Article designation | Thread size | Air volume (max.) | Colour | Pieces / PU |
|---|---|---|---|---|---|
| 51730220 | DRAINAGE ELEMENT M12X1.5 BK | M 12 | 4.2 l/min | black | 25 |
| 51730221 | DRAINAGE ELEMENT M12X1.5 LGY | M 12 | 4.2 l/min | light grey | 25 |
| 51730222 | DRAINAGE ELEMENT M12X1.5 SGY | M 12 | 4.2 l/min | silver grey | 25 |

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# SKINDICHT® KU-M



## Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes

## Application range

- Machines
- Devices
- Housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40°C to +100°C

| Article number | Thread, male M1 | Thread, female M2 | SW wrench size mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® KU-M light grey** | | | | | |
| 52104505 | 16 x 1.5 | 12 x 1.5 | 22 | 9 | 100 |
| 52104470 | 20 x 1.5 | 12 x 1.5 | 24 | 9 | 100 |
| 52104504 | 20 x 1.5 | 16 x 1.5 | 24 | 9 | 100 |
| 52104472 | 25 x 1.5 | 12 x 1.5 | 29 | 10 | 100 |
| 52104473 | 25 x 1.5 | 16 x 1.5 | 29 | 10 | 100 |
| 52104474 | 25 x 1.5 | 20 x 1.5 | 29 | 10 | 100 |
| 52104475 | 32 x 1.5 | 12 x 1.5 | 36 | 12 | 50 |
| 52104476 | 32 x 1.5 | 16 x 1.5 | 36 | 12 | 50 |
| 52104477 | 32 x 1.5 | 20 x 1.5 | 36 | 12 | 50 |
| 52104478 | 32 x 1.5 | 25 x 1.5 | 36 | 12 | 50 |
| 52104479 | 40 x 1.5 | 16 x 1.5 | 46 | 12 | 50 |
| 52104480 | 40 x 1.5 | 20 x 1.5 | 46 | 12 | 50 |
| 52104481 | 40 x 1.5 | 25 x 1.5 | 46 | 12 | 25 |
| 52104482 | 40 x 1.5 | 32 x 1.5 | 46 | 12 | 25 |
| 52104483 | 50 x 1.5 | 20 x 1.5 | 55 | 14 | 5 |
| 52104484 | 50 x 1.5 | 25 x 1.5 | 55 | 14 | 5 |
| 52104485 | 50 x 1.5 | 32 x 1.5 | 55 | 14 | 5 |
| 52104486 | 50 x 1.5 | 40 x 1.5 | 55 | 14 | 5 |
| 52104487 | 63 x 1.5 | 25 x 1.5 | 68 | 15 | 5 |
| 52104488 | 63 x 1.5 | 32 x 1.5 | 68 | 15 | 5 |
| 52104489 | 63 x 1.5 | 40 x 1.5 | 68 | 15 | 5 |
| 52104469 | 63 x 1.5 | 50 x 1.5 | 68 | 15 | 5 |
| **SKINDICHT® KU-M black** | | | | | |
| 52104541 | 16 x 1.5 | 12 x 1.5 | 20 | 8 | 100 |
| 52104520 | 20 x 1.5 | 12 x 1.5 | 24 | 8 | 100 |
| 52104521 | 20 x 1.5 | 16 x 1.5 | 24 | 9 | 100 |
| 52104522 | 25 x 1.5 | 12 x 1.5 | 29 | 8 | 100 |
| 52104523 | 25 x 1.5 | 16 x 1.5 | 29 | 8 | 100 |
| 52104524 | 25 x 1.5 | 20 x 1.5 | 30 | 10 | 100 |
| 52104526 | 32 x 1.5 | 16 x 1.5 | 36 | 10 | 50 |
| 52104527 | 32 x 1.5 | 20 x 1.5 | 36 | 10 | 50 |
| 52104528 | 32 x 1.5 | 25 x 1.5 | 36 | 11 | 50 |
| 52104530 | 32 x 1.5 | 20 x 1.5 | 46 | 10 | 50 |
| 52104531 | 40 x 1.5 | 25 x 1.5 | 46 | 10 | 25 |
| 52104532 | 40 x 1.5 | 32 x 1.5 | 44 | 12 | 25 |
| 52104534 | 40 x 1.5 | 25 x 1.5 | 55 | 12 | 5 |
| 52104535 | 50 x 1.5 | 32 x 1.5 | 55 | 12 | 5 |
| 52104536 | 50 x 1.5 | 40 x 1.5 | 55 | 13 | 5 |
| 52104537 | 50 x 1.5 | 25 x 1.5 | 68 | 12 | 5 |
| 52104538 | 63 x 1.5 | 32 x 1.5 | 68 | 12 | 5 |
| 52104539 | 63 x 1.5 | 40 x 1.5 | 68 | 12 | 5 |
| 52104540 | 63 x 1.5 | 50 x 1.5 | 70 | 15 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Note: the updated list of variants (sizes and colors) is available on the online catalogue page.

# SKINDICHT® MR-M

## Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes

## Application range

- Machines
- Devices
- Housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
Also available with pre-installed O-ring

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number

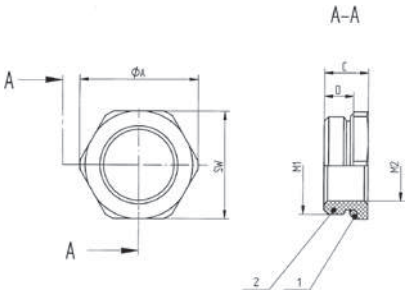


| Article number | Thread, male M1 | Thread, female M2 | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® MR-M** | | | |
| 52104310 | 16 x 1.5 | 12 x 1.5 | 100 |
| 52104311 | 20 x 1.5 | 12 x 1.5 | 100 |
| 52104312 | 20 x 1.5 | 16 x 1.5 | 100 |
| 52104313 | 25 x 1.5 | 16 x 1.5 | 50 |
| 52104314 | 25 x 1.5 | 20 x 1.5 | 50 |
| 52104315 | 32 x 1.5 | 20 x 1.5 | 50 |
| 52104316 | 32 x 1.5 | 25 x 1.5 | 50 |
| 52104317 | 40 x 1.5 | 25 x 1.5 | 25 |
| 52104318 | 40 x 1.5 | 32 x 1.5 | 25 |
| 52104319 | 50 x 1.5 | 32 x 1.5 | 25 |
| 52104320 | 50 x 1.5 | 40 x 1.5 | 10 |
| 52104321 | 63 x 1.5 | 40 x 1.5 | 10 |
| 52104322 | 63 x 1.5 | 50 x 1.5 | 10 |
| 52006575 | 72 x 2 | 63 x 1.5 | 1 |
| **SKINDICHT® MR-M, blank brass** | | | |
| 52006579 | 80 x 2 | 75 x 1.5 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® MR-M hex.






## Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench
- Item numbers ending with “LF” are lead-free product alternatives with otherwise identical product properties. “Lead-free” items do not include lead, which is currently permitted to account for up to four per cent in copper alloys, but could in future be banned in accordance with the RoHS directive

## Application range

- Machines
- Devices
- Housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
FKM O-ring
-20 °C to +200 °C

**Material**
Body: nickel-plated brass
O-ring: NBR

**Temperature range**
-20°C to +100°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number

| Article number | Thread, male M1 | Thread, female M2 | SW wrench size mm | Ø A (mm) | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® MR-M hex.** | | | | | | | |
| 52101965 | 16 x 1.5 | 12 x 1.5 | 18 | 20.2 | 8.5 | 5.5 | 50 |
| 52101966 | 20 x 1.5 | 16 x 1.5 | 22 | 24.4 | 9.0 | 6 | 50 |
| 52101967 | 25 x 1.5 | 16 x 1.5 | 28 | 31.2 | 10.0 | 6.5 | 50 |
| 52101968 | 25 x 1.5 | 20 x 1.5 | 28 | 31.2 | 10.0 | 6.5 | 50 |
| 52101969 | 32 x 1.5 | 16 x 1.5 | 36 | 40.0 | 11.5 | 8 | 25 |
| 52101972 | 32 x 1.5 | 20 x 1.5 | 36 | 40.0 | 11.5 | 8 | 25 |
| 52101973 | 32 x 1.5 | 25 x 1.5 | 36 | 40.0 | 11.5 | 8 | 25 |
| 52101974 | 40 x 1.5 | 25 x 1.5 | 43 | 47.5 | 12.5 | 8.5 | 10 |
| 52101975 | 40 x 1.5 | 32 x 1.5 | 43 | 47.5 | 12.5 | 8.5 | 10 |
| 52101976 | 50 x 1.5 | 40 x 1.5 | 54 | 58.0 | 14.0 | 10 | 5 |
| 52101977 | 63 x 1.5 | 50 x 1.5 | 67 | 74.0 | 14.0 | 9.5 | 5 |
| 52101979 | 75 x 1.5 | 63 x 1.5 | 80 | 90.0 | 17.0 | 11 | 1 |
| **SKINDICHT® MR-M, blank brass, with hexagon** | | | | | | | |
| 52006563 | 80 x 2 | 63 x 1.5 | 85 | 93.5 | 23.0 | 15 | 1 |

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## SKINDICHT® MR-M ATEX



### Benefits
- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench

### Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

### Norm references / Approvals
- DIN EN 60079-0
  DIN EN 60079-7
  DIN EN 60079-31

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC
Ex II 1D Ex ta IIIC
IECEx IBE 13.0028X

**Material**
Body: nickel-plated brass
O-ring: NBR

**Temperature range**
-30°C to +90°C

| Article number | Thread, male M1 | Thread, female M2 | Overall height (mm) | SW wrench size mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® MR-M ATEX** | | | | | | | |
| 52104570 | 16 x 1.5 | 12 x 1.5 | 10.5 | 17 | 5 | 19.0 | 50 |
| 52104571 | 20 x 1.5 | 16 x 1.5 | 13 | 22 | 6 | 24.5 | 50 |
| 52104572 | 25 x 1.5 | 20 x 1.5 | 15 | 27 | 7 | 30.1 | 25 |
| 52104573 | 32 x 1.5 | 25 x 1.5 | 16.5 | 34 | 8 | 37.2 | 25 |
| 52104574 | 40 x 1.5 | 32 x 1.5 | 16.5 | 41 | 8 | 45.6 | 10 |
| 52104575 | 50 x 1.5 | 40 x 1.5 | 19.5 | 50 | 10 | 55.3 | 5 |
| 52104576 | 63 x 1.5 | 50 x 1.5 | 18.5 | 65 | 8.5 | 71.3 | 5 |

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## SKINDICHT® EKU-M



### Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes
- Assembling with a wrench
- Supporting surface for spanner means scratches on the housing are avoided

### Application range
- Machines
- Devices
- Housings

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40°C to +100°C

| Article number | Thread, male M1 | Thread, female M2 | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® EKU-M** | | | | |
| 52100300 | 12 x 1.5 | 16 x 1.5 | 20 | 100 |
| 52100301 | 16 x 1.5 | 20 x 1.5 | 24 | 100 |
| 52100302 | 20 x 1.5 | 25 x 1.5 | 29 | 100 |
| 52100303 | 25 x 1.5 | 32 x 1.5 | 36 | 50 |
| 52100304 | 32 x 1.5 | 40 x 1.5 | 46 | 25 |
| 52100305 | 40 x 1.5 | 50 x 1.5 | 55 | 10 |
| 52100306 | 50 x 1.5 | 63 x 1.5 | 68 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® R-M HYGIENIC



## Benefits

- Hygienic design with smooth surfaces and contours without corners and edges prevents residues such as liquids and micro-organisms from accumulating and posing a risk of contamination for food processing machinery. This facilitates simple, frequent and safe product cleaning
- Corrects the size difference between the connection thread of a cable gland and the threaded hole in a housing
- Flexibility in selecting a cable gland, as the selection is independent of the threaded holes in the housing
- Multiple food and beverage certifications for Europe and North America
- Tested resistance to ECOLAB® disinfectants and cleaning agents
- The best possible sealing enables protection classes IP 68 (10 bar) and IP 69
- Sealing material compliant with FDA 21 CFR 177.2600, specifically for the food and beverage industry in North America
- Certified according to NSF/ANSI 169 for use in hygiene-critical areas in North America (Standard: Special Purpose Food Equipment and Devices/for Use in Food Zone Non Contact)
- Sealing material in blue to easily distinguish the cable glands used in the food industry

## Application range

- For use with metric SKINTOP® HYGIENIC/ SKINTOP® INOX M cable glands with a smaller connection thread than the existing threaded boreholes
- Especially for hygiene-critical areas of the food industry, where the product needs to be installed in the product zone or in the direct food production environment
- Also suitable for use in hygiene-critical areas of the pharmaceutical and chemical industry
- Withstands high chemical and mechanical loads

| Article number | Outer thread | Inner thread | Wrench size | Outer thread length (mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® R-M HYGIENIC** | | | | | |
| 52103596 | 16 x 1.5 | 12 x 1.5 | 20 | 7 | 5 |
| 52103597 | 20 x 1.5 | 12 x 1.5 | 24 | 8 | 5 |
| 52103598 | 20 x 1.5 | 16 x 1.5 | 24 | 8 | 5 |
| 52103599 | 25 x 1.5 | 16 x 1.5 | 29 | 8 | 5 |
| 52103600 | 25 x 1.5 | 20 x 1.5 | 29 | 8 | 5 |
| 52103601 | 32 x 1.5 | 20 x 1.5 | 36 | 9 | 5 |
| 52103602 | 32 x 1.5 | 25 x 1.5 | 36 | 9 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® ME-M

### Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes

### Application range
- Machines
- Devices
- Housings

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
with O-ring fitted

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number



| Article number | Thread, male M1 | Thread, female M2 | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® ME-M** | | | |
| 52104450 | 12 x 1.5 | 16 x 1.5 | 100 |
| 52104452 | 16 x 1.5 | 20 x 1.5 | 100 |
| 52104454 | 20 x 1.5 | 25 x 1.5 | 100 |
| 52104456 | 25 x 1.5 | 32 x 1.5 | 50 |
| 52104458 | 32 x 1.5 | 40 x 1.5 | 50 |
| 52104460 | 40 x 1.5 | 50 x 1.5 | 25 |
| 52104462 | 50 x 1.5 | 63 x 1.5 | 25 |
| **SKINDICHT® ME-M hexagon** | | | |
| 52104463 | 63 x 1.5 | 75 x 1.5 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® ME-M ATEX

### Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench

### Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

### Norm references / Approvals
- DIN EN 60079-0
  DIN EN 60079-7
  DIN EN 60079-31

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC
Ex II 1D Ex ta IIIC
IECEx IBE 13.0028X

**Material**
Body: nickel-plated brass
O-ring: NBR

**Temperature range**
-30°C to +90°C



| Article number | Thread, male M1 | Thread, female M2 | Overall height (mm) | SW wrench size mm | Outer thread length (mm) | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® ME-M ATEX** | | | | | | | |
| 52104580 | 12 x 1.5 | 16 x 1.5 | 17 | 18 | 5 | 20.0 | 50 |
| 52104581 | 16 x 1.5 | 20 x 1.5 | 20 | 22 | 6 | 24.0 | 50 |
| 52104582 | 20 x 1.5 | 25 x 1.5 | 22.5 | 27 | 6.5 | 30.0 | 50 |
| 52104583 | 25 x 1.5 | 32 x 1.5 | 21.5 | 34 | 6.5 | 37.7 | 25 |
| 52104584 | 32 x 1.5 | 40 x 1.5 | 23 | 42 | 7 | 46.0 | 25 |
| 52104585 | 40 x 1.5 | 50 x 1.5 | 26 | 54 | 8 | 59.0 | 25 |
| 52104586 | 50 x 1.5 | 63 x 1.5 | 32 | 67 | 9 | 73.0 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® E-M HYGIENIC



## Benefits

- Hygienic design with smooth surfaces and contours without corners and edges prevents residues such as liquids and micro-organisms from accumulating and posing a risk of contamination for food processing machinery. This facilitates simple, frequent and safe product cleaning
- Corrects the size difference between the connection thread of a cable gland and the threaded hole in a housing
- Flexibility in selecting a cable gland, as the selection is independent of the threaded holes in the housing
- Multiple food and beverage certifications for Europe and North America
- Tested resistance to ECOLAB® disinfectants and cleaning agents
- The best possible sealing enables protection classes IP 68 (10 bar) and IP 69
- Sealing material compliant with FDA 21 CFR 177.2600, specifically for the food and beverage industry in North America
- Certified according to NSF/ANSI 169 for use in hygiene-critical areas in North America (Standard: Special Purpose Food Equipment and Devices/for Use in Food Zone Non Contact)
- Sealing material in blue to easily distinguish the cable glands used in the food industry

## Application range

- For use with metric SKINTOP® HYGIENIC/ SKINTOP® INOX M cable glands with a smaller connection thread than the existing threaded boreholes
- Especially for hygiene-critical areas of the food industry, where the product needs to be installed in the product zone or in the direct food production environment
- Also suitable for use in hygiene-critical areas of the pharmaceutical and chemical industry
- Withstands high chemical and mechanical loads

| Article number | Outer thread | Inner thread | Wrench size | Outer thread length (mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® E-M HYGIENIC** | | | | | |
| 52103591 | 12 x 1.5 | 16 x 1.5 | 20.5 | 6.5 | 5 |
| 52103592 | 16 x 1.5 | 20 x 1.5 | 23 | 7 | 5 |
| 52103593 | 20 x 1.5 | 25 x 1.5 | 24 | 8 | 5 |
| 52103594 | 25 x 1.5 | 32 x 1.5 | 26.5 | 8 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® MA-M/PG / SKINDICHT® MA-M/NPT



SKINDICHT® MA-M/PG



SKINDICHT® MA-M/NPT

## Benefits

**SKINDICHT® MA-M/PG**

- Enables the use of PG accessories in metric threads

**SKINDICHT® MA-M/NPT**

- Enables the use of NPT accessories in metric threads

## Application range

**SKINDICHT® MA-M/PG**

- Adapter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

**SKINDICHT® MA-M/NPT**

- Adapter from a metric outer thread to an NPT inner thread.
- Machines
- Devices
- Housings

## Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
with O-ring fitted

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number

| Article number | Thread. male M1 | Thread. female PG | Thread. female NPT | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® MA-M / PG** | | | | |
| 52104200 | 16 x 1.5 | 7 | | 100 |
| 52104210 | 20 x 1.5 | 9 | | 50 |
| 52104220 | 25 x 1.5 | 11 | | 50 |
| 52104230 | 25 x 1.5 | 13.5 | | 50 |
| 52104240 | 25 x 1.5 | 16 | | 50 |
| 52104250 | 32 x 1.5 | 16 | | 25 |
| 52104260 | 32 x 1.5 | 21 | | 25 |
| 52104270 | 40 x 1.5 | 21 | | 25 |
| 52104280 | 50 x 1.5 | 29 | | 10 |
| 52104290 | 63 x 1.5 | 36 | | 10 |
| 52104300 | 63 x 1.5 | 42 | | 10 |
| **SKINDICHT® MA-M / NPT** | | | | |
| 54020100 | 16 x 1.5 | | 1/2“ | 50 |
| 54020110 | 20 x 1.5 | | 1/2“ | 50 |
| 54020120 | 25 x 1.5 | | 1/2“ | 25 |
| 54020130 | 25 x 1.5 | | 3/4“ | 25 |
| 54020140 | 32 x 1.5 | | 1/2“ | 25 |
| 54020152 | 32 x 1.5 | | 1“ | 25 |
| 54020153 | 40 x 1.5 | | 1 1/4“ | 10 |
| **with hexagonal width flat** | | | | |
| 54020121 | 25 x 1.5 | | 1/2“ | 25 |
| 54020142 | 32 x 1.5 | | 3/4“ | 25 |
| 54020161 | 40 x 1.5 | | 1“ | 10 |
| 54020160 | 50 x 1.5 | | 1 1/4“ | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® ZS-M / SKINDICH® ZS-M-XL





## Benefits

- Enables the use of PG accessories in metric threads
- Assembling with a wrench

## Application range

- Hexagonal converter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
with O-ring fitted

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

| Article number | Thread, male M1 | Thread, female PG | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® ZS-M** | | | |
| 52104330 | 12 X 1.5 | 7 | 100 |
| 52104340 | 16 X 1.5 | 9 | 100 |
| 52104010 | 16 X 1.5 | 11 | 100 |
| 52104360 | 20 X 1.5 | 11 | 100 |
| 52104370 | 20 X 1.5 | 13.5 | 100 |
| 52104380 | 20 X 1.5 | 16 | 50 |
| 52104400 | 25 X 1.5 | 21 | 50 |
| 52104410 | 32 X 1.5 | 29 | 25 |
| 52104420 | 40 X 1.5 | 36 | 10 |
| 52104430 | 50 X 1.5 | 42 | 10 |
| 52104440 | 63 X 1.5 | 48 | 10 |
| **SKINDICHT® ZS-M-XL** | | | |
| 52104335 | 12 X 1.5/7 | 7 | 100 |
| 52104345 | 16 X 1.5/9 | 9 | 100 |
| 52104365 | 20 X 1.5/11 | 11 | 100 |
| 52104375 | 20 X 1.5/13.5 | 13.5 | 100 |
| 52104385 | 20 X 1.5/16 | 16 | 50 |
| 52104405 | 25 X 1.5/21 | 21 | 50 |
| 52104415 | 32 X 1.5/29 | 29 | 25 |
| 52104425 | 40 X 1.5/36 | 36 | 10 |
| 52104435 | 50 X 1.5/42 | 42 | 10 |
| 52104445 | 63 X 1.5/48 | 48 | 10 |

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# SKINDICHT® ZSE-M / SKINDICH® ZSE-M-XL





## Benefits

- Enables the use of PG accessories in metric threads
- Assembling with a wrench
- The female thread is longer compare to the female thread of SKINDICHT ZS-M

## Application range

- Hexagonal converter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
with O-ring fitted

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

| Article number | Thread. male M1 | Thread. female PG | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® ZSE-M** | | | |
| 52104050 | 20 X 1.5/21 | 21 | 50 |
| 52106000 | 12 X 1.5/7 | 7 | 100 |
| 52106010 | 16 X 1.5/9 | 9 | 100 |
| 52106020 | 20 X 1.5/11 | 11 | 100 |
| 52106030 | 20 X 1.5/13.5 | 13.5 | 100 |
| 52106040 | 20 X 1.5/16 | 16 | 50 |
| 52106050 | 25 X 1.5/21 | 21 | 50 |
| 52106060 | 32 X 1.5/29 | 29 | 25 |
| 52106070 | 40 X 1.5/36 | 36 | 10 |
| 52106080 | 50 X 1.5/42 | 42 | 10 |
| 52106090 | 63 X 1.5/48 | 48 | 10 |
| **SKINDICHT® ZSE-M-XL** | | | |
| 52106005 | 12 X 1.5/7 | 7 | 10 |
| 52106015 | 16 X 1.5/9 | 9 | 100 |
| 52106025 | 20 X 1.5/11 | 11 | 100 |
| 52106035 | 20 X 1.5/13.5 | 13.5 | 100 |
| 52106045 | 20 X 1.5/16 | 16 | 50 |
| 52106055 | 25 X 1.5/21 | 21 | 50 |
| 52106065 | 32 X 1.5/29 | 29 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® TWIST-M

Swivelling coupler with hexagonal collar



## Benefits

- Exact positioning of e.g. elbowed fittings
- Swivelling coupler with increased sealing
- Prevents cables and conduits to get damaged due to (unintentionally) encountered torsional stress

## Application range

- Control cabinet manufacturing
- Control systems
- Mechanical engineering
- For mobile equipment and machines
- In combination with metric threaded (conduit) fittings

## Product features

- Swivelling upper part
- High sealing performance

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Note**
On request: size M12, M32, M40, M50, M63

**Material**
Body: nickel-plated brass
Spring ring: spring steel
Sealing: FKM

**Protection rating**
IP 68

**Temperature range**
-20°C up to +200°C

| Article number | Thread, male M1 | Thread, female M2 | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® TWIST-M** | | | | |
| 52104731 | 16 x 1.5 | 16 x 1.5 | 20 | 10 |
| 52104732 | 20 x 1.5 | 20 x 1.5 | 24 | 10 |
| 52104733 | 25 x 1.5 | 25 x 1.5 | 29 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® O-Ring NBR metric

### Application range

- For sealing the housing reliably to protect against oils, dust, and water at the connection thread of a gland or other similar parts

### Note

- O-rings with thickness of 1.5 mm are recommended for optimum sealing of the converter SKINDICHT® ZSE-M12/16/20 x 1.5
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
Black

**Material**
NBR

**Temperature range**
-20°C to +100°C



| Article number | Article designation / size | Inner Ø (mm) | Cable thickness (mm) | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® O-Ring NBR metric** | | | | |
| 53102001 | M 12 x 1.5 | 9.0 | 1.5 | 100 |
| 53102000 | M 12 x 2.0 | 9.0 | 2 | 100 |
| 53102010 | M 16 x 2.0 | 13.0 | 2 | 100 |
| 53102021 | M 20 x 1.5 | 17.0 | 1.5 | 100 |
| 53102020 | M 20 x 2.0 | 17.0 | 2 | 100 |
| 53102030 | M 25 x 2.0 | 22.0 | 2 | 100 |
| 53102040 | M 32 x 2.0 | 28.0 | 2 | 50 |
| 53102050 | M 40 x 2.0 | 36.0 | 2 | 50 |
| 53102060 | M 50 x 2.0 | 46.0 | 2 | 25 |
| 53102070 | M 63 x 2.0 | 57.0 | 2 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® O-ring FKM metric

### Application range

- For sealing the housing reliably to protect against oils, acids, and chemicals at the connection thread of a gland or other similar parts under extreme conditions

### Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
Green

**Material**
FKM

**Temperature range**
-20°C to +200°C



| Article number | Article designation / size | Inner Ø (mm) | Cable thickness (mm) | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® O-ring FKM metric** | | | | |
| 52122000 | M 12 x 2.0 | 9.0 | 2 | 100 |
| 52122001 | M 12 x 1.5 | 9.0 | 1.5 | 100 |
| 52122010 | M 16 x 2.0 | 13.0 | 2 | 100 |
| 52122020 | M 20 x 2.0 | 17.0 | 2 | 100 |
| 52122021 | M 20 x 1.5 | 17.0 | 1.5 | 100 |
| 52122030 | M 25 x 2.0 | 22.0 | 2 | 100 |
| 52122040 | M 32 x 2.0 | 28.0 | 2 | 50 |
| 52122050 | M 40 x 2.0 | 36.0 | 2 | 50 |
| 52122060 | M 50 x 2.0 | 46.0 | 2 | 25 |
| 52122070 | M 63 x 2.0 | 57.0 | 2 | 25 |

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## SKINDICHT® JT PTFE metric



### Benefits
- Resistant to oil, water, alkaline solutions, acids, solvents, etc.
- Suitable for foodstuffs

### Application range
- PTFE sealing disks for SKINTOP® and SKINDICHT® cable glands

### Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
White

**Material**
PTFE

**Temperature range**
-120°C to +250°C
Short-term: up to +300°C

| Article number | Article designation / size | Inner Ø (mm) | Thickness (mm) | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® JT PTFE metric** | | | | | |
| 53801030 | M 12 | 12.1 | 2.0 | 16.6 | 100 |
| 53801040 | M 16 | 16.1 | 2.0 | 21.1 | 100 |
| 53801050 | M 20 | 20.1 | 2.0 | 27.5 | 100 |
| 53801060 | M 25 | 25.1 | 3.0 | 33.4 | 50 |
| 53801070 | M 32 | 32.1 | 3.0 | 40.3 | 50 |
| 53801080 | M 40 | 40.2 | 3.0 | 51.5 | 25 |
| 53801090 | M 50 | 50.2 | 3.0 | 61.6 | 25 |
| 53801100 | M 63 | 63.2 | 3.0 | 73.9 | 25 |

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## SKINDICHT® WN-M



### Benefits
- Pierceable membrane

### Application range
- Easy cable feed-through wherever strain relief is not required.

### Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Note**
Upon request: Black colour

**Colour delivered**
Light grey (RAL 7035)

**Material**
PE

**Protection rating**
IP 54

**Temperature range**
-30°C to +80°C

| Article number | Article designation / size | Opening (mm) | SW wrench size mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® WN-M** | | | | | | |
| 52020513 | M 16 x 1.5 | 5.0 - 10.0 | 15 | 10 | 20.0 | 200 |
| 52020523 | M 20 x 1.5 | 8.0 - 13.5 | 19 | 12 | 24.0 | 200 |
| 52020533 | M 25 x 1.5 | 9.0 - 16.0 | 24 | 12 | 28.0 | 100 |
| 52020543 | M 32 x 1.5 | 11.0 - 22.0 | 30 | 14 | 37.0 | 50 |
| 52020553 | M 40 x 1.5 | 17.0 - 34.0 | 37 | 16 | 45.0 | 50 |
| 52020563 | M 50 x 1.5 | 22.0 - 35.0 | 46 | 18 | 55.5 | 20 |
| 52020573 | M 63 x 1.5 | 24.0 - 43.0 | 56 | 20 | 68.5 | 10 |

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## SKINDICHT® DTN

### Benefits
- Can be used as multiple-duct sleeve
- Strain relief

### Application range
- Grommets for cables from 4 to 32 mm cable diameter

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000879
ETIM 5.0/6.0 Class-Description: Feed through spout

**Colour delivered**
Black

**Material**
CR

**Temperature range**
-30°C to +100°C



| Article number | Article designation / size | Ø F mm | Metal thickness (mm) | Hole in housing Ø (mm) | Sleeve inner Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® DTN** | | | | | | |
| 52105020 | DTN 1 | 4.0 - 9.0 | 2.5 | 16 | 9 | 50 |
| 52105030 | DTN 2 | 7.0 - 12.0 | 2.5 | 19 | 12 | 50 |
| 52105040 | DTN 3 | 12.0 - 17.5 | 2.5 | 25 | 18 | 50 |
| 52105050 | DTN 4 | 18.0 - 23.0 | 2.5 | 32 | 25 | 25 |
| 52105060 | DTN 5 | 25.0 - 29.0 | 3.0 | 38 | 32 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® LA

### Benefits
- Protection against sharp or angular housing walls
- Easy to assemble

### Application range
- Housings
- Control cabinet manufacturing

### Note
- Simply push the grommet into the hole until the groove engages

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000879
ETIM 5.0/6.0 Class-Description: Feed through spout

**Colour delivered**
Black

**Material**
CR

**Temperature range**
-30°C to +90°C



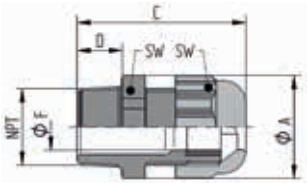
| Article number | Article designation / size | Metal thickness (mm) | Sleeve outer Ø (mm) | Hole in housing Ø (mm) | Sleeve inner Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® LA** | | | | | | |
| 61713520 | LA 3 | 1.5 - 2.0 | 10 | 7 | 3 | 100 |
| 61713530 | LA 4 | 1.5 - 2.0 | 11 | 8 | 4 | 100 |
| 61713540 | LA 5 | 1.5 - 2.0 | 11 | 7 | 5 | 100 |
| 61713550 | LA 6 | 1.5 - 2.0 | 14 | 9 | 6 | 100 |
| 61713560 | LA 7 | 1.5 - 2.0 | 16 | 12 | 7 | 100 |
| 61713570 | LA 8 | 1.5 - 2.0 | 15 | 11 | 8 | 100 |
| 61713580 | LA 9 | 1.5 - 2.0 | 16 | 11 | 9 | 100 |
| 61713590 | LA 11 | 1.5 - 2.0 | 19 | 14 | 11 | 100 |
| 61713600 | LA 12 | 1.5 - 2.0 | 25 | 18 | 12 | 100 |

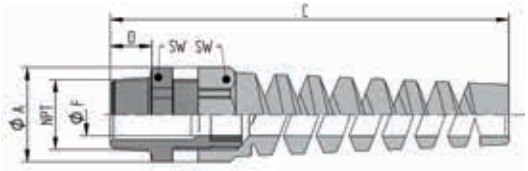
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# SKINTOP® ST NPT / BS NPT










## Benefits

- Conical NPT thread
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

## Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Automation technology
- Devices
- Housings

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013
- SKINTOP® STR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Silver grey (RAL 7001)
Black (RAL 9005), UV-resistant

**Material**
Body: Polyamide
Seal: CR

**Protection rating**
IP 68 - 5 bar

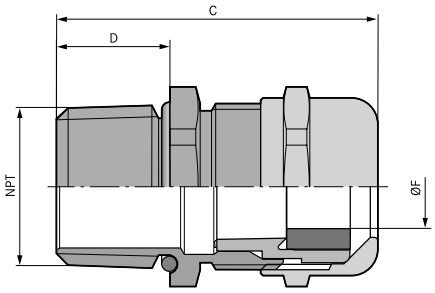
**Temperature range**
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® ST NPT silver grey** | | | | | | |
| 53016010 | NPT 3/8“ | 3.5 - 8 | 19 | 43.0 | 15 | 100 |
| 53016030 | NPT 1/2“ | 5 - 12 | 24 | 47.0 | 15 | 100 |
| 53016050 | NPT 3/4“ | 13 - 18 | 33 | 53.0 | 15 | 50 |
| 53016060 | NPT 1“ | 14 - 25 | 42 | 60.0 | 15 | 25 |
| **SKINTOP® ST NPT black** | | | | | | |
| 53016210 | NPT 3/8“ | 3.5 - 8 | 19 | 43.0 | 15 | 100 |
| 53016230 | NPT 1/2“ | 5 - 12 | 24 | 47.0 | 15 | 100 |
| 53016250 | NPT 3/4“ | 13 - 18 | 33 | 53.0 | 15 | 50 |
| 53016260 | NPT 1“ | 14 - 25 | 42 | 60.0 | 15 | 25 |
| **SKINTOP® STR NPT silver grey** | | | | | | |
| 53016110 | NPT 3/8“ | 2 - 6 | 19 | 43.0 | 15 | 100 |
| 53016130 | NPT 1/2“ | 4 - 9 | 24 | 47.0 | 15 | 100 |
| 53016150 | NPT 3/4“ | 9 - 16 | 33 | 53.0 | 15 | 50 |
| **SKINTOP® STR NPT black** | | | | | | |
| 53016310 | NPT 3/8“ | 2 - 6 | 19 | 43.0 | 15 | 100 |
| 53016330 | NPT 1/2“ | 4 - 9 | 24 | 47.0 | 15 | 100 |
| 53016350 | NPT 3/4“ | 9 - 16 | 33 | 53.0 | 15 | 50 |
| **SKINTOP® BS NPT silver grey** | | | | | | |
| 53016610 | NPT 3/8“ | 3.5 - 8 | 19 | 80.5 | 15 | 100 |
| 53016630 | NPT 1/2“ | 5 - 12 | 24 | 104.0 | 15 | 100 |
| 53016650 | NPT 3/4“ | 13 - 18 | 33 | 133.0 | 15 | 50 |
| **SKINTOP® BS NPT black** | | | | | | |
| 53016810 | NPT 3/8“ | 3.5 - 8 | 19 | 80.5 | 15 | 100 |
| 53016830 | NPT 1/2“ | 5 - 12 | 24 | 104.0 | 15 | 100 |
| 53016850 | NPT 3/4“ | 13 - 18 | 33 | 133.0 | 15 | 50 |

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# SKINTOP® MS NPT






## Benefits
- Conical NPT thread
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range
- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

## Norm references / Approvals
- UL File Nr. E79903

## Product Make-up
- NPT connection thread acc. to ASME B1.20.1 - 2013
- SKINTOP® MSR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

## Suitable tools
- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

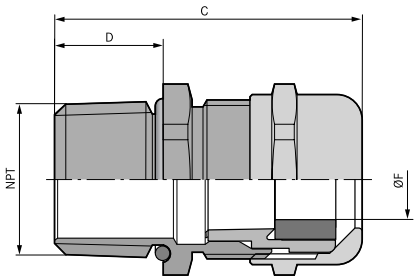
**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS NPT** | | | | | | |
| 53112004 | NPT 1/4“ | 3.5 - 7 | 16 | 36.0 | 15 | 100 |
| 53112014 | NPT 3/8“ | 4.5 - 9 | 20 | 39.7 | 15 | 100 |
| 53112024 | NPT 1/2“ | 7 - 12.5 | 24 | 42.5 | 15 | 50 |
| 53112034 | NPT 3/4“ | 9 - 16.5 | 29 | 44.5 | 15 | 25 |
| 53112044 | NPT 1“ | 11 - 21 | 36 | 49.0 | 15 | 25 |
| 53112054 | NPT 1 1/4“ | 19 - 28 | 45 | 57.5 | 17 | 10 |
| 53112064 | NPT 1 1/2“ | 27 - 35 | 54 | 61.5 | 17 | 5 |
| 53112074 | NPT 2“ | 34 - 45 | 67 | 63.5 | 17 | 5 |
| **SKINTOP® MSR NPT** | | | | | | |
| 53112006 | NPT 1/4“ | 1 - 5 | 16 | 36.0 | 15 | 100 |
| 53112016 | NPT 3/8“ | 2 - 7 | 20 | 39.7 | 15 | 100 |
| 53112026 | NPT 1/2“ | 5 - 10 | 24 | 42.5 | 15 | 50 |
| 53112036 | NPT 3/4“ | 6 - 13 | 29 | 44.5 | 15 | 25 |
| 53112046 | NPT 1“ | 7 - 15 | 36 | 49.0 | 15 | 25 |
| 53112056 | NPT 1 1/4“ | 15 - 23 | 45 | 57.5 | 17 | 10 |
| 53112066 | NPT 1 1/2“ | 22 - 29 | 54 | 61.5 | 17 | 5 |
| 53112076 | NPT 2“ | 28 - 39 | 67 | 63.5 | 17 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® COLD NPT






**Info**

- For extreme sub-zero temperatures

## Benefits

- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

- In areas where mechanical stability and high cold-resistance are critical
- Air-conditioning technology
- Freezing plants, cold storage
- Offshore sector
- Plant engineering

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013
- SKINTOP® COLD-R NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: nickel-plated brass
Insert: special polyamide
Sealing ring: silicone
O-ring: silicone

**Protection rating**
IP 68 - 10 bar (NPT 1/4“ - 1/2“)
IP 68 - 5 bar (NPT 3/4“ - 2““)
NEMA Type 1, 2, 4x, 6, 12

**Temperature range**
-70°C to +100°C

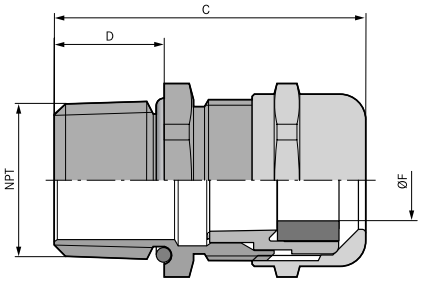
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® COLD NPT** | | | | | | |
| 53113700 | 1/4“ | 4 - 7 | 16 | 36.0 | 15 | 100 |
| 53113701 | 3/8“ | 5 - 10 | 20 | 39.7 | 15 | 100 |
| 53113702 | 1/2“ | 7 - 13 | 24 | 42.5 | 15 | 50 |
| 53113703 | 3/4“ | 9 - 17 | 29 | 44.5 | 15 | 25 |
| 53113704 | 1“ | 11 - 21 | 36 | 49.0 | 15 | 25 |
| 53113705 | 1 1/4“ | 19 - 28 | 45 | 57.5 | 15 | 10 |
| 53113706 | 1 1/2“ | 27 - 35 | 54 | 61.5 | 17 | 5 |
| 53113707 | 2“ | 34 - 45 | 67 | 63.5 | 17 | 5 |
| **SKINTOP® COLD-R NPT** | | | | | | |
| 53113710 | 1/4“ | 3 - 5 | 16 | 36.0 | 15 | 100 |
| 53113711 | 3/8“ | 4.5 - 7 | 20 | 39.7 | 15 | 100 |
| 53113712 | 1/2“ | 6 - 10 | 24 | 42.5 | 15 | 50 |
| 53113713 | 3/4“ | 7 - 13 | 29 | 44.5 | 15 | 25 |
| 53113714 | 1“ | 8 - 15 | 36 | 49.0 | 15 | 25 |
| 53113715 | 1 1/4“ | 15 - 23 | 45 | 57.5 | 17 | 10 |
| 53113716 | 1 1/2“ | 22 - 29 | 54 | 61.5 | 17 | 5 |
| 53113717 | 2“ | 28 - 39 | 67 | 63.5 | 17 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® MS-SC NPT








## Benefits

- Low-resistance screen contact, optimum EMC protection
- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

## Application range

- For EMC-compliant earthing of the copper braiding
- Automation technology
- Telecommunication
- Measurement and control technology
- Industrial machinery and plant engineering

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

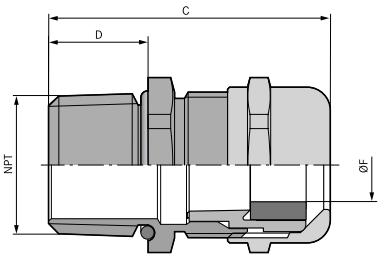
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-SC NPT** | | | | | | |
| 53112910 | NPT 3/8“ | 4.5 - 10 | 20 | 39.7 | 15 | 100 |
| 53112920 | NPT 1/2“ | 7 - 13 | 24 | 42.5 | 15 | 50 |
| 53112930 | NPT 3/4“ | 9 - 17 | 29 | 44.5 | 15 | 25 |
| 53112940 | NPT 1“ | 11 - 21 | 36 | 49.0 | 15 | 25 |
| 53112950 | NPT 1 1/4“ | 19 - 28 | 45 | 57.5 | 17 | 10 |
| 53112960 | NPT 1 1/2“ | 27 - 35 | 54 | 61.5 | 17 | 5 |

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# SKINTOP® MS-NPT BRUSH








## Benefits

- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

## Application range

- For EMC-compliant earthing of the copper braiding
- Automation technology
- High-power drives
- Frequency converters
- Conveyor and transport systems

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide
EMC brush: brass wire
Sealing ring: elastomer
O-ring: elastomer

**Protection rating**
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-NPT BRUSH** | | | | | | |
| 53112037 | NPT 3/4“ | 9 - 17 | 29 | 43.0 | 15 | 10 |
| 53112047 | NPT 1“ | 11 - 21 | 36 | 48.2 | 15 | 1 |
| 53112057 | NPT 1 1/4“ | 19 - 28 | 45 | 57.5 | 17 | 1 |
| 53112067 | NPT 1 1/2“ | 27 - 35 | 54 | 59.0 | 17 | 1 |
| 53112077 | NPT 2“ | 34 - 45 | 67 | 63.3 | 17 | 1 |
| 53112087 | NPT 2“ plus | 44 - 55 | 75 | 72.5 | 17 | 1 |

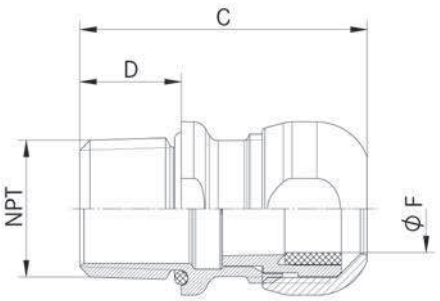
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® INOX NPT

**Info**

- Stainless steel version with compact design
- For use in the splash zone in the food production




## Benefits

- Corrosion-resistant
- Sea water-resistant
- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges

## Application range

- Onshore and offshore applications
- Bottling plants and breweries
- Food industry (product-free zone, splash zone)

## Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: stainless steelV4A (1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

**Protection rating**
IP 68 - 5 bar
IP 69
NEMA Type 1, 2, 4x, 6, 12

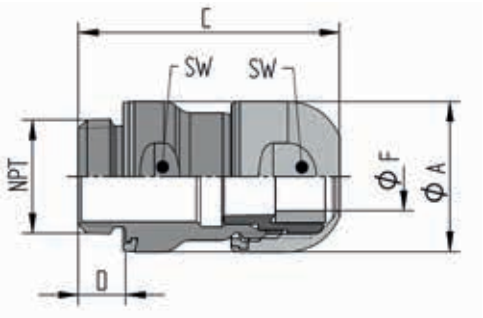
**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® INOX NPT** | | | | | | |
| 53806780 | NPT 1/2“ | 7-13 | 24 | 42.5 | 15 | 5 |
| 53806781 | NPT 3/4“ | 9-17 | 29 | 46.2 | 15 | 5 |
| 53806782 | NPT 1“ | 11-21 | 36 | 50.6 | 15 | 5 |
| 53806783 | NPT 1 1/4“ | 19-28 | 45 | 59.2 | 17 | 5 |
| 53806784 | NPT 1 1/2“ | 27-35 | 54 | 63.2 | 17 | 5 |

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# SKINTOP® HYGIENIC NPT




**Info**

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components

## Benefits

- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

## Application range

- Food machinery, equipment and components
- For use in **product zone**
- Pharmaceutical industry

## Norm references / Approvals

- EHEDG (TYPE EL Class I AUX)
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- NSF/ANSI 169
  Hygienic design for machinery and components

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- One complete assembly is easily mounted from the outside
- NPT connection thread acc. to ASME B1.20.1 - 2013

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

**Protection rating**
IP 68 - 10 bar
IP 69
NEMA Type 1, 2, 4x, 6, 12

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | Thread length D mm | SW wrench size mm | Overall length C mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® HYGIENIC NPT** | | | | | | |
| 54114100 | NPT 1/4“ | 4-6 | 7.2 | 16 | 39.5 | 5 |
| 54114110 | NPT 3/8“ | 6.5-9 | 7.8 | 20 | 42.5 | 5 |
| 54114120 | NPT 1/2“ | 9-12 | 8.4 | 24 | 47.0 | 5 |
| 54114130 | NPT 3/4“ | 11.5-15.5 | 8.8 | 29 | 50.0 | 5 |
| **SKINTOP® HYGIENIC-R NPT** | | | | | | |
| 54114200 | NPT 1/4“ | 3-4.5 | 7.2 | 16 | 39.5 | 5 |
| 54114210 | NPT 3/8“ | 4.5-7 | 7.8 | 20 | 42.5 | 5 |
| 54114220 | NPT 1/2“ | 7-10 | 8.4 | 24 | 47.0 | 5 |
| 54114230 | NPT 3/4“ | 9-12.5 | 8.4 | 29 | 50.0 | 5 |

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# SKINTOP® GMP-GL NPT



## Benefits

- Glass fibre-reinforced for maximum mechanical stability

## Application range

- For locking SKINTOP® cable glands in boreholes without thread.

## Product Make-up

- NPT connection thread
- Available without collar (without surface for assembling tool)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005)

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Thickness (mm) | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® GMP-GL NPT silvergrey** | | | | |
| 53019301 | NPT 3/8" | 5.0 | 22 | 100 |
| 53019311 | NPT 1/2" | 6.0 | 27 | 100 |
| 53019321 | NPT 3/4" | 7.0 | 36 | 100 |
| 53019331 | NPT 1" | 7.0 | 42 | 100 |
| **SKINTOP® GMP-GL NPT black** | | | | |
| 53019305 | NPT 3/8" | 5.0 | 22 | 100 |
| 53019315 | NPT 1/2" | 6.0 | 27 | 100 |
| 53019325 | NPT 3/4" | 7.0 | 36 | 100 |
| 53019335 | NPT 1" | 7.0 | 42 | 100 |
| **SKINTOP® GMP-GL NPT lightgrey** | | | | |
| 53019300 | NPT 3/8" | 5.0 | 22 | 100 |
| 53019310 | NPT 1/2" | 6.0 | 27 | 100 |
| 53019320 | NPT 3/4" | 7.0 | 36 | 100 |
| 53019330 | NPT 1" | 7.0 | 42 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® SM-NPT



### Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

### Product Make-up

- NPT connection thread

### Note

- Other sizes are available upon request

**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® SM-NPT** | | |
| 52103540 | NPT 1/2” | 50 |
| 52103550 | NPT 3/4” | 20 |
| 52103560 | NPT 1” | 20 |
| 52103570 | NPT 1 1/4” | 20 |
| 52103580 | NPT 1 1/2” | 10 |
| 52103590 | NPT 2” | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® SM-NPT INOX



### Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

### Product Make-up

- NPT connection thread

### Note

- Other sizes are available upon request

**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Material**
Stainless steel

**Temperature range**
-60°C to +200°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® SM-NPT INOX** | | |
| 52103500 | NPT 1/2” | 50 |
| 52103510 | NPT 3/4” | 50 |
| 52103520 | NPT 1” | 25 |
| 52103530 | NPT 1 1/4” | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® HYGIENIC BL-NPT




**Info**

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components

## Benefits

- For closing pre-threaded holes
- Assembling with a wrench

## Application range

- Food machinery, equipment and components
- For use in **product zone**
- Pharmaceutical industry

## Norm references / Approvals

- NSF/ANSI 169
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- NPT connection thread acc. to ASME B1.20.1 - 2013

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Material**
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

**Protection rating**
IP 68 - 10 bar

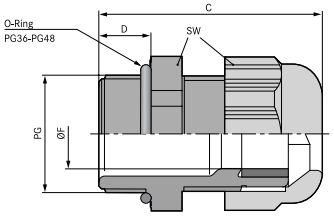
**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | SW wrench size mm | Overall length C mm | Thread length D mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® HYGIENIC BL-NPT** | | | | | | |
| 52103494 | NPT 1/4“ | 16 | 17.4 | 7 | 18.8 | 5 |
| 52103495 | NPT 3/8“ | 20 | 18.7 | 7.8 | 22.8 | 5 |
| 52103496 | NPT 1/2“ | 24 | 20.3 | 8.4 | 26.8 | 5 |
| 52103497 | NPT 3/4“ | 29 | 21.5 | 8.8 | 31.8 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® ST / SKINTOP® STR






## Benefits

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges
- Various accessories (e.g. multiple sealing inserts)

## Application range

**SKINTOP® ST**

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology

**SKINTOP® STR**

- With reducing seal insert, to seal cables with smaller outer diameters

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- PG connection thread acc. to DIN 40430

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Body: Polyamide
Seal: CR

**Tests**
GGVS: TÜ.EGG.020-95

**Protection rating**
IP 68 - 5 bar
NEMA Type 1, 12

**Temperature range**
Dynamic: -20°C up to +80°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® ST silver grey** | | | | | | |
| 53015000 | PG 7 | 2.5 - 6.5 | 15 | 32.0 | 7.8 | 100 |
| 53015010 | PG 9 | 3.5 - 8 | 19 | 36.0 | 8 | 100 |
| 53015020 | PG 11 | 4 - 10 | 22 | 38.0 | 8 | 100 |
| 53015030 | PG 13.5 | 6 - 12 | 24 | 41.0 | 9 | 100 |
| 53015040 | PG 16 | 9 - 14 | 27 | 44.0 | 10 | 50 |
| 53015050 | PG 21 | 13 - 18 | 33 | 49.0 | 11 | 50 |
| 53015060 | PG 29 | 14 - 25 | 42 | 56.0 | 10.7 | 25 |
| 53015070 | PG 36 | 24 - 32 | 53 | 66.0 | 13.3 | 10 |
| 53015080 | PG 42 | 35 - 38 | 60 | 68.0 | 13.4 | 5 |
| 53015090 | PG 48 | 39 - 44 | 65 | 69.0 | 14.3 | 5 |
| **SKINTOP® ST black** | | | | | | |
| 53015200 | PG 7 | 2.5 - 6.5 | 15 | 32.0 | 7.8 | 100 |
| 53015210 | PG 9 | 3.5 - 8 | 19 | 36.0 | 8 | 100 |
| 53015220 | PG 11 | 4 - 10 | 22 | 38.0 | 8 | 100 |
| 53015230 | PG 13.5 | 6 - 12 | 24 | 41.0 | 9 | 100 |
| 53015240 | PG 16 | 9 - 14 | 27 | 44.0 | 10 | 50 |
| 53015250 | PG 21 | 13 - 18 | 33 | 49.0 | 11 | 50 |
| 53015260 | PG 29 | 14 - 25 | 42 | 56.0 | 10.7 | 25 |
| 53015270 | PG 36 | 24 - 32 | 53 | 66.0 | 13.3 | 10 |
| 53015280 | PG 42 | 35 - 38 | 60 | 68.0 | 13.4 | 5 |
| 53015290 | PG 48 | 39 - 44 | 65 | 69.0 | 14.3 | 5 |
| **SKINTOP® ST light grey** | | | | | | |
| 53018000 | PG 7 | 2.5 - 6.5 | 15 | 32.0 | 7.8 | 100 |
| 53018010 | PG 9 | 3.5 - 8 | 19 | 36.0 | 8 | 100 |
| 53018020 | PG 11 | 4 - 10 | 22 | 38.0 | 8 | 100 |
| 53018030 | PG 13.5 | 6 - 12 | 24 | 41.0 | 9 | 100 |
| 53018040 | PG 16 | 9 - 14 | 27 | 44.0 | 10 | 50 |
| 53018050 | PG 21 | 13 - 18 | 33 | 49.0 | 11 | 50 |
| 53018060 | PG 29 | 14 - 25 | 42 | 56.0 | 10.7 | 25 |
| 53018070 | PG 36 | 24 - 32 | 53 | 66.0 | 13.3 | 10 |
| 53018080 | PG 42 | 35 - 38 | 60 | 68.0 | 13.4 | 5 |
| 53018090 | PG 48 | 39 - 44 | 65 | 69.0 | 14.3 | 5 |

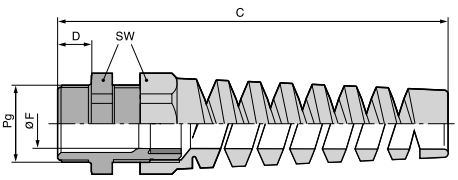
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® STR silver grey** | | | | | | |
| 53015100 | PG 7 | 1.5 - 5 | 15 | 32.0 | 7.8 | 100 |
| 53015110 | PG 9 | 2 - 6 | 19 | 36.0 | 8 | 100 |
| 53015120 | PG 11 | 2 - 7 | 22 | 38.0 | 8 | 100 |
| 53015130 | PG 13.5 | 4 - 9 | 24 | 41.0 | 9 | 100 |
| 53015140 | PG 16 | 6 - 12 | 27 | 44.0 | 10 | 50 |
| 53015150 | PG 21 | 9 - 16 | 33 | 49.0 | 11 | 50 |
| 53015160 | PG 29 | 11 - 20 | 42 | 56.0 | 10.7 | 25 |
| 53015170 | PG 36 | 17 - 26 | 53 | 66.0 | 13.3 | 10 |
| 53015180 | PG 42 | 22 - 31 | 60 | 68.0 | 13.4 | 5 |
| 53015190 | PG 48 | 26 - 35 | 65 | 69.0 | 14.3 | 5 |
| **SKINTOP® STR black** | | | | | | |
| 53015300 | PG 7 | 1.5 - 5 | 15 | 32.0 | 7.8 | 100 |
| 53015310 | PG 9 | 2 - 6 | 19 | 36.0 | 8 | 100 |
| 53015320 | PG 11 | 2 - 7 | 22 | 38.0 | 8 | 100 |
| 53015330 | PG 13.5 | 4 - 9 | 24 | 41.0 | 9 | 100 |
| 53015340 | PG 16 | 6 - 12 | 27 | 44.0 | 10 | 50 |
| 53015350 | PG 21 | 9 - 16 | 33 | 49.0 | 11 | 50 |
| 53015360 | PG 29 | 11 - 20 | 42 | 56.0 | 10.7 | 25 |
| 53015370 | PG 36 | 17 - 26 | 53 | 66.0 | 13.3 | 10 |
| 53015380 | PG 42 | 22 - 31 | 60 | 68.0 | 13.4 | 5 |
| 53015390 | PG 48 | 26 - 35 | 65 | 69.0 | 14.3 | 5 |
| **SKINTOP® STR light grey** | | | | | | |
| 53018100 | PG 7 | 1.5 - 5 | 15 | 32.0 | 7.8 | 100 |
| 53018110 | PG 9 | 2 - 6 | 19 | 36.0 | 8 | 100 |
| 53018120 | PG 11 | 2 - 7 | 22 | 38.0 | 8 | 100 |
| 53018130 | PG 13.5 | 4 - 9 | 24 | 41.0 | 9 | 100 |
| 53018140 | PG 16 | 6 - 12 | 27 | 44.0 | 10 | 50 |
| 53018150 | PG 21 | 9 - 16 | 33 | 49.0 | 11 | 50 |
| 53018160 | PG 29 | 11 - 20 | 42 | 56.0 | 10.7 | 25 |
| 53018170 | PG 36 | 17 - 26 | 53 | 66.0 | 13.3 | 10 |
| 53018180 | PG 42 | 22 - 31 | 60 | 68.0 | 13.4 | 5 |
| 53018190 | PG 48 | 26 - 35 | 65 | 69.0 | 14.3 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® BS








## Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Robotics industry
- Light and sound applications
- Moving machine parts

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- PG connection thread acc. to DIN 40430

## Note

- Version with smaller insert to seal smaller cable cross-sections, SKINTOP® BSR, is available upon request

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
Silver grey (RAL 7001)
Black (RAL 9005), UV-resistant

**Material**
Body: Polyamide
Seal: CR

**Protection rating**
IP 68 - 5 bar

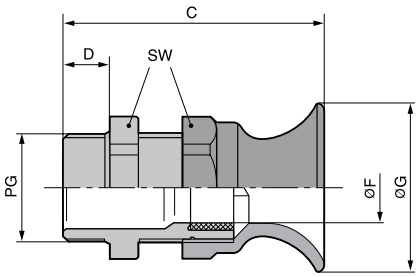
**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BS silver grey** | | | | | | |
| 53015600 | PG 7 | 2.5 - 6.5 | 15 | 62.0 | 7.8 | 100 |
| 53015610 | PG 9 | 3.5 - 8 | 19 | 75.0 | 8 | 100 |
| 53015620 | PG 11 | 4 - 10 | 22 | 87.0 | 8 | 100 |
| 53015630 | PG 13.5 | 6 - 12 | 24 | 100.0 | 9 | 50 |
| 53015640 | PG 16 | 9 - 14 | 27 | 113.0 | 10 | 25 |
| 53015650 | PG 21 | 13 - 18 | 33 | 129.0 | 11 | 25 |
| **SKINTOP® BS black** | | | | | | |
| 53015800 | PG 7 | 2.5 - 6.5 | 15 | 62.0 | 7.8 | 100 |
| 53015810 | PG 9 | 3.5 - 8 | 19 | 75.0 | 8 | 100 |
| 53015820 | PG 11 | 4 - 10 | 22 | 87.0 | 8 | 100 |
| 53015830 | PG 13.5 | 6 - 12 | 24 | 100.0 | 9 | 50 |
| 53015840 | PG 16 | 9 - 14 | 27 | 113.0 | 10 | 25 |
| 53015850 | PG 21 | 13 - 18 | 33 | 129.0 | 11 | 25 |

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# SKINTOP® BT






## Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Apparatus construction
- Light and sound applications
- Moving machine parts

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- PG connection thread acc. to DIN 40430

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Body: Polyamide
Seal: CR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-20°C to +100°C

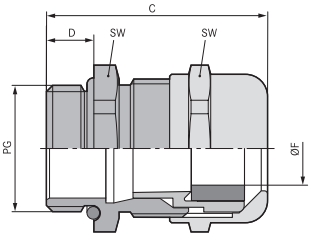
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® BT silver grey** | | | | | | |
| 53015410 | PG 9 | 3.5 - 8 | 19 | 42.9 | 8 | 100 |
| 53015420 | PG 11 | 4 - 10 | 22 | 47.7 | 8 | 100 |
| 53015430 | PG 13.5 | 6 - 12 | 24 | 52.0 | 9 | 50 |
| 53015440 | PG 16 | 9 - 14 | 27 | 55.9 | 10 | 50 |
| 53015450 | PG 21 | 13 - 18 | 33 | 64.4 | 11 | 50 |

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# SKINTOP® MS / SKINTOP® MSR


SKINTOP® MS


SKINTOP® MSR




## Benefits

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

## Application range

**SKINTOP® MS**

- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

**SKINTOP® MSR**

- With reducing seal insert, to seal cables with smaller outer diameters

## Product Make-up

- PG connection thread acc. to DIN 40430

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

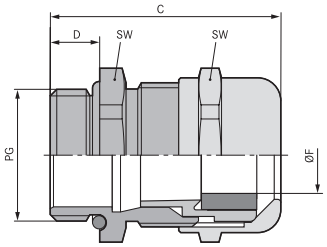
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS** | | | | | | |
| 52015700 | PG 7 | 2.0 - 6.5 | 14 | 25.0 | 5 | 100 |
| 52015710 | PG 9 | 4.0 - 8.0 | 17 | 29.0 | 6 | 100 |
| 52015720 | PG 11 | 4.0 - 10.0 | 20 | 32.0 | 6 | 50 |
| 52015730 | PG 13.5 | 5.0 - 12.0 | 22 | 34.0 | 6.5 | 50 |
| 52015740 | PG 16 | 8.0 - 14.0 | 24 | 35.0 | 6.5 | 50 |
| 52015750 | PG 21 | 11.0 - 18.0 | 30 | 40.0 | 7 | 25 |
| 52015760 | PG 29 | 16.0 - 25.0 | 40 | 48.0 | 8 | 25 |
| 52015765 | PG 36 | 19.0 - 32.0 | 50 | 62.0 | 15 | 10 |
| 52015766 | PG 42 | 28.0 - 38.0 | 57 | 62.0 | 15 | 5 |
| 52015767 | PG 48 | 34.0 - 44.0 | 64 | 62.0 | 15 | 5 |
| **SKINTOP® MSR** | | | | | | |
| 52015770 | PG 7 | 2.0 - 5.0 | 14 | 25.0 | 5 | 100 |
| 52015780 | PG 9 | 2.0 - 6.0 | 17 | 29.0 | 6 | 100 |
| 52015790 | PG 11 | 3.0 - 7.0 | 20 | 32.0 | 6 | 50 |
| 52015800 | PG 13.5 | 4.0 - 9.0 | 22 | 34.0 | 6.5 | 50 |
| 52015810 | PG 16 | 6.0 - 13.0 | 24 | 35.0 | 6.5 | 50 |
| 52015820 | PG 21 | 8.0 - 16.0 | 30 | 40.0 | 7 | 25 |
| 52015830 | PG 29 | 10.5 - 20.0 | 40 | 48.0 | 8 | 25 |
| 52015831 | PG 36 | 19.0 - 26.0 | 50 | 62.0 | 15 | 10 |
| 52015832 | PG 42 | 24.0 - 31.0 | 57 | 62.0 | 15 | 5 |
| 52015833 | PG 48 | 28.0 - 35.0 | 64 | 62.0 | 15 | 5 |

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# SKINTOP® MS-XL / SKINTOP® MSR-XL


SKINTOP® MS-XL


SKINTOP® MSR-XL




## Benefits

- Especially for thick walls
- Maximum reliability
- Wide, variable clamping ranges
- Optimum strain relief

## Application range

**SKINTOP® MS-XL**

- With long connection thread for applications involving a thicker wall
- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing

**SKINTOP® MSR-XL**

- With reducing seal insert, to seal cables with smaller outer diameters

## Product Make-up

- PG connection thread acc. to DIN 40430

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C up to +100°C

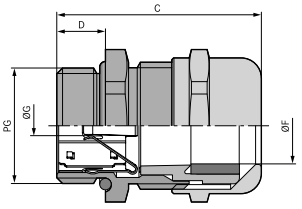
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINTOP® MS-XL** | | | | | | |
| 52115700 | PG 7 | 2.0 - 6.5 | 14 | 32.0 | 12 | 100 |
| 52115710 | PG 9 | 4.0 - 8.0 | 17 | 35.0 | 12 | 100 |
| 52115720 | PG 11 | 4.0 - 10.0 | 20 | 38.0 | 12 | 50 |
| 52115730 | PG 13.5 | 5.0 - 12.0 | 22 | 39.5 | 12 | 50 |
| 52115740 | PG 16 | 8.0 - 14.0 | 24 | 40.5 | 12 | 50 |
| 52115750 | PG 21 | 11.0 - 18.0 | 30 | 45.0 | 12 | 25 |
| 52115760 | PG 29 | 16.0 - 25.0 | 40 | 52.0 | 15 | 25 |
| **SKINTOP® MSR-XL** | | | | | | |
| 52115770 | PG 7 | 2.0 - 5.0 | 14 | 32.0 | 12 | 100 |
| 52115780 | PG 9 | 2.0 - 6.0 | 17 | 35.0 | 12 | 100 |
| 52115790 | PG 11 | 3.0 - 7.0 | 20 | 38.0 | 12 | 50 |
| 52115800 | PG 13.5 | 4.0 - 9.0 | 22 | 39.5 | 12 | 50 |
| 52115810 | PG 16 | 6.0 - 13.0 | 24 | 40.5 | 12 | 50 |
| 52115820 | PG 21 | 8.0 - 16.0 | 30 | 45.0 | 12 | 25 |
| 52115830 | PG 29 | 10.5 - 20.0 | 40 | 52.0 | 15 | 25 |

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# SKINTOP® MS-SC








## Benefits

- Low-resistance screen contact, optimum EMC protection
- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

## Application range

- For EMC-compliant earthing of the copper braiding
- Telecommunication
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

## Product Make-up

- PG connection thread acc. to DIN 40430

## Note

- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

## Suitable tools

- SKINMATIC® RZ

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
Refer to Appendix T21 for the installation dimensions and torques

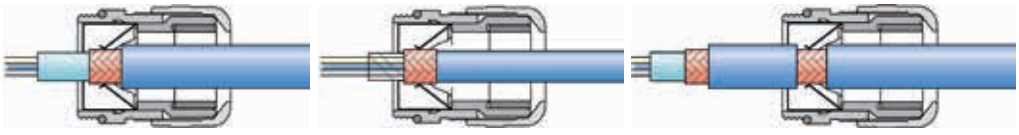
**Material**
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

**Protection rating**
IP 68 - 5 bar

**Temperature range**
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C

| Article number | Article designation / size | Ø F mm | Minimum Ø above braiding (mm) | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINTOP® MS-SC** | | | | | | | |
| 53112210 | PG 9 | 3.0 - 8.0 | 4 | 17 | 29.0 | 6 | 50 |
| 53112220 | PG 11 | 4.0 - 10.0 | 4 | 20 | 32.0 | 6 | 50 |
| 53112230 | PG 13.5 | 5.0 - 12.0 | 4 | 22 | 34.0 | 6.5 | 25 |
| 53112240 | PG 16 | 8.0 - 14.0 | 6 | 24 | 35.0 | 6.5 | 25 |
| 53112250 | PG 21 | 11.0 - 18.0 | 8 | 30 | 40.0 | 7 | 25 |
| 53112260 | PG 29 | 16.0 - 25.0 | 13 | 40 | 48.0 | 8 | 10 |
| 53112270 | PG 36 | 19.0 - 32.0 | 16 | 50 | 62.0 | 15 | 5 |
| **SKINTOP® MS-SC XL** | | | | | | | |
| 53112310 | PG 9 | 3.0 - 8.0 | 4 | 17 | 35.0 | 12 | 50 |
| 53112320 | PG 11 | 4.0 - 10.0 | 4 | 20 | 38.0 | 12 | 50 |
| 53112330 | PG 13.5 | 5.0 - 12.0 | 4 | 22 | 39.5 | 12 | 25 |
| 53112340 | PG 16 | 8.0 - 14.0 | 6 | 24 | 40.5 | 12 | 25 |
| 53112350 | PG 21 | 11.0 - 18.0 | 8 | 30 | 45.0 | 12 | 25 |
| 53112360 | PG 29 | 16.0 - 25.0 | 13 | 40 | 52.0 | 15 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINTOP® GMP-GL



## Benefits

- Glass fibre-reinforced for maximum mechanical stability
- Supporting surface for spanner means scratches on the housing are avoided

## Application range

- For locking SKINTOP® cable glands in boreholes without thread.

## Norm references / Approvals

- UL File Nr. E79903

## Product Make-up

- PG connection thread

## Note

- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands
- Designed for use with SKINTOP® ST(R)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**On request**
Available without collar
(without surface for assembling tool)

**Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | SW wrench size mm | Pieces / PU |
|---|---|---|---|
| **SKINTOP® GMP-GL silver grey with collar** | | | |
| 53019000 | PG 7 | 19 | 100 |
| 53019010 | PG 9 | 22 | 100 |
| 53019020 | PG 11 | 24 | 100 |
| 53019030 | PG 13.5 | 27 | 100 |
| 53019040 | PG 16 | 30 | 100 |
| 53019050 | PG 21 | 36 | 50 |
| 53019060 | PG 29 | 46 | 50 |
| 53019070 | PG 36 | 60 | 25 |
| 53019080 | PG 42 | 65 | 25 |
| 53019090 | PG 48 | 70 | 25 |
| **SKINTOP® GMP-GL black with collar** | | | |
| 53019200 | PG 7 | 19 | 100 |
| 53019210 | PG 9 | 22 | 100 |
| 53019220 | PG 11 | 24 | 100 |
| 53019230 | PG 13.5 | 27 | 100 |
| 53019240 | PG 16 | 30 | 100 |
| 53019250 | PG 21 | 36 | 50 |
| 53019260 | PG 29 | 46 | 50 |
| 53019270 | PG 36 | 60 | 25 |
| 53019280 | PG 42 | 65 | 25 |
| 53019290 | PG 48 | 70 | 25 |
| **SKINTOP® GMP-GL light grey with collar** | | | |
| 53019001 | PG 7 | 19 | 100 |
| 53019011 | PG 9 | 22 | 100 |
| 53019021 | PG 11 | 24 | 100 |
| 53019031 | PG 13.5 | 27 | 100 |
| 53019041 | PG 16 | 30 | 100 |
| 53019051 | PG 21 | 36 | 50 |
| 53019061 | PG 29 | 46 | 50 |
| 53019071 | PG 36 | 60 | 25 |
| 53019081 | PG 42 | 65 | 25 |
| 53019091 | PG 48 | 70 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® DIX



## Benefits

- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

## Application range

- For use in SKINTOP® cable glands
- A sealing ring with several holes is used in place of the inner sealing insert

## Note

- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Colour delivered**
Natural

**Material**
Silicone

**Protection rating**
IP 54

**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | PG size | Number of cables x cable Ø | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® DIX** | | | | |
| 53607225 | DIX 7225 | 7 | 2 x 2.5 | 100 |
| 53607417 | DIX 7417 | 7 | 4 x 1.7 | 100 |
| 53609230 | DIX 9230 | 9 | 2 x 3.0 | 100 |
| 53611225 | DIX 11225 | 11 | 2 x 2.5 | 100 |
| 53611330 | DIX 11330 | 11 | 3 x 3.0 | 100 |
| 53611240 | DIX 11240 | 11 | 2 x 4.0 | 100 |
| 53611430 | DIX 11430 | 11 | 4 x 3.0 | 100 |
| 53613250 | DIX 13250 | 13.5 | 2 x 5.0 | 100 |
| 53613340 | DIX 13340 | 13.5 | 3 x 4.0 | 100 |
| 53613440 | DIX 13440 | 13.5 | 4 x 4.0 | 100 |
| 53616140 | DIX 16140 | 16 | 1 x 4.0 | 50 |
| 53616225 | DIX 16225 | 16 | 2 x 2.5 | 50 |
| 53616240 | DIX 16240 | 16 | 2 x 4.0 | 50 |
| 53616340 | DIX 16340 | 16 | 3 x 4.0 | 50 |
| 53616350 | DIX 16350 | 16 | 3 x 5.0 | 50 |
| 53616440 | DIX 16440 | 16 | 4 x 4.0 | 50 |
| 53616540 | DIX 16540 | 16 | 5 x 4.0 | 50 |
| 53616450 | DIX 16450 | 16 | 4 x 5.0 | 50 |
| 53616356 | DIX 16356 | 16 | 3 x 5.6 | 50 |
| 53616260 | DIX 16260 | 16 | 2 x 6.0 | 50 |
| 53616360 | DIX 16360 | 16 | 3 x 6.0 | 50 |
| 53621550 | DIX 21550 | 21 | 5 x 5.0 | 50 |
| 53621460 | DIX 21460 | 21 | 4 x 6.0 | 50 |
| 53621640 | DIX 21640 | 21 | 6 x 4.0 | 50 |
| 53621270 | DIX 21270 | 21 | 2 x 7.0 | 50 |
| 53621370 | DIX 21370 | 21 | 3 x 7.0 | 50 |
| 53621280 | DIX 21280 | 21 | 2 x 8.0 | 50 |
| 53621380 | DIX 21380 | 21 | 3 x 8.0 | 50 |
| 53629556 | DIX 29556 | 29 | 5 x 5.6 | 50 |
| 53629470 | DIX 29470 | 29 | 4 x 7.0 | 50 |
| 53629570 | DIX 29570 | 29 | 5 x 7.0 | 50 |
| 53629480 | DIX 29480 | 29 | 4 x 8.0 | 50 |
| 53629290 | DIX 29290 | 29 | 2 x 9.0 | 50 |
| 53629390 | DIX 29390 | 29 | 3 x 9.0 | 50 |
| 53629490 | DIX 29490 | 29 | 4 x 9.0 | 50 |
| 53629675 | DIX 29675 | 29 | 6 x 7.5 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINTOP® DIX-AUTOMATION

## Benefits
- Optimal seal when using AS-I bus cables
- Strain relief

## Application range
- For use in SKINTOP® cable glands
- A sealing ring with several holes is used in place of the inner sealing insert
- Control cabinets
- Control panels
- Automation technology

## Note
- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I cables

## Product Make-up
- Precise cut for AS-I bus cables

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Colour delivered**
Black, RAL 9005

**Material**
NBR

**Protection rating**
IP 54

**Temperature range**
-40°C to +100°C



| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINTOP® DIX ASI** | | |
| 53611000 | DIX ASI 11 | 50 |

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# SKINTOP® DIX-DV / SKINTOP® SD / SKINTOP® DV



SKINTOP® DIX-DV



SKINTOP® SD



SKINTOP® DV

## Benefits

**SKINTOP® DIX-DV**

- Prevents water and dust penetrating into unused bore holes of SKINTOP® DIX multiple sealing inserts

**SKINTOP® SD**

- Prevents dust and dirt from getting into the housing

**SKINTOP® DV**

- Prevents humidity from seeping into the housing

## Application range

**SKINTOP® DIX-DV**

- For inserting into unoccupied holes of the SKINTOP® DIX multiple sealing inserts, to ensure protection class.

**SKINTOP® SD**

- This dust protector can be placed under the cap nut of the cable gland
- Preparations
- Protection of unused connection points

**SKINTOP® DV**

- These seals are placed into the sealing ring of the SKINTOP® cable glands
- Preparations
- Protection of unused connection points

## Note

**SKINTOP® DIX-DV**

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**SKINTOP® SD**

- Easy to handle, without disassembly - push cable through
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**SKINTOP® DV**

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Colour delivered**
**SKINTOP® DIX-DV**
Natural
**SKINTOP® SD**
Black
**SKINTOP® DV**
Black

**Material**
**SKINTOP® DIX-DV**
Polyamide
**SKINTOP® SD**
PE foam
**SKINTOP® DV**
CR

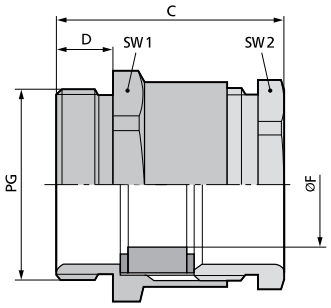
**Temperature range**
**SKINTOP® DIX-DV**
-30°C to +100°C
**SKINTOP® SD**
-70°C to +100°C
**SKINTOP® DV**
-30°C to +100°C

| Article number | Article designation / size | Ø F mm | Height (mm) | Pieces / PU |
|---|---|---|---|---|
| **SKINTOP® DIX-DV** | | | | |
| 53100003 | DIX-DV 3 x 9 | 3.0 | 9.0 | 100 |
| 53100004 | DIX-DV 4 x 9 | 4.0 | 9.0 | 100 |
| 53100005 | DIX-DV 5 x 11 | 5.0 | 11.0 | 100 |
| 53100055 | DIX-DV 5,5 x 11 | 5.5 | 11.0 | 100 |
| 53100006 | DIX-DV 6 x 14 | 6.0 | 14.0 | 100 |
| 53100007 | DIX-DV 7 x 14 | 7.0 | 14.0 | 100 |
| 53100008 | DIX-DV 8 x 14 | 8.0 | 14.0 | 100 |
| 53100009 | DIX-DV 9 x 14 | 9.0 | 14.0 | 100 |
| **SKINTOP® SD** | | | | |
| 52025235 | SD 7 | 10.5 | 2.0 | 500 |
| 52025240 | SD 9 | 13.5 | 2.0 | 500 |
| 52025250 | SD 11 | 17.0 | 2.0 | 250 |
| 52025260 | SD 13,5 | 18.5 | 2.0 | 250 |
| 52025270 | SD 16 | 20.5 | 2.0 | 250 |
| 52025280 | SD 21 | 26.0 | 2.0 | 100 |
| 52025290 | SD 29 | 34.5 | 2.0 | 100 |
| 52025291 | SD 36 | 44.5 | 2.0 | 100 |
| **SKINTOP® DV** | | | | |
| 53800640 | DV 7 | 7.0 | 6.5 | 500 |
| 53800641 | DV 9 | 8.5 | 7.5 | 500 |
| 53800579 | DV 11 | 10.5 | 8.5 | 250 |
| 53800583 | DV 13,5 | 12.5 | 8.5 | 250 |
| 53800642 | DV 16 | 14.5 | 9.0 | 250 |
| 53800643 | DV 21 | 18.5 | 11.0 | 100 |

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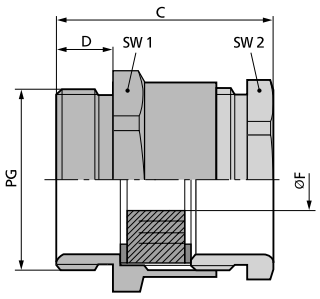
# SKINDICHT® SVRN / SKINDICHT® SVRE






SKINDICHT® SVRN






SKINDICHT® SVRE

## Benefits

**SKINDICHT® SVRN**
- High mechanical stability
- Optimum strain relief

**SKINDICHT® SVRE**
- With incised sealing ring for adjustment to several cable diameters
- Fewer sizes need to be kept in stock

## Application range

**SKINDICHT® SVRN**
- Brass cable gland with hexagonal fitting, for fast assembly with a flat spanner.

**SKINDICHT® SVRE**
- Brass cable gland with hexagonal fitting and variable incised sealing ring

## Product Make-up

- PG connection thread

## Note

**SKINDICHT® SVRN**
- Counter nut to be used: SKINDICHT® SM

**SKINDICHT® SVRE**
- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**SKINDICHT® SVRE**
Available with long connection thread
Available with PG 11 to 36 with FKM incised ring

**Material**
**SKINDICHT® SVRN**
Body: nickel-plated brass
Sealing ring: CR
**SKINDICHT® SVRE**
Body: nickel-plated brass
Incised seal: CR

**Protection rating**
IP 54

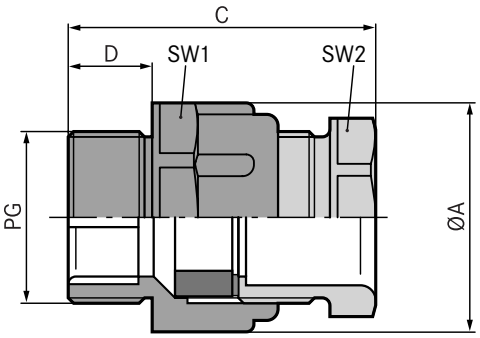
**Temperature range**
**SKINDICHT® SVRN**
-20°C to +100°C
**SKINDICHT® SVRE**
-20°C to +80°C

| Article number | Article designation / size | Incised sealing ring ØF (mm) | PG size | Clamping range in mm | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVRN** | | | | | | | | |
| 52000210 | SVRN 7005/N | | 7 | 5 | 14.0 / 13.0 | 20.6 | 5 | 100 |
| 52020300 | SVRN 7006/N | | 7 | 6 | 14.0 / 13.0 | 20.6 | 5 | 100 |
| 52020310 | SVRN 7007/N | | 7 | 7 | 14.0 / 13.0 | 20.6 | 5 | 100 |
| 52020320 | SVRN 9007/N | | 9 | 7 | 17.0 / 15.0 | 22.6 | 6 | 100 |
| 52020330 | SVRN 9008/N | | 9 | 8 | 17.0 / 15.0 | 22.6 | 6 | 100 |
| 52000220 | SVRN 9009/N | | 9 | 9 | 17.0 / 15.0 | 22.6 | 6 | 100 |
| 52020341 | SVRN 11010/N | | 11 | 10 | 20.0 / 18.0 | 23.6 | 6 | 50 |
| 52000241 | SVRN 13012/N | | 13.5 | 12 | 22.0 / 20.0 | 26.1 | 6.5 | 50 |
| 52000251 | SVRN 16014/N | | 16 | 14 | 24.0 / 22.0 | 27.1 | 6.5 | 50 |
| 52000260 | SVRN 21018/N | | 21 | 18 | 30.0 / 28.0 | 29.6 | 7 | 50 |
| 52000270 | SVRN 29027/N | | 29 | 27 | 40.0 / 37.0 | 32.6 | 8 | 50 |
| 52000280 | SVRN 36034/N | | 36 | 34 | 50.0 / 47.0 | 38.6 | 9 | 20 |
| **SKINDICHT® SVRE** | | | | | | | | |
| 52005540 | SVRE 9 | 5/8 | | | 17.0 / 15.0 | 22.6 | 6 | 100 |
| 52000310 | SVRE 11 | 7/10/12.5 | | | 20.0 / 18.0 | 22.6 | 6 | 50 |
| 52000320 | SVRE 13.5 | 7/10.5/13/16 | | | 22.0 / 20.0 | 26.1 | 6.5 | 50 |
| 52000330 | SVRE 16 | 8/10.5/13.5/16 | | | 24.0 / 22.0 | 27.1 | 6.5 | 50 |
| 52000340 | SVRE 21 | 11/15/18/20 | | | 30.0 / 28.0 | 29.6 | 7 | 50 |
| 52000350 | SVRE 29 | 19/23/27/31 | | | 40.0 / 37.0 | 32.6 | 8 | 50 |
| 52000360 | SVRE 36 | 25/28/31/35 | | | 50.0 / 47.0 | 38.6 | 9 | 20 |
| 52005550 | SVRE 42 | 35.5/39/42.5/46 | | | 57.0 / 54.0 | 43.6 | 10 | 10 |
| 52005560 | SVRE 48 | 40.5/44/47/50.5 | | | 64.0 / 60.0 | 45.1 | 10 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SVFK






## Benefits

- Economical type
- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Tolerance
- Large opening allows clamping of up to two flat cables

## Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® GMK
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Colour delivered**
Light grey (RAL 7035)

**Material**
Body: Polystyrene
Special sealing insert: CR

**Protection rating**
IP 54

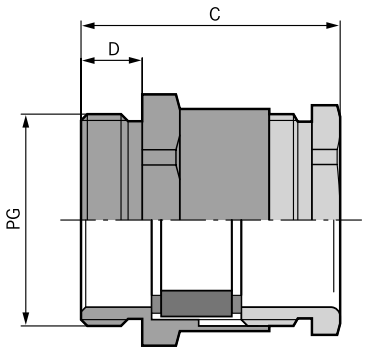
**Temperature range**
-20°C to +60°C

| Article number | Article designation / size | Min./max. flat cable width | Min./max. cable thickness (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVFK** | | | | | | | |
| 52005470 | PG 16 | -- 15.0 | -- 5.0 | 27.0 / 23.0 | 39.5 | 10 | 25 |
| 52005680 | PG 21 | 10.0 - 20.5 | 3.0 - 8.0 | 32.0 / 30.0 | 43.0 | 11 | 25 |
| 52005690 | PG 29 | 15.0 - 27.0 | 4.0 - 11.5 | 42.0 / 41.0 | 45.0 | 11 | 25 |
| 52005700 | PG 36 | 25.0 - 34.0 | 4.0 - 11.5 | 53.0 / 50.0 | 51.0 | 13 | 10 |
| 52005710 | PG 42 | 30.0 - 40.0 | 5.0 - 12.0 | 60.0 / 55.0 | 54.0 | 13 | 5 |
| 52005720 | PG 48 | 35.0 - 45.0 | 5.0 - 12.0 | 65.0 / 60.0 | 55.0 | 15 | 5 |

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# SKINDICHT® SVF






## Benefits

- High mechanical stability
- Lateral sealing lips fit automatically around various cable dimensions
- Optimum strain relief
- Large opening allows clamping of up to two flat cables

## Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

## Product Make-up

- PG connection thread

## Note

- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications
- Counter nut to be used: SKINDICHT® SM

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass
Special sealing insert: CR

**Protection rating**
IP 54

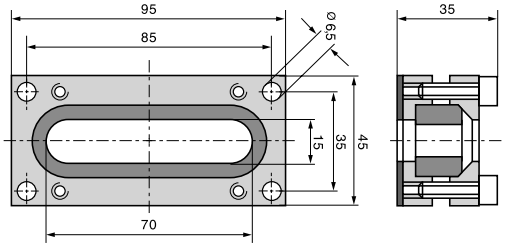
**Temperature range**
-20 °C to +100 °C

| Article number | Article designation / size | Min./max. flat cable width | Min./max. cable thickness (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SVF** | | | | | | | |
| 52005480 | PG 16 | -- 16.0 | -- 5.0 | 24.0 / 22.0 | 27.5 | 6.5 | 25 |
| 52005490 | PG 21 | 9.0 - 21.0 | 3.0 - 8.0 | 30.0 / 28.0 | 30.0 | 7 | 25 |
| 52005500 | PG 29 | 14.0 - 30.0 | 4.0 - 11.5 | 40.0 / 37.0 | 31.5 | 8 | 10 |
| 52005510 | PG36 | 24.0 - 40.0 | 4.0 - 11.5 | 50.0 / 47.0 | 36.0 | 9 | 10 |
| 52005520 | PG 42 | 29.0 - 45.0 | 5.0 - 12.0 | 57.0 / 54.0 | 40.0 | 10 | 5 |
| 52005530 | PG 48 | 34.0 - 50.0 | 5.0 - 12.0 | 64.0 / 60.0 | 41.5 | 10 | 5 |

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# SKINDICHT® FL






## Benefits

- The seal profiles enable many problems to be solved
- Several flat and round cables can be fed through at the same time
- Through the internal conical contour in the upper part of the housing, the sealing inserts are pressed onto the cable

## Application range

- Cable flange that can be used universally, mainly for large flat cables.
- Lifts
- Conveyor systems
- Crane and conveying machinery
- Cable chains

## Note

- When assembled professionally and properly, the protection class of IP 65 can be reached
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

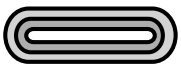
**Material**
Body: aluminium, special untreated alloy
Screws and spring washers: zinc-plated steel
Seal: NBR

**Protection rating**
IP 65

**Temperature range**
-20°C to +100°C

| Article number | Article designation / size | Cable pass length x width in mm | Dimensions: L x W x H (mm) | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® FL** | | | | |
| 52008010 | FL 1 | 70 x 12 + 63 x 7 | 45.0 x 35.0 x 95.0 | 1 |
| 52008020 | FL 2 | 49 x 4.5 | 45.0 x 35.0 x 95.0 | 1 |
| 52008030 | FL 3 | 49 x 4.5 + 49 x 4.5 (49 x 11.5) | 45.0 x 35.0 x 95.0 | 1 |
| 52008040 | FL 4 | 63 x 12.0 (+0.2) | 45.0 x 35.0 x 95.0 | 1 |
| 52008050 | FL 5 | 70 x 12 | 45.0 x 35.0 x 95.0 | 1 |

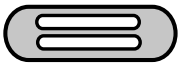
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

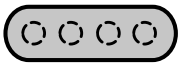

FL 1
1 x 70 x 12 mm
1 x 63 x 7 mm


FL 4
63 x 12 mm


FL 2
49 x 4.5 mm


FL 5
70 x 12 mm

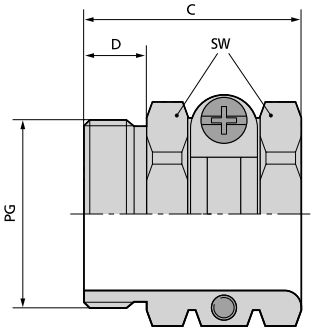

FL 3
2 x 49 x 4.5 mm
1 x 49 x 11.5 mm


e.g. 4 x ÖLFLEX® CLASSIC 110
3 x 1.5 mm² / Ø 6.7 mm

CE

# SKINDICHT® SH






## Benefits

- Seawater-resistant
- Anti-magnetic
- Corrosion-resistant
- Stable and safe strain relief

## Application range

- Extremely robust and solid strain relief cable gland
- Building sites
- Plant engineering
- Electric motor manufacturing

## Product Make-up

- PG connection thread

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass

**Protection rating**
IP 20

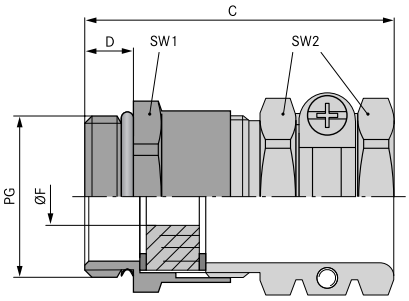
**Temperature range**
-20°C up to +200°C

| Article number | Article designation / size | Ø F mm | SW1 | Max. fitting size for installation (mm) | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SH** | | | | | | | |
| 52000830 | PG 7 | 8 - 10 | 15.0 | 22 | 17.5 | 5.5 | 50 |
| 52000840 | PG 9 | 10 - 12.5 | 17.0 | 25 | 20.5 | 6 | 50 |
| 52000850 | PG 11 | 11 - 15 | 20.0 | 28 | 21.5 | 6 | 50 |
| 52000860 | PG 13.5 | 14 - 16.5 | 22.0 | 32 | 24.0 | 7.5 | 25 |
| 52000870 | PG 16 | 15 - 18 | 24.0 | 35 | 26.0 | 7.5 | 25 |
| 52000880 | PG 21 | 18 - 23.5 | 30.0 | 46 | 29.0 | 8 | 25 |
| 52000890 | PG 29 | 23 - 31 | 41.0 | 58 | 33.0 | 8 | 10 |
| 52000900 | PG 36 | 29 - 40.5 | 50.0 | 70 | 36.5 | 9.5 | 10 |
| 52000910 | PG 42 | 34 - 45 | 57.0 | 78 | 38.0 | 10 | 5 |
| 52000920 | PG 48 | 39 - 50 | 64.0 | 86 | 39.5 | 11.5 | 5 |

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# SKINDICHT® SHZ






## Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- Robust
- For cables with large outer diameters

## Application range

- Compact brass cable gland for reliable strain relief, solid, for large cable diameters.

## Product Make-up

- PG connection thread

## Note

- SKINDICHT® SHZ-XL is similar to the SKINDICHT® SHZ, but has an extended connection thread for thick walls
- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Sealing: CR
O-ring: NBR

**Protection rating**
IP 55

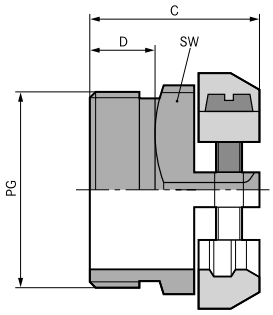
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHZ** | | | | | | | |
| 52005590 | PG 7 | 5 - 6 | 21 | 14.0 / 15.0 | 30.0 | 5 | 50 |
| 52005600 | PG 9 | 7.5 - 8.5 | 25 | 17.0 / 17.0 | 34.0 | 6 | 50 |
| 52000930 | PG 11 | 9.5 - 12 | 28 | 20.0 / 20.0 | 35.0 | 6 | 25 |
| 52000940 | PG 13.5 | 12.5 - 14 | 32 | 22.0 / 22.0 | 40.0 | 6.5 | 25 |
| 52000950 | PG 16 | 13.5 - 16 | 35 | 24.0 / 24.0 | 42.0 | 6.5 | 25 |
| 52000960 | PG 21 | 15.5 - 21 | 46 | 30.0 / 30.0 | 47.0 | 7 | 25 |
| 52000970 | PG 29 | 21.5 - 27.5 | 58 | 40.0 / 41.0 | 53.0 | 8 | 10 |
| 52000980 | PG 36 | 27 - 34 | 70 | 50.0 / 50.0 | 61.0 | 9 | 10 |
| 52005610 | PG 42 | 34 - 43 | 78 | 57.0 / 57.0 | 66.0 | 10 | 5 |
| 52005620 | PG 48 | 38 - 48 | 86 | 64.0 / 64.0 | 68.0 | 10 | 5 |
| **SKINDICHT® SHZ-XL** | | | | | | | |
| 52023717 | PG 9 | 7.5 - 8.5 | 25 | 17.0 / 17.0 | 43.0 | 10 | 50 |
| 52023718 | PG 11 | 9.5 - 12 | 28 | 20.0 / 20.0 | 44.0 | 10 | 25 |
| 52023719 | PG 13.5 | 12.5 - 14 | 32 | 22.0 / 22.0 | 48.5 | 10 | 25 |
| 52023720 | PG 16 | 13.5 - 16 | 35 | 24.0 / 24.0 | 50.5 | 10 | 25 |
| 52024840 | PG 21 | 15.5 - 21 | 46 | 30.0 / 30.0 | 55.0 | 11 | 25 |
| 52025530 | PG 29 | 21.5 - 27.5 | 58 | 40.0 / 41.0 | 60.0 | 13 | 10 |
| 52023721 | PG 36 | 27 - 34 | 70 | 50.0 / 50.0 | 67.0 | 13 | 10 |
| 52023722 | PG 42 | 34 - 43 | 78 | 57.0 / 57.0 | 71.0 | 14 | 5 |
| 52023723 | PG 48 | 38 - 48 | 86 | 64.0 / 64.0 | 73.0 | 14 | 5 |

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# SKINDICHT® SK






## Benefits

- Reliable strain relief
- Wide clamping range

## Application range

- Cable gland with two solid brass saddle clamps
- Connectors
- Switches
- Control panels

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass

**Protection rating**
IP 20

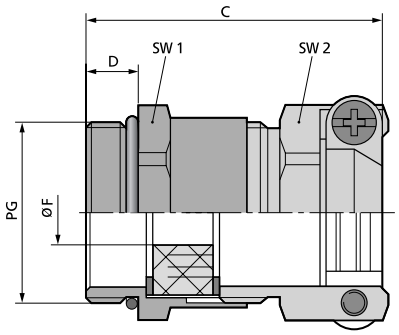
**Temperature range**
-20°C up to +200°C

| Article number | Article designation / size | Ø F mm | SW1 | Max. fitting size for installation (mm) | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SK** | | | | | | | |
| 52004230 | PG 9 | 6 - 12 | 19.0 | 24 | 16.5 | 6 | 50 |
| 52004240 | PG 11 | 7 - 15 | 21.0 | 27 | 16.5 | 6 | 50 |
| 52004250 | PG 13.5 | 12 - 16.5 | 22.0 | 30 | 18.5 | 7.5 | 25 |
| 52004260 | PG 16 | 13 - 18 | 24.0 | 33 | 19.0 | 7.5 | 25 |
| 52004270 | PG 21 | 15 - 23 | 30.0 | 42 | 22.5 | 8 | 25 |
| 51712740 | PG 29 | 20 - 31 | 41.0 | 58 | 26.0 | 8 | 10 |

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# SKINDICHT® SKZ






## Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- High mechanical stability

## Application range

- Saddle clamp strain relief gland for harsh application conditions
- Building sites
- Plant engineering
- Electric motor manufacturing

## Product Make-up

- PG connection thread

## Note

- SKINDICHT® SKZ-XL is similar to the SKINDICHT® SKZ, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM
- Refer to SKINDICHT® EV for additional accessories

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

**Protection rating**
IP 55

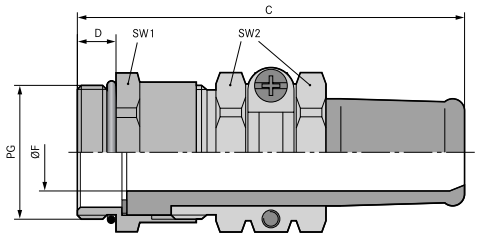
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SKZ** | | | | | | | |
| 52004280 | PG 9 | 6 - 8.5 | 24 | 17.0 / 17.0 | 30.0 | 6 | 50 |
| 52004290 | PG 11 | 8 - 12 | 27 | 20.0 / 21.0 | 30.0 | 6 | 50 |
| 52004300 | PG 13.5 | 12 - 14 | 30 | 22.0 / 22.0 | 34.0 | 6.5 | 25 |
| 52004310 | PG 16 | 13 - 16 | 33 | 24.0 / 24.0 | 35.0 | 6.5 | 25 |
| 52004320 | PG 21 | 15 - 21 | 42 | 30.0 / 30.0 | 41.0 | 7 | 25 |
| 52005570 | PG 29 | 20 - 29 | 58 | 40.0 / 41.0 | 46.0 | 8 | 10 |
| **SKINDICHT® SKZ-XL** | | | | | | | |
| 52005575 | PG 9 | 6 - 8.5 | 24 | 17.0 / 17.0 | 39.0 | 15 | 50 |
| 52005576 | PG 11 | 8 - 12 | 27 | 20.0 / 21.0 | 39.0 | 15 | 50 |
| 52005577 | PG 13.5 | 12 - 14 | 30 | 22.0 / 22.0 | 42.5 | 15 | 25 |
| 54000043 | PG 16 | 13 - 16 | 33 | 24.0 / 24.0 | 43.5 | 15 | 25 |
| 54000011 | PG 21 | 15 - 21 | 42 | 30.0 / 30.0 | 49.0 | 15 | 25 |
| 54000098 | PG 29 | 20 - 27.5 | 58 | 40.0 / 41.0 | 53.0 | 15 | 10 |

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# SKINDICHT® SR






## Benefits

- Reliable bending and anti-kink protection
- High strain relief
- Robust
- For cables with large outer diameters
- High degree of protection

## Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Portable equipment
- Building sites
- Moving machine parts

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM
- For EMC version, refer to SKINDICHT® SRE

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass
O-ring: NBR
Anti-kink protection: CR

**Protection rating**
IP 65

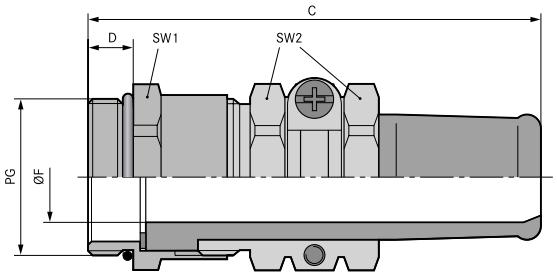
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SR** | | | | | | | |
| 52000990 | SR 07/05 | 3.5 - 5 | 23 | 14.0 / 15.0 | 50.0 | 5 | 50 |
| 52001000 | SR 09/07 | 5.5 - 7 | 25 | 17.0 / 17.0 | 52.0 | 6 | 50 |
| 52001010 | SR 11/07 | 5.5 - 7 | 28 | 20.0 / 20.0 | 56.0 | 6 | 25 |
| 52001020 | SR 11/09 | 7.5 - 9 | 28 | 20.0 / 20.0 | 56.0 | 6 | 25 |
| 52001030 | SR 13/09 | 7.5 - 9 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52001040 | SR 13/11 | 9 - 11 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52001050 | SR 13/13 | 11 - 13 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52001060 | SR 16/13 | 11.5 - 13 | 35 | 24.0 / 24.0 | 67.0 | 6.5 | 25 |
| 52001070 | SR 16/15 | 13 - 15 | 35 | 24.0 / 24.0 | 67.0 | 6.5 | 25 |
| 52001080 | SR 21/15 | 13.5 - 15 | 46 | 30.0 / 30.0 | 79.0 | 7 | 25 |
| 52001090 | SR 21/17 | 15 - 17 | 46 | 30.0 / 30.0 | 79.0 | 7 | 25 |
| 52001100 | SR 21/19 | 17 - 19 | 46 | 30.0 / 30.0 | 79.0 | 7 | 25 |
| 52001110 | SR 21/20 | 18 - 20 | 46 | 30.0 / 30.0 | 79.0 | 7 | 25 |
| 52001120 | SR 29/20 | 18 - 20 | 59 | 40.0 / 41.0 | 91.0 | 8 | 10 |
| 52001130 | SR 29/23 | 21 - 23 | 59 | 40.0 / 41.0 | 91.0 | 8 | 10 |
| 52001140 | SR 29/25 | 23 - 25 | 59 | 40.0 / 41.0 | 91.0 | 8 | 10 |
| 52001150 | SR 36/26 | 23 - 26 | 70 | 50.0 / 50.0 | 110.0 | 9 | 5 |
| 52001160 | SR 36/30 | 27 - 30 | 70 | 50.0 / 50.0 | 110.0 | 9 | 5 |
| 52001170 | SR 36/33 | 30 - 33 | 70 | 50.0 / 50.0 | 110.0 | 9 | 5 |
| 52001180 | SR 36/35 | 32 - 35 | 70 | 50.0 / 50.0 | 110.0 | 9 | 5 |
| 52001190 | SR 42/35 | 32 - 35 | 75 | 57.0 / 57.0 | 114.0 | 10 | 5 |
| 52001200 | SR 42/38 | 35 - 38 | 75 | 57.0 / 57.0 | 114.0 | 10 | 5 |
| 52001210 | SR 42/40 | 36 - 40 | 75 | 57.0 / 57.0 | 114.0 | 10 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SR-SV






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- High strain relief
- Robust

## Application range

- Special cable gland with FKM anti-kink sleeve. Our own reinforced acid-resistant FKM receptacle does not show any effects of aging even after an extended period of use at a temperature of +165°C.
- Machine and turbine manufacturing
- Power plant engineering
- Laboratory

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM
- EMC version is available upon request

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with long connection thread

**Material**
Body: nickel-plated brass
O-ring: FKM
Anti-kink protection: FKM

**Protection rating**
IP 65

**Temperature range**
-20°C to +165°C

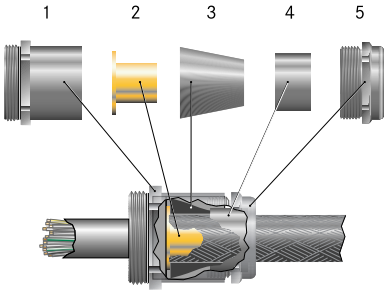
| Article number | Article designation / size | Ø F mm | Max. fitting size for installation (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SR-SV** | | | | | | | |
| 52023620 | SR-SV 11/07 | 5.5 - 7 | 28 | 20.0 / 20.0 | 56.0 | 6 | 25 |
| 52023621 | SR-SV 11/09 | 7.5 - 9 | 28 | 20.0 / 20.0 | 56.0 | 6 | 25 |
| 52023622 | SR-SV 13/09 | 7.5 - 9 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52023623 | SR-SV 13/11 | 9 - 11 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52023624 | SR-SV 13/13 | 11 - 13 | 32 | 22.0 / 22.0 | 62.0 | 6.5 | 25 |
| 52023625 | SR-SV 16/13 | 11.5 - 13 | 35 | 24.0 / 24.0 | 67.0 | 6.5 | 10 |
| 52023626 | SR-SV 16/15 | 13 - 15 | 35 | 24.0 / 24.0 | 67.0 | 6.5 | 10 |
| 52023627 | SR-SV 21/15 | 13.5 - 15 | 40 | 30.0 / 30.0 | 79.0 | 7 | 10 |
| 52023628 | SR-SV 21/17 | 15 - 17 | 46 | 30.0 / 30.0 | 79.0 | 7 | 10 |
| 52023629 | SR-SV 21/19 | 17 - 19 | 46 | 30.0 / 30.0 | 79.0 | 7 | 10 |

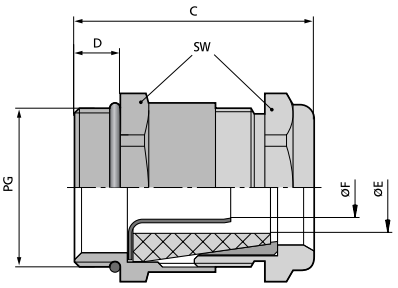
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

# SKINDICHT® SHVE






## Benefits

- Optimum, low-resistance 360° screen contact
- High degree of protection
- High strain relief

## Application range

- Earthing gland, for applications where electrical interference fields can occur.
- Medical engineering
- Frequency converters
- Airports
- Measurement and control technology

## Product Make-up

- 1 fitting
- 2 earth sleeves
- 3 sealing cones
- 4 cone, brass
- 5 compression screws

## Note

- Counter nut to be used: SKINDICHT® SM
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Example order identification:
  SHVE 13.5 / 9 / 9 / 5
  13.5 = PG thread compression screw
  9 = PG connection thread
  9 = Clear width of sealing cone
  5 = Clear width earthing sleeve

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated
Earthing sleeve: blank brass
Special sealing cone: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar

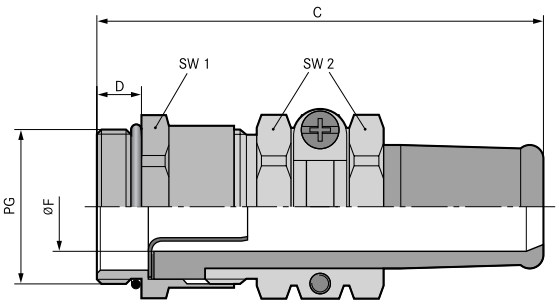
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Outer sheath Ø. min./max. (mm) | Min./max. inner sheath Ø (mm) | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SHVE** | | | | | | | |
| 52010400 | 9/9/6/3.2 | 4.0 / 5.8 | 2.2 / 3.2 | 17 | 28.5 | 6 | 25 |
| 52010405 | 9/9/7/3.2 | 5.0 / 6.8 | 2.2 / 3.2 | 17 | 28.5 | 6 | 25 |
| 52010415 | 9/9/6/3.6 | 4.0 / 5.8 | 2.6 / 3.6 | 17 | 28.5 | 6 | 25 |
| 52010420 | 9/9/7/3.6 | 5.0 / 6.8 | 2.6 / 3.6 | 17 | 28.5 | 6 | 25 |
| 52010440 | 11/11/7/4.5 | 5.0 / 6.8 | 3.5 / 4.5 | 20 | 31.0 | 6 | 25 |
| 52010450 | 11/11/9/4.5 | 6.8 / 8.8 | 3.5 / 4.5 | 20 | 31.0 | 6 | 25 |
| 52010460 | 13.5/9/9/5 | 6.8 / 8.8 | 3.5 / 5.0 | 22 | 32.5 | 5.5 | 25 |
| 52010490 | 13.5/11/9/5 | 6.8 / 8.8 | 3.5 / 5.0 | 22 | 32.5 | 5.5 | 25 |
| 52010470 | 13.5/9/9/6 | 6.8 / 8.8 | 4.5 / 6.0 | 22 | 32.5 | 5.5 | 25 |
| 52010500 | 13.5/11/9/6 | 6.8 / 8.8 | 4.5 / 6.0 | 22 | 32.5 | 5.5 | 25 |
| 52005080 | 13.5/13.5/9/6 | 6.8 / 8.8 | 4.5 / 6.0 | 22 | 37.0 | 6 | 25 |
| 52010480 | 13.5/9/11/7 | 8.5 / 10.8 | 5.5 / 7.0 | 22 | 32.5 | 5.5 | 25 |
| 52010510 | 13.5/11/11/7 | 8.5 / 10.8 | 5.5 / 7.0 | 22 | 32.5 | 5.5 | 25 |
| 52005090 | 13.5/13.5/11/7 | 8.5 / 10.8 | 5.5 / 7.0 | 22 | 37.0 | 6 | 25 |
| 52010520 | 16/11/11/8 | 8.5 / 10.8 | 6.0 / 8.0 | 24 | 35.0 | 5.5 | 25 |
| 52010560 | 16/13.5/11/8 | 8.5 / 10.8 | 6.0 / 8.0 | 24 | 35.5 | 6 | 25 |
| 52005100 | 16/16/11/8 | 8.5 / 10.8 | 6.0 / 8.0 | 24 | 37.5 | 6 | 25 |
| 52010530 | 16/11/13/9 | 10.8 / 12.8 | 7.0 / 9.0 | 24 | 35.0 | 5.5 | 25 |
| 52010570 | 16/13.5/13/9 | 10.8 / 12.8 | 7.0 / 9.0 | 24 | 35.5 | 6 | 25 |
| 52005110 | 16/16/13/9 | 10.8 / 12.8 | 7.0 / 9.0 | 24 | 37.5 | 6 | 25 |
| 52010540 | 16/11/13/10 | 10.8 / 12.8 | 8.0 / 10.0 | 24 | 35.0 | 5.5 | 25 |
| 52010580 | 16/13.5/13/10 | 10.8 / 12.8 | 8.0 / 10.0 | 24 | 35.5 | 6 | 25 |
| 52005120 | 16/16/13/10 | 10.8 / 12.8 | 8.0 / 10.0 | 24 | 37.5 | 6 | 25 |
| 52010550 | 16/11/15/11 | 12.0 / 14.8 | 9.0 / 11.0 | 24 | 35.0 | 5.5 | 25 |
| 52010590 | 16/13.5/15/11 | 12.0 / 14.8 | 9.0 / 11.0 | 24 | 35.5 | 6 | 25 |
| 52005130 | 16/16/15/11 | 12.0 / 14.8 | 9.0 / 11.0 | 24 | 37.5 | 6 | 25 |
| 52010600 | 21/16/16/12 | 14.0 / 15.8 | 10.0 / 12.0 | 30 | 38.5 | 6.5 | 25 |
| 52005140 | 21/21/16/12 | 14.0 / 15.8 | 10.0 / 12.0 | 30 | 43.5 | 7 | 25 |
| 52010610 | 21/16/16/13 | 14.0 / 15.8 | 11.0 / 13.0 | 30 | 38.5 | 6.5 | 25 |
| 52005150 | 21/21/16/13 | 14.0 / 15.8 | 11.0 / 13.0 | 30 | 43.5 | 7 | 25 |
| 52010620 | 21/16/18/14 | 15.8 / 17.8 | 12.0 / 14.0 | 30 | 38.5 | 6.5 | 25 |
| 52005160 | 21/21/18/14 | 15.8 / 17.8 | 12.0 / 14.0 | 30 | 43.5 | 7 | 25 |
| 52010630 | 21/16/18/15 | 15.8 / 17.8 | 13.0 / 15.0 | 30 | 38.5 | 6.5 | 25 |
| 52005170 | 21/21/18/15 | 15.8 / 17.8 | 13.0 / 15.0 | 30 | 43.5 | 7 | 25 |
| 52010640 | 21/16/20/16 | 17.5 / 19.8 | 14.0 / 16.0 | 30 | 38.5 | 6.5 | 25 |
| 52005180 | 21/21/20/16 | 17.5 / 19.8 | 14.0 / 16.0 | 30 | 43.5 | 7 | 25 |
| 52005190 | 29/29/22/17 | 19.5 / 21.8 | 15.0 / 17.0 | 40 | 47.5 | 8 | 10 |
| 52005200 | 29/29/22/18 | 19.5 / 21.8 | 16.0 / 18.0 | 40 | 47.5 | 8 | 10 |
| 52005210 | 29/29/24/19 | 21.5 / 23.8 | 17.0 / 19.0 | 40 | 47.5 | 8 | 10 |
| 52005240 | 29/29/26/19 | 23.5 / 25.8 | 17.0 / 19.0 | 40 | 47.5 | 8 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SRE






## Benefits

- Perfect seal with anti-kink protection
- Optimum, low-resistance 360° screen contact
- Cable-protecting strain relief
- Gentle cable clamping
- High degree of protection

## Application range

- Earthing gland with additional anti-kink protection. For applications where electrical interference fields can occur.
- Moving machine parts
- Conveyor and transport systems
- Production lines
- Measurement and control technology

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Example order identification:
  SRE 13.5 / 9 / 9 / 6
  13.5 = PG thread compression screw
  9 = PG connection thread
  9 = Clear width of sealing cone
  6 = Clear width earthing sleeve

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
Available with longer connection thread

**Material**
Body: nickel-plated brass
Earthing sleeve: plain brass
Anti-kink sleeve: CR/NBR
O-ring: NBR

**Protection rating**
IP 65

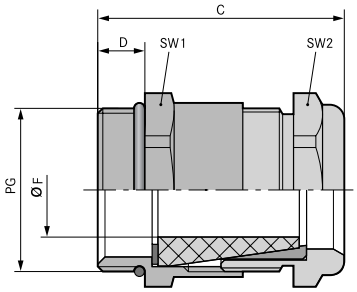
**Temperature range**
-20°C to +80°C

| Article number | Article designation / size | Outer sheath Ø. min./max. (mm) | Min./max. inner sheath Ø (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SKINDICHT® SRE** | | | | | | | |
| 52010780 | 13.5/9/9/6 | 7.5 / 9.0 | 4.5 / 6.0 | 22.0 / 22.0 | 60.0 | 5.5 | 25 |
| 52010790 | 13.5/9/11/7 | 9.0 / 11.0 | 5.5 / 7.0 | 22.0 / 22.0 | 60.0 | 5.5 | 25 |
| 52010800 | 13.5/11/9/6 | 7.5 / 9.0 | 4.5 / 6.0 | 22.0 / 22.0 | 60.0 | 5.5 | 25 |
| 52010810 | 13.5/11/11/7 | 9.0 / 11.0 | 5.5 / 7.0 | 22.0 / 22.0 | 60.0 | 5.5 | 25 |
| 52005310 | 13.5/13.5/9/6 | 7.5 / 9.0 | 4.5 / 6.0 | 22.0 / 22.0 | 60.0 | 6.5 | 25 |
| 52005320 | 13.5/13.5/11/7 | 9.0 / 11.0 | 5.5 / 7.0 | 22.0 / 22.0 | 60.0 | 6.5 | 25 |
| 52010820 | 16/11/13/9 | 11.0 / 13.0 | 7.0 / 9.0 | 24.0 / 24.0 | 65.0 | 5.5 | 25 |
| 52010830 | 16/11/13/10 | 11.0 / 13.0 | 8.0 / 10.0 | 24.0 / 24.0 | 65.0 | 5.5 | 25 |
| 52010840 | 16/11/15/11 | 13.0 / 15.0 | 9.0 / 11.0 | 24.0 / 24.0 | 65.0 | 5.5 | 25 |
| 52010850 | 16/13.5/13/9 | 11.0 / 13.0 | 7.0 / 9.0 | 24.0 / 24.0 | 67.0 | 6 | 25 |
| 52010860 | 16/13.5/13/10 | 11.0 / 13.0 | 8.0 / 10.0 | 24.0 / 24.0 | 67.0 | 6 | 25 |
| 52010870 | 16/13.5/15/11 | 13.0 / 15.0 | 9.0 / 11.0 | 24.0 / 24.0 | 67.0 | 6 | 25 |
| 52005330 | 16/16/13/9 | 11.0 / 13.0 | 7.0 / 9.0 | 24.0 / 24.0 | 65.0 | 6.5 | 25 |
| 52005340 | 16/16/13/10 | 11.0 / 13.0 | 8.0 / 10.0 | 24.0 / 24.0 | 65.0 | 6.5 | 25 |
| 52005350 | 16/16/15/11 | 13.5 / 15.0 | 9.0 / 11.0 | 24.0 / 24.0 | 65.0 | 6.5 | 25 |
| 52010880 | 21/16/15/12 | 13.5 / 15.0 | 10.0 / 12.0 | 30.0 / 30.0 | 78.0 | 6.5 | 25 |
| 52010890 | 21/16/17/14 | 15.0 / 17.0 | 12.0 / 14.0 | 30.0 / 30.0 | 78.0 | 6.5 | 25 |
| 52010900 | 21/16/19/15 | 17.0 / 19.0 | 13.0 / 15.0 | 30.0 / 30.0 | 78.0 | 6.5 | 25 |
| 52010910 | 21/16/20/16 | 18.0 / 20.0 | 14.0 / 16.0 | 30.0 / 30.0 | 78.0 | 6.5 | 25 |
| 52005360 | 21/21/15/12 | 13.0 / 15.0 | 10.0 / 12.0 | 30.0 / 30.0 | 78.0 | 7 | 25 |
| 52005370 | 21/21/17/14 | 15.0 / 17.0 | 12.0 / 14.0 | 30.0 / 30.0 | 78.0 | 7 | 25 |
| 52005380 | 21/21/19/15 | 17.0 / 19.0 | 13.0 / 15.0 | 30.0 / 30.0 | 78.0 | 7 | 25 |
| 52005390 | 21/21/20/16 | 18.0 / 20.0 | 14.0 / 16.0 | 30.0 / 30.0 | 78.0 | 7 | 25 |
| 52005400 | 29/29/20/17 | 19.0 / 20.0 | 15.0 / 17.0 | 40.0 / 41.0 | 90.0 | 8 | 10 |
| 52005410 | 29/29/23/19 | 22.0 / 23.0 | 17.0 / 19.0 | 40.0 / 41.0 | 90.0 | 8 | 10 |
| 52005411 | 36/36/26/22 | 23.5 / 26.0 | 20.0 / 22.0 | 50.0 / 50.0 | 109.0 | 9 | 5 |
| 52005412 | 36/36/30/24 | 27.0 / 30.0 | 22.0 / 24.0 | 50.0 / 50.0 | 109.0 | 9 | 5 |
| 52003585 | 36/36/30/26 | 27.0 / 30.0 | 24.0 / 26.0 | 50.0 / 50.0 | 109.0 | 9 | 5 |
| 52005414 | 36/36/33/28 | 30.0 / 33.0 | 26.0 / 28.0 | 50.0 / 50.0 | 109.0 | 9 | 5 |
| 52023586 | 36/36/35/30 | 32.0 / 35.0 | 28.0 / 30.0 | 50.0 / 50.0 | 109.0 | 9 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SHV






## Benefits

- Watertight
- Gentle cable clamping
- Robust
- High strain relief

## Application range

- Watertight cable gland with conical sealing element
- Pumps
- Floater switches

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM
- Suitable accessory: SKINDICHT® SHV sealing cones
- Example order designation:
  SHV 13.5/9/9
  13.5 = PG thread of compression screw
  9 = PG connection thread
  9 = clear opening of sealing cone

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**Material**
Body: nickel-plated brass
Sealing cone: CR
O-ring: NBR

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +80°C

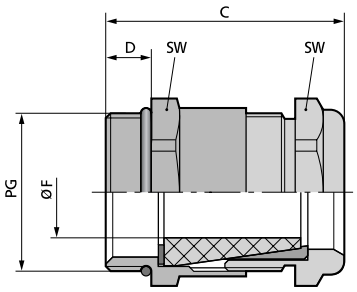
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® SHV** | | | | | | |
| 52002530 | SHV 7/7/5 | 3.8 - 4.8 | 14 | 26.0 | 5 | 50 |
| 52002550 | SHV 9/9/6 | 4.8 - 5.8 | 17 | 28.5 | 6 | 50 |
| 52002540 | SHV 9/9/7 | 5.8 - 6.8 | 17 | 28.5 | 6 | 50 |
| 52002570 | SHV 11/11/7 | 5.8 - 6.8 | 20 | 31.0 | 6 | 25 |
| 52002560 | SHV 11/11/9 | 6.8 - 8.8 | 20 | 31.0 | 6 | 25 |
| 52010650 | SHV 13.5/9/9 | 6.5 - 8.8 | 22 | 33.0 | 6.5 | 25 |
| 52010660 | SHV 13.5/9/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52010670 | SHV 13.5/11/9 | 6.8 - 8.8 | 22 | 33.0 | 6.5 | 25 |
| 52010680 | SHV 13.5/11/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52002600 | SHV 13.5/13.5/9 | 6.8 - 8.8 | 22 | 33.0 | 6.5 | 25 |
| 52002590 | SHV 13.5/13.5/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52010690 | SHV 16/11/11 | 8.5 - 10.8 | 24 | 35.0 | 6.5 | 25 |
| 52010700 | SHV 16/11/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52010710 | SHV 16/11/15 | 13.8 - 14.8 | 24 | 35.0 | 6.5 | 25 |
| 52010720 | SHV 16/13.5/11 | 8.5 - 10.8 | 24 | 35.0 | 6.5 | 25 |
| 52010730 | SHV 16/13.5/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52010740 | SHV 16/13.5/15 | 13.8 - 14.8 | 24 | 35.0 | 6.5 | 25 |
| 52002640 | SHV 16/16/11 | 8.5 - 10.8 | 24 | 35.0 | 6.5 | 25 |
| 52002630 | SHV 16/16/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52002620 | SHV 16/16/15 | 13.8 - 14.8 | 24 | 35.0 | 6.5 | 25 |
| 52010750 | SHV 21/16/16 | 13.3 - 15.6 | 30 | 40.0 | 7 | 25 |
| 52010760 | SHV 21/16/18 | 15.8 - 17.8 | 30 | 38.0 | 7 | 25 |
| 52010770 | SHV 21/16/20 | 17.5 - 19.8 | 30 | 38.0 | 7 | 25 |
| 52002670 | SHV 21/21/16 | 14.8 - 15.8 | 30 | 38.0 | 7 | 25 |
| 52002660 | SHV 21/21/18 | 15.8 - 17.8 | 30 | 38.0 | 7 | 25 |
| 52002650 | SHV 21/21/20 | 17.5 - 19.8 | 30 | 38.0 | 7 | 25 |
| 52002710 | SHV 29/29/22 | 19.5 - 21.8 | 40 | 44.5 | 8 | 10 |
| 52002700 | SHV 29/29/24 | 21.8 - 23.8 | 40 | 44.5 | 8 | 10 |
| 52002690 | SHV 29/29/26 | 23.8 - 25.8 | 40 | 44.5 | 8 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SKINDICHT® SHV FKM






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Watertight
- High strain relief
- Robust

## Application range

- Watertight and high temperature-resistant cable gland with special conical FKM sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

## Note

- Example order designation:
  SHV-FKM 13.5 / 9 / 11
  13.5 = PG thread of compression screw
  9 = PG connection thread
  11 = clear opening of sealing cone

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

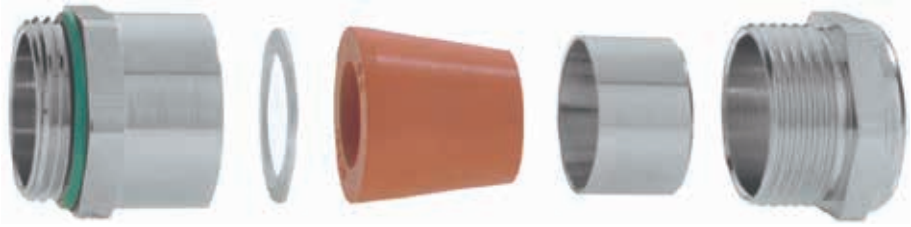
**Material**
Body: nickel-plated brass
Sealing cone: FKM
O-ring: FKM

**Protection rating**
IP 68 - 10 bar

**Temperature range**
-20°C to +200°C

| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® SHV FKM** | | | | | | |
| 52024934 | SHV-FKM 7/7/5 | 3.8 - 4.8 | 14 | 26.0 | 5 | 50 |
| 54000015 | SHV-FKM 9/9/6 | 4.8 - 5.8 | 17 | 28.5 | 6 | 50 |
| 52024935 | SHV-FKM 9/9/7 | 5.8 - 6.8 | 17 | 28.5 | 6 | 50 |
| 52024936 | SHV-FKM 11/11/7 | 5.8 - 6.8 | 20 | 31.0 | 6 | 25 |
| 52024937 | SHV-FKM 11/11/9 | 6.8 - 8.8 | 20 | 31.0 | 6 | 25 |
| 52024970 | SHV-FKM 13.5/9/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52024968 | SHV-FKM 13.5/11/9 | 6.8 - 8.8 | 22 | 33.0 | 6.5 | 25 |
| 52024969 | SHV-FKM 13.5/11/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52024961 | SHV-FKM 13.5/13.5/9 | 6.8 - 8.8 | 22 | 33.0 | 6.5 | 25 |
| 52024962 | SHV-FKM 13.5/13.5/11 | 8.5 - 10.8 | 22 | 33.0 | 6.5 | 25 |
| 52024971 | SHV-FKM 16/11/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52024973 | SHV-FKM 16/13.5/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52024964 | SHV-FKM 16/16/13 | 10.8 - 12.8 | 24 | 35.0 | 6.5 | 25 |
| 52024965 | SHV-FKM 16/16/15 | 13.8 - 14.8 | 24 | 35.0 | 6.5 | 25 |
| 52024966 | SHV-FKM 21/21/18 | 15.8 - 17.8 | 30 | 38.0 | 7 | 25 |
| 52024967 | SHV-FKM 21/21/20 | 17.5 - 19.8 | 30 | 38.0 | 7 | 25 |
| 52024974 | SHV-FKM 29/29/22 | 19.5 - 21.8 | 40 | 44.5 | 8 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

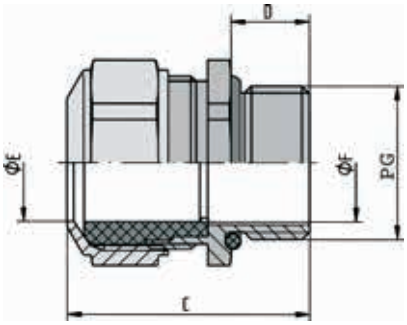


# SKINDICHT® CN

**Info**

- Flexible down to -40°C






## Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- For high mechanical stress
- High corrosion-resistance

## Application range

- Chromium nickel steel cable gland with FPM seal, specially designed for use under tough conditions
- Pharmaceutical and petrochemical industry
- Offshore sector
- Wind power plants
- Brickworks

## Product Make-up

- PG connection thread

## Note

- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM INOX

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Caution**
The installation dimensions can be found in appendix T21

**On request**
TPE seal

**Material**
Body: Chrome-nickel steel in accordance with DIN, material no. 1.4305
Seal: FPM
O-ring: FPM

**Protection rating**
IP 68 - 5 bar

**Temperature range**
-40°C to +200°C

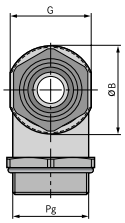
| Article number | Article designation / size | Ø F mm | SW wrench size mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|
| **SKINDICHT® CN** | | | | | | |
| 52032520 | PG 9 | 6 - 10 | 18 | 28.0 | 10 | 5 |
| 52032525 | PG 11 | 5 - 12 | 22 | 32.0 | 10 | 5 |
| 52032540 | PG 13.5 | 8 - 15 | 24 | 34.0 | 10 | 5 |
| 52032550 | PG 16 | 8 - 15 | 24 | 34.0 | 10 | 5 |
| 52032560 | PG 21 | 12.5 - 20.5 | 30 | 42.0 | 12 | 5 |
| 52032570 | PG 29 | 19 - 27.5 | 41 | 53.0 | 12 | 5 |

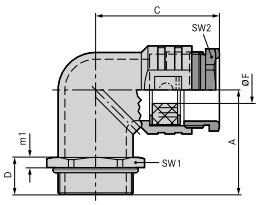
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® RWV








## Benefits

- Strain relief
- Sealed by incised sealing ring
- Corrosion-resistant
- Decrease in installation height
- Seawater-resistant

## Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

## Product Make-up

- PG connection thread

## Note

- Counter nut to be used: SKINDICHT® SM
- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® RWV without incised sealing ring (E) and compression screw (D)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Body: zinc die-casting
Compression screw and hexagon nut: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

**Protection rating**
IP 55

**Temperature range**
-20°C to +80°C
Without incised sealing ring:
-20°C to +100°C

| Article number | Article designation / size | A mm | G mm | Incised sealing ring ØF (mm) | SW1/SW2 mm | Overall length C mm | Thread length D mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SKINDICHT® RWV** | | | | | | | | |
| 52004180 | PG 7 | 20.5 | 14 | 5 | 15.0 / 13.0 | 26.0 | 8.5 | 25 |
| 52004190 | PG 9 | 23.5 | 17 | 5/8 | 18.0 / 15.0 | 28.0 | 9.5 | 25 |
| 52004200 | PG 11 | 26 | 20 | 7/10/12.5 | 21.0 / 18.0 | 31.5 | 10 | 25 |
| 52004210 | PG 13.5 | 28.5 | 22 | 7/10.5/13/16 | 23.0 / 20.0 | 34.5 | 10.5 | 25 |
| 52004220 | PG 16 | 31 | 24 | 8/10.5/13.5/16 | 26.0 / 22.0 | 35.5 | 11 | 10 |
| 52005420 | PG 21 | 33.5 | 30 | 11/15/18/20 | 32.0 / 28.0 | 42.5 | 11.5 | 10 |
| 52004225 | PG 29 | 43 | 40 | 19/23/27/31 | 41.0 / 37.0 | 49.0 | 13 | 10 |
| **SKINDICHT® RWV without E+D** | | | | | | | | |
| 52024020 | PG 7 | 20.5 | 14 | | 15.0 / 13.0 | 20.2 | 8.5 | 25 |
| 52023970 | PG 9 | 23.5 | 17 | | 18.0 / 15.0 | 21.8 | 9.5 | 25 |
| 52023980 | PG 11 | 26 | 20 | | 21.0 / 18.0 | 24.9 | 10 | 25 |
| 52023990 | PG 13.5 | 28.5 | 22 | | 23.0 / 20.0 | 27.4 | 10.5 | 25 |
| 52024000 | PG 16 | 31 | 24 | | 26.0 / 22.0 | 28.5 | 11 | 10 |
| 52024010 | PG 21 | 33.5 | 30 | | 32.0 / 28.0 | 34.8 | 11.5 | 10 |
| 52024015 | PG 29 | 43 | 40 | | 41.0 / 37.0 | 41.2 | 13 | 10 |

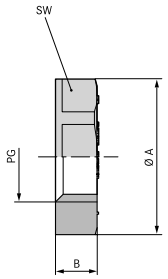
Photographs and graphics are not to scale and do not represent detailed images of the respective products.





# SKINDICHT® GMK






## Benefits

- Supporting surface for spanner means scratches on the housing are avoided

## Application range

- For locking SKINDICHT® cable glands in boreholes without thread.

## Product Make-up

- PG connection thread

## Note

- SKINTOP® GMP-GL counter nuts are recommended if there are high mechanical stress and high torques for tightening are required

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

**Colour delivered**
Light grey (RAL 7035)

**Material**
Polystyrene

**Temperature range**
-20°C to +70°C

| Article number | Article designation / size | Height (mm) | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® GMK** | | | | |
| 52000110 | PG 7 | 5.0 | 19 | 100 |
| 52000120 | PG 9 | 5.0 | 22 | 100 |
| 52000130 | PG 11 | 5.0 | 24 | 100 |
| 52000140 | PG 13.5 | 6.0 | 27 | 100 |
| 52000150 | PG 16 | 6.0 | 30 | 100 |
| 52000160 | PG 21 | 7.0 | 36 | 50 |
| 52000170 | PG 29 | 7.0 | 46 | 50 |
| 52000180 | PG 36 | 8.0 | 60 | 25 |
| 52000190 | PG 42 | 8.0 | 65 | 25 |
| 52000200 | PG 48 | 8.0 | 70 | 25 |

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CE

# SKINDICHT® SM / SKINDICHT® SM-PE



SKINDICHT® SM



SKINDICHT® SM-PE

## Benefits

**SKINDICHT® SM-PE**

- Cutting edges cut through the insulating layer, thus guaranteeing an optimum EMC contact

## Application range

**SKINDICHT® SM**

- Used when a gland has to be countered, or in through-holes on thin-walled housings

**SKINDICHT® SM-PE**

- For lacquered, anodised or powder-coated housings.

## Product Make-up

- PG connection thread

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

| Article number | Article designation / size | Height (mm) | SW wrench size mm | Far corner dimension | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® SM** | | | | | |
| 52003490 | PG 7 | 2.8 | 15 | 16.6 | 100 |
| 52003500 | PG 9 | 2.8 | 18 | 20 | 100 |
| 52003510 | PG 11 | 3.0 | 21 | 23.5 | 100 |
| 52003520 | PG 13.5 | 3.0 | 23 | 25.5 | 100 |
| 52003530 | PG 16 | 3.0 | 26 | 29 | 100 |
| 52003540 | PG 21 | 3.5 | 32 | 35.5 | 50 |
| 52003550 | PG 29 | 3.5 | 41 | 45 | 50 |
| 52003560 | PG 36 | 5.0 | 51 | 56 | 25 |
| 52003570 | SM 42 | 5.0 | 60 | 65 | 25 |
| 52003580 | PG 48 | 5.5 | 64 | 69 | 25 |
| **SKINDICHT® SM-PE** | | | | | |
| 52103200 | PG 7 | 4.7 | 15 | 17.3 | 100 |
| 52103210 | PG 9 | 4.7 | 18 | 20.8 | 100 |
| 52103220 | PG 11 | 4.7 | 21 | 24.3 | 100 |
| 52103230 | PG 13.5 | 4.7 | 23 | 26.6 | 100 |
| 52103240 | PG 16 | 4.7 | 26 | 30 | 100 |
| 52103250 | PG 21 | 5.2 | 32 | 37 | 50 |
| 52103260 | PG 29 | 5.7 | 41 | 47.3 | 50 |
| 52103270 | PG 36 | 6.5 | 51 | 58.9 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® SM INOX

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

**Material**
Stainless steel

**Temperature range**
-60°C to +200°C

## Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

## Product Make-up

- PG connection thread



| Article number | Article designation / size | Height (mm) | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® SM INOX** | | | | |
| 52032517 | PG 7 | 3.5 | 17 | 50 |
| 52032559 | PG 11 | 3.5 | 22 | 50 |
| 5203254 | PG 13.5 | 4.0 | 24 | 50 |
| 52032555 | PG 16 | 4.0 | 27 | 50 |
| 52032556 | PG 21 | 4.5 | 32 | 25 |
| 52032557 | PG 29 | 5.5 | 41 | 10 |
| 52032558 | PG 36 | 6.0 | 51 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® BLK / BLK-GL



## Benefits
- For closing pre-threaded holes

## Application range
- Control cabinet manufacturing
- Distribution box
- Junction boxes

## Product features
- Assembling with screwdriver

## Product Make-up
- PG connection thread

## Note
- SKINDICHT® BLK-GL offers high stability due to glass fibre reinforcement

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**On request**
with O-ring fitted

**Colour delivered**
Light grey (RAL 7035)

**Material**
BLK: polystyrene
BLK-GL: glass fibre-reinforced polyamide

**Protection rating**
IP 54
IP 68 (with O-ring)

**Temperature range**
BLK: -20°C to +70°C
BLK-GL: -40°C to +100°C

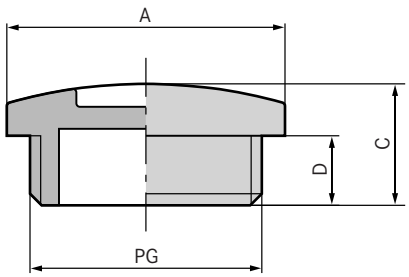
| Article number | Article designation / size | Thread length D mm | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® BLK** | | | |
| 52005949 | PG 7 | 6 | 100 |
| 52005950 | PG 9 | 6 | 100 |
| 52005960 | PG 11 | 6 | 100 |
| 52005970 | PG 13.5 | 6 | 100 |
| 52005980 | PG 16 | 6 | 100 |
| 52005990 | PG 21 | 8 | 50 |
| 52006000 | PG 29 | 8 | 50 |
| 52006010 | PG 36 | 10 | 25 |
| 52006020 | PG 42 | 10 | 25 |
| 52006030 | PG 48 | 12 | 25 |
| **SKINDICHT® BLK-GL** | | | |
| 52024848 | PG 7 | 6 | 100 |
| 52024849 | PG 9 | 6 | 100 |
| 52024850 | PG 11 | 6 | 100 |
| 52024851 | PG 13.5 | 6 | 100 |
| 52024852 | PG 16 | 6 | 100 |
| 52024853 | PG 21 | 8 | 50 |
| 52024854 | PG 29 | 8 | 50 |
| 52024855 | PG 36 | 10 | 25 |
| 52024856 | PG 42 | 10 | 25 |
| 52024857 | PG 48 | 12 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® BL / SKINDICHT® BL FKM








## Benefits
- For closing pre-threaded holes

## Application range
- Machine and equipment manufacturing
- Electric motor manufacturing

## Product features
- Assembling with screwdriver

## Product Make-up
- PG connection thread

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

**Material**
Body: nickel-plated brass
O-ring: NBR

**Protection rating**
IP 54
IP 68 (with O-ring)

**Temperature range**
With O-ring: -20°C to +100°C
Without O-ring: -60°C to +200°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® BL** | | |
| 52002680 | PG 7 | 100 |
| 52003390 | PG 9 | 100 |
| 52003400 | PG 11 | 100 |
| 52003410 | PG 13.5 | 100 |
| 52003420 | PG 16 | 100 |
| 52003430 | PG 21 | 50 |
| 52003440 | PG 29 | 50 |
| 52003450 | PG 36 | 25 |
| 52003460 | PG 42 | 10 |
| 52002790 | PG 48 | 10 |
| **SKINDICHT® BL with O-ring** | | |
| 54001610 | PG 7 | 100 |
| 54000071 | PG 9 | 100 |
| 54000040 | PG 11 | 100 |
| 54001630 | PG 13.5 | 100 |
| 54001640 | PG 16 | 100 |
| 54001660 | PG 21 | 50 |
| 54001620 | PG 29 | 50 |
| 54001650 | PG 36 | 25 |
| 54001670 | PG 42 | 10 |
| 54001680 | PG 48 | 10 |
| **SKINDICHT® BL FKM** | | |
| 52003398 | PG 7 | 50 |
| 52003399 | PG 9 | 50 |
| 52003401 | PG 11 | 50 |
| 52003402 | PG 13.5 | 50 |
| 52003403 | PG 16 | 50 |
| 52003404 | PG 21 | 25 |
| 52003405 | PG 29 | 25 |
| 52003406 | PG 36 | 25 |
| 52003407 | PG 42 | 5 |
| 52003408 | PG 48 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® KU, KUS, KUK










## Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- Glass fibre-reinforced for maximum mechanical stability

## Application range

- Machines
- Devices
- Housings

## Product Make-up

- PG connection thread
- First digit: external thread
  Second digit: internal thread

## Product Make-up

- SKINDICHT® KU with hexagon and flat design (1)
- SKINDICHT® KUS with hexagon and larger height (2)
- SKINDICHT® KUK with knurled heads (3)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® KU** | | |
| 51730010 | KU 11/7 | 50 |
| 52025100 | KU 13.5/7 | 50 |
| 52025110 | KU 16/9 | 50 |
| 52025120 | KU 21/11 | 25 |
| 51730040 | KU 21/13.5 | 25 |
| 52025130 | KU 29/13.5 | 25 |
| 51730050 | KU 29/16 | 25 |
| 52025140 | KU 36/16 | 25 |
| 52025150 | KU 36/21 | 25 |
| 52025050 | KU 36/29 | 25 |
| 52025160 | KU 42/21 | 25 |
| 52025170 | KU 42/29 | 25 |
| 52025060 | KU 42/36 | 25 |
| 52025180 | KU 48/29 | 25 |
| 52025190 | KU 48/36 | 25 |
| 52025070 | KU 48/42 | 25 |
| **SKINDICHT® KUS** | | |
| 52025040 | KUS 9/7 | 50 |
| 51730060 | KUS 11/9 | 50 |
| 51730070 | KUS 13.5/11 | 50 |
| 51730080 | KUS 16/13.5 | 50 |
| **SKINDICHT® KUK** | | |
| 51730020 | KUK 13.5/9 | 50 |
| 51730025 | KUK 16 /9 | 50 |
| 51730030 | KUK 16/11 | 50 |
| 51730035 | KUK 21/13.5 | 50 |
| 51730090 | KUK 21/16 | 50 |
| 51730100 | KUK 29/21 | 25 |
| 51730110 | KUK 36/29 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® MR

## Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes

## Application range

- Machines
- Devices
- Housings

## Product Make-up

- PG connection thread
- First digit: external thread
  Second digit: internal thread

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C



| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® MR** | | |
| 52003750 | MR 9/7 | 100 |
| 52003760 | MR 11/7 | 100 |
| 52003770 | MR 11/9 | 100 |
| 52003780 | MR 13.5/7 | 100 |
| 52003790 | MR 13.5/9 | 100 |
| 52003800 | MR 13.5/11 | 100 |
| 52003810 | MR 16/7 | 100 |
| 52003820 | MR 16/9 | 100 |
| 52003830 | MR 16/11 | 100 |
| 52003840 | MR 16/13.5 | 100 |
| 52003850 | MR 21/11 | 50 |
| 52003860 | MR 21/13.5 | 50 |
| 52003870 | MR 21/16 | 50 |
| 52003880 | MR 29/13.5 | 50 |
| 52003890 | MR 29/16 | 50 |
| 52003900 | MR 29/21 | 50 |
| 52003910 | MR 36/16 | 25 |
| 52003920 | MR 36/21 | 25 |
| 52003930 | MR 36/29 | 25 |
| 52003940 | MR 42/29 | 10 |
| 52003950 | MR 42/36 | 10 |
| 52003970 | MR 48/36 | 10 |
| 52003980 | MR 48/42 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SKINDICHT® EKU



### Benefits

- Enables the use of cable glands with larger connection threads than the existing threaded holes
- Assembling with a wrench
- Supporting surface for spanner means scratches on the housing are avoided

### Application range

- Machines
- Devices
- Housings

### Product Make-up

- PG connection thread
- First digit: external thread
  Second digit: internal thread

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40°C to +100°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® EKU** | | |
| 52025200 | EKU 7/9 | 100 |
| 51731000 | EKU 9/11 | 100 |
| 51731010 | EKU 11/13.5 | 100 |
| 51731020 | EKU 13.5/16 | 100 |
| 51731030 | EKU 16/21 | 50 |
| 51731040 | EKU 21/29 | 25 |
| 52025210 | EKU 29/36 | 25 |
| 52025220 | EKU 36/42 | 25 |
| 52025230 | EKU 42/48 | 25 |

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## SKINDICHT® ME



### Benefits

- Enables the use of cable glands with larger connection threads than the existing threaded holes

### Application range

- Industrial connectors
- Devices
- Housings
- Machines

### Product Make-up

- PG connection thread
- First digit: external thread
  Second digit: internal thread

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

| Article number | Article designation / size | Pieces / PU |
|---|---|---|
| **SKINDICHT® ME** | | |
| 52003990 | ME 7/9 | 100 |
| 52004000 | ME 9/11 | 100 |
| 52004010 | ME 9/13.5 | 100 |
| 52004020 | ME 11/13.5 | 100 |
| 52004030 | ME 11/16 | 100 |
| 52004040 | ME 11/21 | 100 |
| 52004050 | ME 13.5/16 | 100 |
| 52004060 | ME 13.5/21 | 50 |
| 52004070 | ME 16/21 | 50 |
| 52004080 | ME 16/29 | 50 |
| 52004090 | ME 21/29 | 50 |
| 52004100 | ME 29/36 | 50 |
| 52004110 | ME 36/42 | 10 |
| 52004120 | ME 42/48 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SKINDICHT® A-PG/M







## Benefits

- Adapter from a PG outer thread to a metric inner thread

## Application range

- Housings
- Industrial connectors
- Machines

## Product Make-up

- PG connection thread

## Product Make-up

- Form A = high
- Form B = flat

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Colour delivered**
Light grey (RAL 7035)

**Material**
Polyamide, glass fibre-reinforced

**Temperature range**
-40°C to +100°C

| Article number | Form | Thread. male PG | Thread. female M2 | SW wrench size mm | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® A-PG/M** | | | | | |
| 52100320 | A | PG 7 | 12 x 1.5 | 16 | 25 |
| 52100321 | A | PG 7 | 16 x 1.5 | 20 | 25 |
| 52100322 | A | PG 9 | 12 x 1.5 | 20 | 25 |
| 52100323 | A | PG 9 | 16 x 1.5 | 20 | 25 |
| 52100324 | A | PG 9 | 20 x 1.5 | 24 | 25 |
| 52100325 | A | PG 11 | 16 x 1.5 | 22 | 25 |
| 52100326 | A | PG 11 | 20 x 1.5 | 24 | 25 |
| 52100327 | A | PG 11 | 25 x 1.5 | 29 | 25 |
| 52100328 | A | PG 13.5 | 16 x 1.5 | 24 | 25 |
| 52100329 | A | PG 13.5 | 20 x 1.5 | 24 | 25 |
| 52100330 | A | PG 13.5 | 25 x 1.5 | 29 | 25 |
| 52100331 | A | PG 16 | 20 x 1.5 | 27 | 25 |
| 52100332 | A | PG 16 | 25 x 1.5 | 29 | 25 |
| 52100333 | A | PG 16 | 32 x 1.5 | 36 | 25 |
| 52100334 | A | PG 21 | 25 x 1.5 | 33 | 10 |
| 52100335 | A | PG 21 | 32 x 1.5 | 36 | 10 |
| 52100336 | A | PG 21 | 40 x 1.5 | 46 | 10 |
| 52100337 | B | PG 29 | 32 x 1.5 | 42 | 10 |
| 52100338 | A | PG 29 | 40 x 1.5 | 46 | 10 |
| 52100339 | A | PG 29 | 50 x 1.5 | 55 | 10 |
| 52100340 | B | PG 36 | 40 x 1.5 | 53 | 10 |
| 52100341 | A | PG 36 | 50 x 1.5 | 55 | 10 |
| 52100342 | A | PG 36 | 63 x 1.5 | 68 | 10 |
| 52100343 | B | PG 42 | 40 x 1.5 | 60 | 5 |
| 52100344 | A | PG 42 | 50 x 1.5 | 60 | 5 |
| 52100345 | A | PG 42 | 63 x 1.5 | 68 | 5 |
| 52100346 | B | PG 48 | 50 x 1.5 | 65 | 5 |
| 52100347 | A | PG 48 | 63 x 1.5 | 68 | 5 |

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# SKINDICHT® MA-PG/M





## Benefits

- Adapter from a PG outer thread to a metric inner thread

## Application range

- Housings
- Industrial connectors
- Machines

## Product Make-up

- PG connection thread

## Product Make-up

- Form A: knurl
- Form B: smooth

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

**Material**
Nickel-plated brass

**Temperature range**
-60°C to +200°C

NEW

- For the Lead-free version, the “LF” suffix is added to the end of the Article number

| Article number | Form | Thread, male PG | Thread, female M2 | Pieces / PU |
|---|---|---|---|---|
| **SKINDICHT® MA-PG/M** | | | | |
| 52104490 | B | 7 | 12 x 1.5 | 100 |
| 52104491 | B | 9 | 16 x 1.5 | 50 |
| 52104492 | A | 11 | 16 x 1.5 | 50 |
| 52104493 | B | 11 | 20 x 1.5 | 50 |
| 52104494 | B | 13.5 | 20 x 1.5 | 50 |
| 52104495 | A | 16 | 20 x 1.5 | 50 |
| 52104496 | B | 16 | 25 x 1.5 | 50 |
| 52104497 | A | 21 | 20 x 1.5 | 50 |
| 52104498 | A | 21 | 25 x 1.5 | 50 |
| 52104499 | B | 21 | 32 x 1.5 | 50 |
| 52104500 | A | 29 | 25 x 1.5 | 25 |
| 52104501 | A | 29 | 32 x 1.5 | 25 |
| 52104502 | B | 29 | 40 x 1.5 | 10 |
| 52104503 | A | 36 | 40 x 1.5 | 10 |

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## SKINDICHT® O-Ring NBR PG

### Benefits
- Resistant to oil, dust and water

### Application range
- For a reliable sealing against foreign objects and liquids at the connecting thread of a gland or similar components.

### Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
Black

**Material**
NBR

**Temperature range**
-20°C to +100°C



| Article number | Article designation / size | Inner Ø x thickness Ø (mm) | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® O-Ring NBR** | | | |
| 53001010 | PG 7 | 10.0 x 1.5 | 100 |
| 53102011 | PG 9 | 13.0 x 1.5 | 100 |
| 53001020 | PG 11 | 16.0 x 1.5 | 100 |
| 52005740 | PG 13.5 | 18.0 x 1.5 | 100 |
| 53001030 | PG 16 | 20.0 x 1.5 | 100 |
| 52005750 | PG 21 | 26.0 x 2.0 | 100 |
| 53001040 | PG 29 | 34.0 x 2.0 | 50 |
| 52005760 | PG 36 | 44.0 x 2.0 | 50 |
| 53001050 | PG 42 | 50.0 x 2.0 | 50 |
| 52005770 | PG 48 | 55.0 x 2.0 | 50 |

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## SKINDICHT® O-Ring FKM PG

### Benefits
- For high temperatures
- Resistant to oils, solvents, acids and chemicals

### Application range
- For a reliable sealing against foreign objects and liquids at the connecting thread of a gland or similar components.

### Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
Green

**Material**
FKM

**Temperature range**
-20°C to +200°C



| Article number | Article designation / size | Inner Ø x thickness Ø (mm) | Pieces / PU |
|---|---|---|---|
| **SKINDICHT® O-Ring FKM** | | | |
| 52023607 | PG 7 | 10.0 x 1.5 | 100 |
| 52122011 | PG 9 | 13.0 x 1.5 | 100 |
| 52023602 | PG 11 | 16.0 x 1.5 | 100 |
| 52023601 | PG 13.5 | 18.0 x 1.5 | 100 |
| 52023603 | PG 16 | 20.0 x 1.5 | 50 |
| 52023604 | PG 21 | 26.0 x 2.0 | 50 |
| 52023606 | PG 29 | 34.0 x 2.0 | 50 |
| 52023608 | PG 36 | 44.0 x 2.0 | 25 |
| 52023609 | PG 42 | 50.0 x 2.0 | 25 |
| 52023611 | PG 48 | 55.0 x 2.0 | 25 |

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# SKINDICHT® JT PTFE PG



## Benefits

- Resistant to oil, water, alkaline solutions, acids, solvents, etc.
- Suitable for foodstuffs

## Application range

- PTFE sealing disks for SKINTOP® and SKINDICHT® cable glands

## Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
White

**Material**
PTFE

**Temperature range**
-120°C to +250°C
Short-term: up to +300°C

| Article number | Article designation / size | Internal Ø/external Ø (mm) | Thickness (mm) | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SKINDICHT® JT PTFE** | | | | | |
| 53801035 | PG 7 | 12 / 16 | 2.0 | 16.5 | 100 |
| 53801045 | PG 9 | 15 / 19 | 2.0 | 19.0 | 100 |
| 53801055 | PG 11 | 18 / 22 | 2.0 | 22.5 | 100 |
| 53801065 | PG 13.5 | 20 / 25 | 2.0 | 25.0 | 100 |
| 53801075 | PG 16 | 22 / 27 | 2.0 | 27.0 | 100 |
| 53801085 | PG 21 | 28 / 33 | 3.0 | 33.5 | 50 |
| 53801095 | PG 29 | 37 / 43 | 3.0 | 43.5 | 50 |
| 53801105 | PG 36 | 47 / 55 | 3.0 | 55.0 | 25 |
| 53801115 | PG 42 | 54 / 63 | 3.0 | 63.0 | 25 |
| 53801125 | PG 48 | 59 / 69 | 3.0 | 69.0 | 25 |

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## SKINMATIC® QUICK Set 1





### Benefits
- Easy installation of the cables even for high packing density
- Enormous time and cost saving
- Easy and safe handling using open ratchet system
- 4 sizes (M12, 16, 20, 25), only one tool

### Application range
- Efficient assembly ratchet set for SKINTOP® plastic and brass cable glands.
- Optional SKINMATIC® TORQUE WRENCH with 9x12 mm adapter for use with SKINMATIC® QUICK SET 1

### Product features
- Made of high-quality tool steel
- Included: a handy and strong box for storing
- 1x R1 - ratchet
- 1x V1 - extension
- 5x open nut for wrench size (N) 15, 16, 19, 20, 25, 30, suitable for ratchet head R1

### Note
- Open nut N15 for M12 polyamide
- Open nut N16 for M12 brass
- Open nut N19 for M16 polyamide
- Open nut N 20 for M16 brass (extension)
- Open nut N 25 for M20 polyamide and brass
- Open nut N30 for M25 polyamide and brass

### Technical data
ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000149
ETIM 5.0/6.0 Class-Description: Tool set

| Article number | Article designation / size | Width of flat surface (mm) | Pieces / PU |
|---|---|---|---|
| **SKINMATIC® QUICK SET 1** | | | |
| 61610000 | QUICK SET 1 | 15, 16, 19, 20, 25, 30 | 1 |
| **SKINMATIC® TORQUE WRENCH** | | | |
| 61610012 | SKINMATIC® DMG 2-10 Nm | | 1 |
| 61610013 | SKINMATIC® DMG 5-25 Nm | | 1 |

Not subjected to RoHS directive.
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## SKINMATIC® MH Set

**Info**
- Assembly tool for SKINTOP® gland sizes up to M110 x 2





### Benefits
- Fast, secure and damage-free assembly
- Shaped contact surface prevents the spanner from sliding off

### Application range
- Special tools designed for metric SKINTOP® brass types

### Product features
- Assembly set manufactured from chromium-plated tool steel
- The SKINMATIC® MH set consists of three special keys:
- OK 16/20 mm (M12/M16)
- OK 24/29 mm (M20/M25)
- OK 36/45 mm (M32/M40)

### Technical data
ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002130
ETIM 5.0/6.0 Class-Description: Spanner

| Article number | Width of flat surface (mm) | Brass gland sizes | Overall length (mm) | PU pieces (set) |
|---|---|---|---|---|
| **SKINMATIC® MH-Set** | | | | |
| 61791273 | 16/20, 24/29, 36/45 | M 12, M 16, M 20, M 32, M 40 | 200 / 220 / 250 | 1 |
| **SKINMATIC® MH single wrench** | | | | |
| 61791267 | 54 | M 50 | | 1 |
| 61791268 | 67 | M 63 | | 1 |
| 61791269 | 75 | M 63 plus | | 1 |
| 61791286 | 95 | M 75 | | 1 |
| 61791287 | 115 | M 90 | | 1 |
| 61791288 | 135 | M 110 | | 1 |

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## SKINMATIC® KB-M



## SKINMATIC® SB-M



## SKINMATIC® GB-M



### Application range

**SKINMATIC® KB-M**

- For simultaneous core drilling and cutting of metric threads. Especially suitable for thin components and sheet metals

**SKINMATIC® SB-M**

- For drilling the core-holes of metric threads

**SKINMATIC® GB-M**

- For cutting metric threads

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000945
ETIM 5.0/6.0 Class-Description: Drill

**Material**
**SKINMATIC® KB-M**
HSSE
**SKINMATIC® SB-M**
HSS
**SKINMATIC® GB-M**
HSSE

| Article number | Article designation / size | Drill length (mm) | Overall length C mm | Pieces / PU |
|---|---|---|---|---|
| **SKINMATIC® KB-M** | | | | |
| 61791274 | M 12 x 1,5 | 30 | 130.0 | 1 |
| 61791275 | M 16 x 1,5 | 35 | 150.0 | 1 |
| 61791276 | M 20 x 1,5 | 40 | 165.0 | 1 |
| 61791277 | M 25 x 1,5 | 45 | 185.0 | 1 |
| **SKINMATIC® SB-M** | | | | |
| 61791278 | M 32 x 1,5 | 180 | 301.0 | 1 |
| 61791279 | M 40 x 1,5 | 200 | 349.0 | 1 |
| 61791280 | M 50 x 1,5 | 220 | 369.0 | 1 |
| **SKINMATIC® GB-M** | | | | |
| 61791282 | M 32 x 1,5 | 28 | 150.0 | 1 |
| 61791283 | M 40 x 1,5 | 28 | 170.0 | 1 |
| 61791284 | M 50 x 1,5 | 32 | 190.0 | 1 |

Not subjected to RoHS directive.
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Cable glands

LAPP

SKINMATIC® mounting tools • Universal mounting tools

## SKINMATIC® RZ



### Benefits

- Adjustable for all wrench sizes ranging from 14 to 33 mm
- Assembling after the cables are already inserted
- Ergonomic plastic grips

### Application range

- For quick allocation of cable and conduit glands
- Suitable for metric cable glands

### Product features

- Made of chromium-plated tool steel
- With two expandable clamping ranges (lock positions)
- Small opening (14 - 22 mm): M12 to M16, PG7 to PG11, NPT 3/8“
- Large opening (24 - 33 mm): M20 to M25, PG13.5 to PG21, NPT 1/2“ to 3/4“

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002498
ETIM 5.0/6.0 Class-Description: Accessories for low-voltage switch technology

| Article number | Article designation / size | Width of flat surface (mm) | Overall length C mm | Pieces / PU |
|---|---|---|---|---|
| **SKINMATIC® RZ** | | | | |
| 61791260 | SKINMATIC® RZ | 14 - 33 | 250.0 | 1 |

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# SILVYN®

## Protective cable conduit systems and cable carrier systems

The universal range of SILVYN® protection and guidance systems protects cables effectively against dust and moisture, as well as mechanical, thermal and chemical influences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

**Application range**

- Industrial machinery and plant engineering
- Automotive industry
- Machine tool manufacture
- Renewable energies
- Wherever cables require additional protection or guidance

## Plastic protective cable conduit systems


**Braided sleeve**
SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET 957
**Simple applications**
SILVYN® SI 958
SILVYN® SSV-M / SILVYN® SSVZ-M 959
SILVYN® SCH 960
**Flexible with PVC spiral**
SILVYN® EL 961
SILVYN® ELU 962
SILVYN® ELÖ 963
SILVYN® ELT 964
SILVYN® ELR 965
SILVYN® MPC-M / SILVYN® MPC 90° M 966
**Highly flexible with spring steel wire**
SILVYN® FPS 967
SILVYN® FPS-EDU 968
SILVYN® FD-PU 969
SILVYN® MSK-M EE 970
SILVYN® MSK-M FPS-EDU 971
SILVYN® US-M EE / SILVYN® US EE 972
SILVYN® US-M FPS-EDU / SILVYN® US FPS-EDU 973
**Simple applications**
SILVYN® USK-M / SILVYN® USK 974
**Highly flexible with spring steel wire**
SILVYN® LKI-M / SILVYN® LKI 975
SILVYN® EE-K 976
SILVYN® US-FPS-EDU-AS 977


## Parallel corrugated protective cable conduit systems


**Various applications**
SILVYN® RILL PA 6 978
SILVYN® RILL PA 12 979
SILVYN® KLICK-M 980
SILVYN® KLICK 90° M 981
SILVYN® KLICK GPZ-M 982
SILVYN® KLICK NPT 983
SILVYN® KLICK-Y / SILVYN® KLICK-Y (TPE) 984
SILVYN® KLICK-S / SILVYN® KLICK-D / SILVYN® KLICK-V 985
SILVYN® KLICK-RH 986
SILVYN® K-EM 987
**High mechanical resistance**
SILVYN® FPAS 988
SILVYN® FPAX-M 989
SILVYN® FPAX 90° M 990
SILVYN® FPAX NPT 991
SILVYN® FPAX T / SILVYN® FPAX Y / SILVYN® FPAX R / SILVYN® FPAX P 992
SILVYN® FPAG-M 993
SILVYN® FPAG 90° M 994
SILVYN® FPAX-DUO M / SILVYN® FPAG-DUO M 995
SILVYN® KSE-M 996
SILVYN® FLEXILOK M / SILVYN® FLEXILOK 90° M 997
SILVYN® FCL 998
SILVYN® FPAC 999
SILVYN® EC 1000
**Large dimensions**
SILVYN® MAXI PA 1001
SILVYN® AFG-PA / SILVYN® gasket AFG-PA / AFW-PA / SILVYN® AFW-PA 1002
**Reclosable**
SILVYN® SPLIT 1003
SILVYN® SPLIT COV-M / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS 1004
**Sinus-shaped slit**
SILVYN® SINUS 1005


## Metal protective cable conduit systems


**Galvanized steel versions**
SILVYN® AS 1006
SILVYN® AS-P 1007
SILVYN® EDU-AS 1008
SILVYN® EMC AS-CU 1009
SILVYN® MSK-M US 1010
SILVYN® MSK-M BRUSH 1011
SILVYN® MSK-M ATEX 1012
SILVYN® MSK-M ATEX BRUSH 1013
SILVYN® MSK-U-M 1014
SILVYN® US-M 1015
SILVYN® US-AS / SILVYN® US-EDU-AS / SILVYN® US-MS-DR 1016
**Galvanized steel / Stainless steel with interlocked profile**
SILVYN® SSU / SILVYN® SSUE 1017
SILVYN® LGEF-M 1018
SILVYN® LGES-M 1019
SILVYN® LGEP 1020
**Stainless steel with double-interlocked profile**
SILVYN® UI 511 1021
SILVYN® UI COMPACT M 1022
SILVYN® UI 511 Insert set 1023


## Liquid-tight conduits (metal + jacket)


**Metal conduit with thin-walled jacket**
SILVYN® LCC-2 1024
SILVYN® LCCH-2 1025
SILVYN® LGF-2-M / SILVYN® LGS-2-M 1026
SILVYN® LCG-M / SILVYN® LCW-M / SILVYN® LCS-M 1027
SILVYN® LCC-C 1028
SILVYN® LCC-E 1029
**Metal conduit with thick-walled jacket**
SILVYN® HTDL 1030
SILVYN® EF / SILVYN® OR 1031
SILVYN® HCX / SILVYN® HFX 1032
SILVYN® COMPACT M 1033
SILVYN® COMPACT NPT 1034
SILVYN® LTP 1035
SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTP 45° M / SILVYN® LTP 90° M 1036
SILVYN® LTP-C 1037
SILVYN® LTP-E 1037
SILVYN® SEALING WASHER 1038


## Protective cable conduit systems for special applications


**Heat protection**
SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE 1039
SILVYN® HIPROJACKET Insert set 1040
**Food & Beverage**
SILVYN® FG 1041
SILVYN® FG NM 1042
SILVYN® HYGIENIC 1043
**E-KIT**
SILVYN® E-KIT 1044
**Special applications**
SILVYN® CNP / SILVYN® CNP NPT 1045


## SILVYN® accessories


**Cutting tools for protective cable conduit systems**
SILVYN® Conduit scissor 1046
SILVYN® vice 1046
SILVYN® coupler 1047
SILVYN® BW-K-M 1047
SILVYN® BW-M 1047
**Mounting bracket**
SILVYN® RKS 1048

| Characteristics  | Inner diameter from – to mm | Temperature range | Material | Flexibility | Compression strength | Tensile strength | Flexural behaviour | Oil resistance | Solvent resistance | Protection against hot chips | Reversed bending fatigue behaviour | Flame retardant | Halogen-free | UV resistance | Approvals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Protective conduits plastic** | | | | | | | | | | | | | | | |
| SILVYN® BRAID PA 6 | 4.0 – 32.0 | -55 °C to +125 °C | Polyamide 6.6 | ◑ | ○ | ◔ | ◔ | ● | ◔ | ○ | ◕ | ◕ | ● | ● | – |
| SILVYN® SNAP PET | 25.0 | -55 °C to +150 °C | Polyester – PET | ◑ | ○ | ◔ | ◔ | ◔ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | – |
| SILVYN® SHRINK BRAID PET | 6.0 – 35.0 | -55 °C to +125 °C | Polyester – PET | ◔ | ○ | ◔ | ◔ | ◑ | ◔ | ○ | ◑ | ◔ | ○ | ◔ | – |
| SILVYN® SI | 7.0 – 32.0 | -5 °C to +80 °C | Soft PVC | ◔ | ○ | ◔ | ◔ | ◑ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | – |
| SILVYN® EL | 10.0 – 50.0 | -20 °C to +70 °C | Soft PVC with Hard PVC Spiral | ◑ | ◑ | ◑ | ◑ | ◑ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | cURus |
| SILVYN® ELU | 10.0 – 50.0 | -20 °C to +70 °C | Soft PVC with Hard PVC Spiral | ◑ | ◑ | ◑ | ◑ | ◑ | ◔ | ○ | ◔ | ◔ | ○ | ● | cURus |
| SILVYN® ELÖ | 10.0 – 50.0 | -20 °C to +70 °C | Soft PVC with Hard PVC Spiral | ◑ | ◑ | ◑ | ◑ | ◕ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | cURus |
| SILVYN® ELT | 10.0 – 50.0 | -20 °C to +90 °C | Soft PVC with Hard PVC Spiral | ◑ | ◑ | ◑ | ◑ | ◔ | ◔ | ○ | ◔ | ◑ | ○ | ◔ | cURus |
| SILVYN® ELR | 10.0 – 50.0 | -20 °C to +70 °C | Soft PVC with Hard PVC Spiral | ◕ | ◑ | ◑ | ◑ | ◑ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | – |
| SILVYN® FPS | 7.0 – 48.0 | -20 °C to +80 °C | Soft PVC with insul. Spring Steel Wire | ● | ◑ | ◑ | ● | ◑ | ◑ | ○ | ● | ◔ | ○ | ◑ | VDE, cURus |
| SILVYN® FPS-EDU | 9.0 – 48.0 | -25 °C to +80 °C | PVC-insulated steel spring wire Soft PVC outer sheath Galvanised steel wire braiding | ● | ◑ | ◑ | ● | ◑ | ◑ | ◕ | ● | ◔ | ○ | ◑ | – |
| SILVYN® FD-PU | 7.0 – 48.0 | -40 °C to +80 °C | PUR with insul. Spring Steel Wire | ● | ◑ | ◑ | ● | ● | ◑ | ○ | ● | ◑ | ○ | ● | VDE |
| **Protective corrugated conduits** | | | | | | | | | | | | | | | |
| SILVYN® RILL PA 6 | 6.5 – 48.0 | -40 °C to +115 °C | Polyamide 6 | ◑ | ◑ | ◑ | ◕ | ● | ◑ | ○ | ◕ | ● | ● | ● | cURus, VDE, GGVS, DNV-GL, Lloyds |
| SILVYN® RILL PA 12 | 6.5 – 48.0 | -50 °C to +100 °C | Polyamide 12 | ● | ◑ | ◑ | ◕ | ● | ◕ | ○ | ● | ◕ | ● | ● | cURus, VDE, DNV-GL, Lloyds |
| SILVYN® FPAS | 6.3 – 56.3 | -40 °C to +120 °C | Polyamide 6 | ◑ | ◕ | ◕ | ◕ | ● | ◑ | ○ | ◕ | ◕ | ● | ● | cURus, Lloyds, Link up |
| SILVYN® SPLIT PA 6 | 6.3 – 87.5 | -40 °C to +120 °C | Polyamide 6 | ◑ | ◑ | ◔ | ◕ | ● | ◑ | ○ | ◕ | ◕ | ● | ● | – |
| SILVYN® SPLIT PP | 6.3 – 87.5 | -40 °C to +135 °C | Polypropylene | ◑ | ◑ | ◔ | ◑ | ◑ | ◑ | ○ | ◑ | ◕ | ○ | ● | – |
| SILVYN® SINUS PA 6 | 6.7 – 23.2 | -40 °C to +140 °C | Polyamide 6 | ◑ | ○ | ◑ | ◕ | ● | ◑ | ○ | ◕ | ◕ | ● | ● | – |
| SILVYN® MAXI PA 6 | 66.5 – 91.0 | -40 °C to +115 °C | Polyamide 6 | ◔ | ◑ | ◑ | ◔ | ● | ◑ | ○ | ◔ | ◔ | ● | ● | cURus |
| **Protective conduits metal** | | | | | | | | | | | | | | | |
| SILVYN® AS | 8.0 – 51.0 | to +220 °C | Galvanized Steel Strip | ◕ | ◑ | ◑ | ● | ● | ● | ◕ | ◔ | ● | ● | ● | VDE |
| SILVYN® AS-P | 7.0 – 49.0 | -25 °C to +80 °C | Galvanized Steel, Coating PVC | ◕ | ◑ | ◑ | ◕ | ◑ | ◔ | ○ | ◑ | ◔ | ○ | ◔ | VDE |
| SILVYN® EDU-AS | 7.0 – 49.0 | to +220 °C | Galvanized Steel, Braiding: galvanized steel wire | ◕ | ◑ | ◕ | ● | ● | ● | ● | ◕ | ● | ● | ● | VDE |
| SILVYN® EMC AS-CU | 7.0 – 49.0 | to +220 °C | Galvanized Steel, Braiding: tinned copper | ◕ | ◑ | ◕ | ● | ● | ● | ◕ | ◕ | ● | ● | ● | VDE |
| SILVYN® SSU | 6.8 - 70.0 | -100 °C to +300 °C | Galvanized Steel Strip | ◕ | ◑ | ◑ | ● | ● | ● | ◕ | ◔ | ● | ● | ● | – |
| SILVYN® SSUE | 6.8 – 48.0 | -100 °C to +400 °C | Stainless Steel AISI 316 | ● | ● | ◕ | ● | ● | ● | ● | ● | ● | ● | ● | Link up |
| SILVYN® UI 511 | 9.5 – 52.0 | -100 °C to +600 °C | Stainless Steel AISI 304 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | – |
| **Protective conduits liquidtight (Metal conduit + jacket)** | | | | | | | | | | | | | | | |
| SILVYN® LCC-2 | 6.8 – 70.0 | -15 °C to +70 °C | Galvanized Steel, Coating PVC | ◕ | ◕ | ◑ | ● | ◑ | ◔ | ○ | ◕ | ◔ | ○ | ◕ | – |
| SILVYN® LCCH-2 | 10.2 – 70.0 | -25 °C to +90 °C | Galvanized Steel, Coating plastic halogen-free | ◕ | ◕ | ◑ | ● | ◑ | ◔ | ○ | ◕ | ● | ● | ◕ | Lloyds, Link up |
| SILVYN® HTDL | 12.6 – 51.6 | -40 °C to +105 °C | Galvanized Steel, Copper wire, Coating PVC Mix | ◑ | ● | ◕ | ◑ | ◑ | ◔ | ○ | ◔ | ◑ | ○ | ● | cULus |
| SILVYN® EF | 10.1 – 51.6 | -25 °C to +70 °C | Galvanized Steel, Coating PVC Mix | ◔ | ● | ◕ | ◔ | ◑ | ◔ | ○ | ◔ | ◔ | ○ | ◔ | – |
| SILVYN® OR | 12.6 – 51.6 | -20 °C to +100 °C | Galvanized Steel, Coating PVC Mix | ◔ | ● | ◕ | ◔ | ◕ | ◔ | ○ | ◔ | ◔ | ○ | ● | – |
| SILVYN® HCX | 12.6 – 51.6 | -55 °C to +145 °C | Galvanized Steel, Coating Elastomer plastic | ◑ | ● | ◕ | ◕ | ◑ | ◔ | ○ | ◑ | ◑ | ○ | ● | – |
| SILVYN® HFX | 10.1 – 51.6 | -55 °C to +105 °C | Galvanized Steel, Coating PUR | ◔ | ● | ◕ | ◔ | ◕ | ◔ | ○ | ◔ | ◔ | ● | ● | – |
| SILVYN® LTP | 7.0 – 51.6 | -20 °C to +105 °C | Galvanized Steel, Coating Soft PVC | ◑ | ● | ● | ◕ | ◕ | ◔ | ○ | ◔ | ◔ | ○ | ● | Lloyds |
| **Protective conduits for special applications** | | | | | | | | | | | | | | | |
| SILVYN® HIPROJACKET | 6.0 – 102.0 | -55 °C to +1640 °C | Fibre glass with iron oxide silicone coat | ● | ○ | ◔ | ● | ◕ | ◑ | ● | ● | ● | ● | ◕ | EN 45545 |
| SILVYN® FG | 12.6 – 51.6 | -20 °C to +80 °C | Galvanized Steel, PVC-mix special sheath | ◔ | ● | ◕ | ◔ | ◕ | ◔ | ○ | ◔ | ◔ | ○ | ◑ | FDA, NSF |
| SILVYN® FG NM | 12.6 – 51.6 | -20 °C to +60 °C | Hard PVC inner spiral PVC-mix special sheath | ◔ | ◑ | ◑ | ◔ | ◕ | ◔ | ○ | ◔ | ◔ | ○ | ◑ | FDA, NSF |
| SILVYN® CNP | 12.6 – 40.7 | -20 °C to +60 °C | PVC Mix with Nylon Braid | ◑ | ○ | ◔ | ◑ | ◑ | ◔ | ○ | ◑ | ◔ | ○ | ◕ | cULus |

● = very high ◕ = high ◑ = medium ◔ = low ○ = none



# SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET

**Info**

- Simple, fast cable bundling


SILVYN® BRAID PA6


SILVYN® SNAP PET


SILVYN® SHRINK BRAID PET

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001182
ETIM 5.0/6.0 Class-Description:
Braided hose

**On request**
Bulk containers on rolls
More sizes available

**Note**
**SILVYN® BRAID PA6**
Halogen and cadmium-free
Fire behaviour according to UL94 V-2
**SILVYN® SNAP PET**
Halogen and cadmium-free
Fire behaviour according to UL94 V-2
**SILVYN® SHRINK BRAID PET**
No dielectric strength
Self extinguishing acc. to UL94 HB

**Colour delivered**
**SILVYN® BRAID PA6**
Black (RAL 9005), UV-resistant
**SILVYN® SNAP PET**
Black, grey, orange, yellow, white
**SILVYN® SHRINK BRAID PET**
Black (RAL 9005), UV-resistant

**Material**
**SILVYN® BRAID PA6**
Polyamide 6.6 - halogen-free
**SILVYN® SNAP PET**
Polyester - PET braid sidewise rolled up
**SILVYN® SHRINK BRAID PET**
Polyester - PET with shrinkable
Polyolefin fibres

**Temperature range**
**SILVYN® BRAID PA6**
-55 °C to +125 °C
**SILVYN® SNAP PET**
-55 °C to +150 °C
**SILVYN® SHRINK BRAID PET**
-40 °C to +150 °C
Processing: min. +180 °C

## Benefits

**SILVYN® BRAID PA6**
- Can be cut without the need for a thermo-cutting tool
- Cut into length without frazzle on the conduit's end
- Abrasion protection
- Simple, fast cable bundling
- Protection against dust

**SILVYN® SNAP PET**
- Cables can be guided in or out of the SILVYN® SNAP at any point.
- Self-wrapping
- Simple, fast cable bundling
- Tidies away cables
- Protection against dust

**SILVYN® SHRINK BRAID PET**
- Additional abrasion protection for critical areas
- Cut into length without frazzle on the conduit's end
- Simple, fast cable bundling
- Protection against dust

## Application range

**SILVYN® BRAID PA6**
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Low rodent-protection

**SILVYN® SNAP PET**
- Easy cable protection
- Bundling and guiding of cables and wires
- Cable harness

**SILVYN® SHRINK BRAID PET**
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Low rodent-protection

## Product features

**SILVYN® BRAID PA6**
- Abrasion-resistant
- Flexible
- Can be cut at cold temperatures

**SILVYN® SNAP PET**
- Abrasion-resistant
- Flexible
- Self-wrapping
- Cut longitudinally

**SILVYN® SHRINK BRAID PET**
- Abrasion-resistant
- Flexible
- Shrinkable
- Shrinking ratio: 2:1
- Maximum length lost after shrinkage is less than 15 %

## Product Make-up

**SILVYN® BRAID PA6**
- Polyamide 6.6 - halogen-free

**SILVYN® SNAP PET**
- Polyester - PET braid sidewise rolled up

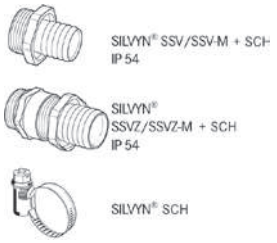
**SILVYN® SHRINK BRAID PET**
- Polyester - PET with shrinkable Polyolefin fibres

| Article number | Nominal size | Clamping range in mm | Shrinkage range mm | Colour | PU (m) |
|---|---|---|---|---|---|
| **SILVYN® BRAID PA6** | | | | | |
| 61721260 | 6 | 4.0 - 10.0 | | black | 20 |
| 61721261 | 12 | 10.0 - 14.0 | | black | 15 |
| 61721262 | 16 | 14.0 - 24.0 | | black | 15 |
| 61721263 | 20 | 18.0 - 26.0 | | black | 10 |
| 61721264 | 30 | 26.0 - 34.0 | | black | 10 |
| 61721265 | 40 | 32.0 - 42.0 | | black | 5 |
| **SILVYN® BRAID PA6 - reel length** | | | | | |
| 61721266 | 6 | 4.0 - 10.0 | | black | 750 |
| 61721267 | 12 | 10.0 - 14.0 | | black | 500 |
| 61721268 | 16 | 14.0 - 24.0 | | black | 400 |
| 61721269 | 20 | 18.0 - 26.0 | | black | 250 |
| 61721258 | 30 | 26.0 - 34.0 | | black | 250 |
| 61721259 | 40 | 32.0 - 42.0 | | black | 250 |
| **SILVYN® SNAP PET** | | | | | |
| 61721280 | 19 | 19.0 - 25.0 | | grey | 2.5 |
| 61721281 | 19 | 19.0 - 25.0 | | orange | 2.5 |
| 61721282 | 19 | 19.0 - 25.0 | | black | 2.5 |
| 61721283 | 19 | 19.0 - 25.0 | | white | 2.5 |
| 61721284 | 19 | 19.0 - 25.0 | | yellow | 2.5 |
| **SILVYN® SHRINK BRAID PET** | | | | | |
| 61721270 | 12/06 | | 12.0 - 6.0 | black | 5 |
| 61721271 | 25/12 | | 25.0 - 12.0 | black | 5 |
| 61721272 | 30/15 | | 30.0 - 15.0 | black | 5 |
| 61721273 | 50/25 | | 50.0 - 25.0 | black | 4 |
| 61721274 | 70/35 | | 70.0 - 35.0 | black | 4 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® SI




## Benefits

- Protection against dust
- Protection against humidity
- Low abrasion protection

## Application range

- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires

## Product features

- Flexible
- Soft

## Product Make-up

- Soft-PVC conduit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Note**
Flame-retardant and self-extinguishing
Dielectric strength: 25 kV/mm
Tear-resistance: 23 N/mm²
Shore A hardness: 75 °C to 90 °C

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Soft PVC

**Temperature range**
-5°C to +80°C

| Article number | ID x OD mm | Suitable for SILVYN® SSV-M/SSVZ-M | Suitable for SILVYN® SSV/SSVZ | Suitable for SILVYN® SCH | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® SI** | | | | | |
| 61713210 | 7.0 x 9.0 | 12/1 / - | | 10 - 16 S | 50 |
| 61713240 | 9.0 x 12.0 | 12/2 / - | | 10 - 16 S | 50 |
| 61713270 | 11.0 x 14.0 | 16/1 / - | | 10 - 16 S | 50 |
| 61713300 | 13.0 x 16.0 | 16/2 / - | | 12 - 20 S | 50 |
| 61713330 | 14.0 x 18.0 | 20/1 | | 12 - 20 S | 50 |
| 61713360 | 18.0 x 22.0 | 20/3 | 13,5/1 | 16 - 25 S | 50 |
| 61713390 | 23.0 x 28.0 | 25 | 21 | 20 - 32 S | 50 |
| 61713420 | 32.0 x 38.0 | 32 / 32/2 | 29/2 | 32 - 50 S | 50 |

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# SILVYN® SSV-M / SILVYN® SSVZ-M

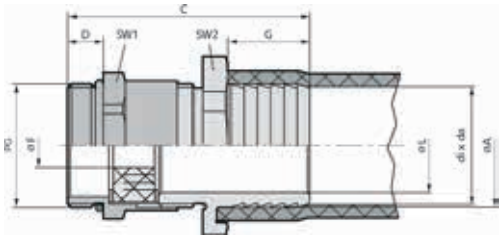


SILVYN® SSV-M






SILVYN® SSVZ-M




## Benefits

**SILVYN® SSV-M**
- Conduit gland with high tensile strength for plastic conduits

**SILVYN® SSVZ-M**
- Conduit gland with high tensile strength for plastic conduits
- High-tensile cable protection

## Application range

- In combination with protective conduit:
- SILVYN® SI
- SILVYN® SP
- SILVYN® SP-PU

## Product features

**SILVYN® SSV-M**
- High-tensile
- Robust
- Compact design

**SILVYN® SSVZ-M**
- High-tensile
- Robust
- Compact design
- Cable strain relief
- Cable sealing

## Product Make-up

**SILVYN® SSV-M**
- Metric connection thread
- Conduit entry with special grip profile

**SILVYN® SSVZ-M**
- Metric connection thread
- Integrated cable gland
- Conduit entry with special grip profile

## Note

- Necessary conduit clamp SILVYN® SCH
- PG threaded versions are to be found in the online catalogue

## Suitable conduits

- SILVYN® SI
- SILVYN® SP
- SILVYN® SP-PU

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
**SILVYN® SSV-M**
Body: nickel-plated brass
O-ring: NBR
**SILVYN® SSVZ-M**
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

**Temperature range**
-20°C to +80°C

| Article number | Metric size | Clamping range in mm | SW wrench size mm | SW 1/2 mm | Overall length mm | Thread length mm | Clear opening (mm) | Suitable for SILVYN® SCH | Suitable for SILVYN® SI | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **SILVYN® SSV-M** | | | | | | | | | | |
| 52002827 | 12 x 1.5/1 | | 16 | | 25 | 8 | 7 | 10 - 16 S | 7 x 9 | 50 |
| 52002828 | 12 x 1.5/2 | | 19 | | 25 | 8 | 9 | 10 - 16 S | 9 x 12 | 50 |
| 52002840 | 16 x 1.5/1 | | 19 | | 25 | 8 | 8 | 10 - 16 S | 11 x 14 | 50 |
| 52002839 | 16 x 1.5/2 | | 19 | | 25 | 8 | 10 | 12 - 20 S | 13 x 16 | 50 |
| 52002841 | 20 x 1.5/1 | | 22 | | 25 | 8 | 12 | 16 - 25 S | 14 x 18 | 50 |
| 52002842 | 20 x 1.5/3 | | 25 | | 25 | 8 | 15.5 | 20 - 32 S | 18 x 22 | 50 |
| 52002843 | 25x1.5 | | 32 | | 29.5 | 8.5 | 19 | 20 - 32 S | 23 x 28 | 25 |
| 52002844 | 32 x 1.5 | | 40 | | 32.5 | 9.5 | 27 | 25 - 40 S | 32 x 38 | 25 |
| 52002845 | 40x1.5 | | 50 | | 36 | 11 | 34 | 35 - 50 S | | 10 |
| 52002846 | 50 x 1.5 | | 57 | | 39 | 12 | 41 | 40 - 60 S | | 5 |
| 52002847 | 63 x 1.5 | | 67 | | 43 | 12 | 46 | 40 - 60 S | | 5 |
| **SILVYN® SSVZ-M** | | | | | | | | | | |
| 55501850 | 16 x 1.5/1 | 5.0 - 8.0 | | 19 / 18 | 39 | 5 | 8 | 10 - 16 S | | 50 |
| 55501860 | 16 x 1.5/2 | 5.0 - 8.0 | | 19 / 18 | 39 | 5 | 10 | 12 - 20 S | | 50 |
| 55501870 | 20 x 1.5/1 | 7.0 - 12.5 | | 22 / 22 | 39.6 | 6 | 12 | 16 - 25 S | 14 x 18 | 50 |
| 55501880 | 20 x 1.5/2 | 7.0 - 12.5 | | 22 / 22 | 39.6 | 6 | 12.5 | 16 - 25 S | | 50 |
| 55501890 | 20 x 1.5/3 | 7.0 - 16.0 | | 25 / 22 | 43 | 6 | 15.5 | 20 - 32 S | 18 x 22 | 50 |
| 55501900 | 20 x 1.5/4 | 8.0 - 16.0 | | 30 / 24 | 44 | 6 | 16 | 20 - 32 S | | 25 |
| 55501910 | 25 x 1.5 | 11.0 - 20.0 | | 32 / 30 | 48 | 7 | 20 | 20 - 32 S | 23 x 28 | 25 |
| 55501920 | 32 x 1.5/1 | 18.0 - 31.0 | | 40 / 40 | 53.6 | 8 | 27 | 25 - 40 S | | 25 |
| 55501930 | 32 x 1.5/2 | 18.0 - 31.0 | | 42 / 40 | 53.6 | 8 | 30 | 35 - 50 S | 32 x 38 | 25 |
| 55501940 | 40 x 1.5 | 24.0 - 35.0 | | 52 / 50 | 61.6 | 8 | 34 | 35 - 50 S | | 10 |
| 55501950 | 50 x 1.5 | 30.0 - 42.5 | | 57 / 57 | 68.6 | 9 | 41 | 40 - 60 S | | 5 |

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# SILVYN® SCH



## Benefits

- Ensures the tensile strength
- Clamps various conduit sizes with one clamp

## Application range

- In combination with:
- SILVYN® SSV-M/SSVZ-M
- SILVYN® SSV/SSV-Z

## Product features

- Variable clamping range

## Product Make-up

- Galvanized steel ring
- Worm gear drive

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

**Material**
Steel, galvanized

| Article number | Article designation | Clamping range in mm | Suitable for SILVYN® SI | Suitable for SILVYN® SP/SP-PU | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® SCH** | | | | | |
| 52003130 | 10 - 16 S | 10.0 - 16.0 | 7 x 9 / 9 x 12 / 11 x 14 | 10 x 14 | 100 |
| 52003140 | 12 - 20 S | 12.0 - 20.0 | 13 x 16 / 14 x 18 | 12 x 16 | 100 |
| 52003160 | 16 - 25 S | 16.0 - 25.0 | 18 x 22 | 16 x 20 | 100 |
| 52003170 | 20 - 32 S | 20.0 - 32.0 | 23 x 28 | 22 x 27 | 100 |
| 52009050 | 25 - 40 S | 25.0 - 40.0 | 23 x 28 / 32 x 38 | 30 x 36 | 100 |
| 52009061 | 35 - 50 S | 35.0 - 50.0 | 32 x 38 | 38 x 44 | 50 |
| 52009040 | 40 - 60 S | 40.0 - 60.0 | | 45 x 51 / 50 x 56 | 25 |

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# SILVYN® EL





## Benefits

- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

## Application range

- Mechanical engineering
- Vehicle construction
- Vending machine construction
- Exporters

## Product features

- Flexible
- Smooth inner wall
- Dimensionally stable

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Integrated hard PVC spiral
- Soft PVC outer sheath

## Note

- Smooth version is not UL recognized

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +70°C
-5°C to +70°C (smooth version)

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MPC-M/MPC 90°M | Suitable for SILVYN® MPC | Suitable for SILVYN® MPC 90° | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® EL** | | | | | | | |
| 61747360 | 12 | 10.0 x 14.5 | 25 | 16/1 | 9 | 9 | 30 |
| 61747370 | 16 | 12.0 x 16.5 | 25 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61747380 | 20 | 16.0 x 21.0 | 35 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61747390 | 25 | 22.0 x 27.5 | 45 | 25 x 1,5 | 21 | 21 | 30 |
| 61747400 | 30 | 25.0 x 30.5 | 55 | 32/1 | 29/1 | 29/1 | 30 |
| 61747410 | 32 | 28.0 x 33.5 | 60 | 32/2 | 29/2 | 29/2 | 30 |
| 61747420 | 40 | 35.0 x 41.0 | 80 | 40 x 1,5 | 36 | 36 | 30 |
| 61747430 | 50 | 40.0 x 46.4 | 105 | 50 x 1,5 | 42 | | 30 |
| 61747440 | 63 | 50.0 x 57.0 | 120 | 63 x 1,5 | 48 | | 30 |
| **SILVYN® EL smooth** | | | | | | | |
| 61747361 | 12 | 10.0 x 14.2 | 50 | | | | 30 |
| 61747371 | 16 | 12.0 x 17.8 | 50 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61747381 | 20 | 16.0 x 21.1 | 70 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61747391 | 25 | 21.0 x 26.4 | 90 | 25x1,5 | 21 | 21 | 30 |
| 61747411 | 32 | 26.5 x 33.1 | 140 | 32/2 | 29/2 | 29/2 | 30 |
| 61747421 | 40 | 35.4 x 41.8 | 190 | 40 x 1,5 | 36 | 36 | 30 |
| 61747431 | 50 | 40.0 x 47.9 | 240 | 50 x 1,5 | 42 | | 30 |
| 61747441 | 63 | 51.3 x 59.7 | 270 | 63 x 1,5 | 48 | | 30 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® ELU





## Benefits

- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

## Application range

- Mechanical engineering
- Vehicle construction
- Vending machine construction
- Exporters

## Product features

- Flexible
- Smooth inner wall
- Dimensionally stable

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Integrated hard PVC spiral
- Modified soft PVC sheath

## Note

- Smooth version is not UL recognized

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +70°C
-5°C to +70°C (smooth version)

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MPC-M/MPC 90°M | Suitable for SILVYN® MPC | Suitable for SILVYN® MPC 90° | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® ELU** | | | | | | | |
| 61751790 | 12 | 10.0 x 14.5 | 25 | 16/1 | 9 | 9 | 30 |
| 61751791 | 16 | 12.0 x 16.5 | 25 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751792 | 20 | 16.0 x 21.0 | 35 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751793 | 25 | 22.0 x 27.5 | 45 | 25x1,5 | 21 | 21 | 30 |
| 61751794 | 30 | 25.0 x 30.5 | 55 | 32/1 | 29/1 | 29/1 | 30 |
| 61751795 | 32 | 28.0 x 33.5 | 60 | 32/2 | 29/2 | 29/2 | 30 |
| 61751796 | 40 | 35.0 x 41.0 | 80 | 40 x 1,5 | 36 | 36 | 30 |
| 61751797 | 50 | 40.0 x 46.4 | 105 | 50 x 1,5 | 42 | | 30 |
| 61751798 | 63 | 50.0 x 57.0 | 120 | 63 x 1,5 | 48 | | 30 |
| **SILVYN® ELU smooth** | | | | | | | |
| 61751590 | 12 | 10.0 x 14.2 | 50 | | | | 30 |
| 61751591 | 16 | 12.0 x 17.8 | 50 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751592 | 20 | 16.0 x 21.1 | 70 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751593 | 25 | 21.0 x 26.4 | 90 | 25x1,5 | 21 | 21 | 30 |
| 61751595 | 32 | 26.5 x 33.1 | 140 | 32/2 | 29/2 | 29/2 | 30 |
| 61751596 | 40 | 35.4 x 41.8 | 190 | 40 x 1,5 | 36 | 36 | 30 |
| 61751597 | 50 | 40.0 x 47.9 | 240 | 50 x 1,5 | 42 | | 30 |
| 61751598 | 63 | 51.3 x 59.7 | 270 | 63 x 1,5 | 48 | | 30 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® ELÖ



## Benefits

- Resistant to grease, cooling agents and oils, especially ASTM2 testing oil
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

## Application range

- Mechanical engineering
- Machine tools
- Vending machine construction
- Applications with strong chemical influences

## Product features

- Oil-resistant
- Flexible
- Smooth inner wall
- Dimensionally stable

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Integrated hard PVC spiral
- Modified soft PVC sheath

## Note

- Smooth version is not UL recognized

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Green (RAL 6001)

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +70°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MPC-M/MPC 90°M | Suitable for SILVYN® MPC | Suitable for SILVYN® MPC 90° | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® ELÖ** | | | | | | | |
| 61751610 | 12 | 10.0 x 14.5 | 25 | 16/1 | 9 | 9 | 30 |
| 61751620 | 16 | 12.0 x 16.5 | 25 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751630 | 20 | 16.0 x 21.0 | 35 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751640 | 25 | 22.0 x 27.5 | 45 | 25 x 1,5 | 21 | 21 | 30 |
| 61751650 | 30 | 25.0 x 30.5 | 55 | 32/1 | 21 | 21 | 30 |
| 61751660 | 32 | 28.0 x 33.5 | 60 | 32/2 | 29/2 | 29/2 | 30 |
| 61751670 | 40 | 35.0 x 41.0 | 80 | 40 x 1,5 | 36 | 36 | 30 |
| 61751680 | 50 | 40.0 x 46.4 | 105 | 50 x 1,5 | 42 | | 30 |
| 61751690 | 63 | 50.0 x 57.0 | 120 | 63 x 1,5 | 48 | | 30 |
| **SILVYN® ELO smooth** | | | | | | | |
| 61751611 | 12 | 10.0 x 14.2 | 50 | | | | 30 |
| 61751621 | 16 | 12.0 x 17.8 | 50 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751631 | 20 | 16.0 x 21.1 | 70 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751641 | 25 | 21.0 x 26.4 | 90 | 25x1,5 | 21 | 21 | 30 |
| 61751661 | 32 | 26.5 x 33.1 | 140 | 32/2 | 29/2 | 29/2 | 30 |
| 61751671 | 40 | 35.4 x 41.8 | 190 | 40 x 1,5 | 36 | 36 | 30 |
| 61751681 | 50 | 40.0 x 47.9 | 240 | 50 x 1,5 | 42 | | 30 |
| 61751691 | 63 | 51.3 x 59.7 | 270 | 63 x 1,5 | 48 | | 30 |

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# SILVYN® ELT





## Benefits

- High temperature resistance
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

## Application range

- Mechanical engineering
- Machine tools
- Vending machine construction
- Applications with higher temperatures

## Product features

- High temperature resistance
- Smooth inner wall
- Flexible
- Dimensionally stable

## Norm references / Approvals

- UL FILENUMBER E308201
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

## Product Make-up

- Integrated hard PVC spiral
- Modified soft PVC sheath

## Note

- Smooth version is not UL recognized

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Blue (RAL 5012)

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +90°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MPC-M/MPC 90°M | Suitable for SILVYN® MPC | Suitable for SILVYN® MPC 90° | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® ELT** | | | | | | | |
| 61751700 | 12 | 10.0 x 14.5 | 25 | 16/1 | 9 | 9 | 30 |
| 61751710 | 16 | 12.0 x 16.5 | 25 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751720 | 20 | 16.0 x 21.0 | 35 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751730 | 25 | 22.0 x 27.5 | 45 | 25 x 1,5 | 21 | 21 | 30 |
| 61751740 | 30 | 25.0 x 30.5 | 55 | 32/1 | 29/1 | 29/1 | 30 |
| 61751750 | 32 | 28.0 x 33.5 | 60 | 32/2 | 29/2 | 29/2 | 30 |
| 61751760 | 40 | 35.0 x 41.0 | 80 | 40 x 1,5 | 36 | 36 | 30 |
| 61751770 | 50 | 40.0 x 46.4 | 105 | 50 x 1,5 | 42 | | 30 |
| 61751780 | 63 | 50.0 x 57.0 | 120 | 63 x 1,5 | 48 | | 30 |
| **SILVYN® ELT smooth** | | | | | | | |
| 61751701 | 12 | 10.0 x 14.2 | 50 | | | | 30 |
| 61751711 | 16 | 12.0 x 17.8 | 50 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751721 | 20 | 16.0 x 21.1 | 70 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751731 | 25 | 21.0 x 26.4 | 90 | 25x1,5 | 21 | 21 | 30 |
| 61751751 | 32 | 26.5 x 33.1 | 140 | 32/2 | 29/2 | 29/2 | 30 |
| 61751761 | 40 | 35.4 x 41.8 | 190 | 40 x 1,5 | 36 | 36 | 30 |
| 61751771 | 50 | 40.0 x 47.9 | 240 | 50 x 1,5 | 42 | | 30 |
| 61751781 | 63 | 51.3 x 59.7 | 270 | 63 x 1,5 | 48 | | 30 |

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# SILVYN® ELR



## Benefits

- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

## Application range

- Mechanical engineering
- Vehicle construction
- Vending machine construction

## Product features

- Flexible
- Smooth inner wall
- Dimensionally stable

## Product Make-up

- Integrated hard PVC spiral
- Modified soft PVC sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Orange (RAL 2008)

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +70°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MPC-M/MPC 90°M | Suitable for SILVYN® MPC | Suitable for SILVYN® MPC 90° | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® ELR smooth** | | | | | | | |
| 61751600 | 12 | 10.0 x 14.2 | 50 | | | | 30 |
| 61751601 | 16 | 12.0 x 17.8 | 50 | 16/2 , 20/1 | 11 , 13,5/1 | 11 , 13,5/1 | 30 |
| 61751602 | 20 | 16.0 x 21.1 | 70 | 20/2 | 13,5/2 , 16 | 13,5/2 , 16 | 30 |
| 61751603 | 25 | 21.0 x 26.4 | 90 | 25x1,5 | 21 | 21 | 30 |
| 61751604 | 32 | 26.5 x 33.1 | 140 | 32/2 | 29/2 | 29/2 | 30 |
| 61751605 | 40 | 35.4 x 41.8 | 190 | 40 x 1,5 | 36 | 36 | 30 |
| 61751606 | 50 | 40.0 x 47.9 | 240 | 50 x 1,5 | 42 | | 30 |
| 61751607 | 63 | 51.3 x 59.7 | 270 | 63 x 1,5 | 48 | | 30 |

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# SILVYN® MPC-M / SILVYN® MPC 90° M



SILVYN® MPC-M



SILVYN® MPC 90° M

## Benefits

**SILVYN® MPC-M**
- All-purpose
- Fast and easy assembly

**SILVYN® MPC 90° M**
- All-purpose
- Fast and easy assembly
- 90° elbow allows easy installation

## Application range
- In combination with protective conduit:
- SILVYN® EL/ELU/ELO/ELT/ELR (helically formed and smooth conduits)

## Product features
- Dust protection
- Moisture-protection
- Ensures high tensile strength and mechanical protection

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up

**SILVYN® MPC-M**
- Metric connection thread
- Hexagonal collar with integrated conduit connection

**SILVYN® MPC 90° M**
- Metric connection thread
- 90° elbow with integrated conduit connection

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® EL
- SILVYN® ELU
- SILVYN® ELÖ
- SILVYN® ELT
- SILVYN® ELR

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant
Grey, RAL 7001

**Material**
PA66
Halogen-free

**Protection rating**
IP 65 with helically formed conduits
IP 67 + IP 68 (2bar) with smooth conduits

**Temperature range**
-40°C to +120°C

| Article number | Metric size | Clear opening (mm) | Suitable for SILVYN® EL/ELU/ELO/ELT/ELR | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® MPC-M black** | | | | |
| 55502460 | 16 x 1.5/1 | 9 | 12 | 10 |
| 55502461 | 16 x 1.5/2 | 10.5 | 16 | 10 |
| 55502462 | 20 x 1.5/1 | 10.5 | 16 | 10 |
| 55502463 | 20 x 1.5/2 | 14.5 | 20 | 10 |
| 55502464 | 25 x 1.5 | 19 | 25 | 10 |
| 55502465 | 32 x 1.5/1 | 24.5 | 30 | 10 |
| 55502469 | 32 x 1.5/2 | 24.5 | 32 | 10 |
| 55502466 | 40 x 1.5 | 33 | 40 | 2 |
| 55502467 | 50 x 1.5 | 39 | 50 | 2 |
| 55502468 | 63 x 1.5 | 48 | 63 | 1 |
| **SILVYN® MPC-M grey** | | | | |
| 55502441 | 16 x 1.5/1 | 9 | 12 | 10 |
| 55502442 | 16 x 1.5/2 | 10.5 | 16 | 10 |
| 55502443 | 20 x 1.5/1 | 10.5 | 16 | 10 |
| 55502444 | 20 x 1.5/2 | 14.5 | 20 | 10 |
| 55502445 | 25 x 1.5 | 19 | 25 | 10 |
| 55502446 | 32 x 1.5/1 | 24.5 | 30 | 10 |
| 55502447 | 32 x 1.5/2 | 24.5 | 32 | 10 |
| 55502448 | 40 x 1.5 | 33 | 40 | 2 |
| 55502449 | 50 x 1.5 | 39 | 50 | 2 |
| 55502439 | 63 x 1.5 | 48 | 63 | 1 |
| **SILVYN® MPC 90° M black** | | | | |
| 55502480 | 16 x 1.5 | 10.5 | 16 | 10 |
| 55502481 | 20 x 1.5/1 | 10.5 | 16 | 10 |
| 55502482 | 20 x 1.5/2 | 14.5 | 20 | 10 |
| 55502483 | 25 x 1.5 | 19 | 25 | 10 |
| 55502484 | 32 x 1.5 | 24.5 | 32 | 10 |
| 55502485 | 40 x 1.5 | 33 | 40 | 2 |
| **SILVYN® MPC 90° M grey** | | | | |
| 55502458 | 16 x 1.5 | 10.5 | 16 | 10 |
| 55502459 | 20 x 1.5/1 | 10.5 | 16 | 10 |
| 55502366 | 20 x 1.5/2 | 14.5 | 20 | 10 |
| 55502367 | 25 x 1.5 | 19 | 25 | 10 |
| 55502368 | 32 x 1.5 | 24.5 | 32 | 10 |
| 55502369 | 40 x 1.5 | 33 | 40 | 2 |

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# SILVYN® FPS






## Benefits

- Dimensionally stable
- Crushable and extendable
- Highly oil and acid-resistant
- Liquidtight
- Corrosion-resistant

## Application range

- Mechanical engineering
- In cable chain (SILVYN® CHAIN)
- Robot-building
- Moving applications
- Indoor applications

## Product features

- Cadmium-free
- Silicone-free

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- PVC-insulated steel spring wire
- Soft PVC outer sheath

## Note

- PU = 50 m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey

**Material**
Soft PVC with insulated spring steel wire

**Temperature range**
-25°C to +80°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® USK-M/US-M | Suitable for SILVYN® LKI-M/MSK-M | Suitable for SILVYN® USK/US/LKI/EE-K | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® FPS** | | | | | | | |
| 61711550 | 10 | 7.0 x 10.0 | 8 | 10 x 1,0 | 12 x 1,5 | 7 | 25 |
| 61711590 | 14 | 10.0 x 14.0 | 10 | 12 x 1,5 | 16 x 1,5 | 9 | 25 |
| 61711630 | 17 | 12.7 x 17.0 | 13 | 16 x 1,5 | 20 x 1,5 | 11 | 25 |
| 61711670 | 19 | 14.7 x 19.0 | 15 | | | 13,5 | 25 |
| 61711710 | 21 | 16.0 x 21.0 | 17 | 20 x 1,5 | 25 x 1,5 | 16 | 25 |
| 61711750 | 27 | 21.6 x 27.0 | 20 | 25 x 1,5 | 32 x 1,5 | 21 | 25 |
| 61711790 | 36 | 29.0 x 36.0 | 25 | 32 x 1,5 | 40 x 1,5 | 29 | 25 |
| 61711830 | 45 | 38.0 x 45.0 | 36 | 40 x 1,5 | 50 x 1,5 | 36 | 25 |
| 61711910 | 56 | 48.0 x 56.0 | 40 | 50 x 1,5 | 63 x 1,5 | 48 | 25 |
| **SILVYN® FPS 10M** | | | | | | | |
| 61721690 | 10 | 7.0 x 10.0 | 8 | 10 x 1,0 | 12 x 1,5 | 7 | 10 |
| 61721700 | 14 | 10.0 x 14.0 | 10 | 12 x 1,5 | 16 x 1,5 | 9 | 10 |
| 61721710 | 17 | 12.7 x 17.0 | 13 | 16 x 1,5 | 20 x 1,5 | 11 | 10 |
| 61721720 | 19 | 14.7 x 19.0 | 15 | | | 13,5 | 10 |
| 61721730 | 21 | 16.0 x 21.0 | 17 | 20 x 1,5 | 25 x 1,5 | 16 | 10 |
| 61721740 | 27 | 21.6 x 27.0 | 20 | 25 x 1,5 | 32 x 1,5 | 21 | 10 |
| 61721750 | 36 | 29.0 x 36.0 | 25 | 32 x 1,5 | 40 x 1,5 | 29 | 10 |
| 61721760 | 45 | 38.0 x 45.0 | 36 | 40 x 1,5 | 50 x 1,5 | 36 | 10 |
| 61721780 | 56 | 48.0 x 56.0 | 40 | 50 x 1,5 | 63 x 1,5 | 48 | 10 |

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# SILVYN® FPS-EDU



**Info**

- High flexible and mechanical protection at the same time

## Benefits

- Protects against hot chips
- High-tensile
- Highly flexible
- Air-tight and impermeable
- Mechanical resistance

## Application range

- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where cables and wires could be damaged by welding sparks and hot chips
- Robotics industry

## Product Make-up

- PVC-insulated steel spring wire
- Soft PVC outer sheath
- Galvanised steel wire braiding

## Note

- PU = 10m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose

**Material**
insulated spring steel wire with Soft PVC and galvanized steel braid

**Temperature range**
-25°C to +90°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MSK-M | Suitable for SILVYN® US-M | Suitable for SILVYN® US | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® FPS-EDU** | | | | | | | |
| 61802330 | 14 | 9.0 x 14.0 | 16 | 16 x 1,5 | 16 x 1,5 | 9 | 50 |
| 61802331 | 17 | 12.0 x 17.0 | 19 | 20 x 1,5 | 20 x 1,5 | 11 | 50 |
| 61802332 | 19 | 14.0 x 19.0 | 22 | | | 13,5 | 50 |
| 61802333 | 21 | 15.0 x 21.0 | 24 | 25 x 1,5 | 20 x 1,5 | 16 | 50 |
| 61802334 | 27 | 20.0 x 27.0 | 30 | 32 x 1,5 | 25 x 1,5 | 21 | 50 |
| 61802335 | 36 | 28.0 x 36.0 | 40 | 40 x 1,5 | 32 x 1,5 | 29 | 25 |
| 61802336 | 45 | 37.0 x 45.0 | 48 | 50 x 1,5 | 40 x 1,5 | 36 | 25 |
| 61802337 | 56 | 48.0 x 56.0 | 60 | 63 x 1,5 | 50 x 1,5 | 48 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® FD-PU






## Benefits

- Dimensionally stable
- Highly flexible at cold temperatures
- Crushable and extendable
- High resistance to oil, petrol, acids and greases
- Liquidtight

## Application range

- For indoor and outdoor use
- Mechanical engineering
- In cable chain (SILVYN® CHAIN)
- Robot-building
- Moving applications

## Product features

- Halogen and cadmium-free
- Abrasion and microbe-resistant
- Fire behaviour of outer sheath according to UL 94V-2

## Product Make-up

- PVC-insulated steel spring wire
- PUR outer sheath

## Note

- PU = 50 m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Metallic blue

**Material**
PUR with PVC-insulated spring steel wire
Fire behaviour according to UL94 V-2

**Temperature range**
-40°C to +80°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® USK-M/US-M | Suitable for SILVYN® LKI-M/MSK-M | Suitable for SILVYN® USK/US/LKI/EE-K | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® FD-PU** | | | | | | | |
| 64453660 | 10 | 7.0 x 10.0 | 8 | 10 x 1,0 | 12 x 1,5 | 7 | 10 |
| 64453670 | 14 | 10.0 x 14.0 | 10 | 12 x 1,5 | 16 x 1,5 | 9 | 10 |
| 64453680 | 17 | 12.7 x 17.0 | 13 | 16 x 1,5 | 20 x 1,5 | 11 | 10 |
| 64453690 | 19 | 14.7 x 19.0 | 15 | | | 13,5 | 10 |
| 64453700 | 21 | 16.0 x 21.0 | 17 | 20 x 1,5 | 25 x 1,5 | 16 | 10 |
| 64453710 | 27 | 21.6 x 27.0 | 20 | 25 x 1,5 | 32 x 1,5 | 21 | 10 |
| 64453720 | 36 | 29.0 x 36.0 | 25 | 32 x 1,5 | 40 x 1,5 | 29 | 10 |
| 64453730 | 45 | 38.0 x 45.0 | 36 | 40 x 1,5 | 50 x 1,5 | 36 | 10 |
| 64453750 | 56 | 48.0 x 56.0 | 40 | 50 x 1,5 | 63 x 1,5 | 48 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® MSK-M EE



**Info**

- Integrated SKINTOP® cable strain relief

## Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

## Application range

- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- For indoor and outdoor use
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

## Product features

- Combination of SILVYN® and SKINTOP®

## Product Make-up

- SKINTOP® MS-M cable gland or
- SKINTOP® MS-SC-M EMC connection
- SILVYN® conduit connection via inner sleeve and cap nut

## Suitable conduits

- SILVYN® FPS
- SILVYN® FD-PU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

**Protection rating**
Cable: IP 68
Conduit:
IP 54 with SILVYN® FPS, FD-PU

**Temperature range**
-30 °C to +100 °C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for SILVYN® FPS/FD-PU | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M for SILVYN® FPS/FD-PU** | | | | | |
| 55506070 | 12 x 1.5 | 3.0 - 7.0 | 6 | 7 x 10 | 5 |
| 55506071 | 16 x 1.5 | 4.5 - 10.0 | 9.3 | 10 x 14 | 5 |
| 55506072 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 13 x 17 | 5 |
| 55506073 | 25 x 1.5 | 9.0 - 17.0 | 13.4 | 16 x 21 | 5 |
| 55506074 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 22 x 27 | 5 |
| 55506075 | 40 x 1.5 | 19.0 - 28.0 | 27 | 29 x 36 | 1 |
| 55506076 | 50 x 1.5 | 27.0 - 35.0 | 36.4 | 38 x 45 | 1 |
| 55506077 | 63 x 1.5 | 34.0 - 45.0 | 46 | 48 x 56 | 1 |
| **SILVYN® MSK-SC-M for SILVYN® FPS/FD-PU** | | | | | |
| 55506101 | 16 x 1.5 | 4.5 - 10.0 | 9.3 | 10 x 14 | 5 |
| 55506102 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 13 x 17 | 5 |
| 55506103 | 25 x 1.5 | 9.0 - 17.0 | 13.4 | 16 x 21 | 5 |
| 55506104 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 22 x 27 | 5 |
| 55506105 | 40 x 1.5 | 19.0 - 28.0 | 27 | 29 x 36 | 1 |
| 55506106 | 50 x 1.5 | 27.0 - 35.0 | 36.4 | 38 x 45 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® MSK-M FPS-EDU



**Info**

- Integrated SKINTOP® cable strain relief

## Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

## Application range

- In combination with protective conduit:
- SILVYN® FPS-EDU
- Plant engineering
- Mechanical engineering
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

## Product features

- Combination of SILVYN® and SKINTOP®

## Product Make-up

- SILVYN® conduit connection via inner sleeve and cap nut

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

**Protection rating**
Cable: IP 68
Conduit: IP 54 with SILVYN® FPS-EDU

**Temperature range**
-30 °C to +100 °C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for SILVYN® FPS-EDU | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M FPS-EDU** | | | | | |
| 55506146 | 16 x 1.5 | 4.5 - 10.0 | 8.5 | 14 | 5 |
| 55506147 | 20 x 1.5 | 7.0 - 13.0 | 11 | 17 | 5 |
| 55506148 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506149 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506150 | 40 x 1.5 | 19.0 - 28.0 | 27.5 | 36 | 1 |
| 55506151 | 50 x 1.5 | 27.0 - 35.0 | 35.5 | 45 | 1 |
| 55506152 | 63 x 1.5 | 34.0 - 45.0 | 47 | 56 | 1 |

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# SILVYN® US-M EE / SILVYN® US EE



## Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

## Application range
- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- Mechanical engineering
- Plant engineering

## Product features
- Compact design

## Product Make-up
**SILVYN® US-M EE**
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

**SILVYN® US EE**
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

## Suitable conduits
- SILVYN® FPS
- SILVYN® FD-PU

## Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Body: nickel-plated brass
Sealing ring: TPE

**Protection rating**
IP 54 (with SILVYN® FPS, FD-PU)

**Temperature range**
-40 °C to +125 °C

| Article number | Metric size | PG size | Clear opening (mm) | Suitable for SILVYN® FPS/FD-PU | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® US-M for SILVYN® FPS / FD-PU** | | | | | |
| 55502601 | 10 x 1.0 | | 6 | 10 | 50 |
| 55502602 | 12 x 1.5 | | 9 | 14 | 50 |
| 55502603 | 16 x 1.5 | | 11.5 | 17 | 50 |
| 55502604 | 20 x 1.5 | | 14.5 | 21 | 50 |
| 55502605 | 25 x 1.5 | | 19.5 | 27 | 25 |
| 55502606 | 32 x 1.5 | | 26.5 | 36 | 25 |
| 55502607 | 40 x 1.5 | | 35 | 45 | 20 |
| 55502608 | 50 x 1.5 | | 45.5 | 56 | 10 |
| 55502609 | 63 x 1.5 | | 45.5 | 56 | 10 |
| **SILVYN® US for SILVYN® FPS / FD-PU** | | | | | |
| 55502651 | | 7 | 6 | 10 | 50 |
| 55502652 | | 9 | 9 | 14 | 50 |
| 55502653 | | 11 | 11.5 | 17 | 50 |
| 55502654 | | 13.5 | 13 | 19 | 50 |
| 55502655 | | 16 | 14.5 | 21 | 50 |
| 55502656 | | 21 | 19.5 | 27 | 25 |
| 55502657 | | 29 | 26.5 | 36 | 25 |
| 55502658 | | 36 | 36 | 45 | 20 |
| 55502659 | | 48 | 45.5 | 56 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® US-M FPS-EDU / SILVYN® US FPS-EDU



## Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

## Application range
- In combination with protective conduit:
- SILVYN® FPS-EDU
- Mechanical engineering
- Plant engineering

## Product features
- Compact design

## Product Make-up
**SILVYN® US-M FPS-EDU**
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

**SILVYN® US FPS-EDU**
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

## Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Body: nickel-plated brass
Sealing ring: TPE

**Protection rating**
IP 54 (with SILVYN® FPS-EDU)

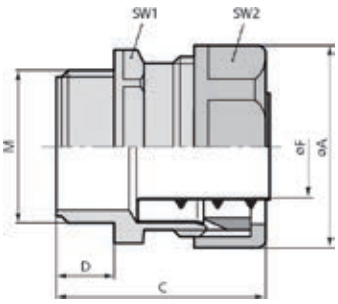
**Temperature range**
-40 °C to +125 °C

| Article number | Metric size | PG size | Clear opening (mm) | Suitable for SILVYN® FPS-EDU | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® US-M for SILVYN® FPS-EDU** | | | | | |
| 55502642 | 12 x 1.5 | | 8.5 | 14 | 50 |
| 55502643 | 16 x 1.5 | | 11 | 17 | 50 |
| 55502644 | 20 x 1.5 | | 14.5 | 21 | 50 |
| 55502645 | 25 x 1.5 | | 19.5 | 27 | 25 |
| 55502646 | 32 x 1.5 | | 27.5 | 36 | 25 |
| 55502647 | 40 x 1.5 | | 35 | 45 | 20 |
| 55502648 | 50 x 1.5 | | 45 | 56 | 10 |
| 55502649 | 63 x 1.5 | | 45 | 56 | 10 |
| **SILVYN® US for SILVYN® FPS-EDU** | | | | | |
| 55502689 | | 9 | 8.5 | 14 | 50 |
| 55502690 | | 11 | 11 | 17 | 50 |
| 55502691 | | 13.5 | 13 | 19 | 50 |
| 55502692 | | 16 | 14.5 | 21 | 50 |
| 55502693 | | 21 | 19.5 | 27 | 25 |
| 55502694 | | 29 | 27.5 | 36 | 25 |
| 55502696 | | 36 | 35.5 | 45 | 20 |
| 55502697 | | 48 | 47 | 56 | 10 |

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Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.

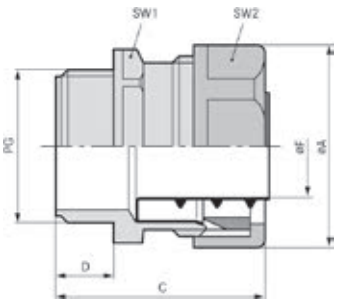
# SILVYN® USK-M / SILVYN® USK






SILVYN® USK-M






SILVYN® USK

## Benefits
- Fast and easy assembly
- Vibration protection
- No extra parts necessary

## Application range
- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- SILVYN® SP/SP-PU
- Indoor applications
- Light mechanical stress

## Product features
- Large wrench sizes

## Product Make-up
**SILVYN® USK-M**
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® USK**
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

## Note
- Included: SILVYN® EE-K inner sleeve

## Suitable conduits
- SILVYN® FPS
- SILVYN® FD-PU
- SILVYN® SP
- SILVYN® SP-PU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

**Colour delivered**
Silver grey (RAL 7001)

**Material**
PP

**Protection rating**
IP 54

**Temperature range**
-10°C to +110°C

| Article number | Metric size | PG size | SW 1/2 mm | Overall length mm | Thread length mm | Clear opening (mm) | Suitable for SILVYN® FD-PU/FPS | Suitable for SILVYN® SP | Suitable for SILVYN® SP-PU | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **SILVYN® USK-M** | | | | | | | | | | |
| 55501300 | 10 x 1.0 | | 16 / 18 | 40 | 10 | 6 | 7 x 10 | | | 50 |
| 55501310 | 12 x 1.5 | | 21 / 23 | 43 | 12 | 8 | 10 x 14 | 10 x 14 | 10 x 14 | 50 |
| 55501320 | 16 x 1.5 | | 24 / 27 | 43 | 12 | 11 | 13 x 17 | 12 x 16 | 12 x 16 | 50 |
| 55501330 | 20 x 1.5 | | 29 / 32 | 44 | 13 | 15 | 16 x 21 | 16 x 20 | 16 x 20 | 50 |
| 55501340 | 25 x 1.5 | | 36 / 40 | 50 | 13 | 20 | 22 x 27 | 22 x 27 | 22 x 27 | 25 |
| 55501350 | 32 x 1.5 | | 45 / 49 | 51 | 15 | 27 | 29 x 36 | 30 x 36 | 30 x 36 | 25 |
| 55501360 | 40 x 1.5 | | 54 / 58 | 51 | 15 | 35 | 38 x 45 | 38 x 44 | 38 x 44 | 25 |
| 55501370 | 50 x 1.5 | | 66 / 70 | 58 | 16 | 44.5 | 48 x 56 | 49 x 56 | | 10 |
| **SILVYN® USK** | | | | | | | | | | |
| 52005810 | | 7 | 16 / 18 | 40 | 10 | 6 | 7 x 10 | | | 50 |
| 52005820 | | 9 | 21 / 23 | 41 | 10 | 9 | 10 x 14 | 10 x 14 | | 50 |
| 52005830 | | 11 | 24 / 27 | 41 | 10 | 11 | 13 x 17 | 12 x 16 | | 50 |
| 52005840 | | 13.5 | 26 / 29 | 41 | 10 | 13 | 15 x 19 | 14 x 18 | | 50 |
| 52005850 | | 16 | 29 / 32 | 42 | 11 | 14.5 | 16 x 21 | 16 x 20 | | 50 |
| 52005860 | | 21 | 36 / 40 | 48 | 11 | 19.5 | 22 x 27 | 22 x 27 | | 25 |
| 52005870 | | 29 | 45 / 49 | 48 | 12 | 27 | 29 x 36 | 30 x 36 | | 25 |
| 52005880 | | 36 | 53 / 58 | 48 | 12 | 36 | 38 x 45 | 38 x 44 | | 25 |
| 52005900 | | 48 | 65 / 70 | 57 | 15 | 46 | 48 x 56 | 49 x 56 | | 10 |

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# SILVYN® LKI-M / SILVYN® LKI

**Info**

- Swivelling upper part with integrated inner sleeve



## Benefits

- Fast and easy assembly
- Vibration protection
- High-tensile
- Can be rotated

## Application range

- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- Robot-building
- For rotating applications

## Product features

- Smooth inner surface
- Slim construction

## Product Make-up

**SILVYN® LKI-M**

- Metric connection thread
- Swivelling upper part with integrated inner sleeve

**SILVYN® LKI**

- PG connection thread
- Swivelling upper part with integrated inner sleeve

## Suitable conduits

- SILVYN® FPS
- SILVYN® FD-PU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

**Colour delivered**
Silver grey (RAL 7001)

**Material**
PP

**Protection rating**
IP 54

**Temperature range**
-10°C to +110°C

| Article number | Metric size | PG size | SW wrench size mm | Overall length mm | Thread length mm | Clear opening (mm) | Suitable for SILVYN® FPS/FD-PU | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SILVYN® LKI-M** | | | | | | | | |
| 55501400 | 12 x 1.5 | | 16 | 38 | 10 | 5.5 | 7 x 10 | 50 |
| 55501410 | 16 x 1.5 | | 19 | 39.5 | 10 | 9.5 | 10 x 14 | 50 |
| 55501420 | 20 x 1.5 | | 22 | 42 | 10 | 11.5 | 13 x 17 | 50 |
| 55501430 | 25 x 1.5 | | 27 | 48 | 11 | 14.5 | 16 x 21 | 50 |
| 55501440 | 32 x 1.5 | | 35 | 58 | 12 | 19.5 | 22 x 27 | 25 |
| 55501450 | 40 x 1.5 | | 45 | 59 | 12 | 27 | 29 x 36 | 25 |
| 55501460 | 50 x 1.5 | | 54 | 62.5 | 12 | 35.5 | 38 x 45 | 25 |
| 55501470 | 63 x 1.5 | | 65 | 68 | 15 | 46 | 48 x 56 | 10 |
| **SILVYN® LKI** | | | | | | | | |
| 55000000 | | 7 | 16 | 38 | 10 | 5.5 | 7 x 10 | 50 |
| 55000010 | | 9 | 19 | 39.5 | 10 | 9.5 | 10 x 14 | 50 |
| 55000020 | | 11 | 22 | 42 | 10 | 11.5 | 13 x 17 | 50 |
| 55000030 | | 13.5 | 24 | 42 | 10 | 13 | 15 x 19 | 50 |
| 55000040 | | 16 | 27 | 48 | 11 | 14.5 | 16 x 21 | 50 |
| 55000050 | | 21 | 35 | 58 | 11 | 19.5 | 22 x 27 | 25 |
| 55000060 | | 29 | 45 | 59 | 12 | 27 | 29 x 36 | 25 |
| 55000070 | | 36 | 54 | 62.5 | 12 | 35.5 | 38 x 45 | 25 |
| 55000090 | | 48 | 65 | 68 | 15 | 46 | 48 x 56 | 10 |

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# SILVYN® EE-K



## Benefits
- Cable damage can be prevented

## Application range
- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- Conduit end cover

## Product features
- All-round collar completely covers the protective conduit end

## Product Make-up
- Threaded sleeve

## Suitable conduits
- SILVYN® FPS
- SILVYN® FD-PU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

**Colour delivered**
Silver grey (RAL 7001)

**Material**
PP

**Temperature range**
-10°C to +110°C

| Article number | Nominal size | Suitable for SILVYN® FPS/FD-PU | Pieces / PU |
|---|---|---|---|
| **SILVYN® EE-K** | | | |
| 52023340 | 10 | 7 x 10 | 50 |
| 52023350 | 14 | 10 x 14 | 50 |
| 52023360 | 17 | 13 x 17 | 50 |
| 52023370 | 19 | 15 x 19 | 50 |
| 52023380 | 21 | 16 x 21 | 50 |
| 52023390 | 27 | 22 x 27 | 25 |
| 52023400 | 36 | 29 x 36 | 25 |
| 52023410 | 45 | 38 x 45 | 20 |
| 52023430 | 56 | 48 x 56 | 10 |

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# SILVYN® US-FPS-EDU-AS



## Benefits
- Cable damage can be prevented

## Application range
- In combination with protective conduit:
- SILVYN® FPS-EDU
- Conduit end cover

## Product features
- All-round collar completely covers the protective conduit end

## Product Make-up
- Threaded sleeve

## Suitable conduits
- SILVYN® FPS-EDU

## Technical data

**Material**
Brass

**Temperature range**
-40 °C to +250 °C

| Article number | Nominal size | Suitable conduit nominal size | Pieces / PU |
|---|---|---|---|
| **SILVYN® US-FPS-EDU-AS** | | | |
| 61802581 | 14 | 14 | 50 |
| 61802582 | 17 | 17 | 50 |
| 61802583 | 19 | 19 | 50 |
| 61802584 | 21 | 21 | 50 |
| 61802585 | 27 | 27 | 25 |
| 61802586 | 36 | 36 | 25 |
| 61802587 | 45 | 45 | 20 |
| 61802588 | 56 | 56 | 10 |

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# SILVYN® RILL PA 6



**Info**

- Maximum safety in the event of a fire

## Benefits

- Dimensionally stable
- Flexible
- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Crush-resistant
- Lightweight

## Application range

- Mechanical engineering
- Public utilities
- Railway applications / vehicle construction
- Moving applications
- Outdoor application (in black)

## Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Fine-profile corrugated polyamide 6 conduit

## Note

- UV and weather-resistant in black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

**Certifications**
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA 6
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0

**Temperature range**
-40°C to +115°C
short-term +150°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® KLICK-M/90°M | Suitable for SILVYN® KLICK PG/90°PG | Suitable for SILVYN® KLICK-GPZ-M/GPZ | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® RILL PA 6 grey** | | | | | | | |
| 61746939 | 10 | 6.5 x 10.0 | 13 | 10 x 1,0 | 7/- | 12 x 1,5/7 | 50 |
| 61746940 | 13 | 10.0 x 13.0 | 20 | 12 x 1,5/16 x 1,5 | 9 | 16x1,5/9 | 50 |
| 61746950 | 16 | 12.0 x 15.8 | 35 | 16 x 1,5/20 x 1,5 | 11 | 20x1,5/11 | 50 |
| 61747010 | 18 | 14.3 x 18.5 | 40 | | 13,5 | -/13,5 | 50 |
| 61746960 | 21 | 16.5 x 21.2 | 45 | 20 x 1,5 | 16 | 25x1,5/16 | 50 |
| 61746970 | 28 | 23.0 x 28.5 | 55 | 25 x 1,5 | 21 | 32x1,5/21 | 50 |
| 61746980 | 34 | 29.0 x 34.5 | 65 | 32 x 1,5 | 29 | 40x1,5/29 | 25 |
| 61746990 | 42 | 36.0 x 42.5 | 90 | 40 x 1,5 | 36 | 50x1,5/36 | 25 |
| 61747000 | 54 | 48.0 x 54.5 | 100 | 50 x 1,5 | 48 | 63x1,5/48 | 25 |
| **SILVYN® RILL PA 6 black** | | | | | | | |
| 61746935 | 10 | 6.5 x 10.0 | 13 | 10 x 1,0 | 7/- | 12 x 1,5/7 | 50 |
| 61746945 | 13 | 10.0 x 13.0 | 20 | 12 x 1,5/16 x 1,5 | 9 | 16x1,5/9 | 50 |
| 61746955 | 16 | 12.0 x 15.8 | 35 | 16 x 1,5/20 x 1,5 | 11 | 20x1,5/11 | 50 |
| 61747015 | 18 | 14.3 x 18.5 | 40 | | 13,5 | -/13,5 | 50 |
| 61746965 | 21 | 16.5 x 21.2 | 45 | 20 x 1,5 | 16 | 25x1,5/16 | 50 |
| 61746975 | 28 | 23.0 x 28.5 | 55 | 25 x 1,5 | 21 | 32x1,5/21 | 50 |
| 61746985 | 34 | 29.0 x 34.5 | 65 | 32 x 1,5 | 29 | 40x1,5/29 | 25 |
| 61746995 | 42 | 36.0 x 42.5 | 90 | 40 x 1,5 | 36 | 50x1,5/36 | 25 |
| 61747005 | 54 | 48.0 x 54.5 | 100 | 50 x 1,5 | 48 | 63x1,5/48 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® RILL PA 12

**Info**

- Designed for continous movement



## Benefits

- Dimensionally stable
- Highly flexible at cold temperatures
- Flame-retardant and self-extinguishing according to UL 94V-2
- Crush-resistant
- Highly flexible

## Application range

- Mechanical engineering
- In cable chain (SILVYN® CHAIN)
- Building Automation
- Robot-building
- Outdoor application (in black)

## Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Fine-profile corrugated polyamide 12 conduit

## Note

- UV and weather-resistant in black

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

**Certifications**
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA 12
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-2

**Temperature range**
-50°C to +100°C
short-term +150°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® KLICK-M/90°M | Suitable for SILVYN® KLICK PG/90°PG | Suitable for SILVYN® KLICK-GPZ-M/GPZ | PU (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® RILL PA 12 grey** | | | | | | | |
| 61815100 | 10 | 6.5 x 10.0 | 13 | 10 x 1,5 | 7/- | 12 x 1,5/7 | 50 |
| 61815110 | 13 | 10.0 x 13.0 | 15 | 12 x 1,5/16 x 1,5 | 9 | 16x1,5/9 | 50 |
| 61815120 | 16 | 12.0 x 15.8 | 22 | 16 x 1,5/20 x 1,5 | 11 | 20x1,5/11 | 50 |
| 61815180 | 18 | 14.3 x 18.5 | 27 | | 13,5 | -/13,5 | 50 |
| 61815130 | 21 | 16.5 x 21.2 | 35 | 20 x 1,5 | 16 | 25x1,5/16 | 50 |
| 61815140 | 28 | 23.0 x 28.5 | 45 | 25 x 1,5 | 21 | 32x1,5/21 | 50 |
| 61815150 | 34 | 29.0 x 34.5 | 50 | 32 x 1,5 | 29 | 40x1,5/29 | 25 |
| 61815160 | 42 | 36.0 x 42.5 | 80 | 40 x 1,5 | 36 | 50x1,5/36 | 25 |
| 61815170 | 54 | 48.0 x 54.5 | 100 | 50 x 1,5 | 48 | 63x1,5/48 | 25 |
| **SILVYN® RILL PA 12 black** | | | | | | | |
| 61815105 | 10 | 6.5 x 10.0 | 13 | 10 x 1,5 | 7/- | 12 x 1,5/7 | 50 |
| 61815115 | 13 | 10.0 x 13.0 | 15 | 12 x 1,5/16 x 1,5 | 9 | 16x1,5/9 | 50 |
| 61815125 | 16 | 12.0 x 15.8 | 22 | 16 x 1,5/20 x 1,5 | 11 | 20x1,5/11 | 50 |
| 61815185 | 18 | 14.3 x 18.5 | 27 | | 13,5 | -/13,5 | 50 |
| 61815135 | 21 | 16.5 x 21.2 | 35 | 20 x 1,5 | 16 | 25x1,5/16 | 50 |
| 61815145 | 28 | 23.0 x 28.5 | 45 | 25 x 1,5 | 21 | 32x1,5/21 | 50 |
| 61815155 | 34 | 29.0 x 34.5 | 50 | 32 x 1,5 | 29 | 40x1,5/29 | 25 |
| 61815165 | 42 | 36.0 x 42.5 | 80 | 40 x 1,5 | 36 | 50x1,5/36 | 25 |
| 61815175 | 54 | 48.0 x 54.5 | 100 | 50 x 1,5 | 48 | 63x1,5/48 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® KLICK-M



## Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

## Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA6
Halogen-free

**Protection rating**
IP 68
IP 69

**Temperature range**
-40 °C to +115 °C

| Article number | Metric size | SW wrench size mm | Overall length mm | Thread length mm | Clear opening (mm) | For conduit with outer Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SILVYN® KLICK-M grey** | | | | | | | | |
| 55501000 | 10 x 1.0 | 16 | 34.5 | 12 | 6 | 10.0 | 10 | 50 |
| 55501010 | 12 x 1.5 | 18 | 37 | 12 | 7 | 13.0 | 13 | 50 |
| 55501020 | 16 x 1.5/1 | 18 | 37 | 12 | 10 | 13.0 | 13 | 50 |
| 55501030 | 16 x 1.5/2 | 21 | 39 | 12 | 11 | 15.8 | 16 | 50 |
| 55501040 | 20 x 1.5/1 | 21 | 39 | 13 | 12 | 15.8 | 16 | 50 |
| 55501050 | 20 x 1.5/2 | 27 | 44.5 | 13 | 16 | 21.2 | 21 | 50 |
| 55501060 | 25 x 1.5 | 34 | 47 | 13 | 20.5 | 28.5 | 28 | 25 |
| 55501070 | 32 x 1.5 | 40 | 51 | 15 | 25.5 | 34.5 | 34 | 25 |
| 55501080 | 40 x 1.5 | 55 | 76 | 17 | 32 | 42.5 | 42 | 25 |
| 55501090 | 50 x 1.5 | 65 | 88 | 17 | 42.5 | 54.5 | 54 | 10 |
| 55500990 | 63 x 1.5 | 70 | 88 | 17 | 49 | 54.5 | 54 | 10 |
| **SILVYN® KLICK-M black** | | | | | | | | |
| 55501005 | 10 x 1.0 | 16 | 34.5 | 12 | 6 | 10.0 | 10 | 50 |
| 55501015 | 12 x 1.5 | 18 | 37 | 12 | 7 | 13.0 | 13 | 50 |
| 55501025 | 16 x 1.5/1 | 18 | 37 | 12 | 10 | 13.0 | 13 | 50 |
| 55501035 | 16 x 1.5/2 | 21 | 39 | 12 | 11 | 15.8 | 16 | 50 |
| 55501045 | 20 x 1.5/1 | 21 | 39 | 13 | 12 | 15.8 | 16 | 50 |
| 55501055 | 20 x 1.5/2 | 27 | 44.5 | 13 | 16 | 21.2 | 21 | 50 |
| 55501065 | 25 x 1.5 | 34 | 47 | 13 | 20.5 | 28.5 | 28 | 25 |
| 55501075 | 32 x 1.5 | 40 | 51 | 15 | 25.5 | 34.5 | 34 | 25 |
| 55501085 | 40 x 1.5 | 55 | 76 | 17 | 32 | 42.5 | 42 | 25 |
| 55501095 | 50 x 1.5 | 65 | 88 | 17 | 42.5 | 54.5 | 54 | 10 |
| 55500995 | 63 x 1.5 | 70 | 88 | 17 | 49 | 54.5 | 54 | 10 |

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# SILVYN® KLICK 90° M



## Benefits
- 90° elbow allows easy installation
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance

## Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- For applications with limited space
- Rotating applications

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- 90° elbow
- Body with inner sealing
- Upper part with snap-in sleeve

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA6
Halogen-free

**Protection rating**
IP 68
IP 69

**Temperature range**
-40 °C to +115 °C

| Article number | Metric size | Thread length mm | Clear opening (mm) | For conduit with outer Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® KLICK 90° M grey** | | | | | | |
| 55501110 | 10 x 1.0 | 12 | 6 | 10.0 | 10 | 50 |
| 55501120 | 12 x 1.5 | 12 | 8 | 13.0 | 13 | 50 |
| 55501130 | 16 x 1.5/1 | 12 | 12 | 13.0 | 13 | 50 |
| 55501140 | 16 x 1.5/2 | 12 | 12 | 15.8 | 16 | 50 |
| 55501150 | 20 x 1.5/1 | 13 | 15 | 15.8 | 16 | 50 |
| 55501160 | 20 x 1.5/2 | 13 | 15 | 21.2 | 21 | 50 |
| 55501170 | 25 x 1.5/1 | 13 | 18 | 21.2 | 21 | 50 |
| 55501180 | 25 x 1.5/2 | 13 | 18 | 28.5 | 28 | 25 |
| 55501190 | 32 x 1.5/1 | 15 | 24 | 28.5 | 28 | 25 |
| 55501200 | 32 x 1.5/2 | 15 | 24 | 34.5 | 34 | 10 |
| 55501210 | 40 x 1.5/1 | 15 | 32 | 34.5 | 34 | 10 |
| 55501220 | 40 x 1.5/2 | 15 | 32 | 42.5 | 42 | 10 |
| 55501230 | 50 x 1.5/1 | 16 | 39 | 42.5 | 42 | 10 |
| 55501240 | 50 x 1.5/2 | 16 | 39 | 54.5 | 54 | 5 |
| 55501250 | 63 x 1.5 | 16 | 53 | 54.5 | 54 | 5 |
| **SILVYN® KLICK 90° M black** | | | | | | |
| 55501115 | 10 x 1.0 | 12 | 6 | 10.0 | 10 | 50 |
| 55501125 | 12 x 1.5 | 12 | 8 | 13.0 | 13 | 50 |
| 55501135 | 16 x 1.5/1 | 12 | 12 | 13.0 | 13 | 50 |
| 55501145 | 16 x 1.5/2 | 12 | 12 | 15.8 | 16 | 50 |
| 55501155 | 20 x 1.5/1 | 13 | 15 | 15.8 | 16 | 50 |
| 55501165 | 20 x 1.5/2 | 13 | 15 | 21.2 | 21 | 50 |
| 55501175 | 25 x 1.5/1 | 13 | 18 | 21.2 | 21 | 50 |
| 55501185 | 25 x 1.5/2 | 13 | 18 | 28.5 | 28 | 25 |
| 55501195 | 32 x 1.5/1 | 15 | 24 | 28.5 | 28 | 25 |
| 55501205 | 32 x 1.5/2 | 15 | 24 | 34.5 | 34 | 10 |
| 55501215 | 40 x 1.5/1 | 15 | 32 | 34.5 | 34 | 10 |
| 55501225 | 40 x 1.5/2 | 15 | 32 | 42.5 | 42 | 10 |
| 55501235 | 50 x 1.5/1 | 16 | 39 | 42.5 | 42 | 10 |
| 55501245 | 50 x 1.5/2 | 16 | 39 | 54.5 | 54 | 5 |
| 55501255 | 63 x 1.5 | 16 | 53 | 54.5 | 54 | 5 |

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# SILVYN® KLICK GPZ-M



## Benefits
- Fast assembly
- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

## Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- Cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA6

**Protection rating**
IP 68
IP 69

**Temperature range**
-40 °C to +115 °C

| Article number | Metric size | Clamping range in mm | SW wrench size mm | Thread length mm | Clear opening (mm) | For conduit with outer Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **SILVYN® KLICK GPZ-M grey** | | | | | | | | |
| 55500800 | 12 x 1.5 | 4.0 - 6.5 | 16 | 8 | 6.5 | 10 | 10 | 20 |
| 55500810 | 16 x 1.5 | 5.0 - 9.5 | 18 | 8 | 9.5 | 13 | 13 | 20 |
| 55500820 | 20 x 1.5 | 8.0 - 12.0 | 24 | 8 | 13 | 15.8 | 16 | 20 |
| 55500830 | 25 x 1.5 | 11.0 - 16.0 | 27 | 8 | 16 | 21.2 | 21 | 10 |
| 55500840 | 32 x 1.5 | 15.0 - 21.0 | 34 | 10 | 18 | 28.5 | 28 | 10 |
| 55500850 | 40 x 1.5 | 16.0 - 26.0 | 40 | 10 | 25 | 34.5 | 34 | 10 |
| 55500860 | 50 x 1.5 | 27.0 - 35.0 | 55 | 12 | 32 | 42.5 | 42 | 10 |
| 55500870 | 63 x 1.5 | 32.0 - 42.0 | 65 | 12 | 44 | 54.5 | 54 | 10 |
| **SILVYN® KLICK GPZ-M black** | | | | | | | | |
| 55500805 | 12 x 1.5 | 4.0 - 6.5 | 16 | 8 | 6.5 | 10 | 10 | 20 |
| 55500815 | 16 x 1.5 | 5.0 - 9.5 | 18 | 8 | 9.5 | 13 | 13 | 20 |
| 55500825 | 20 x 1.5 | 8.0 - 12.0 | 24 | 8 | 13 | 15.8 | 16 | 20 |
| 55500835 | 25 x 1.5 | 11.0 - 16.0 | 27 | 8 | 16 | 21.2 | 21 | 10 |
| 55500845 | 32 x 1.5 | 15.0 - 21.0 | 34 | 10 | 18 | 28.5 | 28 | 10 |
| 55500855 | 40 x 1.5 | 16.0 - 26.0 | 40 | 10 | 25 | 34.5 | 34 | 10 |
| 55500865 | 50 x 1.5 | 27.0 - 35.0 | 55 | 12 | 32 | 42.5 | 42 | 10 |
| 55500875 | 63 x 1.5 | 32.0 - 42.0 | 65 | 12 | 44 | 54.5 | 54 | 10 |

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# SILVYN® KLICK NPT



## Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

## Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- NPT connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

## Suitable conduits
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
PA6
Halogen-free

**Protection rating**
IP 68
IP 69

**Temperature range**
-40 °C to +115 °C

| Article number | Nominal size | Overall length mm | Thread length mm | Clear opening (mm) | For conduit with outer Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **SILVYN® KLICK NPT** | | | | | | | |
| 61800705 | NPT 1/4“ | 34 | 11.5 | 7 | 10.0 | 10 | 50 |
| 61800715 | NPT 3/8“ | 37 | 12 | 10 | 13.0 | 13 | 50 |
| 61800725 | NPT 3/8“ | 39 | 12 | 12.5 | 15.8 | 16 | 50 |
| 61800745 | NPT 1/2“ | 43.5 | 13 | 17 | 21.2 | 21 | 50 |
| 61800755 | NPT 3/4“ | 47.5 | 14 | 21 | 28.5 | 28 | 25 |
| 61800765 | NPT 1“ | 52 | 16 | 27.5 | 34.5 | 34 | 25 |
| 61800775 | NPT 1 1/4“ | 77 | 18 | 36.5 | 42.5 | 42 | 25 |
| 61800784 | NPT 1 1/2“ | 89 | 18 | 42.5 | 54.5 | 54 | 10 |
| 61800785 | NPT 2“ | 92 | 21 | 48.5 | 54.5 | 54 | 10 |

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# SILVYN® KLICK-Y / SILVYN® KLICK-Y (TPE)



SILVYN® KLICK-Y



SILVYN® KLICK-Y (TPE)

## Benefits

**SILVYN® KLICK-Y**
- Fast assembly
- Easy to disassemble
- High-tensile
- Easy combination of different conduit sizes

**SILVYN® KLICK-Y (TPE)**
- Easy to assemble
- High temperature resistance

## Application range

**SILVYN® KLICK-Y**
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Y-distributor for SILVYN® RILL conduits

**SILVYN® KLICK-Y (TPE)**
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Y-distributor for SILVYN® RILL conduits

## Norm references / Approvals

**SILVYN® KLICK-Y**
- UL FILENUMBER E308201

## Product Make-up

**SILVYN® KLICK-Y**
- 3 x conduit connection
- 2 x bore hole for fixation with M5 screws

**SILVYN® KLICK-Y (TPE)**
- 3 x conduit connection
- 1 x bore hole for fixation with M4 screws

## Suitable conduits

- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

**On request**
**SILVYN® KLICK-Y**
More sizes / combinations

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
**SILVYN® KLICK-Y**
PA6
Halogen-free
**SILVYN® KLICK-Y (TPE)**
TPE

**Protection rating**
**SILVYN® KLICK-Y**
IP 68
IP 69
**SILVYN® KLICK-Y (TPE)**
IP 66

**Temperature range**
-40 °C to +115 °C

| Article number | Nominal size | For conduit with outer Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® KLICK-Y grey** | | | | |
| 61801090 | 2 x 10/1 x 13 | 10.0 / 13.0 | 10/13 | 10 |
| 61801100 | 3 x 13 | 13.0 | 13 | 10 |
| 61801110 | 2 x 13/1 x 16 | 13.0 / 15.8 | 13/16 | 10 |
| 56000130 | 3 x 16 | 15.8 | 16 | 10 |
| **SILVYN® KLICK-Y black** | | | | |
| 61801095 | 2 x 10/1 x 13 | 10.0 / 13.0 | 10/13 | 10 |
| 61801105 | 3 x 13 | 13.0 | 13 | 10 |
| 61801115 | 2 x 13/1 x 16 | 13.0 / 15.8 | 13/16 | 10 |
| 56000135 | 3 x 16 | 15.8 | 16 | 10 |
| **SILVYN® KLICK-Y (TPE) grey** | | | | |
| 56000120 | 3 x 10 | 10.0 | 10 | 10 |
| 56000140 | 2 x 16/1 x 21 | 15.8 / 21.2 | 16/21 | 10 |
| 56000150 | 2 x 21/1 x 28 | 21.2 / 28.5 | 21/28 | 10 |
| 56000160 | 2 x 28/1 x 34 | 28.5 / 34.5 | 28/34 | 10 |
| **SILVYN® KLICK-Y (TPE) black** | | | | |
| 56000125 | 3 x 10 | 10.0 | 10 | 10 |
| 56000145 | 2 x 16/1 x 21 | 15.8 / 21.2 | 16/21 | 10 |
| 56000155 | 2 x 21/1 x 28 | 21.2 / 28.5 | 21/28 | 10 |
| 56000165 | 2 x 28/1 x 34 | 28.5 / 34.5 | 28/34 | 10 |

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# SILVYN® KLICK-S / SILVYN® KLICK-D / SILVYN® KLICK-V



SILVYN® KLICK-S



SILVYN® KLICK-D



SILVYN® KLICK-V

## Benefits

**SILVYN® KLICK-S**
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib

**SILVYN® KLICK-D**
- Ensures that the conduit is fixed to the conduit-holder

**SILVYN® KLICK-V**
- Connects several conduit holders with one another

## Application range

**SILVYN® KLICK-S**
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Fastening of conduits on machine walls for all applications

**SILVYN® KLICK-D**
- In combination with
- SILVYN® KLICK S
- Cover for conduit holder SILVYN® KLICK S

**SILVYN® KLICK-V**
- In combination with
- SILVYN® KLICK S

## Product features

**SILVYN® KLICK-S**
- Impact-resistant polyamide

**SILVYN® KLICK-D**
- Fits tightly to SILVYN® KLICK S

**SILVYN® KLICK-V**
- Fits tightly to SILVYN® KLICK S

## Product Make-up

**SILVYN® KLICK-S**
- Multi-part conduit holder with M5 borehole for fixation

**SILVYN® KLICK-D**
- Cover with connection pins

**SILVYN® KLICK-V**
- Connection pin

## Suitable conduits

- SILVYN® RILL PA 6

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA6

**Temperature range**
-40 °C to +105 °C

| Article number | Nominal size | For conduit with outer Ø (mm) | Pieces / PU |
|---|---|---|---|
| **SILVYN® KLICK-S grey** | | | |
| 61811110 | 10 | 10 | 100 |
| 61811120 | 13 | 13 | 100 |
| 61811130 | 16 | 15.8 | 50 |
| 61811190 | 18 | 18.5 | 50 |
| 61811140 | 21 | 21.2 | 50 |
| 61811150 | 28 | 28.5 | 50 |
| 61811160 | 34 | 34.5 | 30 |
| 61811170 | 42 | 42.5 | 20 |
| 61811180 | 54 | 54.5 | 20 |
| **SILVYN® KLICK-S black** | | | |
| 61811115 | 10/13 | 10 | 100 |
| 61811125 | 13 | 13 | 100 |
| 61811135 | 16 | 15.8 | 50 |
| 61811195 | 18 | 18.5 | 50 |
| 61811145 | 21 | 21.2 | 50 |
| 61811155 | 28 | 28.5 | 50 |
| 61811165 | 34 | 34.5 | 30 |
| 61811175 | 42 | 42.5 | 20 |
| 61811185 | 54 | 54.5 | 20 |
| **SILVYN® KLICK-D grey** | | | |
| 61811200 | 10/13 | | 100 |
| 61811260 | 16 | | 50 |
| 61811210 | 18/21 | | 50 |
| 61811220 | 28 | | 50 |
| 61811230 | 34 | | 30 |
| 61811240 | 42 | | 20 |
| 61811250 | 54 | | 20 |
| **SILVYN® KLICK-D black** | | | |
| 61811205 | 10/13 | | 100 |
| 61811265 | 16 | | 50 |
| 61811215 | 18/21 | | 50 |
| 61811225 | 28 | | 50 |
| 61811235 | 34 | | 30 |
| 61811245 | 42 | | 20 |
| 61811255 | 54 | | 20 |
| **SILVYN® KLICK-V grey** | | | |
| 61811270 | | | 100 |
| **SILVYN® KLICK-V black** | | | |
| 61811275 | | | 100 |

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# SILVYN® KLICK-RH



**Info**

- One-piece conduit holder

## Benefits

- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

## Application range

- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Fastening of conduits on machine walls for all applications

## Product features

- Impact-resistant polyamide
- One-piece conduit holder
- Suitable for mounting onto a C-profile rail
- Stackable

## Product Make-up

- One-piece conduit holder with M5/M6 borehole for fixation

## Suitable conduits

- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
PA6
Halogen-free

**Temperature range**
-40 °C to +115 °C

| Article number | Nominal size | Hole Ø (mm) | Suitable for SILVYN® RILL | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® KLICK-RH grey** | | | | |
| 65500630 | 10 | 5 | 10 | 50 |
| 65500631 | 13 | 5 | 13 | 50 |
| 65500632 | 16 | 6 | 16 | 50 |
| 65500633 | 18 | 6 | 18 | 50 |
| 65500634 | 21 | 6 | 21 | 50 |
| 65500635 | 28 | 6 | 28 | 25 |
| 65500636 | 34 | 6 | 34 | 25 |
| 65500637 | 42 | 6 | 42 | 25 |
| 65500638 | 54 | 6 | 54 | 10 |
| **SILVYN® KLICK-RH black** | | | | |
| 65500639 | 10 | 5 | 10 | 50 |
| 65500640 | 13 | 5 | 13 | 50 |
| 65500641 | 16 | 6 | 16 | 50 |
| 65500642 | 18 | 6 | 18 | 50 |
| 65500643 | 21 | 6 | 21 | 50 |
| 65500644 | 28 | 6 | 28 | 25 |
| 65500645 | 34 | 6 | 34 | 25 |
| 65500646 | 42 | 6 | 42 | 25 |
| 65500647 | 54 | 6 | 54 | 10 |

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# SILVYN® K-EM



## Benefits

- Easy to assemble
- High temperature resistance
- Cable damage can be prevented
- Additional sealing

## Application range

- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Intersection or end sleeve

## Suitable conduits

- SILVYN® RILL PA 6
- SILVYN® RILL PA 12

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

**Material**
TPE-V

**Temperature range**
-40°C to +120°C

| Article number | Nominal size | Overall length mm | For conduit with outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® K-EM grey** | | | | |
| 65500200 | 10 | 29 | 10 | 50 |
| 65500210 | 13 | 32.5 | 13 | 50 |
| 65500220 | 16 | 36.5 | 15.8 | 50 |
| 65500230 | 21 | 37.5 | 21.2 | 50 |
| 65500240 | 28 | 40.2 | 28.5 | 25 |
| 65500250 | 34 | 44.2 | 34.5 | 25 |
| 65500260 | 42 | 46 | 42.5 | 25 |
| 65500270 | 54 | 52 | 54.5 | 10 |
| **SILVYN® K-EM black** | | | | |
| 65500205 | 10 | 29 | 10 | 50 |
| 65500215 | 13 | 32.5 | 13 | 50 |
| 65500225 | 16 | 36.5 | 15.8 | 50 |
| 65500235 | 21 | 37.5 | 21.2 | 50 |
| 65500245 | 28 | 40.2 | 28.5 | 25 |
| 65500255 | 34 | 44.2 | 34.5 | 25 |
| 65500265 | 42 | 46 | 42.5 | 25 |
| 65500275 | 54 | 52 | 54.5 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® FPAS



## Benefits

- Dimensionally stable
- Flexible
- Flame-retardant and self-extinguishing according to UL 94V-2
- High crush-resistance
- Impact-resistant

## Application range

- Mechanical engineering
- Plant engineering
- Railway applications / vehicle construction
- Moving applications
- For indoor and outdoor use

## Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Inherent Low Fire Hazard

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Fine-profile corrugated polyamide 6 conduit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

**Certifications**
IEC EN 61386-23

**On request**
Available in PA 12

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA 6
Halogen-free
Fire behaviour according to UL94 V-2

**Temperature range**
-40°C to +120°C static
-20°C to +100°C dynamic

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® FPAS black** | | | | |
| 61754005 | 10 | 6.3 x 10.0 | 15 | 50 |
| 61754015 | 13 | 9.8 x 13.0 | 25 | 50 |
| 61754025 | 16 | 11.8 x 15.8 | 35 | 50 |
| 61754275 | 18 | 14.2 x 18.5 | 40 | 50 |
| 61737162 | 20 | 14.8 x 20.0 | 45 | 50 |
| 61754035 | 21 | 16.7 x 21.2 | 45 | 50 |
| 61737164 | 25 | 19.1 x 25.0 | 50 | 50 |
| 61754045 | 28 | 22.8 x 28.5 | 50 | 50 |
| 61754055 | 34 | 28.1 x 34.5 | 60 | 25 |
| 61754065 | 42 | 35.5 x 42.5 | 70 | 25 |
| 61754075 | 54 | 47.2 x 54.5 | 80 | 25 |
| 61754305 | 67 | 56.3 x 67.2 | 130 | 10 |
| **SILVYN® FPAS grey** | | | | |
| 61754000 | 10 | 6.3 x 10.0 | 15 | 50 |
| 61754010 | 13 | 9.8 x 13.0 | 25 | 50 |
| 61754020 | 16 | 11.8 x 15.8 | 35 | 50 |
| 61754270 | 18 | 14.2 x 18.5 | 40 | 50 |
| 61737253 | 20 | 14.8 x 20.0 | 45 | 50 |
| 61754030 | 21 | 16.7 x 21.2 | 45 | 50 |
| 61737163 | 25 | 19.1 x 25.0 | 50 | 50 |
| 61754040 | 28 | 22.8 x 28.5 | 50 | 50 |
| 61754050 | 34 | 28.1 x 34.5 | 60 | 25 |
| 61754060 | 42 | 35.5 x 42.5 | 70 | 25 |
| 61754070 | 54 | 47.2 x 54.5 | 80 | 25 |
| 61754300 | 67 | 56.3 x 67.2 | 130 | 10 |

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# SILVYN® FPAX-M

**Info**

- IP66
  IP67
- IP68 (2bar)
  IP69



## Benefits
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

## Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

## Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing

## Suitable conduits
- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP66
IP67
IP68 (2bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Metric size | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|
| **SILVYN® FPAX-M black** | | | |
| 55506135 | 16 x 1.5/1 | FPAS 13 | 10 |
| 55506145 | 16 x 1.5/2 | FPAS 16 | 10 |
| 55506155 | 20 x 1.5/1 | FPAS 16 | 10 |
| 55506165 | 20 x 1.5/2 | FPAS 21 | 10 |
| 55506175 | 25 x 1.5 | FPAS 28 | 10 |
| 55506185 | 32 x 1.5 | FPAS 34 | 10 |
| 55506195 | 40 x 1.5 | FPAS 42 | 2 |
| 55506205 | 50 x 1.5/1 | FPAS 42 | 2 |
| 55506215 | 50 x 1.5/2 | FPAS 54 | 2 |
| 55506225 | 63 x 1.5 | FPAS 54 | 2 |
| 55506226 | 63 x 1.5 | FPAS 67 | 1 |
| **SILVYN® FPAX-M grey** | | | |
| 55506235 | 16 x 1.5/1 | FPAS 13 | 10 |
| 55506245 | 16 x 1.5/2 | FPAS 16 | 10 |
| 55506255 | 20 x 1.5/1 | FPAS 16 | 10 |
| 55506265 | 20 x 1.5/2 | FPAS 21 | 10 |
| 55506275 | 25 x 1.5 | FPAS 28 | 10 |
| 55506285 | 32 x 1.5 | FPAS 34 | 10 |
| 55506295 | 40 x 1.5 | FPAS 42 | 2 |
| 55507265 | 50 x 1.5/1 | FPAS 42 | 2 |
| 55507275 | 50 x 1.5/2 | FPAS 54 | 2 |
| 55507285 | 63 x 1.5 | FPAS 54 | 2 |
| 55507286 | 63 x 1.5 | FPAS 67 | 1 |

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# SILVYN® FPAX 90° M



**Info**

- IP66
  IP67
  IP68 (2 bar)
  IP69

## Benefits

- 90° elbow allows easy installation
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

## Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

## Product features

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing
- 90° elbow

## Suitable conduits

- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP66
IP67
IP68 (2 bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Metric size | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|
| **SILVYN® FPAX 90° M black** | | | |
| 55507300 | 16 x 1.5/1 | FPAS 13 | 10 |
| 55507301 | 16 x 1.5/2 | FPAS 16 | 10 |
| 55507302 | 20 x 1.5/1 | FPAS 16 | 10 |
| 55507303 | 20 x 1.5/2 | FPAS 21 | 10 |
| 55507304 | 25 x 1.5 | FPAS 28 | 10 |
| 55507305 | 32 x 1.5 | FPAS 34 | 10 |
| 55507306 | 40 x 1.5 | FPAS 42 | 1 |
| 55507307 | 50 x 1.5/1 | FPAS 42 | 1 |
| 55507308 | 50 x 1.5/2 | FPAS 54 | 1 |
| 55507309 | 63 x 1.5 | FPAS 54 | 1 |
| **SILVYN® FPAX 90° M grey** | | | |
| 55507310 | 16 x 1.5/1 | FPAS 13 | 10 |
| 55507311 | 16 x 1.5/2 | FPAS 16 | 10 |
| 55507312 | 20 x 1.5/1 | FPAS 16 | 10 |
| 55507313 | 20 x 1.5/2 | FPAS 21 | 10 |
| 55507314 | 25 x 1.5 | FPAS 28 | 10 |
| 55507315 | 32 x 1.5 | FPAS 34 | 10 |
| 55507316 | 40 x 1.5 | FPAS 42 | 1 |
| 55507317 | 50 x 1.5/1 | FPAS 42 | 1 |
| 55507318 | 50 x 1.5/2 | FPAS 54 | 1 |
| 55507319 | 63 x 1.5 | FPAS 54 | 1 |

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# SILVYN® FPAX NPT

**Info**

- IP66
  IP67
- IP68 (2bar)
  IP69



## Benefits
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

## Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

## Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- NPT connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing

## Suitable conduits
- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP66
IP67
IP68 (2bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Nominal size | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|
| **SILVYN® FPAX NPT black** | | | |
| 55507700 | NPT 3/8“ | 16 | 10 |
| 55507710 | NPT 1/2“ | 16 | 10 |
| 55507720 | NPT 1/2“ | 21 | 10 |
| 55507730 | NPT 3/4“ | 28 | 10 |
| 55507740 | NPT 1“ | 34 | 10 |
| 55507750 | NPT 1 1/4“ | 42 | 2 |
| 55507760 | NPT 1 1/2“ | 42 | 2 |
| 55507770 | NPT 1 1/2“ | 54 | 2 |
| 55507780 | NPT 2“ | 54 | 2 |
| 55507790 | NPT 2“ | 67 | 2 |

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# SILVYN® FPAX T / SILVYN® FPAX Y / SILVYN® FPAX R / SILVYN® FPAX P



SILVYN® FPAX T



SILVYN® FPAX Y



SILVYN® FPAX R



SILVYN® FPAX P

## Benefits

**SILVYN® FPAX T**
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

**SILVYN® FPAX Y**
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

**SILVYN® FPAX R**
- Reducer for the SILVYN® FPAX T/Y system

**SILVYN® FPAX P**
- Stop Plug for the SILVYN® FPAX T/Y system

## Application range

- In combination with protective conduit:
- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free
Polyester Elastomer

**Protection rating**
IP66
IP67
IP68 (2 bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Nominal size | Hole Ø (mm) | Suitable for SILVYN® FPAX T/Y | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® FPAX T** | | | | | |
| 55507340 | 16 | 6 | | 16 | 3 |
| 55507341 | 21 | 6 | | 21 | 3 |
| 55507342 | 28 | 6 | | 28 | 3 |
| 55507343 | 34 | 7 | | 34 | 3 |
| 55507344 | 42 | 7 | | 42 | 3 |
| **SILVYN® FPAX Y** | | | | | |
| 55507350 | 16-13-13 | 4 | | 1x16 / 2x13 | 3 |
| 55507351 | 21-16-16 | 5 | | 1x21 / 2x16 | 3 |
| 55507352 | 28-21-21 | 6 | | 1x28 / 2x21 | 3 |
| 55507353 | 34-28-28 | 6.5 | | 1x34 / 2x28 | 3 |
| **SILVYN® FPAX R** | | | | | |
| 55507360 | 16-13 | | 16 | 13 | 5 |
| 55507361 | 21-16 | | 21 | 16 | 5 |
| 55507363 | 28-16 | | 28 | 16 | 5 |
| 55507362 | 28-21 | | 28 | 21 | 5 |
| 55507366 | 34-16 | | 34 | 16 | 5 |
| 55507365 | 34-21 | | 34 | 21 | 5 |
| 55507364 | 34-28 | | 34 | 28 | 5 |
| 55507369 | 42-21 | | 42 | 21 | 3 |
| 55507368 | 42-28 | | 42 | 28 | 3 |
| 55507367 | 42-34 | | 42 | 34 | 3 |
| **SILVYN® FPAX P** | | | | | |
| 55507370 | 16 | | 16 | | 5 |
| 55507371 | 21 | | 21 | | 5 |
| 55507372 | 28 | | 28 | | 5 |
| 55507373 | 34 | | 34 | | 3 |

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# SILVYN® FPAG-M



## Benefits
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

## Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

## Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- Upper part with integrated all-round toothing

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP 66

**Temperature range**
-50 °C to +135 °C

| Article number | Metric size | For conduit with outer Ø (mm) | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® FPAG-M black** | | | | |
| 55506305 | 12 x 1.5 | 10.0 | 10 | 10 |
| 55506315 | 16 x 1.5 | 13.0 | 13 | 10 |
| 55506325 | 16 x 1.5 | 15.8 | 16 | 10 |
| 55506335 | 20 x 1.5 | 15.8 | 16 | 10 |
| 55507055 | 20 x 1.5 | 18.5 | 18 | 10 |
| 55506346 | 20 x 1.5 | 20.0 | 20 | 10 |
| 55506345 | 20 x 1.5 | 21.2 | 21 | 10 |
| 55506357 | 25 x 1.5 | 25.0 | 25 | 10 |
| 55506355 | 25 x 1.5 | 28.5 | 28 | 10 |
| 55506365 | 32 x 1.5 | 34.5 | 34 | 10 |
| 55506375 | 40 x 1.5 | 42.5 | 42 | 2 |
| 55506385 | 50 x 1.5 | 42.5 | 42 | 2 |
| 55506395 | 50 x 1.5 | 54.5 | 54 | 2 |
| 55506405 | 63 x 1.5 | 54.5 | 54 | 2 |
| 55506475 | 63 x 1.5 | 67.2 | 67 | 2 |
| **SILVYN® FPAG-M grey** | | | | |
| 55506300 | 12 x 1.5 | 10.0 | 10 | 10 |
| 55506310 | 16 x 1.5 | 13.0 | 13 | 10 |
| 55506320 | 16 x 1.5 | 15.8 | 16 | 10 |
| 55506330 | 20 x 1.5 | 15.8 | 16 | 10 |
| 55507050 | 20 x 1.5 | 18.5 | 18 | 10 |
| 55506341 | 20 x 1.5 | 20.0 | 20 | 10 |
| 55506340 | 20 x 1.5 | 21.2 | 21 | 10 |
| 55506351 | 25 x 1.5 | 25.0 | 25 | 10 |
| 55506350 | 25 x 1.5 | 28.5 | 28 | 10 |
| 55506360 | 32 x 1.5 | 34.5 | 34 | 10 |
| 55506370 | 40 x 1.5 | 42.5 | 42 | 2 |
| 55506380 | 50 x 1.5 | 42.5 | 42 | 2 |
| 55506390 | 50 x 1.5 | 54.5 | 54 | 2 |
| 55506400 | 63 x 1.5 | 54.5 | 54 | 2 |
| 55506470 | 63 x 1.5 | 67.2 | 67 | 2 |

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# SILVYN® FPAG 90° M



## Benefits
- 90° elbow allows easy installation
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

## Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations
- For applications with limited space

## Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Metric connection thread
- 90° elbow
- Body
- Upper part with integrated all-round toothing

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP66

**Temperature range**
-50°C to +135°C

| Article number | Metric size | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|
| **SILVYN® FPAG 90° M black** | | | |
| 55506485 | 12 x 1.5 | 10 | 10 |
| 55506495 | 16 x 1.5 | 13 | 10 |
| 55506505 | 16 x 1.5 | 16 | 10 |
| 55506515 | 20 x 1.5 | 16 | 10 |
| 55507075 | 20 x 1.5 | 18 | 10 |
| 55506526 | 20 x 1.5 | 20 | 10 |
| 55506525 | 20 x 1.5 | 21 | 10 |
| 55506536 | 25 x 1.5 | 25 | 10 |
| 55506535 | 25 x 1.5 | 28 | 10 |
| 55506545 | 32 x 1.5 | 34 | 10 |
| 55507085 | 40 x 1.5 | 42 | 1 |
| 55506555 | 50 x 1.5 | 42 | 1 |
| 55506565 | 50 x 1.5 | 54 | 1 |
| 55506575 | 63 x 1.5 | 54 | 1 |
| 55507095 | 63 x 1.5 | 67 | 1 |
| **SILVYN® FPAG 90° M grey** | | | |
| 55506480 | 12 x 1.5 | 10 | 10 |
| 55506490 | 16 x 1.5 | 13 | 10 |
| 55506500 | 16 x 1.5 | 16 | 10 |
| 55506510 | 20 x 1.5 | 16 | 10 |
| 55507070 | 20 x 1.5 | 18 | 10 |
| 55506521 | 20 x 1.5 | 20 | 10 |
| 55506520 | 20 x 1.5 | 21 | 10 |
| 55506531 | 25 x 1.5 | 25 | 10 |
| 55506530 | 25 x 1.5 | 28 | 10 |
| 55506540 | 32 x 1.5 | 34 | 10 |
| 55507080 | 40 x 1.5 | 42 | 1 |
| 55506550 | 50 x 1.5 | 42 | 1 |
| 55506560 | 50 x 1.5 | 54 | 1 |
| 55506570 | 63 x 1.5 | 54 | 1 |
| 55507090 | 63 x 1.5 | 67 | 1 |

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# SILVYN® FPAX-DUO M / SILVYN® FPAG-DUO M

**Info**

- Integrated SKINTOP® cable strain relief



## Benefits

- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

## Application range

**SILVYN® FPAX-DUO M**

- In combination with protective conduit:
- SILVYN® FPAS

**SILVYN® FPAG-DUO M**

- In combination with protective conduit:
- SILVYN® HCC

## Product features

- Good weather and UV-resistance
- Conduit fitting is openable with a screwdriver

## Product Make-up

- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing
- Integrated SKINTOP® cable strain relief

## Suitable conduits

**SILVYN® FPAX-DUO M**

- SILVYN® FPAS

**SILVYN® FPAG-DUO M**

- SILVYN® FPAS
- SILVYN® HCC

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
**SILVYN® FPAX-DUO M**
IP 68
**SILVYN® FPAG-DUO M**
Conduit: IP66
Cable: IP68

**Temperature range**
-30 °C to +100 °C

| Article number | Metric size | Clamping range in mm | Thread length mm | Suitable for SILVYN® FPAS | Suitable for SILVYN® HCC | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® FPAX-DUO M** | | | | | | |
| 61805109 | 16 x 1.5 | 4.0 - 10.0 | 8 | 16 | | 10 |
| 61805110 | 20 x 1.5 | 6.0 - 13.0 | 9 | 21 | | 10 |
| 61805111 | 25 x 1.5 | 8.0 - 17.0 | 10 | 28 | | 10 |
| **SILVYN® FPAG-DUO M** | | | | | | |
| 61805112 | 16 x 1.5 | 4.0 - 10.0 | 8 | | 16 | 10 |
| 61805113 | 20 x 1.5 | 6.0 - 13.0 | 9 | | 20 | 10 |
| 61805114 | 25 x 1.5 | 8.0 - 17.0 | 10 | | 25 | 10 |

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# SILVYN® KSE-M



## Benefits

- Fast assembly
- Vibration protection
- Additional cable strain relief
- Additional cable sealing
- Optimum screen connection (EMC)

## Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Used in areas where screened cables and wires need to have additional protection

## Product features

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

## Product Make-up

- Metric connection thread
- EMC cable gland
- Upper part with integrated all-round toothing

## Suitable conduits

- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Certifications**
IEC EN 61386-23

**On request**
without EMC contacts

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Nickel-plated brass
PA66
Halogen-free

**Protection rating**
Conduit: IP66
Cable: IP68

**Temperature range**
-30°C to +100°C

| Article number | Metric size | Clamping range in mm | Thread length mm | Suitable for SILVYN® FPAS | For conduit with outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® KSE-M black** | | | | | | |
| 55507105 | 16 x 1.5/1 | 4.5 - 9.0 | 12 | 13 | 13,0 | 10 |
| 55507115 | 16 x 1.5/2 | 4.5 - 9.0 | 12 | 16 | 15,8 | 10 |
| 55507125 | 20 x 1.5/1 | 7.0 - 12.5 | 12 | 16 | 15,8 | 10 |
| 55507135 | 20 x 1.5/2 | 7.0 - 12.5 | 12 | 21 | 21,2 | 10 |
| 55507145 | 25x1.5 | 9.0 - 16.5 | 12 | 28 | 28,5 | 10 |
| 55507155 | 32 x 1.5 | 11.0 - 21.0 | 15 | 34 | 34,5 | 10 |
| 55507165 | 40x1.5 | 19.0 - 28.0 | 15 | 42 | 42,5 | 1 |
| 55507175 | 50 x 1.5 | 27.0 - 35.0 | 15 | 54 | 54,5 | 1 |

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# SILVYN® FLEXILOK M / SILVYN® FLEXILOK 90° M

**Info**

- Extremely economical
- Small purchasing unit



SILVYN® FLEXILOK M



SILVYN® FLEXILOK 90° M

## Benefits

- Fast assembly
- Easy to assemble
- Cost-effective conduit gland
- No loose parts
- New space-saving design

## Application range

- Mechanical engineering
- Control cabinet manufacturing
- Moving applications
- Applications with limited space
- Building Installation

## Product features

- In black colour UV-resistant and weather-proofed
- One-piece slim design
- Halogen and cadmium-free

## Norm references / Approvals

- UL FILENUMBER E308201

## Product Make-up

**SILVYN® FLEXILOK M**

- Metric connection thread
- One-piece body
- Special clamping system

**SILVYN® FLEXILOK 90° M**

- Metric connection thread
- 90° elbow
- Special clamping system

## Note

- Removeable with a screwdriver
- PG threaded versions are to be found in the online catalogue

## Suitable conduits

- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Norm references / Approvals**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP 66

**Temperature range**
-40°C to +120°C

| Article number | Metric size | Thread length mm | Suitable for SILVYN® FPAS | Suitable for conduit OØ (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® FLEXILOK M black** | | | | | |
| 65500403 | 12 x 1.5 | 9 | FPAS 10 | 10,0 | 10 |
| 65500405 | 16 x 1.5 | 12 | FPAS 13 | 13,0 | 10 |
| 65500425 | 16 x 1.5 | 12 | FPAS 16 | 15,8 | 10 |
| 65500415 | 20 x 1.5 | 14 | FPAS 13 | 13,0 | 10 |
| 65500435 | 20 x 1.5 | 14 | FPAS 16 | 15,8 | 10 |
| 65500436 | 20 x 1.5 | 14 | FPAS 20 | 20 | 10 |
| 65500445 | 20 x 1.5 | 14 | FPAS 21 | 21,2 | 10 |
| 65500456 | 25 x 1.5 | 15 | FPAS 25 | 25 | 10 |
| 65500455 | 25 x 1.5 | 15 | FPAS 28 | 28,5 | 10 |
| 65500464 | 32 x 1.5 | 16 | FPAS 32 | 32 | 10 |
| 65500465 | 32 x 1.5 | 16 | FPAS 34 | 34,5 | 10 |
| 65500458 | 40 x 1.5 | 16 | FPAS 42 | 42,5 | 2 |
| 65500459 | 50 x 1.5 | 16 | FPAS 54 | 54,5 | 1 |
| 65500468 | 63 x 1.5 | 16 | FPAS 54 | 54,5 | 1 |
| **SILVYN® FLEXILOK M grey** | | | | | |
| 65500404 | 12 x 1.5 | 9 | FPAS 10 | 10,0 | 10 |
| 65500600 | 16 x 1.5 | 12 | FPAS 13 | 13,0 | 10 |
| 65500420 | 16 x 1.5 | 12 | FPAS 16 | 15,8 | 10 |
| 65500410 | 20 x 1.5 | 14 | FPAS 13 | 13,0 | 10 |
| 65500430 | 20 x 1.5 | 14 | FPAS 16 | 15,8 | 10 |
| 65500431 | 20 x 1.5 | 14 | FPAS 20 | 20 | 10 |
| 65500440 | 20 x 1.5 | 14 | FPAS 21 | 21,2 | 10 |
| 65500454 | 25 x 1.5 | 15 | FPAS 25 | 25 | 10 |
| 65500610 | 25 x 1.5 | 15 | FPAS 28 | 28,5 | 10 |
| 65500451 | 32 x 1.5 | 16 | FPAS 32 | 32 | 10 |
| 65500460 | 32 x 1.5 | 16 | FPAS 34 | 34,5 | 10 |
| 65500466 | 40 x 1.5 | 16 | FPAS 42 | 42,5 | 2 |
| 65500467 | 50 x 1.5 | 16 | FPAS 54 | 54,5 | 1 |
| 65500469 | 63 x 1.5 | 16 | FPAS 54 | 54,5 | 1 |
| **SILVYN® FLEXILOK 90° M black** | | | | | |
| 68100100 | 16 x 1.5 | 12 | FPAS 16 | 15,8 | 10 |
| 68100105 | 20 x 1.5 | 13 | FPAS 16 | 15,8 | 10 |
| 68100106 | 20 x 1.5 | 13 | FPAS 20 | 20 | 10 |
| 68100110 | 20 x 1.5 | 13 | FPAS 21 | 21,2 | 10 |
| 68100114 | 25 x 1.5 | 15 | FPAS 25 | 25 | 10 |
| 68100115 | 25 x 1.5 | 15 | FPAS 28 | 28,5 | 10 |
| 68100119 | 32 x 1.5 | 16 | FPAS 32 | 32 | 10 |
| 68100120 | 32 x 1.5 | 16 | FPAS 34 | 34,5 | 10 |
| **SILVYN® FLEXILOK 90° M grey** | | | | | |
| 68100125 | 16 x 1.5 | 12 | FPAS 16 | 15,8 | 10 |
| 68100130 | 20 x 1.5 | 13 | FPAS 16 | 15,8 | 10 |
| 68100131 | 20 x 1.5 | 13 | FPAS 20 | 20 | 10 |
| 68100135 | 20 x 1.5 | 13 | FPAS 21 | 21,2 | 10 |
| 68100139 | 25 x 1.5 | 15 | FPAS 25 | 25 | 10 |
| 68100140 | 25 x 1.5 | 15 | FPAS 28 | 28,5 | 10 |
| 68100144 | 32 x 1.5 | 16 | FPAS 32 | 32 | 10 |
| 68100145 | 32 x 1.5 | 16 | FPAS 34 | 34,5 | 10 |

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# SILVYN® FCL



## Benefits

- Fast assembly
- Easy to disassemble
- High mechanical strength
- Conduit retained by rib
- No loose parts

## Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Fastening of conduits on machine walls for all applications

## Product features

- Removeable with a screwdriver
- One-piece conduit holder

## Product Make-up

- One-piece conduit holder with borehole for fixation

## Note

- UV-resistant and weather-resistant

## Suitable conduits

- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Temperature range**
-50 °C to +135 °C

| Article number | Nominal size | Hole Ø (mm) | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® FCL black** | | | | |
| 55506905 | 10 | 5 | 10 | 10 |
| 55506915 | 13 | 5 | 13 | 10 |
| 55506925 | 16 | 5 | 16 | 10 |
| 55506985 | 18 | 6 | 18 | 10 |
| 55507405 | 20 | 6 | 20 | 10 |
| 55506935 | 21 | 6 | 21 | 10 |
| 55507415 | 25 | 6 | 25 | 10 |
| 55506945 | 28 | 6 | 28 | 10 |
| 55506954 | 32 | 6 | 32 | 10 |
| 55506955 | 34 | 6 | 34 | 10 |
| 55506965 | 42 | 6 | 42 | 10 |
| 55506975 | 54 | 6 | 54 | 10 |
| **SILVYN® FCL grey** | | | | |
| 55506900 | 10 | 5 | 10 | 10 |
| 55506910 | 13 | 5 | 13 | 10 |
| 55506920 | 16 | 5 | 16 | 10 |
| 55506980 | 18 | 6 | 18 | 10 |
| 55507400 | 20 | 6 | 20 | 10 |
| 55506930 | 21 | 6 | 21 | 10 |
| 55507410 | 25 | 6 | 25 | 10 |
| 55506940 | 28 | 6 | 28 | 10 |
| 55506949 | 32 | 6 | 32 | 10 |
| 55506950 | 34 | 6 | 34 | 10 |
| 55506960 | 42 | 6 | 42 | 10 |
| 55506970 | 54 | 6 | 54 | 10 |

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# SILVYN® FPAC



## Benefits

- Fast assembly
- High tensile strength
- Optional extension of parallel corrugated conduits

## Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Conduit coupler for extension

## Product features

- Removeable with a screwdriver

## Note

- UV-resistant and weather-resistant

## Suitable conduits

- SILVYN® FPAS

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

**Certifications**
IEC EN 61386-23

**On request**
IP68 / IP69 version

**Colour delivered**
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

**Material**
PA66
Halogen-free

**Protection rating**
IP 66

**Temperature range**
-50°C to +135°C

| Article number | Nominal size | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|
| **SILVYN® FPAC black** | | | |
| 55507005 | 16 | 16 | 10 |
| 55507006 | 20 | 20 | 10 |
| 55507015 | 21 | 21 | 10 |
| 55507016 | 25 | 25 | 10 |
| 55507025 | 28 | 28 | 10 |
| 55507035 | 34 | 34 | 10 |
| 55507036 | 42 | 42 | 2 |
| 55507037 | 54 | 54 | 2 |
| **SILVYN® FPAC grey** | | | |
| 55507000 | 16 | 16 | 10 |
| 55507001 | 20 | 20 | 10 |
| 55507010 | 21 | 21 | 10 |
| 55507011 | 25 | 25 | 10 |
| 55507020 | 28 | 28 | 10 |
| 55507030 | 34 | 34 | 10 |
| 55507031 | 42 | 42 | 2 |
| 55507032 | 54 | 54 | 2 |

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# SILVYN® EC



## Benefits

- Cable damage can be prevented
- Additional sealing
- Easy to assemble

## Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Intersection or end sleeve

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description: Terminal sleeve for protective hose

**On request**
SILVYN® REC for FPAS67

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
NEC: PA66
REC: TPE

**Temperature range**
NEC: -50°C to +135°C
REC: -50°C to +120°C

| Article number | Nominal size | Clamping range in mm | Clear opening (mm) | Suitable for SILVYN® FPAS | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® NEC** | | | | | |
| 55507097 | 16 | | 10.5 | 16 | 10 |
| 55507098 | 21 | | 15 | 21 | 10 |
| 55507099 | 28 | | 20 | 28 | 10 |
| 55507100 | 34 | | 25.5 | 34 | 10 |
| 55507101 | 42 | | 32 | 42 | 10 |
| 55507102 | 54 | | 43.5 | 54 | 10 |
| **SILVYN® REC** | | | | | |
| 55507040 | 10 | 3.0 - 7.0 | | 10 | 10 |
| 55507041 | 13 | 3.0 - 7.0 | | 13 | 10 |
| 55507042 | 16 | 3.0 - 11.0 | | 16 | 10 |
| 55507043 | 21 | 3.0 - 15.0 | | 21 | 10 |
| 55507044 | 28 | 3.0 - 21.0 | | 28 | 10 |
| 55507045 | 34 | 3.0 - 25.0 | | 34 | 10 |
| 55507046 | 42 | 5.0 - 34.0 | | 42 | 10 |
| 55507047 | 54 | 5.0 - 46.0 | | 54 | 10 |

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# SILVYN® MAXI PA



## Benefits
- Dimensionally stable
- Flexible
- Crush-resistant

## Application range
- Mechanical engineering
- Public utilities
- Moving applications
- Outdoors

## Product features
- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

## Norm references / Approvals
- UL FILENUMBER E308201

## Product Make-up
- Thick-walled corrugated polyamide 6 conduit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

**On request**
Available in PA 12

**Colour delivered**
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

**Material**
PA 6
Halogen-free
Fire behaviour according to UL 94 HB

**Temperature range**
-40°C to +115°C
short-term +150°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® AFG-PA/AFW-PA | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® MAXI PA grey** | | | | | |
| 61791150 | 70 | 66.5 x 79.2 | 170 | 70 | 10 |
| 61791160 | 95 | 91.0 x 106.0 | 225 | 95 | 10 |
| **SILVYN® MAXI PA black** | | | | | |
| 61791155 | 70 | 66.5 x 79.2 | 170 | 70 | 10 |
| 61791165 | 95 | 91.0 x 106.0 | 225 | 95 | 10 |

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# SILVYN® AFG-PA / SILVYN® gasket AFG-PA / AFW-PA / SILVYN® AFW-PA



SILVYN® AFG-PA



SILVYN® gasket AFG-PA / AFW-PA



SILVYN® AFW-PA

## Benefits

**SILVYN® AFG-PA**
- Tear-resistant connection
- Secure conduit insertion

**SILVYN® gasket AFG-PA / AFW-PA**
- Increases the IP degree of protection of SILVYN® AFG-PA and SILVYN® AFW-PA

**SILVYN® AFW-PA**
- Tear-resistant connection
- Secure conduit insertion

## Application range
- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires

## Product Make-up

**SILVYN® AFG-PA**
- One-piece connector with clap mechanism specifically designed for use with the SILVYN® MAXI PA. Thanks to the special design, the conduit can be pre-locked and mounted ready for connection

**SILVYN® AFW-PA**
- One-piece 90° elbow connector with clap mechanism specifically designed for use with the SILVYN® MAXI PA. Thanks to the special design, the conduit can be pre-locked and mounted ready for connection

## Suitable conduits
- SILVYN® MAXI PA

## Technical data

**Classification ETIM 5/6**
**SILVYN® AFG-PA**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
**SILVYN® gasket AFG-PA / AFW-PA**
ETIM 5.0/6.0 Class-ID: EC000781
ETIM 5.0/6.0 Class-Description: Sealing for hose screw connection
**SILVYN® AFW-PA**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

**Colour delivered**
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

**Material**
PA6
Halogen-free

**Protection rating**
IP 54
IP 65 with AFG-PA/AFW-PA seal

**Temperature range**
-40 °C to +115 °C

| Article number | Nominal size | Pieces / PU |
|---|---|---|
| **SILVYN® AFG-PA grey** | | |
| 55001080 | 70 | 1 |
| 55001081 | 95 | 1 |
| **SILVYN® AFG-PA black** | | |
| 55001085 | 70 | 1 |
| 55001086 | 95 | 1 |
| **SILVYN® seal for AFG-PA, AFW-PA** | | |
| 55001082 | 70 | 1 |
| 55001083 | 95 | 1 |
| **SILVYN® AFW-PA 90° grey** | | |
| 55001090 | 70 | 1 |
| 55001091 | 95 | 1 |
| **SILVYN® AFW-PA 90° black** | | |
| 55001093 | 70 | 1 |
| 55001092 | 95 | 1 |

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# SILVYN® SPLIT

**Info**

- Subsequent cable protection





## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

**On request**
Polyamide 12 version (highly flexible)
ETFE version (high-temperature resistant up to +200°C)

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Polyamide 6 (PA6)
Polypropylene (PP)

**Protection rating**
IP 43 with SILVYN® SPLIT COV

**Temperature range**
PA6 : -40°C to +120°C
PP : -40°C to +135°C
PP UV: -40°C to +105°C

## Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Low rodent-protection
- Fast and easy assembly

## Application range

- Vehicle construction
- Shipbuilding
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

## Product features

- Halogen-free (PA6)
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Very good UV- and Weathering performance (SILVYN® SPLIT PP UV)

## Product Make-up

- Divisable corrugated conduit

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® COV | PU (m) |
|---|---|---|---|---|---|
| **SILVYN® SPLIT PA6** | | | | | |
| 61806621 | 6 | 6.3 x 10.0 | 15 | | 50 |
| 61806620 | 10 | 8.8 x 13.5 | 15 | M16/PG9 | 50 |
| 61806631 | 11 | 11.0 x 16.1 | 15 | | 50 |
| 61806630 | 14 | 13.2 x 18.7 | 15 | M20/PG13,5 | 50 |
| 61806641 | 16 | 16.0 x 21.5 | 20 | | 50 |
| 61806640 | 20 | 20.2 x 25.7 | 25 | M25/PG21 | 50 |
| 61806650 | 23 | 23.9 x 31.3 | 35 | M32/PG29 | 50 |
| 61806651 | 29 | 27.3 x 35.5 | 35 | | 25 |
| 61806660 | 37 | 32.5 x 43.2 | 40 | M40/PG29 | 25 |
| 61806670 | 45 | 43.1 x 54.2 | 70 | M50 | 25 |
| 61806671 | 70 | 67.0 x 79.8 | 95 | | 10 |
| 61806672 | 100 | 87.5 x 102.5 | 100 | | 10 |
| **SILVYN® SPLIT PP** | | | | | |
| 61806615 | 6 | 6.3 x 10.0 | 15 | | 50 |
| 61806625 | 10 | 8.4 x 13.4 | 15 | M16/PG9 | 50 |
| 61806616 | 11 | 11.0 x 16.1 | 15 | | 50 |
| 61806635 | 14 | 12.5 x 18.5 | 15 | M20/PG13,5 | 50 |
| 61806617 | 16 | 16.0 x 21.5 | 20 | | 50 |
| 61806645 | 20 | 19.2 x 25.3 | 20 | M25/PG21 | 50 |
| 61806655 | 23 | 23.4 x 30.8 | 45 | M32/PG29 | 50 |
| 61806618 | 29 | 27.3 x 35.5 | 50 | | 25 |
| 61806665 | 37 | 31.0 x 41.4 | 60 | M40/PG29 | 25 |
| 61806675 | 45 | 42.7 x 54.0 | 75 | M50 | 25 |
| 61806619 | 70 | 67.5 x 79.8 | 95 | | 10 |
| 61806622 | 100 | 87.5 x 102.5 | 100 | | 10 |
| **SILVYN® SPLIT PP UV** | | | | | |
| 61806100 | 6 | 6.3 x 10.0 | 15 | | 50 |
| 61806110 | 10 | 8.4 x 13.4 | 15 | M16/PG9 | 50 |
| 61806120 | 11 | 11.0 x 16.1 | 15 | | 50 |
| 61806130 | 14 | 12.5 x 18.5 | 15 | M20/PG13,5 | 50 |
| 61806140 | 16 | 16.0 x 21.5 | 20 | | 50 |
| 61806150 | 20 | 19.2 x 25.3 | 20 | M25/PG21 | 50 |
| 61806160 | 23 | 23.4 x 30.8 | 45 | M32/PG29 | 50 |
| 61806170 | 29 | 27.3 x 35.5 | 50 | | 25 |
| 61806180 | 37 | 31.0 x 41.4 | 60 | M40/PG29 | 25 |
| 61806190 | 45 | 42.7 x 54.0 | 75 | M50 | 25 |
| 61806200 | 70 | 67.5 x 79.8 | 95 | | 10 |
| 61806210 | 100 | 87.5 x 102.5 | 100 | | 10 |

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# SILVYN® SPLIT COV-M / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS



SILVYN® SPLIT COV-M



SILVYN® SPLIT GMP-M



SILVYN® SPLIT COS

## Benefits

**SILVYN® SPLIT COV-M**
- Fast and easy assembly
- Subsequent mountable conduit insertion

**SILVYN® SPLIT GMP-M**
- Fast assembly
- Easy to disassemble

**SILVYN® SPLIT COS**
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

## Application range

**SILVYN® SPLIT COV-M**
- In combination with protective conduit:
- SILVYN® SPLIT
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

**SILVYN® SPLIT COS**
- In combination with protective conduit:
- SILVYN® SPLIT
- Fastening of conduits on machine walls for all applications

## Product features

**SILVYN® SPLIT COV-M**
- Divisable counter nut with metric thread

**SILVYN® SPLIT COS**
- One-piece conduit holder

## Note

- UV-resistant and weather-resistant

## Suitable conduits

- SILVYN® SPLIT

## Technical data

**Classification ETIM 5/6**
**SILVYN® SPLIT COV-M**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
**SILVYN® SPLIT GMP-M**
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
**SILVYN® SPLIT COS**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Halogen-free PA

**Temperature range**
-40°C to +120°C

| Article number | Nominal size | Metric size | Hole Ø (mm) | Suitable for SILVYN® SPLIT | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® SPLIT COV-M (counter nut not included)** | | | | | |
| 61806680 | | 16 x 1.5 | | 10 | 100 |
| 61806681 | | 20 x 1.5 | | 14 | 100 |
| 61806682 | | 25 x 1.5 | | 20 | 50 |
| 61806683 | | 32 x 1.5 | | 23 | 50 |
| 61806684 | | 40 x 1.5 | | 37 | 25 |
| 61806685 | | 50 x 1.5 | | 45 | 25 |
| **SILVYN® SPLIT GMP-M (metric counter nut)** | | | | | |
| 61806686 | | 16 x 1.5 | | | 100 |
| 61806687 | | 20 x 1.5 | | | 100 |
| 61806688 | | 25 x 1.5 | | | 50 |
| 61806689 | | 32 x 1.5 | | | 50 |
| 61806691 | | 40 x 1.5 | | | 25 |
| 61806692 | | 50 x 1.5 | | | 25 |
| **SILVYN® SPLIT COS** | | | | | |
| 61806693 | 6 | | M3 | 6 | 100 |
| 61806690 | 10 | | M3 | 10 | 100 |
| 61806676 | 10 | | M5 | 10 | 100 |
| 61806694 | 11 | | M3 | 11 | 100 |
| 61806700 | 14 | | M3 | 14 | 100 |
| 61806677 | 14 | | M5 | 14 | 50 |
| 61806695 | 16 | | M5 | 16 | 50 |
| 61806696 | 16 | | M6 | 16 | 50 |
| 61806710 | 20 | | M5 | 20 | 50 |
| 61806678 | 20 | | M6 | 20 | 50 |
| 61806720 | 23 | | M5 | 23 | 50 |
| 61806679 | 23 | | M6 | 23 | 50 |
| 61806697 | 29 | | M5 | 29 | 50 |
| 61806698 | 29 | | M6 | 29 | 50 |
| 61806730 | 37 | | M6 | 37 | 20 |
| 61806740 | 45 | | M6 | 45 | 20 |
| 61806699 | 70 | | M6 | 70 | 10 |

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# SILVYN® SINUS

**Info**

- Sinusodial slit for subsequent assembly



## Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Subsequent cable protection
- Sinusoidal slit remains closed under torsion for the most part

## Application range

- Mechanical engineering
- Electrical industry
- Shipbuilding
- Solar applications

## Product features

- High resistance to oil, petrol, acids and other chemicals
- Halogen and cadmium-free
- Abrasion-resistant

## Product Make-up

- Fine-profile corrugated polyamide 6 conduit with sinusodial slit

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
PA6 / PP
Cadmium-free
Halogen-free

**Temperature range**
PA6: -40°C to +140°C
PP: -40°C to +130°C

| Article number | ID x OD mm | Suitable for SILVYN® holder | PU ring (m) |
|---|---|---|---|
| **SILVYN® RILL PA6 SINUS** | | | |
| 61806550 | 6,7 x 10.0 | FCL 10 / 5550 6905 | 50 |
| 61806555 | 8,4 x 11,4 | | 50 |
| 61806560 | 9,9 x 13.0 | FCL 13 / 5550 6915 | 50 |
| 61806565 | 12,2 x 15,7 | FCL 16 / 5550 6925 | 50 |
| 61806570 | 16,6 x 21,2 | FCL 21 / 5550 6935 | 50 |
| 61806575 | 21,3 x 25,4 | FCL 25 / 5550 7415 | 50 |
| 61806580 | 23,2 x 28,3 | FCL 28 / 5550 6945 | 50 |
| **SILVYN® SINUS PP** | | | |
| 61806505 | 6,7X10,0 | FCL 10 / 5550 6905 | 50 |
| 61806510 | 8,4X11,4 | | 50 |
| 61806515 | 9,9X13,0 | FCL 13 / 5550 6915 | 50 |
| 61806520 | 12,2X15,7 | FCL 16 / 5550 6925 | 50 |
| 61806525 | 12,7X15,8 | FCL 16 / 5550 6925 | 50 |
| 61806530 | 14,2X18,4 | | 50 |
| 61806535 | 16,6X21,0 | FCL 21 / 5550 6935 | 50 |
| 61806540 | 19,2X23,9 | | 50 |
| 61806545 | 21,3X25,4 | FCL 25 / 5550 7415 | 50 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® AS



## Benefits

- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance
- Heat-resistant

## Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Applications with high mechanical stress

## Norm references / Approvals

- VDE
- DIN 49012, complies with design G according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile

## Note

- PU = 10m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Galvanized steel

**Temperature range**
Up to +220°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MSK-M | Suitable for SILVYN® US-M | Suitable for SILVYN® US | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® AS** | | | | | | | |
| 61802080 | 10 | 8.0 x 10.0 | 28 | 12 x 1,5 | 10 x 1,0 | 7 | 50 |
| 61802090 | 14 | 11.0 x 14.0 | 34 | 16 x 1,5 | 12 x 1,5 | 9 | 50 |
| 61802100 | 17 | 14.0 x 17.0 | 40 | 20 x 1,5 | 16 x 1,5 | 11 | 50 |
| 61802110 | 19 | 16.0 x 19.0 | 45 | | | 13,5 | 50 |
| 61802120 | 21 | 18.0 x 21.0 | 50 | 25 x 1,5 | 20 x 1,5 | 16 | 50 |
| 61802130 | 27 | 23.0 x 27.0 | 63 | 32 x 1,5 | 25 x 1,5 | 21 | 50 |
| 61802140 | 36 | 31.0 x 36.0 | 85 | 40 x 1,5 | 32 x 1,5 | 29 | 25 |
| 61802150 | 45 | 40.0 x 45.0 | 100 | 50 x 1,5 | 40 x 1,5 | 36 | 25 |
| 61802170 | 56 | 51.0 x 56.0 | 125 | 63 x 1,5 | 50 x 1,5 | 48 | 25 |

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# SILVYN® AS-P



## Benefits

- Protects against liquids
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance

## Application range

- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where liquids are present
- Applications with high mechanical stress

## Norm references / Approvals

- VDE
- DIN 49012, complies with design I according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- PVC sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Grey

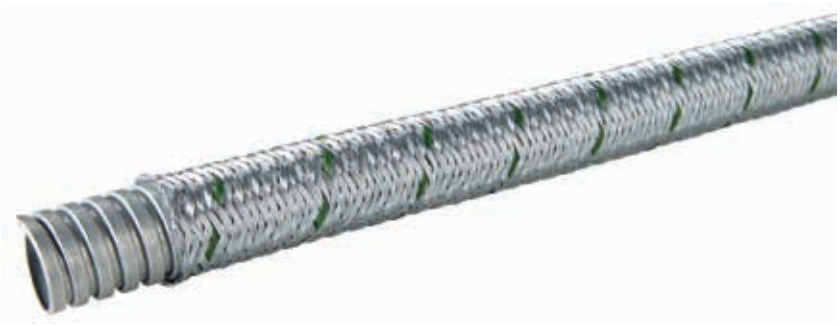
**Material**
Inner conduit: steel, galvanised
Outer sheath: PVC

**Temperature range**
-25°C to +80°C
Short-term: up to +100°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MSK-M | Suitable for SILVYN® US-M | Suitable for SILVYN® US | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® AS-P** | | | | | | | |
| 64400010 | 10 | 7.0 x 10.0 | 32 | 12 x 1,5 | 10 x 1,0 | 7 | 50 |
| 64400020 | 14 | 10.0 x 14.0 | 40 | 16 x 1,5 | 12 x 1,5 | 9 | 50 |
| 64400030 | 17 | 13.0 x 17.0 | 45 | 20 x 1,5 | 16 x 1,5 | 11 | 50 |
| 64400040 | 19 | 15.0 x 19.0 | 52 | | | 13,5 | 50 |
| 64400050 | 21 | 17.0 x 21.0 | 58 | 25 x 1,5 | 20 x 1,5 | 16 | 50 |
| 64400060 | 27 | 22.0 x 27.0 | 72 | 32 x 1,5 | 25 x 1,5 | 21 | 50 |
| 64400070 | 36 | 29.0 x 36.0 | 98 | 40 x 1,5 | 32 x 1,5 | 29 | 25 |
| 64400080 | 45 | 38.0 x 45.0 | 118 | 50 x 1,5 | 40 x 1,5 | 36 | 25 |
| 64400090 | 56 | 49.0 x 56.0 | 140 | 63 x 1,5 | 50 x 1,5 | 48 | 25 |
| **SILVYN® AS-P 10 M** | | | | | | | |
| 64400100 | 10 | 7.0 x 10.0 | 32 | 12 x 1,5 | 10 x 1,0 | 7 | 10 |
| 64400110 | 14 | 10.0 x 14.0 | 40 | 16 x 1,5 | 12 x 1,5 | 9 | 10 |
| 64400120 | 17 | 13.0 x 17.0 | 45 | 20 x 1,5 | 16 x 1,5 | 11 | 10 |
| 64400130 | 19 | 15.0 x 19.0 | 52 | | | 13,5 | 10 |
| 64400140 | 21 | 17.0 x 21.0 | 58 | 25 x 1,5 | 20 x 1,5 | 16 | 10 |
| 64400150 | 27 | 22.0 x 27.0 | 72 | 32 x 1,5 | 25 x 1,5 | 21 | 10 |
| 64400160 | 36 | 29.0 x 36.0 | 98 | 40 x 1,5 | 32 x 1,5 | 29 | 10 |
| 64400170 | 45 | 38.0 x 45.0 | 118 | 50 x 1,5 | 40 x 1,5 | 36 | 10 |
| 64400180 | 56 | 49.0 x 56.0 | 140 | 63 x 1,5 | 50 x 1,5 | 48 | 10 |

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# SILVYN® EDU-AS



## Benefits

- Protects against hot chips
- High-tensile
- High crush-resistance
- Flexible
- For high mechanical stress

## Application range

- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where cables and wires could be damaged by welding sparks and hot chips
- Applications with high mechanical stress

## Norm references / Approvals

- VDE
- DIN 49012, complies with design K according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- Galvanised steel wire braiding

## Note

- PU = 10m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Galvanized steel
Braiding: galvanized steel wire

**Temperature range**
Up to +220 °C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MSK-M | Suitable for SILVYN® US-M | Suitable for SILVYN® US | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® EDU-AS** | | | | | | | |
| 61802380 | 10 | 7.0 x 10.0 | 28 | 12 x 1,5 | 10 x 1,0 | 7 | 50 |
| 61802390 | 14 | 10.0 x 14.0 | 34 | 16 x 1,5 | 12 x 1,5 | 9 | 50 |
| 61802400 | 17 | 13.0 x 17.0 | 40 | 20 x 1,5 | 16 x 1,5 | 11 | 50 |
| 61802410 | 19 | 15.0 x 19.0 | 45 | | | 13,5 | 50 |
| 61802420 | 21 | 17.0 x 21.0 | 50 | 25 x 1,5 | 20 x 1,5 | 16 | 50 |
| 61802430 | 27 | 22.0 x 27.0 | 63 | 32 x 1,5 | 25 x 1,5 | 21 | 50 |
| 61802440 | 36 | 29.0 x 36.0 | 85 | 40 x 1,5 | 32 x 1,5 | 29 | 25 |
| 61802450 | 45 | 38.0 x 45.0 | 100 | 50 x 1,5 | 40 x 1,5 | 36 | 25 |
| 61802470 | 56 | 49.0 x 56.0 | 135 | 63 x 1,5 | 50 x 1,5 | 48 | 25 |

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# SILVYN® EMC AS-CU



## Benefits

- Optimum EMC protection
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance

## Application range

- Mechanical engineering
- Automotive industry
- Conveyor technology
- Railway applications / vehicle construction
- Used in areas where electromagnetic interferences can occur

## Product features

- According to EN 50289-1-6, a screening factor from 30 MHz up to 80 dB can be reached.

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- Tinned-copper braiding

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Inner conduit: galvanized steel
Braiding: tinned copper wire

**Temperature range**
-50°C to +250°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® MSK-M | Suitable for SILVYN® US-M | Suitable for SILVYN® US | PU ring (m) |
|---|---|---|---|---|---|---|---|
| **SILVYN® EMC AS-CU** | | | | | | | |
| 64400500 | 10 | 7.0 x 10.0 | 28 | 12 x 1,5 | 10 x 1,0 | 7 | 50 |
| 64400501 | 14 | 10.0 x 14.0 | 34 | 16 x 1,5 | 12 x 1,5 | 9 | 50 |
| 64400502 | 17 | 13.0 x 17.0 | 40 | 20 x 1,5 | 16 x 1,5 | 11 | 50 |
| 64400504 | 21 | 17.0 x 21.0 | 50 | 25 x 1,5 | 20 x 1,5 | 16 | 50 |
| 64400505 | 27 | 22.0 x 27.0 | 63 | 32 x 1,5 | 25 x 1,5 | 21 | 50 |
| 64400506 | 36 | 29.0 x 36.0 | 85 | 40 x 1,5 | 32 x 1,5 | 29 | 25 |
| 64400507 | 45 | 38.0 x 45.0 | 100 | 50 x 1,5 | 40 x 1,5 | 36 | 25 |
| 64400508 | 56 | 49.0 x 56.0 | 135 | 63 x 1,5 | 50 x 1,5 | 48 | 25 |

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# SILVYN® MSK-M US





**Info**

- Integrated SKINTOP® cable strain relief

## Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

## Application range

- In combination with protective conduit:
- SILVYN® AS/AS-P/EDU-AS/EMC AS-CU
- Indoor / outdoor applications
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

## Product features

- Combination of SILVYN® and SKINTOP®

## Product Make-up

- Optional:
- SKINTOP® MS-M cable gland or
- SKINTOP® MS-SC-M EMC connection
- SILVYN® conduit connection via inner sleeve and cap nut

## Note

- For suitable accessories, refer to SKINTOP® metric accessories

## Suitable conduits

- SILVYN® AS
- SILVYN® AS-P
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

**Protection rating**
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU
IP 65 with SILVYN® AS-P

**Temperature range**
-30°C to +100°C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for conduit OØ (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M for SILVYN® AS** | | | | | |
| 55506080 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506081 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506082 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506083 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506084 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506085 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506086 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506087 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |
| **SILVYN® MSK-M for SILVYN® AS-P / EDU-AS / EMC AS-CU** | | | | | |
| 55506090 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506091 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506092 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506093 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506094 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506095 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506096 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506097 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |
| **SILVYN® MSK-SC-M for SILVYN® AS** | | | | | |
| 55506110 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506111 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506112 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506113 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506114 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506115 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506116 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| **SILVYN® MSK-SC-M for SILVYN® AS-P / EDU-AS / EMC AS-CU** | | | | | |
| 55506120 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506121 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506122 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506123 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506124 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506125 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506126 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |

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# SILVYN® MSK-M BRUSH

**Info**

- Conduit gland with the innovative BRUSH solution
- Optimum 360° screen contact





## Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

## Application range

- Mechanical engineering
- Plant engineering
- Heavy industry
- In EMC-sensitive environments

## Product features

- Combination of SILVYN® and SKINTOP®

## Note

- For suitable accessories, refer to SKINTOP® metric accessories

## Suitable conduits

- SILVYN® AS
- SILVYN® AS-P
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE
EMC brush: brass

**Protection rating**
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU
IP 65 with SILVYN® AS-P

**Temperature range**
-30°C to +100°C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for conduit OØ (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M BRUSH for SILVYN® AS** | | | | | |
| 55506020 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 10 |
| 55506021 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 1 |
| 55506022 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506023 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506024 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |
| **SILVYN® MSK-M BRUSH for SILVYN® AS-P / EDU-AS / EMC AS-CU** | | | | | |
| 55506025 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 10 |
| 55506026 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 1 |
| 55506027 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506028 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506029 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |

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# SILVYN® MSK-M ATEX



**Info**

- IECEx approval worldwide

## Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

## Application range

- Devices, machines and apparatus of enhanced safety protection type “e”, dust ignition proof “t”
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

## Product features

- Combination of SILVYN® and SKINTOP®

## Note

- To be used in Ex environment only in combination with metal conduits without a plastic jacket

## Suitable conduits

- SILVYN® AS
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
SILVYN® MSK-M 16x1,5 AS ATEX
IBExU06ATEX1012X
II 2G EEx eII
II 1D EEx eII
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0033X

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

**Protection rating**
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU

**Temperature range**
-30°C to +90°C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for conduit OØ (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M ATEX for SILVYN® AS** | | | | | |
| 55506010 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506011 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506012 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506013 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506014 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506015 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506016 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506017 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |
| **SILVYN® MSK-M ATEX for SILVYN® EDU-AS / EMC AS-CU** | | | | | |
| 55506018 | 12 x 1.5 | 3.0 - 7.0 | 6.3 | 10 | 5 |
| 55506019 | 16 x 1.5 | 4.5 - 10.0 | 9 | 14 | 5 |
| 55506036 | 20 x 1.5 | 7.0 - 13.0 | 11.5 | 17 | 5 |
| 55506037 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 5 |
| 55506038 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 5 |
| 55506039 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506040 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506041 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |

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# SILVYN® MSK-M ATEX BRUSH

**Info**

- IECEx approval worldwide
- Optimum 360° screen contact



## Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

## Application range

- Devices, machines and apparatus of enhanced safety protection type “e”, dust ignition proof “t”
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

## Product features

- Combination of SILVYN® and SKINTOP®

## Note

- To be used in Ex environment only in combination with metal conduits without a plastic jacket

## Suitable conduits

- SILVYN® AS
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0033X

**Material**
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE
EMC brush: brass

**Tests**
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

**Protection rating**
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU

**Temperature range**
-30°C to +90°C

| Article number | Metric size | Clamping range in mm | Clear opening (mm) | Suitable for conduit OØ (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® MSK-M ATEX BRUSH for SILVYN® AS** | | | | | |
| 55506042 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 10 |
| 55506043 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 1 |
| 55506044 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506045 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506030 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |
| **SILVYN® MSK-M ATEX BRUSH for SILVYN® EDU-AS / EMC AS-CU** | | | | | |
| 55506031 | 25 x 1.5 | 9.0 - 17.0 | 14.5 | 21 | 10 |
| 55506032 | 32 x 1.5 | 11.0 - 21.0 | 19.5 | 27 | 1 |
| 55506033 | 40 x 1.5 | 19.0 - 28.0 | 26.5 | 36 | 1 |
| 55506034 | 50 x 1.5 | 27.0 - 35.0 | 36 | 45 | 1 |
| 55506035 | 63 x 1.5 | 34.0 - 45.0 | 45.5 | 56 | 1 |

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# SILVYN® MSK-U-M

Universal metric threaded coupler with integrated cable strain relief, for use with conduit fittings



**Info**

- Integrated SKINTOP® cable strain relief

## Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

## Application range

- In combination with metric threaded conduit fittings
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

## Product features

- Combination of SILVYN® and SKINTOP®

## Note

- For suitable accessories, refer to SKINTOP® metric accessories

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Note**
On request: size M40, M50, M63

**Material**
Body: nickel-plated brass
Insert: Polyamide
Sealing ring: CR/NBR
O-ring: NBR

**Protection rating**
Cable: IP 68
Conduit: depending on the used conduit system

**Temperature range**
Fixed: -40°C up to +100°C
Dynamic: -25°C up to + 100°C

| Article number | Metric size | Clamping range in mm | Suitable gland size | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® MSK-U-M** | | | | |
| 55506129 | 12 x 1.5 | 3.5 - 7.0 | M 12 x 1,5 | 5 |
| 55506130 | 16 x 1.5 | 4.5 - 10.0 | M 16 x 1,5 | 5 |
| 55506131 | 20 x 1.5 | 7.0 - 13.0 | M 20 x 1,5 | 5 |
| 55506132 | 25 x 1.5 | 9.0 - 17.0 | M 25 x 1,5 | 5 |
| 55506133 | 32 x 1.5 | 11.0 - 21.0 | M 32 x 1,5 | 5 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® US-M



## Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

## Application range
- In combination with protective conduit:
- SILVYN® AS/AS-P/EDU-AS/EMC AS-CU
- Mechanical engineering
- Plant engineering

## Product features
- Compact design

## Product Make-up
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

## Note
- PG threaded versions are to be found in the online catalogue

## Suitable conduits
- SILVYN® AS
- SILVYN® AS-P
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Body: nickel-plated brass
Sealing ring: TPE

**Protection rating**
IP 40 (with SILVYN® AS, EDU-AS and EMC AS-CU)
IP 65 (with SILVYN® AS-P)

**Temperature range**
-40 °C to +125 °C

| Article number | Metric size | Clear opening (mm) | Suitable conduit nominal size | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® US-M for SILVYN® AS** | | | | |
| 55502611 | 10 x 1.0 | 6.5 | 10 | 50 |
| 55502612 | 12 x 1.5 | 9 | 14 | 50 |
| 55502613 | 16 x 1.5 | 12.5 | 17 | 50 |
| 55502614 | 20 x 1.5 | 16 | 21 | 50 |
| 55502615 | 25 x 1.5 | 21 | 27 | 25 |
| 55502616 | 32 x 1.5 | 27.5 | 36 | 25 |
| 55502617 | 40 x 1.5 | 35 | 45 | 20 |
| 55502618 | 50 x 1.5 | 45 | 56 | 10 |
| 55502619 | 63 x 1.5 | 45 | 56 | 10 |
| **SILVYN® US-M for SILVYN® AS-P** | | | | |
| 55502621 | 10 x 1.0 | 6 | 10 | 50 |
| 55502622 | 12 x 1.5 | 8.5 | 14 | 50 |
| 55502623 | 16 x 1.5 | 11.5 | 17 | 50 |
| 55502624 | 20 x 1.5 | 15.5 | 21 | 50 |
| 55502625 | 25 x 1.5 | 20.5 | 27 | 25 |
| 55502626 | 32 x 1.5 | 27.5 | 36 | 25 |
| 55502627 | 40 x 1.5 | 35 | 45 | 20 |
| 55502628 | 50 x 1.5 | 45 | 56 | 10 |
| 55502629 | 63 x 1.5 | 45 | 56 | 10 |
| **SILVYN® US-M for SILVYN® EDU-AS / EMC AS-CU** | | | | |
| 55502631 | 10 x 1.0 | 6 | 10 | 50 |
| 55502642 | 12 x 1.5 | 8.5 | 14 | 50 |
| 55502633 | 16 x 1.5 | 11 | 17 | 50 |
| 55502634 | 20 x 1.5 | 15.5 | 21 | 50 |
| 55502636 | 25 x 1.5 | 20.5 | 27 | 25 |
| 55502646 | 32 x 1.5 | 27.5 | 36 | 25 |
| 55502638 | 40 x 1.5 | 35 | 45 | 20 |
| 55502639 | 50 x 1.5 | 45 | 56 | 10 |
| 55502641 | 63 x 1.5 | 45 | 56 | 10 |

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# SILVYN® US-AS / SILVYN® US-EDU-AS / SILVYN® US-MS-DR



SILVYN® US-AS



SILVYN® US-EDU-AS



SILVYN® US-MS-DR

## Benefits

**SILVYN® US-AS**
- Cable damage can be prevented

**SILVYN® US-EDU-AS**
- Cable damage can be prevented

**SILVYN® US-MS-DR**
- Enables the discharge of interference currents through the connection with the SILVYN® US-M/US gland
- At temperatures over 100°C , the clamping ring can be used as sealing alternative

## Application range

**SILVYN® US-AS**
- In combination with protective conduit:
- SILVYN® AS
- Conduit end cover

**SILVYN® US-EDU-AS**
- In combination with protective conduit:
- SILVYN® EDU-AS/EMC AS-CU/AS-P
- Conduit end cover

**SILVYN® US-MS-DR**
- In combination with protective conduit:
- SILVYN® EDU-AS/EMC AS-CU
- As EMC connection

## Product features

**SILVYN® US-AS**
- All-round collar completely covers the protective conduit end

**SILVYN® US-EDU-AS**
- All-round collar completely covers the protective conduit end

## Product Make-up

**SILVYN® US-AS**
- Threaded sleeve

**SILVYN® US-EDU-AS**
- Threaded sleeve

## Suitable conduits

**SILVYN® US-AS**
- SILVYN® AS

**SILVYN® US-EDU-AS**
- SILVYN® AS-P
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

**SILVYN® US-MS-DR**
- SILVYN® FPS-EDU
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

## Technical data

**Classification ETIM 5/6**
**SILVYN® US-AS**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description: Terminal sleeve for protective hose
**SILVYN® US-EDU-AS**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description: Terminal sleeve for protective hose

**Material**
**SILVYN® US-AS**
Nickel-plated brass
**SILVYN® US-EDU-AS**
Brass
**SILVYN® US-MS-DR**
Brass

**Temperature range**
-40 °C to +250 °C

| Article number | Nominal size | Suitable conduit nominal size | Pieces / PU |
|---|---|---|---|
| **SILVYN® US-AS for SILVYN® AS** | | | |
| 61802180 | 10 | 10 | 50 |
| 61802190 | 14 | 14 | 50 |
| 61802200 | 17 | 17 | 50 |
| 61802210 | 19 | 19 | 50 |
| 61802220 | 21 | 21 | 50 |
| 61802230 | 27 | 27 | 25 |
| 61802240 | 36 | 36 | 25 |
| 61802250 | 45 | 45 | 20 |
| 61802270 | 56 | 56 | 10 |
| **SILVYN® US-EDU-AS for SILVYN® AS-P / EDU-AS / EMC AS-CU** | | | |
| 61802480 | 10 | 10 | 50 |
| 61802490 | 14 | 14 | 50 |
| 61802500 | 17 | 17 | 50 |
| 61802510 | 19 | 19 | 50 |
| 61802520 | 21 | 21 | 50 |
| 61802530 | 27 | 27 | 25 |
| 61802540 | 36 | 36 | 25 |
| 61802550 | 45 | 45 | 20 |
| 61802570 | 56 | 56 | 10 |
| **SILVYN® US-MS-DR for SILVYN® US-AS/US-EDU-AS** | | | |
| 61808168 | 10 | 10 | 50 |
| 61808169 | 14 | 14 | 50 |
| 61808170 | 17 | 17 | 50 |
| 61808180 | 19 | 19 | 50 |
| 61808190 | 21 | 21 | 50 |
| 61808200 | 27 | 27 | 25 |
| 61808201 | 36 | 36 | 25 |
| 61808202 | 45 | 45 | 20 |
| 61808204 | 56 | 56 | 10 |

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# SILVYN® SSU / SILVYN® SSUE



## Benefits

**SILVYN® SSU**
- High-tensile
- Flexible
- For high mechanical stress
- Heat-resistant

**SILVYN® SSUE**
- High-tensile
- Corrosion-resistant
- Flexible
- For high mechanical stress
- Heat-resistant

## Application range

**SILVYN® SSU**
- Measuring technology
- Plant engineering
- Applications with high mechanical stress

**SILVYN® SSUE**
- Offshore applications
- Measuring technology
- Plant engineering
- In damp interiors or outdoors
- Applications with high mechanical stress

## Product features
- Inherent Low Fire Hazard

## Product Make-up
- Helically-wound metal protective conduit with interlocked profile

## Note
- SILVYN® SSU 10 with double-interlocked profile
  SILVYN® SSUE 10 + 12 with double-interlocked profile

## Technical data

**Classification ETIM 5/6**
**SILVYN® SSUE**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
**SILVYN® SSU**
Galvanized steel
**SILVYN® SSUE**
Stainless steel AISI 316
DW Nr. 1.4404

**Temperature range**
**SILVYN® SSU**
-100°C to +300°C
**SILVYN® SSUE**
-100°C to +400°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® LGEF-M/LGES-M | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® SSU - Galvanized steel - 10 meter** | | | | | |
| 61804635 | 16 | 13.0 x 16.0 | 40 | M16x1,5 + M20x1,5 | 10 |
| 61804636 | 20 | 16.9 x 20.5 | 45 | M 20 x 1,5 | 10 |
| 61804637 | 25 | 21.1 x 25.0 | 55 | M 25 x 1,5 | 10 |
| 61804638 | 32 | 28.1 x 32.0 | 60 | M 32 x 1,5 | 10 |
| 61804639 | 40 | 37.6 x 42.5 | 80 | M 40 x 1,5 | 10 |
| 61804640 | 50 | 48.4 x 53.0 | 90 | M 50 x 1,5 | 10 |
| 61804629 | 63 | 57.5 x 62.5 | 115 | M 63 x 1,5 | 10 |
| 61804630 | 75 | 70.0 x 77.0 | 150 | M 75 x 1,5 | 10 |
| **SILVYN® SSU - Galvanized steel - 25 meter** | | | | | |
| 61804631 | 10 | 6.8 x 9.0 | 25 | M 12 x 1,5 | 25 |
| 61804632 | 12 | 10.2 x 13.0 | 30 | M 16 x 1,5 | 25 |
| 61804633 | 16 | 13.0 x 16.0 | 40 | M16x1,5 + M20x1,5 | 25 |
| 61804634 | 20 | 16.9 x 20.5 | 45 | M 20 x 1,5 | 25 |
| 61804614 | 25 | 21.1 x 25.0 | 55 | M 25 x 1,5 | 25 |
| 61804626 | 32 | 28.1 x 32.0 | 60 | M 32 x 1,5 | 25 |
| 61804627 | 40 | 37.6 x 42.5 | 80 | M 40 x 1,5 | 25 |
| 61804628 | 50 | 48.4 x 53.0 | 90 | M 50 x 1,5 | 25 |
| **SILVYN® SSU - Galvanized steel - 50 meter** | | | | | |
| 61804615 | 10 | 6.8 x 9.0 | 25 | M 12 x 1,5 | 50 |
| 61804623 | 12 | 10.2 x 13.0 | 30 | M 16 x 1,5 | 50 |
| 61804624 | 16 | 13.0 x 16.0 | 40 | M16x1,5 + M20x1,5 | 50 |
| 61804625 | 20 | 16.9 x 20.5 | 45 | M 20 x 1,5 | 50 |
| **SILVYN® SSUE - stainless steel** | | | | | |
| 61804600 | 10 | 6,8 x 9,1 | 25 | M 12 x 1,5 | 25 |
| 61804601 | 12 | 10.0 x 12,3 | 30 | M 16 x 1,5/1 | 25 |
| 61804602 | 16 | 12,9 x 16,4 | 40 | M 16 x 1,5/2 | 25 |
| 61804603 | 20 | 16,9 x 20,4 | 45 | M 20 x 1,5 | 25 |
| 61804604 | 25 | 20,9 x 24,3 | 55 | M 25 x 1,5 | 25 |
| 61804605 | 32 | 27,8 x 31,7 | 70 | M 32 x 1,5 | 25 |
| 61804612 | 40 | 37,3 x 42,1 | 80 | M 40 x 1,5 | 10 |
| 61804613 | 50 | 48.0 x 52,8 | 90 | M 50 x 1,5 | 10 |

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# SILVYN® LGEF-M



## Benefits
- For fixed applications
- High tensile strength
- Space-saving

## Application range
- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Applications with high mechanical stress

## Product Make-up
- Metric connection thread
- Hexagonal collar
- Cap nut

## Suitable conduits
- SILVYN® SSU
- SILVYN® SSUE

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Nickel-plated brass
Stainless steel AISI 316

**Protection rating**
IP 40

**Temperature range**
-100°C to +400°C

| Article number | Metric size | SW wrench size mm | Overall length mm | Thread length mm | Suitable for SILVYN® SSU / SSUE | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® LGEF-M (Nickel plated brass)** | | | | | | |
| 55503168 | 12 x 1.5 | 13 | 21 | 7 | 10 | 10 |
| 55503169 | 16 x 1.5 | 17 | 23 | 10 | 12 | 10 |
| 55503170 | 16 x 1.5 | 20 | 25 | 10 | 16 | 10 |
| 55503171 | 20 x 1.5 | 22 | 25 | 10 | 16 | 10 |
| 55503172 | 20 x 1.5 | 24 | 26.3 | 10 | 20 | 10 |
| 55503173 | 25 x 1.5 | 29 | 29.5 | 10 | 25 | 10 |
| 55503174 | 32 x 1.5 | 36 | 36.8 | 13 | 32 | 2 |
| 55503175 | 40 x 1.5 | 48 | 39 | 14 | 40 | 2 |
| 55503176 | 50 x 1.5 | 58 | 42 | 15 | 50 | 1 |
| 55503177 | 63 x 1.5 | 70 | 50 | 18 | 63 | 1 |
| 55503178 | 75 x 1,5 | 84 | 60 | 20 | 75 | 1 |
| **SILVYN® LGEF-M (Stainless steel)** | | | | | | |
| 55503200 | 12 x 1.5 | 14 | 21 | 7 | 10 | 1 |
| 55503201 | 16 x 1.5 | 19 | 23 | 10 | 12 | 1 |
| 55503202 | 16 x 1.5 | 19 | 25 | 10 | 16 | 1 |
| 55503203 | 20 x 1.5 | 24 | 26.3 | 10 | 20 | 1 |
| 55503204 | 25 x 1.5 | 29 | 29.5 | 10 | 25 | 1 |
| 55503205 | 32 x 1.5 | 38 | 36.8 | 13 | 32 | 1 |
| 55503206 | 40 x 1.5 | 48 | 39 | 14 | 40 | 1 |
| 55503207 | 50 x 1.5 | 58 | 42 | 15 | 50 | 1 |

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# SILVYN® LGES-M

**Info**

- Swivelling upper part with integrated inner sleeve



## Benefits

- For rotating applications
- High tensile strength
- Space-saving

## Application range

- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Applications with high mechanical stress

## Product Make-up

- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

## Suitable conduits

- SILVYN® SSU
- SILVYN® SSUE

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Nickel-plated brass
Stainless steel AISI 316

**Protection rating**
IP 40

**Temperature range**
-100°C to +400°C

| Article number | Metric size | SW wrench size mm | Overall length mm | Thread length mm | Suitable for SILVYN® SSU / SSUE | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® LGES-M (Nickel plated brass)** | | | | | | |
| 55503489 | 12 x 1.5 | 13 | 30 | 8 | 10 | 10 |
| 55503490 | 16 x 1.5 | 17 | 32.2 | 8 | 12 | 10 |
| 55503491 | 16 x 1.5 | 20 | 34.2 | 10 | 16 | 10 |
| 55503492 | 20 x 1.5 | 22 | 34.2 | 10 | 16 | 10 |
| 55503493 | 20 x 1.5 | 24 | 35.5 | 10 | 20 | 10 |
| 55503494 | 25 x 1.5 | 29 | 43.7 | 12 | 25 | 10 |
| 55503495 | 32 x 1.5 | 37 | 48 | 13 | 32 | 2 |
| 55503496 | 40 x 1.5 | 48 | 51.2 | 14 | 40 | 2 |
| 55503497 | 50 x 1.5 | 58 | 54.2 | 15 | 50 | 1 |
| 55503498 | 63 x 1.5 | 70 | 63.2 | 18 | 63 | 1 |
| **SILVYN® LGES-M (Stainless steel)** | | | | | | |
| 55503210 | 12 x 1.5 | 14 | 30.2 | 8 | 10 | 1 |
| 55503211 | 16 x 1.5 | 19 | 35.5 | 8 | 12 | 1 |
| 55503212 | 16 x 1.5 | 19 | 35.5 | 10 | 16 | 1 |
| 55503213 | 20 x 1.5 | 24 | 38.5 | 10 | 20 | 1 |
| 55503214 | 25 x 1.5 | 29 | 41.5 | 10 | 25 | 1 |
| 55503215 | 32 x 1.5 | 38 | 49 | 13 | 32 | 1 |

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# SILVYN® LGEP



**Info**

- Ensuring cables do not get damaged

## Benefits

- Cable damage can be prevented
- High tensile strength
- Space-saving

## Application range

- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Conduit end cover
- If no conduit fitting is used
- Applications with high mechanical stress

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Nickel-plated brass

**Protection rating**
IP 40

**Temperature range**
-50°C to +300°C

| Article number | Nominal size | Suitable for SILVYN® SSU / SSUE | Pieces / PU |
|---|---|---|---|
| **SILVYN® LGEP** | | | |
| 55503179 | 10 | 10 | 10 |
| 55503180 | 12 | 13 | 10 |
| 55503181 | 16 | 16 | 10 |
| 55503182 | 20 | 20 | 10 |
| 55503183 | 25 | 25 | 10 |
| 55503184 | 32 | 32 | 10 |
| 55503185 | 40 | 40 | 4 |
| 55503186 | 50 | 50 | 4 |
| 55503187 | 63 | 63 | 1 |
| 55503188 | 75 | 75 | 1 |

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# SILVYN® UI 511

**Info**

- Double-interlocked Agraff profile
- For the most demanding mechanical requirements



## Benefits

- Torsion-resistant and very flexible
- Corrosion-resistant
- For high mechanical stress
- Suitable for outdoor use and direct burial
- High-tensile

## Application range

- Offshore applications
- Measuring technology
- Plant engineering
- Steel industry
- Applications with the highest mechanical stresses

## Product features

- Stainless steel AISI 304

## Product Make-up

- Spirally-wound stainless steel protective conduit with interlocked profile (AGRAFF)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Note**
Size 2“ not stocked!

**Material**
Stainless steel AISI 304
DW no. 1.4301

**Protection rating**
IP40

**Temperature range**
-100 °C to +600 °C

| Article number | Nominal size | ID x OD mm | Static/dynamic bending radius in mm | PU (m) |
|---|---|---|---|---|
| **SILVYN® UI 511** | | | | |
| 61799815 | 5/16“ | 9.5 x 12.5 | 50.0/60.0 | 30 |
| 61799816 | 3/8“ | 13.0 x 16.0 | 65.0/80.0 | 30 |
| 61799817 | 1/2“ | 17.0 x 21.0 | 75.0/100.0 | 30 |
| 61799818 | 3/4“ | 22.0 x 26.0 | 90.0/125.0 | 30 |
| 61799819 | 1“ | 26.0 x 30.0 | 120.0/160.0 | 30 |
| 61799820 | 1 1/4“ | 34.0 x 39.0 | 175.0/220.0 | 30 |
| 61799831 | 1 1/2“ | 40.3 x 44.4 | 230.0/280.0 | 15 |
| 61799822 | 2“ | 51.6 x 55.7 | 285.0/340.0 | 15 |

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# SILVYN® UI COMPACT M



**Info**

- Space-saving due to compact dimensions

## Benefits

- High chemical-resistance
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

## Application range

- In combination with protective conduit:
- SILVYN® UI 511

## Product Make-up

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Stainless steel AISI 304
DW no. 1.4301
Nickel-plated brass

**Protection rating**
IP 40

**Temperature range**
-45°C to +105°C (with O-Ring)
-55°C to +260°C (without O-Ring)

| Article number | Metric size | Clear opening (mm) | Suitable for SILVYN® UI 511 | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® UI COMPACT M (stainless steel)** | | | | |
| 61803880 | 16 x 1.5 | 9.8 | 3/8“ | 1 |
| 61803881 | 20 x 1.5/1 | 9.8 | 3/8“ | 1 |
| 61803882 | 20 x 1.5/2 | 13.9 | 1/2“ | 1 |
| 61803883 | 25 x 1.5 | 18.5 | 3/4“ | 1 |
| 61803884 | 32 x 1.5 | 22.8 | 1“ | 1 |
| 61803885 | 40 x 1.5 | 30.8 | 1 1/4“ | 1 |
| 61803886 | 50 x 1.5 | 36.8 | 1 1/2“ | 1 |
| 61803887 | 63 x 1.5 | 47.8 | 2“ | 1 |
| **SILVYN® UI COMPACT M (nickel-plated brass)** | | | | |
| 61803870 | 16 x 1.5/1 | 6.8 | 5/16“ | 1 |
| 61803871 | 16 x 1.5/2 | 9.8 | 3/8“ | 1 |
| 61803872 | 20 x 1.5/1 | 6.8 | 5/16“ | 1 |
| 61803873 | 20 x 1.5/2 | 9.8 | 3/8“ | 1 |
| 61803874 | 20 x 1.5/3 | 13.9 | 1/2“ | 1 |
| 61803875 | 25 x 1.5 | 18.5 | 3/4“ | 1 |
| 61803876 | 32 x 1.5 | 22.8 | 1“ | 1 |
| 61803877 | 40 x 1.5 | 30.8 | 1 1/4“ | 1 |
| 61803878 | 50 x 1.5 | 36.9 | 1 1/2“ | 1 |
| 61803879 | 63 x 1.5 | 47.9 | 2“ | 1 |

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# SILVYN® UI 511 Insert set

**Info**

- Ensuring cables do not get damaged



## Benefits

- Cable damage can be prevented

## Application range

- Conduit end cover
- If no conduit fitting is used
- In combination with protective conduit:
- SILVYN® UI 511

## Product features

- All-round collar completely covers the protective conduit end

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description: Terminal sleeve for protective hose

**Material**
Nickel-plated brass

**Temperature range**
-55 °C to +260 °C

| Article number | Nominal size | Suitable for SILVYN® UI 511 | Pieces / PU |
|---|---|---|---|
| **SILVYN® UI 511 Insert set** | | | |
| 61798091 | 5/16“ | 5/16“ | 10 |
| 61798096 | 3/8“ | 3/8“ | 10 |
| 61798097 | 1/2“ | 1/2“ | 10 |
| 61798092 | 3/4“ | 3/4“ | 5 |
| 61798093 | 1“ | 1“ | 5 |
| 61798094 | 1 1/4“ | 1 1/4“ | 2 |
| 61798090 | 1 1/2“ | 1 1/2“ | 2 |
| 61798095 | 2“ | 2“ | 2 |

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# SILVYN® LCC-2



## Benefits

- Protects against liquids
- High-tensile
- High crush-resistance
- Suitable for outdoor use and direct burial
- High mechanical resistance

## Application range

- Mechanical engineering
- Plant engineering
- Outdoors
- Used in areas where liquids are present
- Applications with high mechanical stress

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- PVC sheath

## Note

- Upon request: Grey colour

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Norm references / Approvals**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Inner conduit: steel, galvanised
Outer sheath: PVC

**Temperature range**
-15°C to +70°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | Suitable for SILVYN® LGF-2-M/LGS-2-M | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® LCC-2** | | | | | |
| 61804702 | 10 | 6.8 x 10.0 | 25 | M12x1,5 | 30 |
| 61804712 | 12 | 10.2 x 14.0 | 40 | M16x1,5/1 | 30 |
| 61804722 | 16 | 13.0 x 17.0 | 45 | M16x1,5/2 + M20x1,5/1 | 30 |
| 61804732 | 20 | 16.9 x 21.5 | 50 | M20x1,5/2 | 30 |
| 61804742 | 25 | 21.1 x 26.0 | 60 | M25x1,5 | 30 |
| 61804752 | 32 | 28.1 x 34.0 | 90 | M32x1,5 | 30 |
| 61804762 | 40 | 37.6 x 44.5 | 120 | M40x1,5 | 10 |
| 61804772 | 50 | 48.4 x 55.0 | 130 | M50x1,5 | 10 |
| 61804792 | 63 | 57.5 x 64.5 | 160 | M63x1,5 | 10 |
| 61804787 | 75 | 70.0 x 79.0 | 190 | M75x1,5 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LCCH-2

**Info**

- Halogen-free



## Benefits

- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Protects against liquids
- High crush-resistance
- Suitable for outdoor use and direct burial
- High mechanical resistance

## Application range

- Public utilities
- Mechanical engineering
- Used in areas where liquids are present
- Applications with high mechanical stress
- Outdoors

## Product features

- Halogen-free
- Low smoke
- Low toxicity

## Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- Plastic outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Norm references / Approvals**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Inner conduit: steel, galvanised
Outer sheath: plastic, halogen-free
Fire behaviour according to UL 94V-0

**Temperature range**
-25°C to +90°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® LCCH-2** | | | | |
| 61804793 | 12 | 10.2 x 14.0 | 40 | 25 |
| 61804794 | 16 | 13.0 x 17.0 | 45 | 25 |
| 61804795 | 20 | 16.9 x 21.5 | 50 | 25 |
| 61804796 | 25 | 21.1 x 26.0 | 60 | 25 |
| 61804797 | 32 | 28.1 x 34.0 | 90 | 25 |
| 61804798 | 40 | 37.6 x 44.5 | 120 | 10 |
| 61804799 | 50 | 48.4 x 55.0 | 130 | 10 |
| 61804788 | 63 | 57,5 x 64,5 | 160 | 10 |
| 61804789 | 75 | 70.0 x 79.0 | 190 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LGF-2-M / SILVYN® LGS-2-M



SILVYN® LGF-2-M



SILVYN® LGS-2-M

## Benefits

**SILVYN® LGF-2-M**
- For fixed applications
- High tensile strength
- Space-saving

**SILVYN® LGS-2-M**
- For rotating applications
- High tensile strength
- Space-saving

## Application range

- In combination with protective conduit:
- SILVYN® LCC-2
- SILVYN® LCCH-2
- Applications with high mechanical stress
- Outdoors

## Product Make-up

**SILVYN® LGF-2-M**
- Metric connection thread
- Hexagonal collar
- Cap nut

**SILVYN® LGS-2-M**
- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

## Suitable conduits

- SILVYN® LCC-2
- SILVYN® LCCH-2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Norm references / Approvals**
IEC EN 61386-23

**Material**
Nickel-plated brass

**Protection rating**
IP 54

**Temperature range**
-50°C to +300°C

| Article number | Metric size | SW wrench size mm | Overall length mm | Thread length mm | Suitable for SILVYN® LCC-2 / LCCH-2 | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® LGF-2-M** | | | | | | |
| 55501981 | 12 x 1.5 | 13 | 21 | 8 | 10 | 10 |
| 55502001 | 16 x 1.5/1 | 17 | 23 | 8 | 12 | 10 |
| 55502002 | 16 x 1.5/2 | 20 | 25 | 10 | 16 | 10 |
| 55502021 | 20 x 1.5/1 | 22 | 25 | 10 | 16 | 10 |
| 55502022 | 20 x 1.5/2 | 24 | 26.3 | 10 | 20 | 10 |
| 55502031 | 25 x 1.5 | 29 | 32.5 | 10 | 25 | 10 |
| 55502041 | 32 x 1.5 | 38 | 36.8 | 13 | 32 | 10 |
| 55502051 | 40 x 1.5 | 48 | 39 | 14 | 40 | 4 |
| 55502061 | 50 x 1.5 | 58 | 42 | 15 | 50 | 4 |
| 55502071 | 63 x 1.5 | 70 | 50 | 18 | 63 | 1 |
| 55502073 | 75 x 1,5 | 84 | 60 | 20 | 75 | 1 |
| **SILVYN® LGS-2-M** | | | | | | |
| 55501982 | 12 x 1.5 | 13 | 30.2 | 8 | 10 | 10 |
| 55502003 | 16 x 1.5/1 | 17 | 32.2 | 8 | 12 | 10 |
| 55502004 | 16 x 1.5/2 | 20 | 34.2 | 10 | 16 | 10 |
| 55502023 | 20 x 1.5/1 | 22 | 34.2 | 10 | 16 | 10 |
| 55502024 | 20 x 1.5/2 | 24 | 35.5 | 10 | 20 | 10 |
| 55502032 | 25 x 1.5 | 29 | 43.7 | 10 | 25 | 10 |
| 55502042 | 32 x 1.5 | 38 | 48 | 13 | 32 | 10 |
| 55502052 | 40 x 1.5 | 48 | 51.2 | 14 | 40 | 4 |
| 55502062 | 50 x 1.5 | 58 | 54.2 | 15 | 50 | 4 |
| 55502072 | 63 x 1.5 | 70 | 63.2 | 18 | 63 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LCG-M / SILVYN® LCW-M / SILVYN® LCS-M



SILVYN® LCG-M



SILVYN® LCW-M



SILVYN® LCS-M

## Benefits

- High tensile strength
- Vibration protection
- Enhanced sealing

## Application range

- In combination with protective conduit:
- SILVYN® LCC-2 / LCCH-2
- Applications with high mechanical stress
- Used in areas where liquids are present

## Product Make-up

**SILVYN® LCG-M**

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® LCW-M**

- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® LCS-M**

- Metric connection thread
- Hexagonal collar with torsion element
- Threaded sleeve
- Cap nut

## Suitable conduits

- SILVYN® LCC-2
- SILVYN® LCCH-2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Norm references / Approvals**
IEC EN 61386-23

**Material**
Body: nickel-plated brass
Seal: PA compression seal

**Protection rating**
IP 65

**Temperature range**
-50°C to +135°C

| Article number | Metric size | SW 1/2 mm | Overall length mm | Thread length mm | Suitable for SILVYN® LCC-2/LCCH-2 | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® LCG-M** | | | | | | |
| 55503220 | 12 x 1.5 | 20 / 20 | 29.8 | 10 | 10 | 10 |
| 55503221 | 16 x 1.5/1 | 20 / 22 | 29.8 | 10 | 12 | 10 |
| 55503222 | 16 x 1.5/2 | 24 / 26 | 33 | 12 | 16 | 10 |
| 55503223 | 20 x 1.5/1 | 24 / 26 | 33 | 12 | 16 | 10 |
| 55503224 | 20 x 1.5/2 | 26 / 29 | 33.5 | 12 | 20 | 10 |
| 55503225 | 25 x 1.5 | 33 / 35 | 40.5 | 14 | 25 | 10 |
| 55503226 | 32 x 1.5 | 40 / 42 | 45.8 | 15 | 32 | 2 |
| 55503227 | 40 x 1.5 | 56 / 58 | 47.5 | 16 | 40 | 1 |
| 55503228 | 50 x 1.5 | 70 / 70 | 51 | 16 | 50 | 1 |
| **SILVYN® LCW-M** | | | | | | |
| 55503234 | 16 x 1.5/1 | 20 / 24 | 31 | 10 | 12 | 10 |
| 55503235 | 16 x 1.5/2 | 20 / 26 | 31 | 10 | 16 | 10 |
| 55503230 | 20 x 1.5/1 | 24 / 26 | 36 | 13 | 16 | 10 |
| 55503231 | 20 x 1.5/2 | 24 / 29 | 37 | 13 | 20 | 10 |
| 55503232 | 25 x 1.5 | 30 / 35 | 44 | 14 | 25 | 10 |
| 55503233 | 32 x 1.5 | 36 / 42 | 53 | 15 | 32 | 2 |
| **SILVYN® LCS-M** | | | | | | |
| 55503470 | 16 x 1.5/1 | 20 / 22 | 39 | 10 | 12 | 10 |
| 55503471 | 16 x 1.5/2 | 24 / 26 | 40.9 | 10 | 16 | 10 |
| 55503472 | 20 x 1.5/1 | 24 / 26 | 41 | 10 | 16 | 10 |
| 55503473 | 20 x 1.5/2 | 26 / 29 | 41.8 | 10 | 20 | 10 |
| 55503474 | 25 x 1.5 | 33 / 35 | 50.7 | 12 | 25 | 10 |
| 55503475 | 32 x 1.5 | 40 / 42 | 56.9 | 13 | 32 | 2 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LCC-C



**Info**

- Connection of two conduits

## Benefits

- Optional extension of SILVYN® LCC-2 / LCCH-2
- Fast assembly
- High tensile strength

## Application range

- In combination with protective conduit:
- SILVYN® LCC-2 / LCCH-2
- Conduit coupler for extension

## Suitable conduits

- SILVYN® LCC-2
- SILVYN® LCCH-2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Nickel-plated brass

**Protection rating**
IP 65

**Temperature range**
-50°C to +135°C

| Article number | Nominal size | Suitable for SILVYN® LCC-2/LCCH-2 | Pieces / PU |
|---|---|---|---|
| **SILVYN® LCC-C** | | | |
| 55503476 | 16 | 16 | 2 |
| 55503477 | 20 | 20 | 2 |
| 55503478 | 25 | 25 | 2 |
| 55503479 | 32 | 32 | 2 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LCC-E

**Info**

- Ensuring cables do not get damaged



## Benefits

- Cable damage can be prevented

## Application range

- Conduit end cover
- If no conduit fitting is used

## Product features

- All-round collar completely covers the protective conduit end

## Product Make-up

- Threaded sleeve

## Suitable conduits

- SILVYN® LCC-2
- SILVYN® LCCH-2

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description: Terminal sleeve for protective hose

**Material**
Nickel-plated brass

**Temperature range**
-50 °C to +135 °C

| Article number | Nominal size | Suitable for SILVYN® LCC-2 / LCCH-2 | Pieces / PU |
|---|---|---|---|
| **SILVYN® LCC-E** | | | |
| 61805600 | 10 | 10 | 10 |
| 61805610 | 12 | 12 | 10 |
| 61805620 | 16 | 16 | 10 |
| 61805630 | 20 | 20 | 10 |
| 61805640 | 25 | 25 | 10 |
| 61805650 | 32 | 32 | 10 |
| 61805660 | 40 | 40 | 10 |
| 61805670 | 50 | 50 | 4 |
| 61805680 | 63 | 63 | 1 |
| 61805690 | 75 | 75 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® HTDL



## Benefits
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance

## Application range
- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Exporters

## Product Make-up
- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

## Note
- With continuous copper conductor for earthing in the case of the nominal sizes 3/8“ up to and including 1 1/4“. Heavy metal core insert made of galvanised steel strip with special heat and sunlight-resistant plastic sheath. In the ex-range, usable according to NEC 501-4B

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Norm references / Approvals**
UL 360
NEC 501-4B

**Colour delivered**
Black

**Material**
Metal with PVC-compund sheath

**Temperature range**
-40°C to +105°C
Short-term: up to +120°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® HTDL** | | | | |
| 61814190 | 3/8“ | 12.6 x 17.8 | 85 | 60 |
| 61814200 | 1/2“ | 16.1 x 21.1 | 110 | 60 |
| 61814210 | 3/4“ | 21.1 x 26.4 | 140 | 45 |
| 61814220 | 1“ | 26.8 x 33.1 | 170 | 30 |
| 61814230 | 1 1/4“ | 35.4 x 41.8 | 215 | 15 |
| 61814240 | 1 1/2“ | 40.3 x 47.8 | 250 | 15 |
| 61814250 | 2“ | 51.6 x 59.9 | 300 | 15 |

* Trade product, no Lapp product
Sizes 1 1/2” and 2” without copper conductors
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® EF / SILVYN® OR



SILVYN® EF



SILVYN® OR

## Benefits

**SILVYN® EF**

- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Extra flexible

**SILVYN® OR**

- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Highly oil and acid-resistant

## Application range

- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Paper industry

## Product Make-up

- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

## Note

- PU = 10m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

**On request**
Longer lengths on drums
10m coils are available upon request

**Colour delivered**
**SILVYN® EF**
Grey
**SILVYN® OR**
Black

**Material**
**SILVYN® EF**
Galvanized steel with PVC sheath
**SILVYN® OR**
Galvanized steel with special PVC sheath

**Temperature range**
**SILVYN® EF**
-25 °C to +70 °C
Short-term: up to +90 °C
**SILVYN® OR**
-20°C to +100°C
Short-term: up to +120°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® EF** | | | | |
| 61722240 | 5/16“ | 10.1 x 14.4 | 65 | 50 |
| 61712470 | 3/8“ | 12.6 x 17.8 | 85 | 75 |
| 61712480 | 1/2“ | 16.0 x 21.1 | 110 | 60 |
| 61712490 | 3/4“ | 21.0 x 26.4 | 140 | 50 |
| 61712500 | 1“ | 26.5 x 33.1 | 170 | 30 |
| 61712510 | 1 1/4“ | 35.1 x 41.8 | 215 | 30 |
| 61712520 | 1 1/2“ | 40.3 x 47.8 | 250 | 15 |
| 61712530 | 2“ | 51.6 x 59.9 | 300 | 15 |
| **SILVYN® OR** | | | | |
| 61712840 | 3/8“ | 12.6 x 17.8 | 85 | 75 |
| 61712850 | 1/2“ | 16.0 x 21.1 | 110 | 60 |
| 61712860 | 3/4“ | 21.0 x 26.4 | 140 | 50 |
| 61712870 | 1“ | 26.5 x 33.0 | 170 | 30 |
| 61712880 | 1 1/4“ | 35.1 x 41.8 | 215 | 30 |
| 61712890 | 1 1/2“ | 40.3 x 47.8 | 250 | 15 |
| 61712900 | 2“ | 51.6 x 59.9 | 300 | 15 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® HCX / SILVYN® HFX



SILVYN® HCX



SILVYN® HFX

## Benefits

**SILVYN® HCX**
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance

**SILVYN® HFX**
- Impact-resistant
- Robust
- Abrasion protection
- High resistance to oil, petrol, acids and greases
- Liquidtight

## Application range

- Mechanical engineering
- Paper industry
- Measurement and control technology
- Railway applications
- Outdoors

## Product features

**SILVYN® HCX**
- UV-resistant

**SILVYN® HFX**
- UV-resistant
- Halogen-free and flame-retardant
- High mechanical and chemical resistance

## Product Make-up

**SILVYN® HCX**
- Spirally-wound heavy metal protective conduit with roughened profile
- Heat-stabilised plastic outer sheath

**SILVYN® HFX**
- Spirally-wound heavy metal protective conduit with roughened profile
- PUR outer sheath

## Note

- PU = 10m (on request)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**On request**
Longer lengths on drums
10m coils are available upon request

**Colour delivered**
Black

**Material**
**SILVYN® HCX**
Metal with thermoplastic elastomer sheath
**SILVYN® HFX**
Metal with PUR sheath

**Temperature range**
**SILVYN® HCX**
-55°C to +145°C
Short-term: up to +160°C
**SILVYN® HFX**
-55 °C to +105 °C
Short-term up to +125 °C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® HCX** | | | | |
| 61744228 | 3/8“ | 12.6 x 17.8 | 85 | 30 |
| 61744229 | 1/2“ | 16.0 x 21.1 | 110 | 30 |
| 61744230 | 3/4“ | 21.0 x 26.4 | 140 | 30 |
| 61744231 | 1“ | 26.5 x 33.1 | 170 | 30 |
| 61744240 | 1 1/4“ | 35.1 x 41.8 | 215 | 15 |
| 61744242 | 1 1/2“ | 40.3 x 47.8 | 250 | 15 |
| 61744244 | 2“ | 51,6 x 59,9 | 300 | 15 |
| **SILVYN® HFX** | | | | |
| 64400200 | 5/16“ | 10.1 x 14.4 | 65 | 30 |
| 64400210 | 3/8“ | 12.6 x 17.8 | 85 | 30 |
| 64400220 | 1/2“ | 16.0 x 21.1 | 110 | 30 |
| 64400230 | 3/4“ | 21.0 x 26.4 | 140 | 30 |
| 64400240 | 1“ | 26.5 x 33.1 | 170 | 30 |
| 64400250 | 1 1/4“ | 35.1 x 41.8 | 215 | 15 |
| 64400251 | 1 1/2“ | 40,3 x 47,8 | 250 | 15 |
| 64400252 | 2“ | 51,6 x 59,9 | 300 | 15 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® COMPACT M

Nickel-plated brass fitting with space-saving dimensions in various designs

**Info**

- Space-saving due to compact dimensions



## Benefits

- Space-saving application
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

## Application range

- In combination with protective conduit:
- Suitable for SILVYN® HTDL/EF/OR/HCX/HFX
- Mechanical engineering
- Railway applications

## Product Make-up

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

## Note

- PG threaded versions are to be found in the online catalogue

## Suitable conduits

- SILVYN® HTDL
- SILVYN® EF
- SILVYN® OR
- SILVYN® HCX
- SILVYN® HFX

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Norm references / Approvals**
UL 514B

**On request**
Available in stainless steel

**Material**
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

**Protection rating**
IP 66
IP 67

**Temperature range**
-45 °C to +105 °C

| Article number | Metric size | Suitable for SILVYN® HTDL/EF/OR/HCX/HFX | Suitable for SILVYN® HIPROJACKET | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® COMPACT M** | | | | |
| 61803846 | 16 x 1.5 | 5/16“ | | 10 |
| 61803800 | 16 x 1.5 | 3/8“ | 13 | 10 |
| 61803847 | 20 x 1.5 | 5/16“ | | 10 |
| 61803801 | 20 x 1.5 | 3/8“ | | 10 |
| 61803802 | 20 x 1.5 | 1/2“ | 16 | 10 |
| 61803803 | 25 x 1.5 | 3/4“ | 22 | 5 |
| 61803804 | 32 x 1.5 | 1“ | 25 | 5 |
| 61803805 | 40 x 1.5 | 1 1/4“ | 35 | 5 |
| 61803806 | 50 x 1.5 | 1 1/2“ | 38 | 2 |
| 61803807 | 63 x 1.5 | 2“ | 51 | 2 |
| **SILVYN® COMPACT 45° M** | | | | |
| 61803848 | 16 x 1.5 | 5/16“ | | 10 |
| 61803850 | 16 x 1.5 | 3/8“ | 13 | 10 |
| 61803849 | 20 x 1.5 | 5/16“ | | 10 |
| 61803851 | 20 x 1.5 | 3/8“ | | 10 |
| 61803852 | 20 x 1.5 | 1/2“ | 16 | 10 |
| 61803853 | 25 x 1.5 | 3/4“ | 22 | 5 |
| 61803854 | 32 x 1.5 | 1“ | 25 | 5 |
| **SILVYN® COMPACT 90° M** | | | | |
| 61803808 | 16 x 1.5 | 3/8“ | 13 | 10 |
| 61803809 | 20 x 1.5 | 3/8“ | | 10 |
| 61803810 | 20 x 1.5 | 1/2“ | 16 | 10 |
| 61803811 | 25 x 1.5 | 3/4“ | 22 | 5 |
| 61803812 | 32 x 1.5 | 1“ | 25 | 5 |
| 61803813 | 40 x 1.5 | 1 1/4“ | 35 | 5 |
| 61803814 | 50 x 1.5 | 1 1/2“ | 38 | 2 |
| 61803815 | 63 x 1.5 | 2“ | 51 | 2 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® COMPACT NPT

Nickel-plated brass fitting with space-saving dimensions in various designs





**Info**

- Space-saving due to compact dimensions

## Benefits

- Space-saving application
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

## Application range

- In combination with protective conduit:
- Suitable for SILVYN® HTDL/EF/OR/HCX/HFX
- Mechanical engineering
- Railway applications

## Product Make-up

- NPT connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

## Suitable conduits

- SILVYN® HTDL
- SILVYN® EF
- SILVYN® OR
- SILVYN® HCX
- SILVYN® HFX

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Norm references / Approvals**
UL 514B

**Material**
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

**Protection rating**
IP 67

**Temperature range**
-45 °C to +105 °C

| Article number | NPT size | Suitable for SILVYN® HTDL/EF/OR/HCX/HFX | Suitable for SILVYN® HIPROJACKET | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® COMPACT NPT** | | | | |
| 61803832 | 1/2“ | 3/8“ | 13 | 10 |
| 61803833 | 1/2“ | 1/2“ | 16 | 10 |
| 61803834 | 3/4“ | 3/4“ | 22 | 5 |
| 61803835 | 1“ | 1“ | 25 | 5 |
| 61803836 | 1 1/4“ | 1 1/4“ | 35 | 2 |
| 61803837 | 1 1/2“ | 1 1/2“ | 38 | 2 |
| 61803838 | 2“ | 2“ | 51 | 2 |
| **SILVYN® COMPACT 90° NPT** | | | | |
| 61803839 | 1/2“ | 3/8“ | 13 | 10 |
| 61803840 | 1/2“ | 1/2“ | 16 | 10 |
| 61803841 | 3/4“ | 3/4“ | 22 | 5 |
| 61803842 | 1“ | 1“ | 25 | 5 |
| 61803843 | 1 1/4“ | 1 1/4“ | 35 | 2 |
| 61803844 | 1 1/2“ | 1 1/2“ | 38 | 2 |
| 61803845 | 2“ | 2“ | 51 | 2 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LTP



## Benefits

- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Largely resistant to oil and acids, UV-resistant

## Application range

- Mechanical engineering
- Outdoors
- Transformer construction
- Railway applications
- Paper industry

## Product Make-up

- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Certifications**
IEC EN 61386-23

**Colour delivered**
Black (RAL 9005), UV-resistant

**Material**
Steel, galvanised
PVC sheath

**Temperature range**
-20°C to +105°C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® LTP** | | | | |
| 61805400 | 10 - 1/4“ | 7.0 x 11.8 | 35 | 50 |
| 61805410 | 12 - 5/16“ | 10.0 x 14.2 | 40 | 50 |
| 61805420 | 16 - 3/8“ | 12.6 x 17.8 | 45 | 50 |
| 61805430 | 20 - 1/2“ | 16.0 x 21.1 | 65 | 50 |
| 61805440 | 25 - 3/4“ | 21.0 x 26.4 | 100 | 25 |
| 61805450 | 32 - 1“ | 26.5 x 33.1 | 135 | 25 |
| 61805460 | 40 - 1 1/4“ | 35.4 x 41.8 | 175 | 10 |
| 61805470 | 50 - 1 1/2“ | 40.4 x 47.9 | 230 | 10 |
| 61805480 | 63 - 2“ | 51.6 x 59.7 | 280 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTP 45° M / SILVYN® LTP 90° M


SILVYN® LTPG-M


SILVYN® LTPS-M


SILVYN® LTP 45° M


SILVYN® LTP 90° M

## Benefits
- High tensile strength
- Vibration protection
- High sealing performance

## Application range
- In combination with protective conduit:
- SILVYN® LTP
- Applications with high mechanical stress
- Used in areas where liquids are present

## Product Make-up
**SILVYN® LTPG-M**
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® LTPS-M**
- Metric connection thread
- Hexagonal collar with torsion element
- Threaded sleeve
- Cap nut

**SILVYN® LTP 45° M**
- Metric connection thread
- 45° elbow, hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® LTP 90° M**
- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

## Suitable conduits
- SILVYN® LTP

## Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Body: nickel-plated brass
Seal: PA compression seal

**Protection rating**
IP66
IP67
IP68 (5 bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Metric size | SW wrench size mm | Thread length mm | Suitable for SILVYN® LTP | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® LTPG-M** | | | | | |
| 55510200 | 12 x 1.5 | 20 | 10 | 10 | 10 |
| 55510210 | 16 x 1.5/1 | 20 | 10 | 12 | 10 |
| 55510220 | 16 x 1.5/2 | 24 | 10 | 16 | 10 |
| 55510230 | 20 x 1.5/1 | 24 | 12 | 16 | 10 |
| 55510240 | 20 x 1.5/2 | 26 | 12 | 20 | 10 |
| 55510250 | 25 x 1.5 | 33 | 14 | 25 | 10 |
| 55510260 | 32 x 1.5 | 40 | 15 | 32 | 2 |
| 55510270 | 40 x 1.5 | 50 | 16 | 40 | 1 |
| 55510280 | 50 x 1.5 | 58 | 16 | 50 | 1 |
| 55510290 | 63 x 1.5 | 70 | 20 | 63 | 1 |
| **SILVYN® LTPS-M** | | | | | |
| 55510600 | 16 x 1.5/1 | 20 | 10 | 12 | 10 |
| 55510610 | 16 x 1.5/2 | 24 | 10 | 16 | 10 |
| 55510620 | 20 x 1.5/1 | 24 | 10 | 16 | 10 |
| 55510630 | 20 x 1.5/2 | 26 | 10 | 20 | 10 |
| 55510640 | 25 x 1.5 | 33 | 12 | 25 | 10 |
| 55510650 | 32 x 1.5 | 40 | 13 | 32 | 2 |
| **SILVYN® LTP 45° M** | | | | | |
| 55510300 | 20 x 1.5/1 | 24 | 13 | 16 | 10 |
| 55510301 | 20 x 1.5/2 | 24 | 13 | 20 | 10 |
| 55510302 | 25 x 1.5 | 30 | 14 | 25 | 10 |
| 55510303 | 32 x 1.5 | 36 | 15 | 32 | 2 |
| 55510304 | 40 x 1.5 | 47 | 18 | 40 | 1 |
| 55510305 | 50 x 1.5 | 61 | 18 | 50 | 1 |
| 55510306 | 63 x 1.5 | 67 | 20 | 63 | 1 |
| **SILVYN® LTP 90° M** | | | | | |
| 55510400 | 16 x 1.5/1 | 20 | 10 | 12 | 10 |
| 55510410 | 16 x 1.5/2 | 20 | 10 | 16 | 10 |
| 55510420 | 20 x 1.5/1 | 24 | 13 | 16 | 10 |
| 55510430 | 20 x 1.5/2 | 24 | 13 | 20 | 10 |
| 55510440 | 25 x 1.5 | 30 | 14 | 25 | 10 |
| 55510450 | 32 x 1.5 | 36 | 15 | 32 | 2 |
| 55510460 | 40 x 1.5 | 46 | 18 | 40 | 1 |
| 55510470 | 50 x 1.5 | 57 | 18 | 50 | 1 |
| 55510480 | 63 x 1.5 | 72 | 20 | 63 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SILVYN® LTP-C

**Info**

- Connection of two conduits

**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
IEC EN 61386-23

**Material**
Nickel-plated brass

**Protection rating**
IP66
IP67
IP68 (5 bar)
IP69

**Temperature range**
-50 °C to +135 °C

**Benefits**

- Optional extension of SILVYN® LTP
- Fast assembly
- High tensile strength

**Application range**

- In combination with protective conduit:
- SILVYN® LTP
- Conduit coupler for extension

**Suitable conduits**

- SILVYN® LTP



| Article number | Nominal size | Suitable for SILVYN® LTP | Pieces / PU |
|---|---|---|---|
| **SILVYN® LTP-C** | | | |
| 55510310 | 16 | 16 | 2 |
| 55510311 | 20 | 20 | 2 |
| 55510312 | 25 | 25 | 2 |
| 55510313 | 32 | 32 | 2 |

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## SILVYN® LTP-E

**Info**

- Ensuring cables do not get damaged

**Technical data**

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Material**
Nickel-plated brass

**Temperature range**
-50 °C to +135 °C

**Benefits**

- Cable damage can be prevented

**Application range**

- Conduit end cover
- If no conduit fitting is used

**Product features**

- All-round collar completely covers the protective conduit end

**Product Make-up**

- Threaded sleeve

**Suitable conduits**

- SILVYN® HTDL
- SILVYN® EF
- SILVYN® OR
- SILVYN® HCX
- SILVYN® HFX
- SILVYN® LTP



| Article number | Nominal size | Suitable conduit nominal size | Pieces / PU |
|---|---|---|---|
| **SILVYN® LTP-E** | | | |
| 61802300 | 10 | 1/4“ | 10 |
| 61802301 | 12 | 5/16“ | 10 |
| 61802302 | 16 | 3/8“ | 10 |
| 61802303 | 20 | 1/2“ | 10 |
| 61802305 | 25 | 3/4“ | 10 |
| 61802306 | 32 | 1“ | 10 |
| 61802307 | 40 | 1 1/4“ | 10 |
| 61802304 | 50 | 1 1/2“ | 4 |
| 61802308 | 63 | 2“ | 1 |

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# SILVYN® SEALING WASHER



## Application range

- For sealing the housing reliably to protect against oils, dust, and water at the connection thread of a gland or other similar parts

## Product features

- Ribs on both faces enhance sealing.
- Oil-resistant

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

**Colour delivered**
blue

**Material**
Polyester Elastomer

**Protection rating**
IP66
IP67
IP68 (5 bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | ID x OD mm | Metric size | Pieces / PU |
|---|---|---|---|
| **SILVYN® SEALING WASHER** | | | |
| 61809400 | 16.0 x 24.0 | 16 x 1.5 | 10 |
| 61809410 | 20.0 x 27.0 | 20 x 1.5 | 10 |
| 61809420 | 25.0 x 34.0 | 25 x 1.5 | 10 |
| 61809430 | 32.0 x 42.0 | 32 x 1.5 | 10 |
| 61809440 | 40.0 x 50.0 | 40 x 1.5 | 10 |
| 61809450 | 50.0 x 62.0 | 50 x 1.5 | 10 |
| 61809460 | 63.0 x 73.0 | 63 x 1.5 | 10 |

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## Accessories

- SILVYN® LTPG-M
- SILVYN® LTPS-M



# SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE

Fireproof cable protection conduit to protect the inner from flames and liquid metal with a temperature up to +1640 °C

**Info**

- Outstanding protection for extreme impact of heat
- Hazard Level: HL 3



SILVYN® HIPROJACKET



SILVYN® HIPROSILTAPE

## Benefits

- Heat-resistant
- Flexible
- Temporarily reduces the temperature in the conduit by up to 30 %
- The protection rating increases to IP67 if SILVYN® HIPROSILTAPE is also used

## Application range

- Heavy industry, iron and steel works, foundries, glass and ceramic processing, chemical industries
- Steel industry
- Railway applications / vehicle construction
- Mechanical engineering
- Used in areas where cables and wires are exposed to extreme heat

## Product Make-up

**SILVYN® HIPROJACKET**

- Woven glass fibre conduit
- Iron oxide silicone coat

## Technical data

**Classification ETIM 5/6**
**SILVYN® HIPROJACKET**
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose
**SILVYN® HIPROSILTAPE**
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description: Adhesive tape

**Certifications**
**SILVYN® HIPROJACKET**
EN 45545-2 HL1 / HL2 / HL3
NF F 16-101 I2/F1
NF EN ISO 11925-2
DIN 5510-2 S4/SR2/ST2
SAE AS 1072 Type 2

**On request**
**SILVYN® HIPROJACKET**
30m PU

**Colour delivered**
Red

**Material**
**SILVYN® HIPROJACKET**
Glass fibre with iron oxide silicone coat
LOI 39,2
**SILVYN® HIPROSILTAPE**
Silicone-rubber compound, self-vulcanising, halogen-free

**Protection rating**
**SILVYN® HIPROJACKET**
IP 54 in combination with SILVYN® HIPROJACKET AMG fitting
IP 67 if SILVYN® HIPROSILTAPE is also used

**Temperature range**
**SILVYN® HIPROJACKET**
-55°C to +260 °C permanent temp.
+800°C for approx. 20 min (flame treatment)
+800°C for approx. 20 min (radiation heat)
+1640°C for approx. 15-30 sec (liquid-metal contact)
**SILVYN® HIPROSILTAPE**
-55°C to +260 °C permanent temp.

| Article number | Nominal size | ID x OD mm | Suitable gland size | SILVYN® HIPROJACKET Insert set | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® HIPROJACKET** | | | | | |
| 52021385 | 6 | 6.0 x 15.0 | | | 15 |
| 61713003 | 10 | 10.0 x 15.0 | | | 15 |
| 61713005 | 13 | 13.0 x 18.0 | M16 / PG 11 / NPT 1/2“ | 13 | 15 |
| 61713007 | 16 | 16.0 x 22.0 | M20 / PG 16 / NPT 1/2“ | 16 | 15 |
| 61713010 | 19 | 19.0 x 25.0 | | | 15 |
| 61713011 | 22 | 22.0 x 28.0 | M25 / PG 21 / NPT 3/4“ | 22 | 15 |
| 61713000 | 25 | 25.0 x 31.0 | M32 / PG 29 / NPT 1“ | 25 | 15 |
| 61713014 | 29 | 29.0 x 35.0 | | | 15 |
| 61713015 | 32 | 32.0 x 38.0 | | | 15 |
| 61713016 | 35 | 35.0 x 41.0 | M40 / PG 36 / NPT 1-1/4“ | 35 | 15 |
| 61713017 | 38 | 38.0 x 44.0 | M50 / PG 42 / NPT 1-1/2“ | 38 | 15 |
| 61713018 | 41 | 41.0 x 47.0 | | | 15 |
| 61713021 | 44 | 44.0 x 50.0 | | | 15 |
| 61713019 | 51 | 51.0 x 57.0 | M63 / PG 48 / NPT 2“ | 51 | 15 |
| 61713022 | 57 | 57.0 x 63.0 | | | 15 |
| 61713025 | 64 | 64.0 x 70.0 | | | 15 |
| 61713027 | 70 | 70.0 x 76.0 | | | 15 |
| 61713028 | 76 | 76.0 x 82.0 | | | 15 |
| 61713029 | 83 | 83.0 x 89.0 | | | 15 |
| 61713037 | 89 | 89.0 x 95.0 | | | 15 |
| 61713038 | 95 | 95.0 x 101.0 | | | 15 |
| 61713039 | 102 | 102.0 x 108.0 | | | 15 |
| **SILVYN® HIPROSILTAPE** | | | | | |
| 61713040 | 25 | 25.0 x 0.5 | | | 11 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® HIPROJACKET Insert set



**Info**

- For use with SILVYN® COMPACT fittings

## Benefits

- Combination of the SILVYN® COMPACT fitting with the cable protection conduit SILVYN® HIPROJACKET

## Product features

- Corrosion-resistant
- Heat-resistant

## Technical data

**Material**
Nickel-plated brass

**Protection rating**
IP 54 in combination with SILVYN® COMPACT fitting

**Temperature range**
-55 °C to +260 °C

| Article number | Nominal size | Suitable SILVYN® COMPACT fitting size | Pieces / PU |
|---|---|---|---|
| **SILVYN® HIPROJACKET Insert set** | | | |
| 61713076 | 13 | M16 / PG 11 / NPT 1/2“ | 10 |
| 61713077 | 16 | M20 / PG 16 / NPT 1/2“ | 10 |
| 61713078 | 22 | M25 / PG 21 / NPT 3/4“ | 5 |
| 61713079 | 25 | M32 / PG 29 / NPT 1“ | 5 |
| 61713081 | 35 | M40 / PG 36 / NPT 1-1/4“ | 2 |
| 61713082 | 38 | M50 / PG 42 / NPT 1-1/2“ | 2 |
| 61713083 | 51 | M63 / PG 48 / NPT 2“ | 2 |

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# SILVYN® FG

**Info**

- Specifically for the food and drinks industry





## Benefits

- FDA-approved outer sheath
- Smooth, white surface makes it easy to clean
- Protects against liquids
- High-tensile
- High crush-resistance

## Application range

- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Food packaging machinery
- Pharmaceutical industry
- Mechanical engineering
- Plant engineering

## Product features

- Flexible
- Crush-resistant
- Impact-resistant
- High-tensile

## Norm references / Approvals

- Certified according to FDA CFR 21 and NSF 51 (standard for the USA)

## Product Make-up

- Spirally-wound heavy metal protective conduit with roughened profile
- Special, FDA-approved plastic sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

**Colour delivered**
White
Blue

**Material**
Electro-galvanised, strip-wound inner hoop-steel hose with special plastic sheath

**Temperature range**
-20°C to +60°C
Short-term: +80 °C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® FG white** | | | | |
| 55503279 | 3/8“ | 12.6 x 17.8 | 60 | 30 |
| 55503280 | 1/2“ | 16.0 x 21.1 | 75 | 30 |
| 55503281 | 3/4“ | 21.0 x 26.4 | 90 | 30 |
| 55503282 | 1“ | 26.5 x 33.1 | 120 | 30 |
| 55503283 | 1 1/4“ | 35.1 x 41.8 | 135 | 15 |
| 55503284 | 1 1/2“ | 40.3 x 47.8 | 165 | 15 |
| 55503285 | 2“ | 51.6 x 59.9 | 210 | 15 |
| **SILVYN® FG blue** | | | | |
| 55503286 | 3/8“ | 12.6 x 17.8 | 60 | 30 |
| 55503287 | 1/2“ | 16.0 x 21.1 | 75 | 30 |
| 55503288 | 3/4“ | 21.0 x 26.4 | 90 | 30 |
| 55503289 | 1“ | 26.5 x 33.1 | 120 | 30 |
| 55503290 | 1 1/4“ | 35.1 x 41.8 | 135 | 15 |
| 55503291 | 1 1/2“ | 40.3 x 47.8 | 165 | 15 |
| 55503292 | 2“ | 51.6 x 59.9 | 210 | 15 |

* Trade product, no Lapp product
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# SILVYN® FG NM



**Info**

- All-plastic conduit
- Specifically for the food and drinks industry

## Benefits

- FDA-approved outer sheath
- Smooth, blue surface makes it easy to clean
- Protects against liquids

## Application range

- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Food packaging machinery
- Pharmaceutical industry
- Mechanical engineering
- Plant engineering

## Product features

- Flexible
- Dimensionally stable
- Flame-retardant

## Norm references / Approvals

- Certified according to FDA CFR 21 and NSF 51 (standard for the USA)
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

## Product Make-up

- Hard PVC inner spiral
- Special, FDA-approved plastic sheath

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

**Certifications**
FDA CFR 21
NSF 51

**On request**
Also in grey and white colour

**Colour delivered**
Blue

**Material**
Special soft PVC sheath with hard PVC spiral

**Temperature range**
-20°C to +60°C
Short-term: +80 °C

| Article number | Nominal size | ID x OD mm | Bending radius (mm) | PU ring (m) |
|---|---|---|---|---|
| **SILVYN® FG NM blue** | | | | |
| 55503370 | 3/8“ | 12.6 x 17.8 | 70 | 30 |
| 55503371 | 1/2“ | 16.0 x 21.1 | 100 | 30 |
| 55503372 | 3/4“ | 21.0 x 26.4 | 130 | 30 |
| 55503373 | 1“ | 26.5 x 33.1 | 180 | 30 |
| 55503374 | 1 1/4“ | 35.1 x 41.8 | 225 | 15 |
| 55503375 | 1 1/2“ | 40.3 x 47.8 | 255 | 15 |
| 55503376 | 2“ | 51.6 x 59.9 | 310 | 15 |

* Trade product, no Lapp product
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# SILVYN® HYGIENIC

**Info**

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components



## Benefits

- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

## Application range

- Food machinery, equipment and components
- Pharmaceutical industry
- Mechanical engineering

## Product features

- High chemical and thermal stability with very aggressive media such as Detergents and disinfectants, acids and alkalis during cleaning processes etc.

## Norm references / Approvals

- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14159
  Security of machinery Hygienic requirements for the design of machinery

## Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- Rounded key areas for mounting with standard tools

## Suitable conduits

- SILVYN® FG
- SILVYN® FG NM

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Norm references / Approvals**
IEC EN 61386-23

**Material**
Body: Stainless Steel (Grade 316)
Insert: Nickel Plated Brass
Inner seal: Polyamide 6
Sealing material: Special Elastomer

**Protection rating**
IP66
IP67
IP68 (2 bar)
IP69

**Temperature range**
-50°C to +135°C

| Article number | Metric size | Clear opening (mm) | Suitable conduit nominal size | Pieces / PU |
|---|---|---|---|---|
| **SILVYN® HYGIENIC** | | | | |
| 55510700 | 16 x 1.5 | 10.7 | 3/8“ | 1 |
| 55510701 | 20 x 1.5 | 14.5 | 1/2“ | 1 |
| 55510702 | 25 x 1.5 | 18.7 | 3/4“ | 1 |
| 55510703 | 32 x 1.5 | 24.6 | 1“ | 1 |
| 55510704 | 40 x 1.5 | 32.7 | 1 1/4“ | 1 |
| 55510705 | 50 x 1.5 | 37.7 | 1 1/2“ | 1 |
| 55510706 | 63 x 1.5 | 49 | 2“ | 1 |

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# SILVYN® E-KIT



**Info**

- Orange coloured conduit kit with short lengths

## Benefits

- Protection and bundling of cables, lines and wires
- Maintenance and retrofit
- Additional abrasion protection for critical areas

## Application range

- E-Mobility

## Product features

- Divisible and closed protection conduits
- High mechanical and chemical resistance

## Norm references / Approvals

- Use acc. to the european regulation ECE/TRANS/WM.29/GRSP/2009/16 to mark high voltage systems and components (> 25V AC / > 60V DC) with the signal colour orange

## Included

- Corrugated conduit, slit and closable (3m)
- Corrugated conduit, two-part and closable (3m)
- Knit woven fabric, closed and puncture-resistant (3m)
- Braided sleeve, slit and self-wrapping (3m)
- Cable ties (100 pieces, 200mm x 2.5mm) and installation tool (1x)

## Technical data

**Colour delivered**
Orange

**Material**
Polyamide 6 (PA6)
Polypropylene (PP)
Polyester (PET)
Fire behaviour according to UL94 V-2

**Temperature range**
PP: -30 to +105°C
PA6: -55 to +125°C
PET: -40 to +160°C

| Article number | Corrugated conduit (m) | Knit woven/Braided sleeve (m) | Cable ties (pcs) | Quantity (m) | Quantity (unit) | PU |
|---|---|---|---|---|---|---|
| **SILVYN® E-KIT** | | | | | | |
| 61737407 | Polypropylene (PP) | Polyester (PET) | Polyamide 6 (PA6) | 3 | 100 | 1 |

Other colours and sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® CNP / SILVYN® CNP NPT



## Benefits

**SILVYN® CNP**

- Protection against mechanical stress
- Protects against liquids
- Bendable
- Highly oil and acid-resistant

**SILVYN® CNP NPT**

- Flame-retardant
- High tensile strength
- For high mechanical stress
- High chemical-resistance

## Application range

- Mechanical engineering
- Robot-building
- Vending machine construction
- Exporters

## Product Make-up

**SILVYN® CNP**

- PVC inner conduit
- Nylon braiding
- Plastic outer sheath

**SILVYN® CNP NPT**

- The basic body is made of cast steel with a galvanised surface. The inner sleeve is made of polyamide and accommodates the conduit. A special profile on the inner sleeve is pressed into the conduit by the union nut
- Including O-ring and counter nut

## Technical data

**Classification ETIM 5/6**
**SILVYN® CNP**
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose
**SILVYN® CNP NPT**
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

**Certifications**
**SILVYN® CNP**
UL 1660

**Colour delivered**
**SILVYN® CNP**
Orange

**Material**
**SILVYN® CNP**
PVC compound with nylon fabric
**SILVYN® CNP NPT**
Body: cast steel with zinc-plated surface
Inner sleeve: PA

**Protection rating**
IP 67

**Temperature range**
**SILVYN® CNP**
-20°C to +60°C
CSA: -18°C to +75°C
Short-term: up to +80°C
**SILVYN® CNP NPT**
-45°C to +105°C

| Article number | Nominal size | ID x OD mm | Static/dynamic bending radius in mm | Suitable for SILVYN® CNP | PU ring (m) |
|---|---|---|---|---|---|
| **SILVYN® CNP** | | | | | |
| 61712930 | 3/8“ | 12.6 x 19.4 | 70.0/100.0 | 1/2“ | 76 |
| 61722330 | 1/2“ | 16.1 x 23.4 | 90.0/125.0 | 1/2“ | 60 |
| 61722340 | 3/4“ | 21.0 x 29.5 | 115.0/160.0 | 3/4“ | 53 |
| 61712460 | 1“ | 26.5 x 36.3 | 170.0/200.0 | 1“ | 30 |
| 61712910 | 1 1/4“ | 31.5 x 46.0 | 200.0/240.0 | 1 1/4“ | 15 |
| 61722270 | 1 1/2“ | 40.4 x 52.4 | 230.0/290.0 | 1 1/2“ | 15 |
| 61722320 | 2“ | 52.4 x 66.6 | 260.0/350.0 | 2“ | 15 |
| **SILVYN® CNP NPT fitting** | | | | | |
| 55500401 | 1/2“ | | | 3/8“ | 1 |
| 55500431 | 1“ | | | 1“ | 1 |
| 55500441 | 1 1/4“ | | | 1 1/4“ | 1 |
| 55500451 | 1 1/2“ | | | 1 1/2“ | 1 |
| 55500461 | 2“ | | | 2“ | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SILVYN® Conduit scissor



### Benefits
- Proper and safe cutting of plastic conduits

### Application range
- Conduit shears for non-metallic conduit, e.g. parallel corrugated protective conduit.

### Suitable conduits
- Flexible with PVC spiral
- SILVYN® HIPROJACKET
- SILVYN® FPAS
- SILVYN® HCC
- SILVYN® RILL PA 6
- SILVYN® SI
- SILVYN® SINUS PA6
- SILVYN® SPLIT
- SILVYN® RILL PA 12

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000160
ETIM 5.0/6.0 Class-Description: Shears

| Article number | Article designation | Cutting range Ø (mm) | Pieces / PU |
|---|---|---|---|
| **SILVYN® Conduit scissor** | | | |
| 61722285 | CC01 | 0 - 34 | 1 |
| 61722286 | CC02 | 0 - 67 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## SILVYN® vice



### Application range
- For right-angled sawing of protective metal conduits.

### Suitable conduits
- SILVYN® HTDL
- SILVYN® SSUE
- SILVYN® UI 511
- SILVYN® FPS-EDU
- SILVYN® EF
- SILVYN® OR
- SILVYN® HCX
- SILVYN® HFX
- SILVYN® AS-P
- SILVYN® EDU-AS
- SILVYN® EMC AS-CU

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002199
ETIM 5.0/6.0 Class-Description: Bench-vice

| Article number | Article designation | Saw range Ø (mm) | Pieces / PU |
|---|---|---|---|
| **SILVYN® vice** | | | |
| 61722280 | SAWING DEVICE WZ | 18 - 45 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® coupler

## Benefits
- Easy to assemble
- High tensile strength
- Optional extension of all conduits

## Application range
- In combination with:
- All metric conduit glands

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000938
ETIM 5.0/6.0 Class-Description:
Enlargement/reducing ring

**Material**
Nickel-plated brass

**Temperature range**
Dependent on the glands used



| Article number | Article designation | Metric size | SW wrench size mm | Overall length mm | Outer Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® coupler** | | | | | | |
| 55510000 | 16 | M16 x 1.5 | 20 | 22.5 | 22 | 10 |
| 55510010 | 20 | M20 x 1.5 | 24 | 25 | 26 | 10 |
| 55510020 | 25 | M25 x 1.5 | 29 | 30 | 32 | 10 |
| 55510030 | 32 | M32 x 1.5 | 35 | 32.5 | 38 | 10 |
| 55510040 | 40 | M40 x 1.5 | 48 | 34 | 53 | 2 |
| 55510050 | 50 | M50 x 1.5 | 58 | 38 | 64 | 1 |
| 55510060 | 63 | M63 x 1.5 | 70 | 45 | 77 | 1 |
| 55510070 | 75 | M75 x 1,5 | 84 | 45 | 93 | 1 |

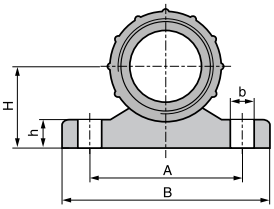
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# SILVYN® BW-M

# SILVYN® BW-K-M








## Benefits
- Space-saving

## Application range
- Mechanical engineering
- Plant engineering
- Control cabinet manufacturing
- Used in areas where SILVYN® protective conduits cannot be inserted into a machine or an appliance

## Product Make-up
**SILVYN® BW-K-M**
- Plastic fixing bracket
- 2 x bore hole for fixation

**SILVYN® BW-M**
- Steel fixing bracket
- 2 x bore hole for fixation

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001458
ETIM 5.0/6.0 Class-Description:
Fastening angle for hose fitting

**Colour delivered**
**SILVYN® BW-K-M**
Grey, RAL 7001

**Material**
**SILVYN® BW-K-M**
PP
**SILVYN® BW-M**
Steel, passivated

**Temperature range**
**SILVYN® BW-K-M**
-40°C to +100°C

| Article number | Article designation | Metric size | A mm | B in mm | Pieces / PU |
|---|---|---|---|---|---|
| **SILVYN® BW-K-M** | | | | | |
| 55000911 | | 20 x 1.5 | 37.5 | 50 | 50 |
| 55000921 | | 25 x 1.5 | 43 | 57 | 50 |
| 55000931 | | 32 x 1.5 | 53.5 | 67 | 50 |
| 55000941 | | 40 x 1.5 | 65.5 | 79.5 | 50 |
| 55000951 | | 50 x 1.5 | 69.5 | 86 | 50 |
| **SILVYN® BW-M** | | | | | |
| 55000531 | 16 | | 40 | 50 | 25 |
| 55000541 | 20 | | 40 | 50 | 25 |
| 55000551 | 25 | | 50 | 60 | 25 |
| 55000561 | 32 | | 60 | 70 | 25 |
| 55000571 | 40 | | 70 | 80 | 25 |
| 55000572 | 50 | | 80 | 90 | 25 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SILVYN® RKS



## Benefits

- Fast and easy mounting
- Various applications

## Application range

- Plant engineering
- Railway applications
- Automotive industry
- Fastening clamp for cables, conduits and pipes

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

**Material**
Steel, galvanised
Polychloroprene

**Temperature range**
-35 °C to +100 °C

| Article number | Article designation | Metal width (mm) | Width x thickness of rubber profile (mm) | Diameter (mm) | Hole Ø (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **SILVYN® RKS 1** | | | | | | |
| 61825170 | 6/12 | 12 | 15 x 1,2 | 6 | 5.3 (M5) | 100 |
| 61825180 | 8/12 | 12 | 15 x 1,2 | 8 | 5.3 (M5) | 100 |
| 61825190 | 10/12 | 12 | 15 x 1,2 | 10 | 5.3 (M5) | 100 |
| 61825200 | 12/12 | 12 | 15 x 1,2 | 12 | 5.3 (M5) | 100 |
| 61825210 | 13/15 | 15 | 18,5 x 1,5 | 13 | 6.4 (M6) | 100 |
| 61825355 | 14/15 | 15 | 18,5 x 1,5 | 14 | 6.4 (M6) | 100 |
| 61825365 | 15/15 | 15 | 18,5 x 1,5 | 15 | 6.4 (M6) | 100 |
| 61825375 | 16/15 | 15 | 18,5 x 1,5 | 16 | 6.4 (M6) | 100 |
| 61825040 | 18/15 | 15 | 18,5 x 1,5 | 18 | 6.4 (M6) | 100 |
| 61825052 | 19/15 | 15 | 18,5 x 1,5 | 19 | 6.4 (M6) | 100 |
| 61825380 | 20/15 | 15 | 18,5 x 1,5 | 20 | 6.4 (M6) | 100 |
| 61825382 | 21/15 | 15 | 18,5 x 1,5 | 21 | 6.4 (M6) | 100 |
| 61825050 | 22/15 | 15 | 18,5 x 1,5 | 22 | 6.4 (M6) | 100 |
| 61825390 | 23/15 | 15 | 18,5 x 1,5 | 23 | 6.4 (M6) | 100 |
| 61825392 | 24/20 | 20 | 25 x 1,5 | 24 | 8.4 (M8) | 100 |
| 61825400 | 25/15 | 15 | 18,5 x 1,5 | 25 | 6.4 (M6) | 100 |
| 61825402 | 26/15 | 15 | 18,5 x 1,5 | 26 | 6.4 (M6) | 100 |
| 61825250 | 28/15 | 15 | 18,5 x 1,5 | 28 | 6.4 (M6) | 100 |
| 61825255 | 30/15 | 15 | 18,5 x 1,5 | 30 | 6.4 (M6) | 100 |
| 61825257 | 32/15 | 15 | 18,5 x 1,5 | 32 | 6.4 (M6) | 100 |
| 61825259 | 34/15 | 15 | 18,5 x 1,5 | 34 | 6.4 (M6) | 100 |
| 61825260 | 35/15 | 15 | 18,5 x 1,5 | 35 | 6.4 (M6) | 100 |
| 61825262 | 36/20 | 20 | 25 x 1,5 | 36 | 8.4 (M8) | 100 |
| 61825264 | 38/20 | 20 | 25 x 1,5 | 38 | 8.4 (M8) | 100 |
| 61825295 | 40/20 | 20 | 25 x 1,5 | 40 | 8.4 (M8) | 100 |

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8

# FLEXIMARK®

## Marking systems

The requirement: Permanent markings. The solution: FLEXIMARK®. These sophisticated systems mean that a clear overview inside a control cabinet is no longer just a pipe dream. From simple labels for manual marking through to electronic markings, the FLEXIMARK® range is guaranteed to last.

**Application range**

- Control cabinet manufacturing
- Automation technology
- Industrial machinery and plant engineering
- Renewable energies
- Wherever cables are used

## FLEXIMARK® Customized Marking

**FLEXIMARK® FCC**

FLEXIMARK® Stainless steel FCC 1055
FLEXIMARK® Cablelabel PUR FCC 1056
FLEXIMARK® Cablemarking FCC 1057
FLEXIMARK® Organised shrink tube FCC 1058
FLEXIMARK® Shrink mark FCC 1059
FLEXIMARK® Flexiprint FCC 1060

## FLEXIMARK® Labels for laser printing

**Cable and single core marking**

FLEXIMARK® Wrapping label LCK 1061
FLEXIMARK® Flexilabel LFL 1062
FLEXIMARK® Label LMB 1063
FLEXIMARK® Flexiprint LF 1064

**Component marking**

FLEXIMARK® LA Labels 1065

## FLEXIMARK® Labels for thermal transfer printing

**Cable and single core marking**

FLEXIMARK® Wrapping labels TCK 1066
FLEXIMARK® Cablelabel PUR 1067
FLEXIMARK® Organised shrink tube 1068
FLEXIMARK® Shrink mark 1069
FLEXIMARK® Flexiprint TF 1070

**Component marking**

FLEXIMARK® TA Labels Component marking 1071
FLEXIMARK® TA foam Component marking 1072
FLEXIMARK® TA Foam Panel strip 1072

## FLEXIMARK® Software and Printer

FLEXIMARK® Software 11.1 1073

**Printing systems**

Thermal printer SQUIX and EOS5* 1074
FLEXIMARK® ribbons SQUIX, EOS4 and EOS5 1075

## Electronic label-printers

**Electronic label-printers**

DYMO® Industry Rhino Pro 4200 1076
DYMO® XTL 300 / 500 1077

## FLEXIMARK® character holders and accessories

**Character holders**

FLEXIMARK® Character holders PTE 1078
FLEXIMARK® Character holders PTEF / CAB 1079
FLEXIMARK® Collar Snap-on 1080
FLEXIMARK® Collar closed 1080
FLEXIMARK® Collar for cable tie 1080

**Accessories character holders**

FLEXIMARK® Pliers FL52ERA 1081

**Cable bundling**

KMK Label holders 1082
ETB Label holders 1082

## FLEXIMARK® Safety Sign

**Safety Sign**

FLEXIMARK® Warning signs/Prohibition signs/Mandatory signs 1083
FLEXIMARK® THERMO SPOT 1084
FLEXIMARK® THERMO WRAP 1085
FLEXIMARK® THERMO SPOT-B 1087
FLEXIMARK® THERMO CLIP 1088
FLEXIMARK® THERMO CLIP Starter Kit 1089

## FLEXIMARK® Numbers and letters

**Stainless steel system**

FLEXIMARK® Stainless steel kit 1090
FLEXIMARK® Stainless steel characters MR 1091
FLEXIMARK® Stainless steel character holders NM 1092

**Marking rings**

Marking rings PA 1093
Marking rings PC 1094
Marking rings Pliosnap 1095

## Embossing machines

**Manual embossing machines**

M1011 Manual embossing machine 1096


FLEXIMARK®
FLEXIMARK®
RK®
1
23
4
5

| How? / What? | | Customised system<br>**Your requirement – we deliver** | Basic system<br>**Ready-made for delivery in any environment** |
|---|---|---|---|
| **Cable and Wires** | **After mounting the wire** |  <br>Stainless steel FCC<br>  <br>Cable label PUR FCC<br>  <br>Cable marking FCC |  <br>Stainless steel MR and NM<br>  <br>M1011 Manual embossing machine<br>  <br>Marking rings PC<br>  <br>Marking rings Pliosnap<br>  <br>  <br>DYMO® Mobile printer |
| | **Before mounting the wire** |  <br>Organised shrink tube FCC<br>  <br>Flexiprint FCC<br>  <br>Shrink mark FCC |  <br>Marking rings PA |
| **Component** | **Device marking** |  <br>Engraved signs FCC<br>  <br>Stainless steel component marking FCC |  <br>  <br>DYMO® Mobile printer |
| **Accessories** | |  <br>Character holders and collars<br>  <br>Pliers FL52ERA |  <br>LS steel cable ties<br>  <br>Steel gun HT 338 |

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## Data marking

### Laser office printers



Wrapping label LCK



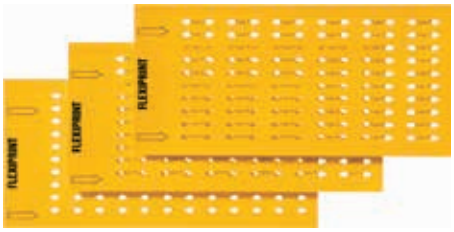
Cable label LFL



Flexilabel LFL




Label LMB




Flexiprint LF

### Thermal transfer printers



Wrapping label TCK



Cable label PUR



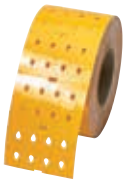
Flexilabel TFL



Label TMB



Organised shrink tube



Flexiprint TF



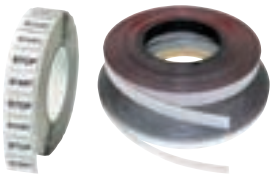
Shrink mark



Label LA



Label TA



Label TA Foam

FLEXIMARK® SOFTWARE 11.0

- Print your own labels & signs
- Work with Excel files
- Print barcodes, QR codes & sequences




Thermal transfer printer



Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# FLEXIMARK® FCC

Customised Markings



The customised markings are delivered sorted and ready for mounting.

**Benefits:**

- The printing service is already included in the price
- Time-saving
- No minimum quantity
- One or two-line printing is available

| ARTICLE NUMBER: | | |
|---|---|---|
| LENGTH (in mm): | | |
| | | |
| TEXT ROW 1 | TEXT ROW 2 | AMOUNT |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Ordering process:**

1. Create an Excel file with text information and the quantity for each sign
2. Send the Excel file together with your order to Customer Service

## Available for the following labels:



FLEXIMARK® Stainless Steel FCC



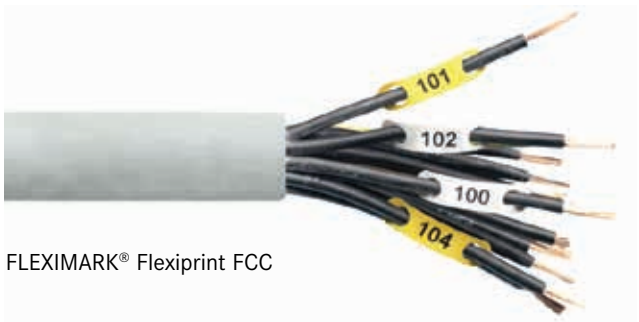

FLEXIMARK® Cable label PUR FCC




FLEXIMARK® Shrink Mark FCC




FLEXIMARK® Cable marking FCC




FLEXIMARK® Flexiprint FCC




FLEXIMARK® Organised Shrink Tube FCC

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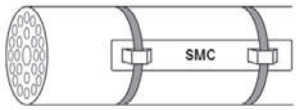
# FLEXIMARK® Stainless steel FCC

**Info**

- Included in FLEXIMARK® sample bag (article no.: M3251010)











## Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Extremely durable

## Application range

- Resists harsh environmental influences and extreme weather conditions
- Railway industry, food industry, wind industry, oil and gas industry

## Norm references / Approvals

- Achilles JQS certified

## Included

- 1 PU = 1 marker, there is no mimimum purchase quantity
- Markers are sorted prior to delivery
- Included cable ties in article no.: 83251406, 83251456, 83251426, 83251468: Stainless steel cable ties LS 4,6-200 (article no.61812950)

## Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766
- Length of the markers is depending on the number of characters
- All characters are printed in capital letters
- Max. number of characters:
  one-line embossing: short size 15, long size 25
  two-line embossing: short size 30 (15 per line), long size 50 (25 per line)

## Suitable tools

- Steel Gun HT-338 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Cable coding system

**Dimensions**
Character height: 4.2 mm
Gap between 2 characters: approx. 1 mm
Borehole diameter: 3.2 mm
Cable tie width: max. 7.9 mm

**Note**
Blanko version article no. 83251575 and 83251576

**Info**
Available characters: A-Ü 0-9 ~ + - / . : , = Earth sign

**Material**
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

**Temperature range**
-80°C to +500°C

| Article number | Article designation | Height (mm) | Product Make-up | Number of characters per line | Markers / PU |
|---|---|---|---|---|---|
| **One line embossing / with cable tie brackets** | | | | | |
| 83251406 | FLEXIMARK® Stainless steel SMC FCC LS200 0-15 | 9.9 | with cable tie | 0-15 | 1 |
| 83251456 | FLEXIMARK® Stainless steel SMC FCC LS 16-25 | 9.9 | with cable tie | 16-25 | 1 |
| 83251402 | FLEXIMARK® Stainless steel SMC FCC 0-15 | 9.9 | without cable tie | 0-15 | 1 |
| 83251454 | FLEXIMARK® Stainless steel SMC FCC 16-25 | 9.9 | without cable tie | 16-25 | 1 |
| **One line embossing / with srew hole** | | | | | |
| 83251450 | FLEXIMARK® Stainless steel SM FCC 0-15 | 9.9 | with screw hole | 0-15 | 1 |
| 83251478 | FLEXIMARK® Stainless steel SM FCC 16-25 | 9.9 | with screw hole | 16-25 | 1 |
| **Two-line embossing / with cable tie brackets** | | | | | |
| 83251426 | FLEXIMARK® Stainless steel SMC2R FCC LS 0-15 | 13.9 | with cable tie | 0-15 | 1 |
| 83251468 | FLEXIMARK® Stainless steel SMC2R FCC LS 16-25 | 13.9 | with cable tie | 16-25 | 1 |
| 83251422 | FLEXIMARK® Stainless steel SMC2R FCC 0-15 | 13.9 | without cable tie | 0-15 | 1 |
| 83251466 | FLEXIMARK® Stainless steel SMC2R FCC 16-25 | 13.9 | without cable tie | 16-25 | 1 |
| **Two-line embossing / with srew hole** | | | | | |
| 83251451 | FLEXIMARK® Stainless steel SM2R FCC 0-15 | 13.9 | with screw hole | 0-15 | 1 |
| 83251479 | FLEXIMARK® Stainless steel SM2R FCC 16-25 | 13.9 | with screw hole | 16-25 | 1 |

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Blank markers could be found on the product page “SP Metalprint” (article no.: 83251575 and 83251576).

# FLEXIMARK® Cablelabel PUR FCC






**Info**

- PUR 60x10 included in FLEXIMARK® sample bag (article no.: M3251010)

## Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

## Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

## Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

## Note

- Markers will be delivered with the desired text (printing service is included in the price)

- One or two-line printing possible
- Text length is depending on the size of the label and the readability- in general there is no word limitation
- Ordering process: Customer- specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766

## Included

- 1 PU = 1 marker, there is no mimimum purchase quantity

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Cable coding system

**Colour delivered**
Standard is black text (black labels: white text)

**Material**
Halogen-free polyurethane

**Temperature range**
-50°C to +100°C
Could also withstand +125°C in the short term

| Article number | Article designation | Colour | Width x length (mm) | Markers / PU |
|---|---|---|---|---|
| **Mounting centrally (with 1 cable tie)** | | | | |
| 83255364 | FLEXIMARK® Cablelabel PUR 23x30 YE Diamond FCC | yellow | 20.0 x 30.0 | 1 |
| 83255369 | FLEXIMARK® Cablelabel PUR 20x30 WH Diamond FCC | white | 20.0 x 30.0 | 1 |
| **Mounting left (with 1 cable tie)** | | | | |
| 83255366 | FLEXIMARK® Cablelabel PUR 55x12 YE FCC | yellow | 55.0 x 12.0 | 1 |
| 83255371 | FLEXIMARK® Cablelabel PUR 55x12 WH FCC | white | 55.0 x 12.0 | 1 |
| **Mounting two-sided (with 2 cable ties)** | | | | |
| 83255365 | FLEXIMARK® Cablelabel PUR 35x10 YE FCC | yellow | 35.0 x 10.0 | 1 |
| 61800391 | FLEXIMARK® Cablelabel PUR 60x10 YE FCC | yellow | 60.0 x 10.0 | 1 |
| 61800392 | FLEXIMARK® Cablelabel PUR 75x15 YE FCC | yellow | 75.0 x 15.0 | 1 |
| 61800393 | FLEXIMARK® Cablelabel PUR 75x25 YE FCC | yellow | 75.0 x 25.0 | 1 |
| 83255368 | FLEXIMARK® Cablelabel PUR 100x60 YE FCC | yellow | 100.0 x 60.0 | 1 |
| 83255370 | FLEXIMARK® Cablelabel PUR 35x10 WH FCC | white | 35.0 x 10.0 | 1 |
| 61800394 | FLEXIMARK® Cablelabel PUR 60x10 WH FCC | white | 60.0 x 10.0 | 1 |
| 61800395 | FLEXIMARK® Cablelabel PUR 75x15 WH FCC | white | 75.0 x 15.0 | 1 |
| 61800396 | FLEXIMARK® Cablelabel PUR 75x25 WH FCC | white | 75.0 x 25.0 | 1 |
| 83255372 | FLEXIMARK® Cablelabel PUR 100x60 WH FCC | white | 100.0 x 60.0 | 1 |
| 61800397 | FLEXIMARK® Cablelabel PUR 60x10 RD FCC | red | 60.0 x 10.0 | 1 |
| 61800398 | FLEXIMARK® Cablelabel PUR 75x15 RD FCC | red | 75.0 x 15.0 | 1 |
| 61800399 | FLEXIMARK® Cablelabel PUR 75x25 RD FCC | red | 75.0 x 25.0 | 1 |
| 61800400 | FLEXIMARK® Cablelabel PUR 60x10 OG FCC | orange | 60.0 x 10.0 | 1 |
| 61800401 | FLEXIMARK® Cablelabel PUR 75x15 OG FCC | orange | 75.0 x 15.0 | 1 |
| 61800402 | FLEXIMARK® Cablelabel PUR 75x25 OG FCC | orange | 75.0 x 25.0 | 1 |
| 61800403 | FLEXIMARK® Cablelabel PUR 60x10 BU FCC | blue | 60.0 x 10.0 | 1 |
| 61800404 | FLEXIMARK® Cablelabel PUR 75x15 BU FCC | blue | 75.0 x 15.0 | 1 |
| 61800412 | FLEXIMARK® Cablelabel PUR 75x25 BU FCC | blue | 75.0 x 25.0 | 1 |
| 61800406 | FLEXIMARK® Cablelabel PUR 60x10 BK FCC | black | 60.0 x 10.0 | 1 |
| 61800407 | FLEXIMARK® Cablelabel PUR 75x15 BK FCC | black | 75.0 x 15.0 | 1 |
| 61800413 | FLEXIMARK® Cablelabel PUR 75x25 BK FCC | black | 75.0 x 25.0 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Cablemarking FCC






## Benefits

- No time-consuming preparation and installation
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

## Application range

- For cable marking

## Note

- Markers will be delivered with the desired text (printing service is included in the price)
- One or two-line printing possible
- Text length is depending on the size of the label and the readability- in general there is no word limitation
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766

## Included

- Marking consists of FLEXIMARK® Character holder PTEF, printed PVC label (not halogen-free) or FLEXIMARK® Flexilabel LFL (halogen-free) and two standard cable ties in PA 6.6 (black)
- Markers (including cable ties) are pre-assembled prior to delivery
- 1 PU = 1 marker, there is no mimimum purchase quantity

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Dimensions**
Length text: 35 mm
Length plate: 50 mm

**Note**
Standard cable tie:
Black (142 x 2.4 mm)

**Colour delivered**
Standard colour: black lettering against yellow or white background
Also available in green, blue and red

**Material**
Character holder: Halogen-free PE
Labels: Not halogen-free PVC or halogenfree polyester (LFL version)

**Temperature range**
-30°C to +70°C

| Article number | Article designation | Colour | Height (mm) | Markers / PU |
|---|---|---|---|---|
| **With yellow PVC markers (not halogenfree)** | | | | |
| 83251300 | FLEXIMARK® Cable marker FCC 6 YE | yellow | 6.0 | 1 |
| 83251320 | FLEXIMARK® Cable marker FCC 9,5 YE | yellow | 9.5 | 1 |
| 83251350 | FLEXIMARK® Cable marker FCC 19 YE | yellow | 19.0 | 1 |
| **With yellow LFL labels made of polyester (halogenfree)** | | | | |
| 83274670 | FLEXIMARK® Cable marker LFL 9,5-35 YE FCC | yellow | 9.5 | 1 |
| **With white PVC markers (not halogenfree)** | | | | |
| 83251301 | FLEXIMARK® Cable marker FCC 6 WH | white | 6.0 | 1 |
| 83251321 | FLEXIMARK® Cable marker FCC 9,5 WH | white | 9.5 | 1 |
| 83251351 | FLEXIMARK® Cable marker FCC 19 WH | white | 19.0 | 1 |

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# FLEXIMARK® Organised shrink tube FCC





## Benefits

- Halogen-free shrink tubes with customized text
- Benefit in comparison with marking rings: You do not have to mount every single character at a time, just order and mount whole series at once
- Already cut to the exact length

## Application range

- For single core marking
- Marking before assembly

## Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766

## Included

- 1 PU = 1 marker, there is no mimimum purchase quantity

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**On request**
Also available as version with a 3:1 shrink ratio (not halogen-free, UL 224 approved)

**Colour delivered**
Yellow

**Material**
Polyolefin (halogen-free)
Shrinking ratio: 2:1

**Temperature range**
-30 °C to +105 °C
Shrinking temperature: +90 °C

| Article number | Article designation | Colour | Shrinkage range (mm) | Length (mm) | Markers / PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Organised shrink tube FCC** | | | | | |
| 83280249 | FLEXIMARK® O.shr FCC 2.4/1.2-12.5 YE | yellow | 1.2 - 2.4 | 12 | 1 |
| 83280252 | FLEXIMARK® O.shr FCC 2.4/1.2-16.6 YE | yellow | 1.2 - 2.4 | 16 | 1 |
| 83255385 | FLEXIMARK® O.shr FCC 2.4/1.2-25 YE | yellow | 1.2 - 2.4 | 25 | 1 |
| 83280250 | FLEXIMARK® O.shr FCC 3.2/1.6-12.5 YE | yellow | 1.6 - 3.2 | 12 | 1 |
| 83280253 | FLEXIMARK® O.shr FCC 3.2/1.6-16.6 YE | yellow | 1.6 - 3.2 | 16 | 1 |
| 83255386 | FLEXIMARK® O.shr FCC 3.2/1.6-25 YE | yellow | 1.6 - 3.2 | 25 | 1 |
| 83280251 | FLEXIMARK® O.shr FCC 4.8/2.4- 12.5 YE | yellow | 2.4 - 4.8 | 12 | 1 |
| 83280254 | FLEXIMARK® O.shr FCC 4.8/2.4-16.6 YE | yellow | 2.4 - 4.8 | 16 | 1 |
| 83255387 | FLEXIMARK® O.shr FCC 4.8/2.4-25 WH | white | 2.4 - 4.8 | 25 | 1 |
| 83255388 | FLEXIMARK® O.shr FCC 2.4/1.2-12.5 WH | white | 1.2 - 2.4 | 12 | 1 |
| 83255389 | FLEXIMARK® O.shr FCC 2.4/1.2-16.6 WH | white | 1.2 - 2.4 | 16 | 1 |
| 83255390 | FLEXIMARK® O.shr FCC 2.4/1.2-25 WH | white | 1.2 - 2.4 | 25 | 1 |
| 83255391 | FLEXIMARK® O.shr FCC 3.2/1.6-12.5 WH | white | 1.6 - 3.2 | 12 | 1 |
| 83255392 | FLEXIMARK® O.shr FCC 3.2/1.6-16.6 WH | white | 1.6 - 3.2 | 16 | 1 |
| 83255393 | FLEXIMARK® O.shr FCC 3.2/1.6-25 WH | white | 1.6 - 3.2 | 25 | 1 |
| 83255394 | FLEXIMARK® O.shr FCC 4.8/2.4-12.5 WH | white | 2.4 - 4.8 | 12 | 1 |
| 83255395 | FLEXIMARK® O.shr FCC 4.8/2.4-16.6 WH | white | 2.4 - 4.8 | 16 | 1 |

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# FLEXIMARK® Shrink mark FCC

**Info**

- Shrink mark FK 12.7 RD 5-7 included in FLEXIMARK® sample bag (article no.: M3251010)






## Benefits

- Personalised printing of the shrinking tube segments according to customer specifications
- Protection of the cable insulation

## Application range

- For cable marking
- For applications where space is tight
- E.g. for applications in the railway or wind industry

## Norm references / Approvals

- Flame retardant according to ASTM D635-HB

## Note

- Markers will be delivered with the desired text (printing service is included in the price)
- One or two-line printing possible
- Please specify the desired text colour, mode of delivery (perforation or cut, lengths) and other requirements (e.g. textalignments) with your order
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766

## Included

- 1 PU = 1 marker, there is no mimimum purchase quantity
- Delivery either in cutted pieces or in one piece (already perforated)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
Black
Also available in blue, red, yellow, white

**Material**
Polyolefin

**Shrinking ratio**
2:1

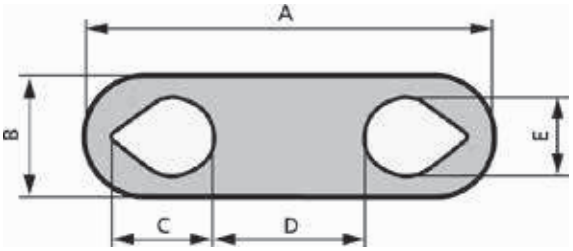
**Temperature range**
-55 °C to +125 °C

| Article number | Article designation | Colour | Ø before shrinking (mm) | Ø after shrinking (mm) | Number of characters | Markers / PU |
|---|---|---|---|---|---|---|
| **FLEXIMARK® Shrink mark FCC** | | | | | | |
| 83280029 | FLEXIMARK® Shrink mark FCC-FK 3,2 BK | black | 3.2 | 1.6 | 1-7 | 1 |
| 83280030 | FLEXIMARK® Shrink mark FCC-FK 3,2 BK | black | 3.2 | 1.6 | 8-12 | 1 |
| 83280031 | FLEXIMARK® Shrink mark FCC-FK 3,2 BK | black | 3.2 | 1.6 | 13-17 | 1 |
| 83280032 | FLEXIMARK® Shrink mark FCC-FK 4,8 BK | black | 4.8 | 2.4 | 1-7 | 1 |
| 83280033 | FLEXIMARK® Shrink mark FCC-FK 4,8 BK | black | 4.8 | 2.4 | 8-12 | 1 |
| 83280034 | FLEXIMARK® Shrink mark FCC-FK 4,8 BK | black | 4.8 | 2.4 | 13-17 | 1 |
| 83280035 | FLEXIMARK® Shrink mark FCC-FK 6,4 BK | black | 6.4 | 3.2 | 1-7 | 1 |
| 83280036 | FLEXIMARK® Shrink mark FCC-FK 6,4 BK | black | 6.4 | 3.2 | 8-12 | 1 |
| 83280037 | FLEXIMARK® Shrink mark FCC-FK 6,4 BK | black | 6.4 | 3.2 | 13-17 | 1 |
| 83280038 | FLEXIMARK® Shrink mark FCC-FK 9,5 BK | black | 9.5 | 4.75 | 1-7 | 1 |
| 83280039 | FLEXIMARK® Shrink mark FCC-FK 9,5 BK | black | 9.5 | 4.75 | 8-12 | 1 |
| 83280040 | FLEXIMARK® Shrink mark FCC-FK 9,5 BK | black | 9.5 | 4.75 | 13-17 | 1 |
| 83280041 | FLEXIMARK® Shrink mark FCC-FK 12,7 BK | black | 12.7 | 6.35 | 1-7 | 1 |
| 83280042 | FLEXIMARK® Shrink mark FCC-FK 12,7 BK | black | 12.7 | 6.35 | 8-12 | 1 |
| 83280043 | FLEXIMARK® Shrink mark FCC-FK 12,7 BK | black | 12.7 | 6.35 | 13-17 | 1 |
| 83280044 | FLEXIMARK® Shrink mark FCC-FK 19,1 BK | black | 19.1 | 9.55 | 1-7 | 1 |
| 83280045 | FLEXIMARK® Shrink mark FCC-FK 19,1 BK | black | 19.1 | 9.55 | 8-12 | 1 |
| 83280046 | FLEXIMARK® Shrink mark FCC-FK 19,1 BK | black | 19.1 | 9.55 | 13-17 | 1 |

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# FLEXIMARK® Flexiprint FCC




## Benefits

- Customised printed labels in various sizes
- Easy to install
- Good UV resistance

## Application range

- For single core marking
- Marking before assembly
- Marking of optical fibre cables

## Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template, see GUIDE:
  https://www.lapp.com/en/de/products/marking-systems/cable-and-single-core-marking/customised-markings/c/124766

## Included

- 1 PU = 1 marker, there is no mimimum purchase quantity

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
White
Also available in yellow, green, blue and red

**Material**
Halogen-free polyester
Thickness: 0.175 mm

**Temperature range**
-40°C to +125°C

| Article number | Article designation | Colour | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | For mm² | Markers / PU |
|---|---|---|---|---|---|---|---|---|---|
| **FLEXIMARK® Flexiprint FCC** | | | | | | | | | |
| 83251100 | FLEXIMARK® Flexiprint F0 YE FCC | yellow | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 1 |
| 83251110 | FLEXIMARK® Flexiprint F1 YE FCC | yellow | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 1 |
| 83251160 | FLEXIMARK® Flexiprint F1L YE FCC | yellow | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 1 |
| 83251120 | FLEXIMARK® Flexiprint F1B YE FCC | yellow | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 1 |
| 83251170 | FLEXIMARK® Flexiprint F1BL YE FCC | yellow | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 1 |
| 83251130 | FLEXIMARK® Flexiprint F2 YE FCC | yellow | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 1 |
| 83251140 | FLEXIMARK® Flexiprint F3 YE FCC | yellow | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1 |
| 83251101 | FLEXIMARK® Flexiprint F0 WH FCC | white | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 1 |
| 83251111 | FLEXIMARK® Flexiprint F1 WH FCC | white | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 1 |
| 83251161 | FLEXIMARK® Flexiprint F1L WH FCC | white | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 1 |
| 83251121 | FLEXIMARK® Flexiprint F1B WH FCC | white | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 1 |
| 83251171 | FLEXIMARK® Flexiprint F1BL WH FCC | white | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 1 |
| 83251131 | FLEXIMARK® Flexiprint F2 WH FCC | white | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 1 |
| 83251141 | FLEXIMARK® Flexiprint F3 WH FCC | white | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1 |
| 83251102 | FLEXIMARK® Flexiprint F0 GN FCC | green | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 1 |
| 83251112 | FLEXIMARK® Flexiprint F1 GN FCC | green | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 1 |
| 83251162 | FLEXIMARK® Flexiprint F1L GN FCC | green | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 1 |
| 83251122 | FLEXIMARK® Flexiprint F1B GN FCC | green | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 1 |
| 83251172 | FLEXIMARK® Flexiprint F1BL GN FCC | green | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 1 |
| 83251132 | FLEXIMARK® Flexiprint F2 GN FCC | green | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 1 |
| 83251142 | FLEXIMARK® Flexiprint F3 GN FCC | green | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1 |
| 83251103 | FLEXIMARK® Flexiprint F0 BU FCC | blue | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 1 |
| 83251113 | FLEXIMARK® Flexiprint F1 BU FCC | blue | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 1 |
| 83251163 | FLEXIMARK® Flexiprint F1L BU FCC | blue | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 1 |
| 83251123 | FLEXIMARK® Flexiprint F1B BU FCC | blue | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 1 |
| 83251173 | FLEXIMARK® Flexiprint F1BL BU FCC | blue | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 1 |
| 83251133 | FLEXIMARK® Flexiprint F2 BU FCC | blue | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 1 |
| 83251143 | FLEXIMARK® Flexiprint F3 BU FCC | blue | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1 |
| 83251104 | FLEXIMARK® Flexiprint F0 RD FCC | red | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 1 |
| 83251114 | FLEXIMARK® Flexiprint F1 RD FCC | red | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 1 |
| 83251164 | FLEXIMARK® Flexiprint F1L RD FCC | red | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 1 |
| 83251124 | FLEXIMARK® Flexiprint F1B RD FCC | red | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 1 |
| 83251174 | FLEXIMARK® Flexiprint F1BL RD FCC | red | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 1 |
| 83251134 | FLEXIMARK® Flexiprint F2 RD FCC | red | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 1 |
| 83251144 | FLEXIMARK® Flexiprint F3 RD FCC | red | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Wrapping label LCK

**Info**

- LCK 32 YE included in FLEXIMARK® sample bag (article no.: M3251010)








## Benefits

- A transparent film is wrapped around the cable and pasted over the printed field so that the printing is protected against abrasion, pollution and solvents
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Due to tight wrapping, it is space-saving

## Application range

- For cable marking

## Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

## Included

- 10 or 100 perforated DIN A4 label sheets (dependent on the chosen packaging size)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Cable coding system

**Adhesive**
Acrylic-based permanent adhesive

**Colour delivered**
Yellow, white

**Material**
Halogen-free polyester
Thickness: 0.025 mm

**Temperature range**
-40°C to +125°C
Minimum working temperature: +10°C

| Article number | Article designation | Colour | Width x length (mm) | Labelling surface (mm) | For outer Ø (mm) | Markers / PU | PU |
|---|---|---|---|---|---|---|---|
| **Small packaging (10 sheets)** | | | | | | | |
| 83256142 | FLEXIMARK® Label LCK 32 YE | yellow | 25.0 x 33.5 | 25 x 12 | 4 - 7 | 640 | 1 |
| 83256144 | FLEXIMARK® Label LCK 35 YE | yellow | 25.0 x 55.0 | 25 x 19 | 6 - 12 | 400 | 1 |
| 83256146 | FLEXIMARK® Label LCK 40 YE | yellow | 25.0 x 94.0 | 25 x 25 | 8 - 21 | 240 | 1 |
| 83256148 | FLEXIMARK® Label LCK 45 YE | yellow | 25.5 x 142.5 | 25 x 25 | 8 - 36 | 160 | 1 |
| 83256161 | FLEXIMARK® Label LCK 48 YE | yellow | 34.0 x 93.0 | 34 x 25 | 8 - 21 | 180 | 1 |
| 83256150 | FLEXIMARK® Label LCK 60 YE | yellow | 50.0 x 56.0 | 50 x 19 | 6 - 12 | 200 | 1 |
| 83256152 | FLEXIMARK® Label LCK 65 YE | yellow | 50.0 x 94.0 | 50 x 25 | 8 - 21 | 120 | 1 |
| 83256154 | FLEXIMARK® Label LCK 70 YE | yellow | 50.0 x 142.5 | 50 x 25 | 8 - 36 | 80 | 1 |
| 83256143 | FLEXIMARK® Label LCK 32 WH | white | 25.0 x 33.5 | 25 x 12 | 4 - 7 | 640 | 1 |
| 83256145 | FLEXIMARK® Label LCK 35 WH | white | 25.0 x 55.0 | 25 x 19 | 6 - 12 | 400 | 1 |
| 83256147 | FLEXIMARK® Label LCK 40 WH | white | 25.0 x 94.0 | 25 x 25 | 8 - 21 | 240 | 1 |
| 83256149 | FLEXIMARK® Label LCK 45 WH | white | 25.0 x 142.5 | 25 x 25 | 8 - 36 | 160 | 1 |
| 83256160 | FLEXIMARK® Label LCK 48 WH | white | 34.0 x 93.0 | 34 x 25 | 8 - 21 | 180 | 1 |
| 83256151 | FLEXIMARK® Label LCK 60 WH | white | 50.0 x 56.0 | 50 x 19 | 6 - 12 | 200 | 1 |
| 83256153 | FLEXIMARK® Label LCK 65 WH | white | 50.0 x 94.0 | 50 x 25 | 8 - 21 | 120 | 1 |
| 83256155 | FLEXIMARK® Label LCK 70 WH | white | 50.0 x 142.5 | 50 x 25 | 8 - 36 | 80 | 1 |
| **Large packaging (100 sheets)** | | | | | | | |
| 83256542 | FLEXIMARK® Label LCK 32 YE-100 | yellow | 25.0 x 33.5 | 25 x 12 | 4 - 7 | 6400 | 1 |
| 83256544 | FLEXIMARK® Label LCK 35 YE-100 | yellow | 25.0 x 55.0 | 25 x 19 | 6 - 12 | 4000 | 1 |
| 83256546 | FLEXIMARK® Label LCK 40 YE-100 | yellow | 25.0 x 94.0 | 25 x 25 | 8 - 21 | 2400 | 1 |
| 83256548 | FLEXIMARK® Label LCK 45 YE-100 | yellow | 25.0 x 142.5 | 25 x 25 | 8 - 36 | 1600 | 1 |
| 83256550 | FLEXIMARK® Label LCK 60 YE-100 | yellow | 50.0 x 56.0 | 50 x 19 | 6 - 12 | 2000 | 1 |
| 83256552 | FLEXIMARK® Label LCK 65 YE-100 | yellow | 50.0 x 95.0 | 50 x 25 | 8 - 21 | 1200 | 1 |
| 83256554 | FLEXIMARK® Label LCK 70 YE-100 | yellow | 50.0 x 142.5 | 50 x 25 | 8 - 36 | 800 | 1 |
| 83256543 | FLEXIMARK® Label LCK 32 WH-100 | white | 25.0 x 33.5 | 25 x 12 | 4 - 7 | 6400 | 1 |
| 83256545 | FLEXIMARK® Label LCK 35 WH-100 | white | 25.0 x 55.0 | 25 x 19 | 6 - 12 | 4000 | 1 |
| 83256547 | FLEXIMARK® Label LCK 40 WH-100 | white | 25.0 x 94.0 | 25 x 25 | 8 - 21 | 2400 | 1 |
| 83256549 | FLEXIMARK® Label LCK 45 WH-100 | white | 25.0 x 142.5 | 25 x 25 | 8 - 36 | 1600 | 1 |
| 83256551 | FLEXIMARK® Label LCK 60 WH-100 | white | 50.0 x 56.0 | 50 x 19 | 6 - 12 | 2000 | 1 |
| 83256553 | FLEXIMARK® Label LCK 65 WH-100 | white | 50.0 x 94.0 | 50 x 25 | 8 - 21 | 1200 | 1 |
| 83256555 | FLEXIMARK® Label LCK 70 WH-100 | white | 50.0 x 142.5 | 50 x 25 | 8 - 36 | 800 | 1 |

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# FLEXIMARK® Flexilabel LFL






**Info**

- LFL 9.5-35 included in FLEXIMARK® sample bag (article no.: M3251010)

## Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Printable on both sides

## Application range

- For cable marking
- Suitable labels for PTE, PTEF and CAB character holders (see chapter “Character holders and accessories”)

## Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

## Included

- Perforated DIN A4 sheets

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
Yellow/White (can be printed on both sides)

**Material**
Halogen-free polyester
Thickness: 0.175 mm

**Temperature range**
-40°C to +125°C

| Article number | Article designation | Colour | Width x length (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Flexilabel LFL** | | | | | |
| 83254620 | FLEXIMARK® Label LFL 6-35 YEWH | yellow/white | 6.0 x 35.0 | 2350 | 1 |
| 83254650 | FLEXIMARK® Label LFL 9.5-17.5 YEWH | yellow/white | 9.5 x 17.5 | 3190 | 1 |
| 83254660 | FLEXIMARK® Label LFL 9.5-28 YEWH | yellow/white | 9.5 x 28.0 | 2030 | 1 |
| 83254670 | FLEXIMARK® Label LFL 9.5-35 YEWH | yellow/white | 9.5 x 35.0 | 1450 | 1 |
| 83254701 | FLEXIMARK® Label LFL 9.9-66 YEWH | yellow/white | 9.9 x 66.0 | 840 | 1 |
| 83254690 | FLEXIMARK® Label LFL 9.5-196 YEWH | yellow/white | 9.5 x 196.0 | 290 | 1 |
| 83254710 | FLEXIMARK® Label LFL 12-38 YEWH | yellow/white | 12.0 x 38.0 | 1150 | 1 |
| 83254714 | FLEXIMARK® Label LFL 15-45 YEWH | yellow/white | 15.0 x 45.0 | 720 | 1 |
| 83254718 | FLEXIMARK® Label LFL 19-50 YEWH | yellow/white | 19.0 x 50.0 | 560 | 1 |
| 83254719 | FLEXIMARK® Label LFL 19-100 YEWH | yellow/white | 19.0 x 100.0 | 280 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Label LMB

**Info**

- Included in FLEXIMARK® sample bag (article no.: M3251010)






## Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Printable on both sides

## Application range

- Suitable labels for snap-on collars, closed collars and collars for cable ties (see section “Character holders and accessories”)

## Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

## Included

- Perforated DIN A5 sheets

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**On request**
Also available as rolls for thermal transfer printers (TMB)

**Colour delivered**
Yellow/White (can be printed on both sides)

**Material**
Halogen-free polyester
Thickness: 0.175 mm

**Temperature range**
-40°C to +125°C

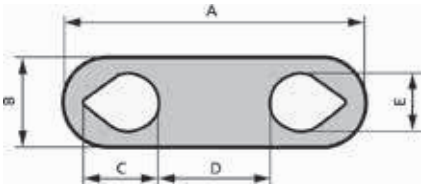
| Article number | Article designation | Colour | Width x length (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Label LMB** | | | | | |
| 83254680 | FLEXIMARK® Label LMB 30-4.6 YEWH | yellow/white | 4.6 x 30.0 | 480 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Flexiprint LF






**Info**

- LF1 included in FLEXIMARK® sample bag (article no.: M3251010)

## Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Easy to install

## Application range

- For single core marking
- Marking of optical fibre cables
- Marking before assembly
- For cable cross-sections over 16.00 mm², cable ties can be used for installing single markers

## Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters

## Included

- One label sheet consists of 20-60 perforated markers, depending on the size
- Sheetsize: 80-100mm x 210mm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
Yellow, white
On request: green, blue and red

**Material**
Halogen-free polyester
Thickness: 0.175 mm

**Temperature range**
-40°C to +125°C

| Article number | Article designation | Colour | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | For mm² | Markers / PU | PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **Small packaging (10 sheets)** | | | | | | | | | | |
| 83254410 | FLEXIMARK® Flexiprint LF0 YE | yellow | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 600 | 1 |
| 83254430 | FLEXIMARK® Flexiprint LF1 YE | yellow | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 600 | 1 |
| 83254447 | FLEXIMARK® Flexiprint LF1L YE | yellow | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 300 | 1 |
| 83254470 | FLEXIMARK® Flexiprint LF1B YE | yellow | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 600 | 1 |
| 83254487 | FLEXIMARK® Flexiprint LF1BL YE | yellow | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 300 | 1 |
| 83254510 | FLEXIMARK® Flexiprint LF2 YE | yellow | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 300 | 1 |
| 83254530 | FLEXIMARK® Flexiprint LF3 YE | yellow | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 200 | 1 |
| 83254416 | FLEXIMARK® Flexiprint LF0 WH | white | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 600 | 1 |
| 83254436 | FLEXIMARK® Flexiprint LF1 WH | white | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 600 | 1 |
| 83254448 | FLEXIMARK® Flexiprint LF1L WH | white | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 300 | 1 |
| 83254476 | FLEXIMARK® Flexiprint LF1B WH | white | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 600 | 1 |
| 83254488 | FLEXIMARK® Flexiprint LF1BL WH | white | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 300 | 1 |
| 83254516 | FLEXIMARK® Flexiprint LF2 WH | white | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 300 | 1 |
| 83254536 | FLEXIMARK® Flexiprint LF3 WH | white | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 200 | 1 |
| **Large packaging (75 sheets)** | | | | | | | | | | |
| 83280005 | FLEXIMARK® Flexiprint LF0 YE-75 | yellow | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 4500 | 1 |
| 83254420 | FLEXIMARK® Flexiprint LF1 YE-75 | yellow | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 4500 | 1 |
| 83254440 | FLEXIMARK® Flexiprint LF1L YE-75 | yellow | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 2250 | 1 |
| 83254460 | FLEXIMARK® Flexiprint LF1B YE-75 | yellow | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 4500 | 1 |
| 83254480 | FLEXIMARK® Flexiprint LF1BL YE-75 | yellow | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 2250 | 1 |
| 83254500 | FLEXIMARK® Flexiprint LF2 YE-75 | yellow | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 4500 | 1 |
| 83254520 | FLEXIMARK® Flexiprint LF3 YE-75 | yellow | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1500 | 1 |
| 83254406 | FLEXIMARK® Flexiprint LF0 WH-75 | white | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 0.25 - 0.75 | 4500 | 1 |
| 83254426 | FLEXIMARK® Flexiprint LF1 WH-75 | white | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 0.75 - 1.5 | 4500 | 1 |
| 83254446 | FLEXIMARK® Flexiprint LF1L WH-75 | white | 34 | 5.2 | 5 | 22 | 3.5 | 0.75 - 1.5 | 2250 | 1 |
| 83254466 | FLEXIMARK® Flexiprint LF1B WH-75 | white | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 1.5 - 2.5 | 4500 | 1 |
| 83254486 | FLEXIMARK® Flexiprint LF1BL WH-75 | white | 36 | 5.7 | 6 | 22 | 4.2 | 1.5 - 2.5 | 2250 | 1 |
| 83254506 | FLEXIMARK® Flexiprint LF2 WH-75 | white | 26 | 7 | 6.5 | 11 | 5.5 | 2.5 - 6.0 | 4500 | 1 |
| 83254526 | FLEXIMARK® Flexiprint LF3 WH-75 | white | 41 | 11 | 10.5 | 17 | 8.4 | 6.0 - 16.0 | 1500 | 1 |

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# FLEXIMARK® LA Labels

**Info**

- LA 16.9-9 YE included in FLEXIMARK® sample bag (article no.: M3251010)



## Benefits

- Self-adhesive labels made from polyester film for laser printers
- Better grip due to rounded-corners
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

## Application range

- For component marking e.g. for marking cabinets

## Product features

- Adhesive needs up to 24 hours to bond

## Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

## Included

- Perforated DIN A4 sheets

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Adhesive**
Acrylic-based permanent adhesive

**Colour delivered**
White or yellow
Also available in silver

**Material**
Halogen-free polyester
Thickness: 0.05 mm

**Temperature range**
-40°C to +150°C
Mounting temperature: min. +10 °C

| Article number | Article designation | Colour | Width x height (mm) | Labels per side | Markers / PU | PU |
|---|---|---|---|---|---|---|
| **FLEXIMARK® LA Labels** | | | | | | |
| 83256199 | FLEXIMARK® LA label 7-8 YE | yellow | 7.0 x 8.0 | 560 | 5600 | 1 |
| 83256228 | FLEXIMARK® LA label 11-8 YE | yellow | 11.0 x 8.0 | 420 | 4200 | 1 |
| 83256231 | FLEXIMARK® LA label 12-6 YE | yellow | 12.0 x 6.0 | 611 | 6110 | 1 |
| 83256204 | FLEXIMARK® LA label 15-6 YE | yellow | 15.0 x 6.0 | 517 | 5170 | 1 |
| 83256234 | FLEXIMARK® LA label 16-8 YE | yellow | 16.0 x 8.0 | 315 | 3150 | 1 |
| 83256207 | FLEXIMARK® LA label 16.9-7 YE | yellow | 16.9 x 7.0 | 400 | 4000 | 1 |
| 83256210 | FLEXIMARK® LA label 16.9-9 YE | yellow | 16.9 x 9.0 | 310 | 3100 | 1 |
| 83256213 | FLEXIMARK® LA label 20-8 YE | yellow | 20.0 x 8.0 | 280 | 2800 | 1 |
| 83256216 | FLEXIMARK® LA label 25-12 YE | yellow | 25.0 x 12.0 | 161 | 1610 | 1 |
| 83256219 | FLEXIMARK® LA label 25.6-10 YE | yellow | 25.6 x 10.0 | 196 | 1960 | 1 |
| 83256240 | FLEXIMARK® LA label 30.5-12.7 YE | yellow | 30.5 x 12.7 | 110 | 1100 | 1 |
| 83256222 | FLEXIMARK® LA label 46.9-9 YE | yellow | 46.9 x 9.0 | 124 | 1240 | 1 |
| 83256225 | FLEXIMARK® LA label 56-21.8 YE | yellow | 56.0 x 21.8 | 39 | 390 | 1 |
| 83256243 | FLEXIMARK® LA label 60-30 YE | yellow | 60.0 x 30.0 | 27 | 270 | 1 |
| 83256237 | FLEXIMARK® LA label 80-7.5 YE | yellow | 80.0 x 7.5 | 74 | 740 | 1 |
| 83256198 | FLEXIMARK® LA label 7-8 WH | white | 7.0 x 8.0 | 560 | 5600 | 1 |
| 83256227 | FLEXIMARK® LA label 11-8 WH | white | 11.0 x 8.0 | 420 | 4200 | 1 |
| 83256230 | FLEXIMARK® LA label 12-6 WH | white | 12.0 x 6.0 | 611 | 6110 | 1 |
| 83256203 | FLEXIMARK® LA label 15-6 WH | white | 15.0 x 6.0 | 517 | 5170 | 1 |
| 83256233 | FLEXIMARK® LA label 16-8 WH | white | 16.0 x 8.0 | 315 | 3150 | 1 |
| 83256206 | FLEXIMARK® LA label 16.9-7 WH | white | 16.9 x 7.0 | 400 | 4000 | 1 |
| 83256209 | FLEXIMARK® LA label 16.9-9 WH | white | 16.9 x 9.0 | 310 | 3100 | 1 |
| 83256212 | FLEXIMARK® LA label 20-8 WH | white | 20.0 x 8.0 | 280 | 2800 | 1 |
| 83256215 | FLEXIMARK® LA label 25-12 WH | white | 25.0 x 12.0 | 161 | 1610 | 1 |
| 83256218 | FLEXIMARK® LA label 25.6-10 WH | white | 25.6 x 10.0 | 196 | 1960 | 1 |
| 83256239 | FLEXIMARK® LA label 30.5-12.7 WH | white | 30.5 x 12.7 | 110 | 1100 | 1 |
| 83256221 | FLEXIMARK® LA label 46.9-9 WH | white | 46.9 x 9.0 | 124 | 1240 | 1 |
| 83256224 | FLEXIMARK® LA label 56-21.8 WH | white | 56.0 x 21.8 | 39 | 390 | 1 |
| 83256242 | FLEXIMARK® LA label 60-30 WH | white | 60.0 x 30.0 | 27 | 270 | 1 |
| 83256236 | FLEXIMARK® LA label 80-7.5 WH | white | 80.0 x 7.5 | 74 | 740 | 1 |
| 83256200 | FLEXIMARK® LA label 7-8 SR | silver | 7.0 x 8.0 | 560 | 5600 | 1 |
| 83256229 | FLEXIMARK® LA label 11-8 SR | silver | 11.0 x 8.0 | 385 | 3850 | 1 |
| 83256232 | FLEXIMARK® LA label 12-6 SR | silver | 12.0 x 6.0 | 611 | 6110 | 1 |
| 83256235 | FLEXIMARK® LA label 16-8 SR | silver | 16.0 x 8.0 | 315 | 3150 | 1 |
| 83256241 | FLEXIMARK® LA label 30.5-12.7 SR | silver | 30.5 x 12.7 | 110 | 1100 | 1 |
| 83256244 | FLEXIMARK® LA label 60-30 SR | silver | 60.0 x 30.0 | 27 | 270 | 1 |
| 83256238 | FLEXIMARK® LA label 80-7.5 SR | silver | 80.0 x 7.5 | 74 | 740 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Wrapping labels TCK






## Benefits

- A transparent film is wrapped around the cable and pasted over the printed field so that the printing is protected against abrasion, pollution and solvents
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Due to tight wrapping, it is space-saving

## Application range

- For cable marking

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon: R71 110-360 resin BK (article no.: 83259609)

## Included

- Delivered as a roll of labels

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Adhesive**
Acrylic-based permanent adhesive

**Colour delivered**
White or yellow

**Material**
Halogen-free polyester
Thickness: 0.025 mm

**Temperature range**
-40 °C to +125 °C
Minimum working temperature: +10 °C

| Article number | Article designation | Colour | Width x length (mm) | Printable surface (W x H mm) | For Ø (mm) | Markers / PU | PU |
|---|---|---|---|---|---|---|---|
| **White version** | | | | | | | |
| 83259874 | FLEXIMARK® Label TCK 32 WH | white | 25.0 x 33.5 | 25.0 x 12.7 | 4.0 - 7.0 | 1200 | 1 |
| 83259875 | FLEXIMARK® Label TCK 35 WH | white | 25.0 x 55.0 | 25.0 x 19.0 | 6.0 - 12.0 | 1200 | 1 |
| 83259876 | FLEXIMARK® Label TCK 40 WH | white | 25.0 x 94.0 | 25.0 x 25.0 | 8.0 - 21.0 | 600 | 1 |
| 83259877 | FLEXIMARK® Label TCK 45 WH | white | 25.0 x 142.5 | 25.0 x 25.0 | 8.0 - 36.0 | 600 | 1 |
| 83259890 | FLEXIMARK® Label TCK 48 WH | white | 34.0 x 93.0 | 34.0 x 25.4 | 8.0 - 21.0 | 600 | 1 |
| 83259878 | FLEXIMARK® Label TCK 60 WH | white | 50.0 x 56.0 | 50.0 x 19.0 | 6.0 - 12.0 | 600 | 1 |
| 83259879 | FLEXIMARK® Label TCK 65 WH | white | 50.0 x 94.0 | 50.0 x 25.4 | 8.0 - 21.0 | 600 | 1 |
| 83259881 | FLEXIMARK® Label TCK 70 WH | white | 50.0 x 142.5 | 50.0 x 25.4 | 8.0 - 36.0 | 600 | 1 |
| **Yellow version** | | | | | | | |
| 83259882 | FLEXIMARK® Label TCK 32 YE | yellow | 25.0 x 33.5 | 25.0 x 12.7 | 4.0 - 7.0 | 1200 | 1 |
| 83259883 | FLEXIMARK® Label TCK 35 YE | yellow | 25.0 x 55.0 | 25.0 x 19.0 | 6.0 - 12.0 | 1200 | 1 |
| 83259884 | FLEXIMARK® Label TCK 40 YE | yellow | 25.0 x 94.0 | 25.0 x 25.0 | 8.0 - 21.0 | 600 | 1 |
| 83259885 | FLEXIMARK® Label TCK 45 YE | yellow | 25.0 x 142.5 | 25.0 x 25.0 | 8.0 - 36.0 | 600 | 1 |
| 83259889 | FLEXIMARK® Label TCK 48 YE | yellow | 34.0 x 93.0 | 34.0 x 25.4 | 8.0 - 21.0 | 600 | 1 |
| 83259886 | FLEXIMARK® Label TCK 60 YE | yellow | 50.0 x 56.0 | 50.0 x 19.0 | 6.0 - 12.0 | 600 | 1 |
| 83259887 | FLEXIMARK® Label TCK 65 YE | yellow | 50.0 x 94.0 | 50.0 x 25.4 | 8.0 - 21.0 | 600 | 1 |
| 83259888 | FLEXIMARK® Label TCK 70 YE | yellow | 50.0 x 142.5 | 50.0 x 25.4 | 8.0 - 36.0 | 600 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Cablelabel PUR

**Info**

- PUR 60x10 included in FLEXIMARK® sample bag (article no.: M3251010)






## Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

## Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

## Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon:
  Text colour black: FTI-Y 60-360 BK (article no. 83260201),
  Text colour white: FTI-X 55-300 WH (article no. 83260260)
- With customized print: See product FLEXIMARK® Cablelabel PUR FCC

## Included

- Delivered as a roll of labels

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Cable coding system

**Colour delivered**
Standard colour: Yellow, white
Also available in red, orange, blue, green and black

**Material**
Halogen-free polyurethane

**Temperature range**
-50°C to +100°C
Could also withstand +125°C in the short term

| Article number | Article designation | Colour | Width x length (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **Mounting centrally (with 1 cable tie)** | | | | | |
| 83280275 | FLEXIMARK® Cablelabel PUR 20x30 YE Diamond | yellow | 30.0 x 20.0 | 1000 | 1 |
| 83280276 | FLEXIMARK® Cablelabel PUR 20x30 WH Diamond | white | 30.0 x 20.0 | 1000 | 1 |
| **Mounting left (with 1 cable tie)** | | | | | |
| 83280277 | FLEXIMARK® Cablelabel PUR 55x12 YE | yellow | 12.0 x 55.0 | 1000 | 1 |
| 83280278 | FLEXIMARK® Cablelabel PUR 55x12 WH | white | 12.0 x 55.0 | 1000 | 1 |
| **Mounting two-sided (with 2 cable ties)** | | | | | |
| 83280279 | FLEXIMARK® Cablelabel PUR 35x10 YE | yellow | 10.0 x 35.0 | 1000 | 1 |
| 83260191 | FLEXIMARK® Cablelabel PUR 60x10 YE | yellow | 10.0 x 60.0 | 1000 | 1 |
| 83260192 | FLEXIMARK® Cablelabel PUR 75x15 YE | yellow | 15.0 x 75.0 | 1000 | 1 |
| 83260193 | FLEXIMARK® Cablelabel PUR 75x25 YE | yellow | 25.0 x 75.0 | 500 | 1 |
| 83255321 | FLEXIMARK® Cablelabel PUR 100x60 YE | yellow | 60.0 x 100.0 | 250 | 1 |
| 83280280 | FLEXIMARK® Cablelabel PUR 35x10 WH | white | 10.0 x 35.0 | 1000 | 1 |
| 83260194 | FLEXIMARK® Cablelabel PUR 60x10 WH | white | 10.0 x 60.0 | 1000 | 1 |
| 83260195 | FLEXIMARK® Cablelabel PUR 75x15 WH | white | 15.0 x 75.0 | 1000 | 1 |
| 83260196 | FLEXIMARK® Cablelabel PUR 75x25 WH | white | 25.0 x 75.0 | 500 | 1 |
| 83255322 | FLEXIMARK® Cablelabel PUR 100x60 WH | white | 60.0 x 100.0 | 250 | 1 |
| 83280260 | FLEXIMARK® Cablelabel PUR 60x10 RD | red | 10.0 x 60.0 | 1000 | 1 |
| 83280261 | FLEXIMARK® Cablelabel PUR 75x15 RD | red | 15.0 x 75.0 | 1000 | 1 |
| 83280262 | FLEXIMARK® Cablelabel PUR 75x25 RD | red | 25.0 x 75.0 | 500 | 1 |
| 83280263 | FLEXIMARK® Cablelabel PUR 60x10 OG | orange | 10.0 x 60.0 | 1000 | 1 |
| 83280264 | FLEXIMARK® Cablelabel PUR 75x15 OG | orange | 15.0 x 75.0 | 1000 | 1 |
| 83280265 | FLEXIMARK® Cablelabel PUR 75x25 OG | orange | 25.0 x 75.0 | 500 | 1 |
| 83280266 | FLEXIMARK® Cablelabel PUR 60x10 BU | blue | 10.0 x 60.0 | 1000 | 1 |
| 83280267 | FLEXIMARK® Cablelabel PUR 75x15 BU | blue | 15.0 x 75.0 | 1000 | 1 |
| 83280268 | FLEXIMARK® Cablelabel PUR 75x25 BU | blue | 25.0 x 75.0 | 500 | 1 |
| 83280269 | FLEXIMARK® Cablelabel PUR 60x10 BK | black | 10.0 x 60.0 | 1000 | 1 |
| 83280270 | FLEXIMARK® Cablelabel PUR 75x15 BK | black | 15.0 x 75.0 | 1000 | 1 |
| 83280271 | FLEXIMARK® Cablelabel PUR 75x25 BK | black | 25.0 x 75.0 | 500 | 1 |
| 83280272 | FLEXIMARK® Cablelabel PUR 60x10 GN | green | 10.0 x 60.0 | 1000 | 1 |
| 83280273 | FLEXIMARK® Cablelabel PUR 75x15 GN | green | 15.0 x 75.0 | 1000 | 1 |
| 83280274 | FLEXIMARK® Cablelabel PUR 75x25 GN | green | 25.0 x 75.0 | 500 | 1 |

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# FLEXIMARK® Organised shrink tube






## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**On request**
Also available as diesel-resistant version (with SNCF-NF F00-608 approval)

**Colour delivered**
Standard colour: Yellow
Also available in white

**Material**
Polyolefin
Shrink ratio:
Halogen-free version: 2:1
Not halogen-free version: 3:1

**Temperature range**
Halogen-free version:
-30°C to +105°C
Not halogen-free Version:
-55°C to +135°C
Shrinking temperature: +90°C

## Benefits

- Reduced working time
- Already cut to the exact length

## Application range

- Covers a wide range of cable diameters, even applicable for single core marking

## Norm references / Approvals

- Not halogen-free version: UL 224 certified

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon: FTI-X 60-300 BK (article no. 83260206)

## Included

- Delivered as a roll of labels

| Article number | Article designation | Colour | Shrinkage range (mm) | Length (mm) | Markers / PU | PU |
|---|---|---|---|---|---|---|
| **Halogen-free** | | | | | | |
| 83260225 | FLEXIMARK® O.shr 2.4/1.2-12.5 YE | yellow | 1.20 - 2.40 | 12 | 4000 | 1 |
| 83260228 | FLEXIMARK® O.shr 2.4/1.2-16.6 YE | yellow | 1.20 - 2.40 | 16 | 3000 | 1 |
| 83260100 | FLEXIMARK® O.shr 2.4/1.2-25 YE | yellow | 1.20 - 2.40 | 25 | 2000 | 1 |
| 83260090 | FLEXIMARK® O.shr 2.4/1.2-38 YE | yellow | 1.20 - 2.40 | 38 | 1000 | 1 |
| 83260080 | FLEXIMARK® O.shr 2.4/1.2-50 YE | yellow | 1.20 - 2.40 | 50 | 1000 | 1 |
| 83260226 | FLEXIMARK® O.shr 3.2/1.6-12.5 YE | yellow | 1.60 - 3.20 | 12 | 4000 | 1 |
| 83260229 | FLEXIMARK® O.shr 3.2/1.6-16.6 YE | yellow | 1.60 - 3.20 | 16 | 3000 | 1 |
| 83260101 | FLEXIMARK® O.shr 3.2/1.6-25 YE | yellow | 1.60 - 3.20 | 25 | 2000 | 1 |
| 83260091 | FLEXIMARK® O.shr 3.2/1.6-38 YE | yellow | 1.60 - 3.20 | 38 | 1000 | 1 |
| 83260081 | FLEXIMARK® O.shr 3.2/1.6-50 YE | yellow | 1.60 - 3.20 | 50 | 1000 | 1 |
| 83260227 | FLEXIMARK® O.shr 4.8/2.4-12.5 YE | yellow | 2.40 - 4.80 | 12 | 4000 | 1 |
| 83260230 | FLEXIMARK® O.shr 4.8/2.4-16.6 YE | yellow | 2.40 - 4.80 | 16 | 3000 | 1 |
| 83260102 | FLEXIMARK® O.shr 4.8/2.4-25 YE | yellow | 2.40 - 4.80 | 25 | 2000 | 1 |
| 83260092 | FLEXIMARK® O.shr 4.8/2.4-38 YE | yellow | 2.40 - 4.80 | 38 | 1000 | 1 |
| 83260082 | FLEXIMARK® O.shr 4.8/2.4-50 YE | yellow | 2.40 - 4.80 | 50 | 1000 | 1 |
| 83260103 | FLEXIMARK® O.shr 6.4/3.2-25 YE | yellow | 3.20 - 6.40 | 25 | 2000 | 1 |
| 83260093 | FLEXIMARK® O.shr 6.4/3.2-38 YE | yellow | 3.20 - 6.40 | 38 | 1000 | 1 |
| 83260083 | FLEXIMARK® O.shr 6.4/3.2-50 YE | yellow | 3.20 - 6.40 | 50 | 1000 | 1 |
| 83260104 | FLEXIMARK® O.shr 9.5/4.8-25 YE | yellow | 4.80 - 9.50 | 25 | 1000 | 1 |
| 83260094 | FLEXIMARK® O.shr 9.5/4.8-38 YE | yellow | 4.80 - 9.50 | 38 | 500 | 1 |
| 83260084 | FLEXIMARK® O.shr 9.5/4.8-50 YE | yellow | 4.80 - 9.50 | 50 | 500 | 1 |
| 83260105 | FLEXIMARK® O.shr 12.7/6.4-25 YE | yellow | 6.40 - 12.70 | 25 | 1000 | 1 |
| 83260095 | FLEXIMARK® O.shr 12.7/6.4-38 YE | yellow | 6.40 - 12.70 | 38 | 500 | 1 |
| 83260085 | FLEXIMARK® O.shr 12.7/6.4-50 YE | yellow | 6.40 - 12.70 | 50 | 500 | 1 |
| 83260106 | FLEXIMARK® O.shr 19.1/9.5-25 YE | yellow | 9.50 - 19.10 | 25 | 1000 | 1 |
| 83260096 | FLEXIMARK® O.shr 19.1/9.5-38 YE | yellow | 9.50 - 19.10 | 38 | 500 | 1 |
| 83260086 | FLEXIMARK® O.shr 19.1/9.5-50 YE | yellow | 9.50 - 19.10 | 50 | 500 | 1 |
| 83260107 | FLEXIMARK® O.shr 25.4/12.7-25 YE | yellow | 12.70 - 25.40 | 25 | 600 | 1 |
| 83260097 | FLEXIMARK® O.shr 25.4/12.7-38 YE | yellow | 12.70 - 25.40 | 38 | 300 | 1 |
| 83260087 | FLEXIMARK® O.shr 25.4/12.7-50 YE | yellow | 12.70 - 25.40 | 50 | 300 | 1 |
| 83260098 | FLEXIMARK® O.shr 38.1/19.1-38 YE | yellow | 19.10 - 38.10 | 38 | 100 | 1 |
| 83260088 | FLEXIMARK® O.shr 38.1/19.1-50 YE | yellow | 19.10 - 38.10 | 50 | 100 | 1 |
| 83260099 | FLEXIMARK® O.shr 50.8/25.4-38 YE | yellow | 25.40 - 50.80 | 38 | 100 | 1 |
| 83260089 | FLEXIMARK® O.shr 50.8/25.4-50 YE | yellow | 25.40 - 50.80 | 50 | 100 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Shrink mark






## Benefits

- Flat shrink tube that can be cut individually to the required length

## Application range

- For cable marking
- For applications where space is tight
- Protection of the cable insulation
- Especially suitable for repair purposes

## Norm references / Approvals

- UL 224 certified

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon:
  Text colour black: FTI-X 60-300 BK (article no. 83260206),
  Text colour white: FTI-X 55-300 WH (article no. 83260260)
- Use the EOS5 printer with additional cutter for cutting, use the SQUIX printer with additional perforation cutter for perforating the shrink tubes
- With customized print: see product FLEXIMARK® Shrink tube FCC

## Included

- Delivered as a roll of labels

## Technical data

**Colour delivered**
Black, yellow and white

**Material**
Polyolefin
Shrinking ratio: 3:1

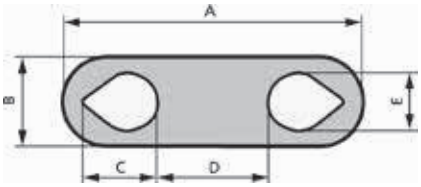
**Temperature range**
-55 °C to +135 °C

| Article number | Article designation | Colour | Shrinkage range (mm) | PU (m) | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Shrink mark** | | | | | |
| 83251670 | FLEXIMARK® Shrinking tube 3/1 BK | black | 1.0 - 3.0 | 30 | 1 |
| 83251671 | FLEXIMARK® Shrinking tube 6/2 BK | black | 2.0 - 6.0 | 25 | 1 |
| 83251672 | FLEXIMARK® Shrinking tube 9/3 BK | black | 3.0 - 9.0 | 20 | 1 |
| 83251673 | FLEXIMARK® Shrinking tube 12/4 BK | black | 4.0 - 12.0 | 20 | 1 |
| 83251674 | FLEXIMARK® Shrinking tube 18/6 BK | black | 6.0 - 18.0 | 20 | 1 |
| 83251680 | FLEXIMARK® Shrinking tube 3/1 YE | yellow | 1.0 - 3.0 | 30 | 1 |
| 83251681 | FLEXIMARK® Shrinking tube 6/2 YE | yellow | 2.0 - 6.0 | 25 | 1 |
| 83251682 | FLEXIMARK® Shrinking tube 9/3 YE | yellow | 3.0 - 9.0 | 20 | 1 |
| 83251683 | FLEXIMARK® Shrinking tube 12/4 YE | yellow | 4.0 - 12.0 | 20 | 1 |
| 83251684 | FLEXIMARK® Shrinking tube 18/6 YE | yellow | 6.0 - 18.0 | 20 | 1 |
| 83251690 | FLEXIMARK® Shrinking tube 3/1 WH | white | 1.0 - 3.0 | 30 | 1 |
| 83251691 | FLEXIMARK® Shrinking tube 6/2 WH | white | 2.0 - 6.0 | 25 | 1 |
| 83251692 | FLEXIMARK® Shrinking tube 9/3 WH | white | 3.0 - 9.0 | 20 | 1 |
| 83251693 | FLEXIMARK® Shrinking tube 12/4 WH | white | 4.0 - 12.0 | 20 | 1 |
| 83251694 | FLEXIMARK® Shrinking tube 18/6 WH | white | 6.0 - 18.0 | 20 | 1 |

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# FLEXIMARK® Flexiprint TF






**Info**

- TF1 included in FLEXIMARK® sample bag (article no.: M3251010)

## Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Easy to install

## Application range

- For single core marking
- Marking of optical fibre cables
- Marking before assembly
- For cable cross-sections over 16.00 mm², cable ties can be used for installing single markers

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon: R71 110-360 resin BK (article no. 83259609)
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters

## Included

- Delivered as a roll of labels

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
Yellow
Also available in green, blue and red

**Material**
Halogen-free polyester
Thickness: 0.175 mm

**Temperature range**
-40°C to +125°C

| Article number | Article designation | Colour | For mm² | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | Markers / PU | PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **Small packaging** | | | | | | | | | | |
| 83255011 | FLEXIMARK® Flexiprint TF0 WH600 | white | 0.25 - 0.75 | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 600 | 1 |
| 83255012 | FLEXIMARK® Flexiprint TF1 WH600 | white | 0.75 - 1.5 | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 600 | 1 |
| 83255013 | FLEXIMARK® Flexiprint TF1B WH600 | white | 1.5 - 2.5 | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 600 | 1 |
| 83255014 | FLEXIMARK® Flexiprint TF2 WH600 | white | 2.5 - 6.0 | 26 | 7 | 6.5 | 11 | 5.5 | 600 | 1 |
| 83255015 | FLEXIMARK® Flexiprint TF3 WH600 | white | 6.0 - 16.0 | 41 | 11 | 10.5 | 17 | 8.4 | 200 | 1 |
| **Large packaging** | | | | | | | | | | |
| 83254372 | FLEXIMARK® Flexiprint TF0 YE | yellow | 0.25 - 0.75 | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 2000 | 1 |
| 83254378 | FLEXIMARK® Flexiprint TF1 YE | yellow | 0.75 - 1.5 | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 2000 | 1 |
| 83254354 | FLEXIMARK® Flexiprint TF1L WH | yellow | 0.75 - 1.5 | 34 | 5.2 | 5 | 22 | 3.5 | 2000 | 1 |
| 83254374 | FLEXIMARK® Flexiprint TF1B YE | yellow | 1.5 - 2.5 | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 2000 | 1 |
| 83254359 | FLEXIMARK® Flexiprint TF1BL YE | yellow | 1.5 - 2.5 | 36 | 5.7 | 6 | 22 | 4.2 | 2000 | 1 |
| 83254375 | FLEXIMARK® Flexiprint TF2 YE | yellow | 2.5 - 6.0 | 26 | 7 | 6.5 | 11 | 5.5 | 2000 | 1 |
| 83254376 | FLEXIMARK® Flexiprint TF3 YE | yellow | 6.0 - 16.0 | 41 | 11 | 10.5 | 17 | 8.4 | 1000 | 1 |
| 83254365 | FLEXIMARK® Flexiprint TF0 WH | white | 0.25 - 0.75 | 22.9 | 5.2 | 3.9 | 13.1 | 2.4 | 2000 | 1 |
| 83254366 | FLEXIMARK® Flexiprint TF1 WH | white | 0.75 - 1.5 | 23 | 5.2 | 4.9 | 11.2 | 3.5 | 2000 | 1 |
| 83254355 | FLEXIMARK® Flexiprint TF1L WH | white | 0.75 - 1.5 | 34 | 5.2 | 5 | 22 | 3.5 | 2000 | 1 |
| 83254367 | FLEXIMARK® Flexiprint TF1B WH | white | 1.5 - 2.5 | 25 | 5.7 | 5.9 | 11.2 | 4.2 | 2000 | 1 |
| 83254360 | FLEXIMARK® Flexiprint TF1BL WH | white | 1.5 - 2.5 | 36 | 5.7 | 6 | 22 | 4.2 | 2000 | 1 |
| 83254368 | FLEXIMARK® Flexiprint TF2 WH | white | 2.5 - 6.0 | 26 | 7 | 6.5 | 11 | 5.5 | 2000 | 1 |
| 83254369 | FLEXIMARK® Flexiprint TF3 WH | white | 6.0 - 16.0 | 41 | 11 | 10.5 | 17 | 8.4 | 1000 | 1 |

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# FLEXIMARK® TA Labels Component marking

**Info**

- Sample labels are available upon request



## Benefits

- Good UV resistance
- Smudge and scratch resistant
- Resistant to oils and chemicals

## Application range

- Identification of electrical components, panels, push buttons and information signs

## Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon: R71 110-360 resin BK (article no. 83259609)
- More sizes and colours available on request

## Included

- Delivered as a roll of labels

## Technical data

**Adhesive**
Acrylic-based permanent adhesion
Bonding strength: 15 N/mm

**Colour delivered**
Yellow, white
Silver on demand

**Material**
Halogen-free polyester

**Temperature range**
-40 °C to +150 °C
Processing: min. +10 °C

| Article number | Article designation | Colour | Width x height (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® TA Labels Component marking** | | | | | |
| 83259611 | FLEXIMARK® TA label 15-6 YE | yellow | 15.6 x 6.0 | 10000 | 1 |
| 83259628 | FLEXIMARK® TA label 18-9 YE | yellow | 18.0 x 9.0 | 10000 | 1 |
| 83259634 | FLEXIMARK® TA label 20-8 YE | yellow | 20.0 x 8.0 | 10000 | 1 |
| 83259641 | FLEXIMARK® TA label 25.4-12.7 YE | yellow | 25.4 x 12.7 | 10000 | 1 |
| 83259653 | FLEXIMARK® TA label 26-10 YE | yellow | 26.0 x 10.0 | 10000 | 1 |
| 83259664 | FLEXIMARK® TA label 26.5-17.5 YE | yellow | 26.5 x 17.5 | 5000 | 1 |
| 83259683 | FLEXIMARK® TA label 32-9.5 YE | yellow | 32.0 x 9.5 | 10000 | 1 |
| 83259594 | FLEXIMARK® TA label 37-9 YE | yellow | 37.0 x 9.0 | 2000 | 1 |
| 83259574 | FLEXIMARK® TA label 38-13 YE | yellow | 38.0 x 13.0 | 5000 | 1 |
| 83259694 | FLEXIMARK® TA label 38-19 YE | yellow | 38.0 x 19.0 | 2000 | 1 |
| 83259700 | FLEXIMARK® TA label 45-23 YE | yellow | 45.0 x 23.0 | 2000 | 1 |
| 83259706 | FLEXIMARK® TA label 47-28 YE | yellow | 47.0 x 28.0 | 1500 | 1 |
| 83259712 | FLEXIMARK® TA label 50-23 YE | yellow | 50.0 x 23.0 | 2000 | 1 |
| 83259718 | FLEXIMARK® TA label 60-36 YE | yellow | 60.0 x 36.0 | 1000 | 1 |
| 83259724 | FLEXIMARK® TA label 65-35 YE | yellow | 65.0 x 35.0 | 1000 | 1 |
| 83259736 | FLEXIMARK® TA label 70-48 YE | yellow | 70.0 x 48.0 | 1000 | 1 |
| 83259783 | FLEXIMARK® TA label 75-28 YE | yellow | 75.0 x 28.0 | 2000 | 1 |
| 83259755 | FLEXIMARK® TA label 101.6-23 YE | yellow | 101.6 x 23.0 | 2000 | 1 |
| 83259763 | FLEXIMARK® TA label 101.6-36 YE | yellow | 101.6 x 36.0 | 1000 | 1 |
| 83259610 | FLEXIMARK® TA label 15-6 WH | white | 15.6 x 6.0 | 10000 | 1 |
| 83259629 | FLEXIMARK® TA label 18-9 WH | white | 18.0 x 9.0 | 10000 | 1 |
| 83259635 | FLEXIMARK® TA label 20-8 WH | white | 20.0 x 8.0 | 10000 | 1 |
| 83259643 | FLEXIMARK® TA label 25.4-12.7 WH | white | 25.4 x 12.7 | 10000 | 1 |
| 83259655 | FLEXIMARK® TA label 26-10 WH | white | 26.0 x 10.0 | 10000 | 1 |
| 83259665 | FLEXIMARK® TA label 26.5-17.5 WH | white | 26.5 x 17.5 | 5000 | 1 |
| 83259685 | FLEXIMARK® TA label 32-9.5 WH | white | 32.0 x 9.5 | 10000 | 1 |
| 83259593 | FLEXIMARK® TA label 37-9 WH | white | 37.0 x 9.0 | 2000 | 1 |
| 83259573 | FLEXIMARK® TA label 38-13 WH | white | 38.0 x 13.0 | 5000 | 1 |
| 83259695 | FLEXIMARK® TA label 38-19 WH | white | 38.0 x 19.0 | 2000 | 1 |
| 83259701 | FLEXIMARK® TA label 45-23 WH | white | 45.0 x 23.0 | 2000 | 1 |
| 83259707 | FLEXIMARK® TA label 47-28 WH | white | 47.0 x 28.0 | 1500 | 1 |
| 83259713 | FLEXIMARK® TA label 50-23 WH | white | 50.0 x 23.0 | 2000 | 1 |
| 83259719 | FLEXIMARK® TA label 60-36 WH | white | 60.0 x 36.0 | 1000 | 1 |
| 83259725 | FLEXIMARK® TA label 65-35 WH | white | 65.0 x 35.0 | 1000 | 1 |
| 83259737 | FLEXIMARK® TA label 70-48 WH | white | 70.0 x 48.0 | 1000 | 1 |
| 83259782 | FLEXIMARK® TA label 75-28 WH | white | 75.0 x 28.0 | 2000 | 1 |
| 83259756 | FLEXIMARK® TA label 101.6-23 WH | white | 101.6 x 23.0 | 2000 | 1 |
| 83259764 | FLEXIMARK® TA label 101.6-36 WH | white | 101.6 x 36.0 | 1000 | 1 |

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## FLEXIMARK® TA foam Component marking









**Info**

- Included in FLEXIMARK® sample bag (article no.: M3251010)

## FLEXIMARK® TA Foam Panel strip



### Benefits

- Good UV-resistance
- Self-adhesive on many surfaces
- Cost-efficient alternative to traditionally used engraved plastic signs

### Application range

- Identification of electrical components, panels, push buttons and information signs

### Note

- Can be printed with the FLEXIMARK® Software and the Thermal transfer printer SQUIX or EOS5
- Recommended ribbon: FTI-Y 60-360 BK (article no. 83260201)

### Included

- Delivered as a roll of labels

### Technical data

**Classification ETIM 5/6**
**FLEXIMARK® TA foam Component marking**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Adhesive**
Acrylic-based permanent adhesive

**Colour delivered**
Silver
White in web catalogue

**Material**
Polyester foam

**Temperature range**
-40 °C to +90 °C

| Article number | Article designation | Colour | Width (mm) | Length mm | Markers / PU | m / PU | PU |
|---|---|---|---|---|---|---|---|
| **Rectangular shape** | | | | | | | |
| 83255338 | FLEXIMARK® TA foam 13-7 SR | silver | 7 | 13 | 1000 | | 1 |
| 83255339 | FLEXIMARK® TA foam 22-22 SR | silver | 22 | 22 | 1000 | | 1 |
| 83255340 | FLEXIMARK® TA foam 27-8 SR | silver | 8 | 27 | 1000 | | 1 |
| 83260166 | FLEXIMARK® TA foam 27-12.5 SR | silver | 12.5 | 27 | 1000 | | 1 |
| 83260167 | FLEXIMARK® TA foam 27-15 SR | silver | 15 | 27 | 1000 | | 1 |
| 83260168 | FLEXIMARK® TA foam 27-18 SR | silver | 18 | 27 | 1000 | | 1 |
| 83255341 | FLEXIMARK® TA foam 27-27 SR | silver | 27 | 27 | 1000 | | 1 |
| 83260170 | FLEXIMARK® TA foam 30-40 SR | silver | 40 | 30 | 1000 | | 1 |
| 83260171 | FLEXIMARK® TA foam 35-15 SR | silver | 15 | 35 | 1000 | | 1 |
| 83260172 | FLEXIMARK® TA foam 35-18 SR | silver | 18 | 35 | 1000 | | 1 |
| 83260173 | FLEXIMARK® TA foam 45-15 SR | silver | 15 | 45 | 1000 | | 1 |
| 83255342 | FLEXIMARK® TA foam 45-25 SR | silver | 25 | 45 | 1000 | | 1 |
| 83255343 | FLEXIMARK® TA foam 48-19 SR | silver | 19 | 48 | 1000 | | 1 |
| 83260176 | FLEXIMARK® TA foam 50-15 SR | silver | 15 | 50 | 1000 | | 1 |
| 83260177 | FLEXIMARK® TA foam 50-25 SR | silver | 25 | 50 | 750 | | 1 |
| 83260179 | FLEXIMARK® TA foam 60-30 SR | silver | 30 | 60 | 500 | | 1 |
| 83260180 | FLEXIMARK® TA foam 70-18 SR | silver | 18 | 70 | 1000 | | 1 |
| 83255344 | FLEXIMARK® TA foam 90-15 SR | silver | 15 | 90 | 250 | | 1 |
| 83260182 | FLEXIMARK® TA foam 90-30 SR | silver | 30 | 90 | 250 | | 1 |

| Article number | Article designation | Colour | Width (mm) | Length mm | Markers / PU | m / PU | PU |
|---|---|---|---|---|---|---|---|
| 83260183 | FLEXIMARK® TA foam 90-45 SR | silver | 45 | 90 | 250 | | 1 |
| 83260185 | FLEXIMARK® TA foam 100-30 SR | silver | 30 | 100 | 250 | | 1 |
| 83260186 | FLEXIMARK® TA foam 100-50 SR | silver | 50 | 100 | 250 | | 1 |
| 83255345 | FLEXIMARK® TA foam 100-70 SR | silver | 70 | 100 | 250 | | 1 |
| 83260188 | FLEXIMARK® TA foam 105-140 SR | silver | 140 | 105 | 250 | | 1 |
| **Round cut-out** | | | | | | | |
| 83260189 | FLEXIMARK® TA foam 40-30 Ø 24mm SR | silver | 30 | 40 | 1000 | | 1 |
| **Panel strip** | | | | | | | |
| 83255355 | FLEXIMARK® TA foam 13-20m SR | silver | 13 | | | 20 | 1 |
| 83255356 | FLEXIMARK® TA foam 15-20m SR | silver | 15 | | | 20 | 1 |
| 83255357 | FLEXIMARK® TA foam 18-20m SR | silver | 18 | | | 20 | 1 |
| 83255358 | FLEXIMARK® TA foam 25-20m SR | silver | 25 | | | 20 | 1 |
| 83255359 | FLEXIMARK® TA foam 30-20m SR | silver | 30 | | | 20 | 1 |
| 83255360 | FLEXIMARK® TA foam 35-20m SR | silver | 35 | | | 20 | 1 |
| 83255361 | FLEXIMARK® TA foam 50-20m SR | silver | 50 | | | 20 | 1 |
| 83255362 | FLEXIMARK® TA foam 80-20m SR | silver | 80 | | | 20 | 1 |
| 83255363 | FLEXIMARK® TA foam 100-20m SR | silver | 100 | | | 20 | 1 |

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LAPP
Marking systems


# FLEXIMARK® Software 11.1

**Info**

- Technical support available in English free of charge (Phone: +4615577764, E-mail: support@fleximark.se)




## Benefits

- For ease of use, the interface has been designed to be familiar to users of Microsoft® Office applications
- Enables printing of barcodes, QR-codes, logos, other pictures and serial codes
- Module marking for creation of panel strips
- Improved usability
- Image library including symbols used in electrical engineering

## Application range

- Marking software that enables you to print all kinds of FLEXIMARK® labels easily and quickly

## Product features

- Printer: Laser, thermal transfer
- Available languages: German, English, Swedish and French
- Available barcodes: QR-Code, EAN-8, EAN-13, EAN-128, Code-128, Code-39, interleaved 2/5, UPC-A

## Note

- Download Link, see GUIDE: https://www.lapp.com/en/de/products/marking-systems/printer-and-software/c/114041
- Online update service for new labels via Internet

## Included

- Operating manual and help function in the program

# Thermal printer SQUIX and EOS5*



**Info**

- Technical support available in English free of charge (Phone: +4615577764, E-mail: support@fleximark.se)

## Benefits

- High print speed (up to 150 mm/sec)
- High print resolution: 300 dpi
- Simple communication with FLEXIMARK® Software
- Basic maintenance such as cleaning the label sensor, changing the print head or print roller, can be easily done by yourself

## Application range

- Printing on a variety of different materials (among others FLEXIMARK® shrink tube, cablelabel PUR and TA foam component marking)
- The thermal transfer printing method increases the smudge and scratch resistance of the printed surface, and provides increased resistance to oils and chemicals as well

## Note

- For cutting of e.g. shrink tubes use optional cutter for the EOS 5
- For perforating flat shrink tubes use thermal transfer printer SQUIX together with the optional perforation cutter

## Included

- Thermal printer SQUIX or EOS5 with operating manual and service manual
- Power supply USB cable (length 1.8 m)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Accessories for fax/printer/MFC

**Dimensions**
SQUIX: 274x242x446 mm (HxWxD)
EOS5: 245x264x412mm (HxWxT)

**Label rolls**
Material thickness:
0.055-1.2 mm (SQUIX)
0.055-0.7 mm (EOS5)
Carrier width:
10-120 mm (SQUIX)
10-116 mm (EOS5)
Max. core diameter Ø:
38.0-100.0mm (SQUIX)
38-76mm (EOS5)

**Ribbons**
Run length up to 500m (SQUIX) or 360m (EOS5)

**Speed**
EOS5: Up to 150.00 mm/s
SQUIX: Up to 300,00 mm/s

**Weight**
SQUIX: 9.0 kg
EOS5: 5 kg

**Material**
Labels or continuous material on coils

| Article number | Article designation | PU |
|---|---|---|
| **FLEXIMARK® thermal printer SQUIX and EOS5*** | | |
| 83259532 | Thermoprint EOS5/300 | 1 |
| 83259602 | Thermoprinter SQUIX 4/300M | 1 |
| 83259536 | Cutter EOS5 | 1 |
| 83259603 | Perforation cutter PCU400 SQUIX | 1 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® ribbons SQUIX, EOS4 and EOS5



## Benefits

- Resistant to scratching and abrasion

## Application range

- Use the right ribbon for the particular application
- Resin ribbons R71: Solely for plastic labels with smooth and shiny surface (Flexiprint TF, TCK, TA, TFL)
- FTI-Y: For PUR, TA Foam, Flexiprint TF
- FTI-X: Particular recommended for shrink tubes, also for diesel resistant shrink tubes

| Article number | Article designation | Colour | Width (mm) x length (m) | Material | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® ribbons SQUIX, EOS4 and EOS5** | | | | | |
| 83259604 | Ribbon R71 55-360 resin BK | black | 55.0 x 360.0 | resin | 1 |
| 83259609 | Ribbon R71 110-360 resin BK | black | 110.0 x 360.0 | resin | 1 |
| 83260201 | Ribbon FTI-Y 60-360 BK | black | 60.0 x 360.0 | resin | 1 |
| 83260200 | Ribbon FTI-Y 110-360 BK | black | 110.0 x 360.0 | resin | 1 |
| 83260206 | Ribbon FTI-X 60-300 BK | black | 60.0 x 300.0 | resin | 1 |
| 83260205 | Ribbon FTI-X 100-300 BK | black | 100.0 x 300.0 | resin | 1 |
| 83260262 | Ribbon Y501P 30-450 WH | white | 30.0 x 450.0 | resin | 1 |
| 83260260 | Ribbon FTI-X 55-300 WH | white | 55.0 x 300.0 | resin | 1 |
| 83260261 | Ribbon FTI-X 110-300 WH | white | 110.0 x 300.0 | resin | 1 |

* Trade product, no Lapp product
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# DYMO® Industry Rhino Pro 4200





## Benefits

- Compact and mobile device
- Integrated rubber bumpers help prevent damage from accidental drops and falls
- Resistant to UV-light, oil, scratches and solvents
- Indoor and outdoor applications

## Application range

- Marking of cables, wires and components
- Coloured self-adhesive vinyl strips
- Shrink tubes

## Product features

- Thermal transfer printing technology

## Note

- Power cable is not included (art. no. 61800150)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Labelling tape

**Material**
Vinyl tapes: Vinyl
Shrink tube tapes: Polyolefin (flame retardant UL224), shrink ratio 3:1

| Article number | Article designation | Width (mm) | Length (m) | Colour of lettering | For cable Ø (mm) | Colour of tape |
|---|---|---|---|---|---|---|
| **DYMO® Industry Rhino Pro 4200** | | | | | | |
| 61800337 | DYMO RHINO PRO 4200 | | | | | |
| **Vinyl tapes** | | | | | | |
| 61800274 | RP/ID1 9mm VINYL SW/WS black | 9 | 5.5 | black | | white |
| 61800275 | RP/ID1 12mm VINYL SW/YELLOW | 12 | 5.5 | black | | yellow |
| 61800276 | RP/ID1 12mm VINYL SW/ORANGE | 12 | 5.5 | black | | orange |
| 61800277 | RP/ID1 12mm VINYL WH/RED | 12 | 5.5 | white | | red |
| 61800278 | RP/ID1 12mm VINYL SW/GREEN | 12 | 5.5 | black | | green |
| 61800279 | RP/ID1 12mm VINYL SW/WHITE | 12 | 5.5 | black | | white |
| 61800280 | RP/ID1 19mm VINYL SW/YELLOW | 19 | 5.5 | black | | yellow |
| 61800281 | RP/ID1 19mm VINYL SW/ORANGE | 19 | 5.5 | black | | orange |
| 61800282 | RP/ID1 19mm VINYL WH/RED | 19 | 5.5 | white | | red |
| 61800283 | RP/ID1 19mm VINYL SW/GREEN | 19 | 5.5 | black | | green |
| 61800284 | RP/ID1 19mm VINYL SW/WHITE | 19 | 5.5 | black | | white |
| **Shrink tube tapes** | | | | | | |
| 61800290 | RP/ID1 Shrink 1-6-1400 | 6 | 1.5 | black | 1.1 - 2.3 | white |
| 61800291 | RP/ID1 Shrink 1-9-1400 | 9 | 1.5 | black | 1.7 - 3.7 | white |
| 61800295 | RP/ID1 Shrink 1-9-1400YL | 9 | 1.5 | black | 1.7 - 3.7 | yellow |
| 61800292 | RP/ID1 Shrink 1-12-1400 | 12 | 1.5 | black | 2.9 - 5.1 | white |
| 61800296 | RP/ID1 Shrink 1-12-1400YL | 12 | 1.5 | black | 2.9 - 5.1 | yellow |
| 61800293 | RP/ID1 Shrink 1-19-1400 | 19 | 1.5 | black | 4.6 - 8.7 | white |
| 61800297 | RP/ID1 Shrink 1-19-1400YL | 19 | 1.5 | black | 4.6 - 8.7 | yellow |

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# DYMO® XTL 300 / 500






## Benefits

- Label printer recognizes automatically inserted label
- Intuitive handling through integrated labelling applications
- Time-saving by pre-sized labels
- Accurate print preview
- Integrated rubber bumpers help prevent damage from accidental drops and falls

## Application range

- Marking of cables, wires and components
- Resistant to UV-light, oil, humidity and chemicals

## Product features

- Thermal transfer printing technology
- XTL 300: max. label width 24mm, colour display, manual cutter
- XTL 500: max. label width 54mm, touchscreen, automatic cutter

## Norm references / Approvals

- Vinyl tapes & laminated wrapping labels: UL recognized as a component according to UL 969
- File Number: MH48389

## Note

- Free DYMO ID software for PC connection (available at www.dymo.com) for easy tranfer of labels

## Technical data

**Material**
Vinyl tapes and wrapping labels: Vinyl
Shrink tube: Polyolefin (flame retardant UL224), shrink ratio 3:1

**Temperature range**
-40 °C to +60 °C

## Included

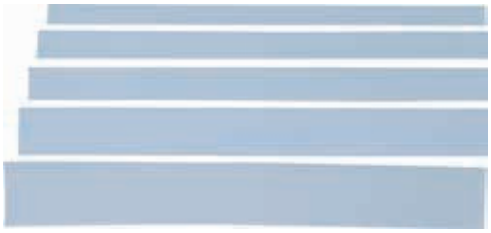
- Kit contains 1 DYMO XTL 300 (incl. labels VIN 24BK / WH and LAM 21x39 WH) or XTL 500 (incl. labels VIN 54BK / WH and LAM 38x39 WH), charging adapter, USB cable, Li-Ion battery, lanyard and instruction in a hard case

| Article number | Article designation | Width (mm) | Length mm | For cable Ø (mm) | Colour of tape | Colour of lettering | Printer | Markers / PU | m / PU |
|---|---|---|---|---|---|---|---|---|---|
| **DYMO XTL Kit** | | | | | | | | | |
| 83257106 | DYMO XTL KIT 300 | | | | | | | | |
| 83257107 | DYMO XTL KIT 500 | | | | | | | | |
| **Vinyl tapes** | | | | | | | | | |
| 83257146 | DYMO XTL VIN 12BK/TR | 12 | | | transparent | black | XTL 300/500 | | 7 |
| 83257147 | DYMO XTL VIN 19BK/TR | 19 | | | transparent | black | XTL 300/500 | | 7 |
| 83257150 | DYMO XTL VIN 54BK/TR | 54 | | | transparent | black | XTL 500 | | 7 |
| 83257156 | DYMO XTL VIN 12BK/WH | 12 | | | white | black | XTL 300/500 | | 7 |
| 83257157 | DYMO XTL VIN 19BK/WH | 19 | | | white | black | XTL 300/500 | | 7 |
| 83257160 | DYMO XTL VIN 54BK/WH | 54 | | | white | black | XTL 500 | | 7 |
| 83257166 | DYMO XTL VIN 12WH/RD | 12 | | | red | white | XTL 300/500 | | 7 |
| 83257167 | DYMO XTL VIN 19WH/RD | 19 | | | red | white | XTL 300/500 | | 7 |
| 83257170 | DYMO XTL VIN 54WH/RD | 54 | | | red | white | XTL 500 | | 7 |
| 83257176 | DYMO XTL VIN 12BK/YE | 12 | | | yellow | black | XTL 300/500 | | 7 |
| 83257177 | DYMO XTL VIN 19BK/YE | 19 | | | yellow | black | XTL 300/500 | | 7 |
| 83257180 | DYMO XTL VIN 54BK/YE | 54 | | | yellow | black | XTL 500 | | 7 |
| **Shrink tube tapes** | | | | | | | | | |
| 83257214 | DYMO XTL SHRINK 6-2700BK/WH | 6 | | 2.0 - 6.0 | white | black | XTL 300/500 | | 2.7 |
| 83257215 | DYMO XTL SHRINK 12-2700BK/WH | 12 | | 4.0 - 12.0 | white | black | XTL 300/500 | | 2.7 |
| 83257216 | DYMO XTL SHRINK 24-2700BK/WH | 24 | | 8.0 - 24.0 | white | black | XTL 300/500 | | 2.7 |
| 83257217 | DYMO XTL SHRINK 54-1800BK/WH | 54 | | 18.0 - 54.0 | white | black | XTL 500 | | 1.8 |
| **Pres-sized shrink tubes** | | | | | | | | | |
| 83257132 | DYMO XTL SHRINK 6X34WH | 6 | 34 | 2.0 - 6.0 | white | black | XTL 500 | 81 | |
| 83257133 | DYMO XTL SHRINK 12X34WH | 12 | 34 | 4.0 - 12.0 | white | black | XTL 500 | 65 | |
| 83257134 | DYMO XTL SHRINK 24X34WH | 24 | 34 | 8.0 - 24.0 | white | black | XTL 500 | 60 | |
| 83257135 | DYMO XTL SHRINK 54X34WH | 54 | 34 | 18.0 - 54.0 | white | black | XTL 500 | 25 | |
| 83257136 | DYMO XTL SHRINK 6X47WH | 6 | 47 | 2.0 - 6.0 | white | black | XTL 500 | 81 | |
| 83257137 | DYMO XTL SHRINK 12X47WH | 12 | 47 | 4.0 - 12.0 | white | black | XTL 500 | 65 | |
| 83257138 | DYMO XTL SHRINK 24X47WH | 24 | 47 | 8.0 - 24.0 | white | black | XTL 500 | 60 | |
| 83257139 | DYMO XTL SHRINK 54X47WH | 54 | 47 | 18.0 - 54.0 | white | black | XTL 500 | 25 | |
| **Laminated wrapping labels** | | | | | | | | | |
| 83257119 | DYMO XTL LAM 21X21 WH | 21 | 21 | | white | black | XTL 300/500 | 250 | |
| 83257120 | DYMO XTL LAM 21X39 WH | 21 | 39 | | white | black | XTL 300/500 | 150 | |
| 83257121 | DYMO XTL LAM 21X102 WH | 21 | 102 | | white | black | XTL 300/500 | 75 | |
| 83257122 | DYMO XTL LAM 38X21 WH | 38 | 21 | | white | black | XTL 500 | 250 | |
| 83257123 | DYMO XTL LAM 38X39 WH | 38 | 39 | | white | black | XTL 500 | 150 | |
| 83257124 | DYMO XTL LAM 38X102 WH | 38 | 102 | | white | black | XTL 500 | 75 | |
| 83257125 | DYMO XTL LAM 51X21 WH | 51 | 21 | | white | black | XTL 500 | 250 | |
| 83257126 | DYMO XTL LAM 51X39 WH | 51 | 39 | | white | black | XTL 500 | 100 | |
| 83257127 | DYMO XTL LAM 51X102 WH | 51 | 102 | | white | black | XTL 500 | 70 | |

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# FLEXIMARK® Character holders PTE



## Benefits

- Additional protection against UV- radiation and diverse chemicals
- Ensure high flexibility: Character holders can be cut to the desired length

## Application range

- Suitable for FLEXIMARK® Flexilabels LFL as well as for DYMO® industry tapes
- For cable/conduit marking
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

## Included

- Delivery in a plastic bag or in a box (see picture): Character holders in plastic bag are already pre-cut to a particular size

## Suitable tools

- FLEXIMARK® Pliers FL52ERA

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Mounting for labelling material

**Material**
Halogen-free polyethylene

**Temperature range**
-75°C up to +80°C

| Article number | Article designation | Length (mm) | Max. height of holder (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **Character holders PTE** | | | | | |
| 83253012 | FLEXIMARK® PTE 6-1000 mm TR (Plastic bag) | 1.000 | 6 | 10 | 1 |
| 83259950 | FLEXIMARK® PTE 6-10 m TR (Box) | 10.000 | 6 | 1 | 1 |
| 83252081 | FLEXIMARK® PTE 9,5-285 mm TR (Plastic bag) | 285 | 9.5 | 10 | 1 |
| 83252084 | FLEXIMARK® PTE 9,5-1000 mm TR (Plastic bag) | 1.000 | 9.5 | 10 | 1 |
| 83259951 | FLEXIMARK® PTE 9.5-10 m TR (Box) | 10.000 | 9.5 | 1 | 1 |
| 83252028 | FLEXIMARK® PTE 12-285 mm TR (Plastic bag) | 285 | 12 | 10 | 1 |
| 83252027 | FLEXIMARK® PTE 12-1000 mm TR (Plastic bag) | 1.000 | 12 | 10 | 1 |
| 83259952 | FLEXIMARK® PTE 12-10 m TR (Box) | 10.000 | 12 | 1 | 1 |
| 83251060 | FLEXIMARK® PTE 19-285 mm TR (Plastic bag) | 285 | 19 | 10 | 1 |
| 83259953 | FLEXIMARK® PTE 19-5 m TR (Box) | 5.000 | 19 | 1 | 1 |
| 83251061 | FLEXIMARK® PTE 19-1000 mm TR (Plastic bag) | 1.000 | 19 | 10 | 1 |
| 83259954 | FLEXIMARK® PTE 25-5 m TR (Box) | 5.000 | 25 | 1 | 1 |
| **Accessories for character holder PTE 9.5mm** | | | | | |
| 83252005 | FLEXIMARK® Lock Button Mini FLKA 5206 YE | | | 500 | 1 |
| 83252020 | FLEXIMARK® End clap Mini FLG 5242 YE | | | 100 | 1 |

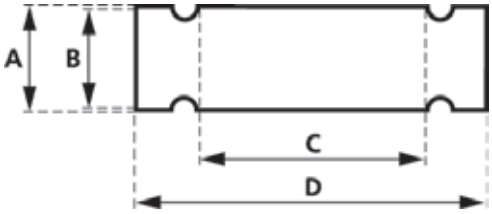
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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Character holders PTEF / CAB

**Info**

- PTEF 9,5-35 included in FLEXIMARK® sample bag (article no.: M3251010)






## Benefits

- Cost-saving, as you save the time for cutting
- PC labels LFL are adapted to be pushed into different sizes of character-holder
- Additional protection against UV- radiation and diverse chemicals

## Application range

- Suitable for FLEXIMARK® Flexilabels LFL as well as for DYMO® industry tapes
- For cable/conduit marking
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

## Included

- PTEF: without cable ties
  CAB: with cable ties (135x2,6mm)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Mounting for labelling material

**Material**
Halogen-free polyethylene

**Temperature range**
-75°C up to +80°C

| Article number | Article designation | A (mm) | B (mm) | C (mm) | D (mm) | Markers / PU | PU |
|---|---|---|---|---|---|---|---|
| **Without cable ties** | | | | | | | |
| 83254974 | FLEXIMARK® PTEF 6-35 TR | 8.7 | 6 | 35 | 47.0 | 50 | 1 |
| 83254960 | FLEXIMARK® PTEF 9.5-18 TR | 12.2 | 9.5 | 18 | 30.0 | 50 | 1 |
| 83254961 | FLEXIMARK® PTEF 9.5-28 TR | 12.2 | 9.5 | 28 | 40.0 | 50 | 1 |
| 83254963 | FLEXIMARK® PTEF 9.5-35 TR | 12.2 | 9.5 | 35 | 47.0 | 50 | 1 |
| 83254962 | FLEXIMARK® PTEF 9.5-38 TR | 12.2 | 9.5 | 38 | 50.0 | 50 | 1 |
| 83254964 | FLEXIMARK® PTEF 9.5-58 TR | 12.2 | 9.5 | 58 | 70.0 | 50 | 1 |
| 83254965 | FLEXIMARK® PTEF 9.5-70 TR | 12.2 | 9.5 | 70 | 82.0 | 50 | 1 |
| 83280006 | FLEXIMARK® PTEF 12-18 TR | 14.8 | 12 | 18 | 30.0 | 50 | 1 |
| 83254976 | FLEXIMARK® PTEF 12-28 TR | 14.8 | 12 | 28 | 40.0 | 50 | 1 |
| 83254977 | FLEXIMARK® PTEF 12-38 TR | 14.8 | 12 | 38 | 50.0 | 50 | 1 |
| 83254978 | FLEXIMARK® PTEF 12-58 TR | 14.8 | 12 | 58 | 70.0 | 50 | 1 |
| 83254982 | FLEXIMARK® PTEF 19-50 TR | 21.7 | 19 | 50 | 62.0 | 50 | 1 |
| **With cable ties** | | | | | | | |
| 83259091 | FLEXIMARK® CAB 6-35 TR | 8.7 | 6 | 35 | 47.0 | 50 | 1 |
| 83259087 | FLEXIMARK® CAB 9.5-18 TR | 12.2 | 9.5 | 18 | 30.0 | 50 | 1 |
| 83259084 | FLEXIMARK® CAB 9.5-28 TR | 12.2 | 9.5 | 28 | 40.0 | 50 | 1 |
| 83259088 | FLEXIMARK® CAB 9.5-35 TR | 12.2 | 9.5 | 35 | 47.0 | 50 | 1 |
| 83259086 | FLEXIMARK® CAB 9.5-58 TR | 12.2 | 9.5 | 58 | 70.0 | 50 | 1 |
| 83259078 | FLEXIMARK® CAB 12-18 TR | 14.8 | 12 | 18 | 30.0 | 50 | 1 |
| 83259079 | FLEXIMARK® CAB 12-28 TR | 14.8 | 12 | 28 | 40.0 | 50 | 1 |
| 83259080 | FLEXIMARK® CAB 12-38 TR | 14.8 | 12 | 38 | 50.0 | 50 | 1 |
| 83259081 | FLEXIMARK® CAB 12-58 TR | 14.8 | 12 | 58 | 70.0 | 50 | 1 |
| 83259070 | FLEXIMARK® CAB 19-50 TR | 21.7 | 19 | 50 | 62.0 | 50 | 1 |

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## FLEXIMARK® Collar Snap-on




**Info**

- Mounting after installtion possible by snap-on mechanism
- Snap-On 2-3,5/15 included in FLEXIMARK® sample bag (article no.: M3251010)

## FLEXIMARK® Collar closed




**Info**

- Mounting before installation, as marking collar is closed

## FLEXIMARK® Collar for cable tie




**Info**

- By mounting with cable ties independent of the cable diameter

### Benefits

- Enhanced scratch-protection
- Resistant and flexible protection
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

### Product features

- Extremely flame-retardant according to UL 94 V0

### Note

- Suitable marking collar for LMB labels

### Included

- Marking collars without labels

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description:
Mounting for labelling material

**Colour delivered**
Transparent

**Material**
**FLEXIMARK® Collar Snap-on**
Halogen-free polyethylene
**FLEXIMARK® Collar closed**
PVC
**FLEXIMARK® Collar for cable tie**
Halogen-free polyurethane

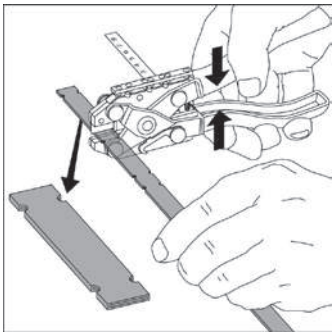
**Temperature range**
-40°C to +80°C

| Article number | Article designation | Length (mm) | For cable Ø (mm) | Markers / PU | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Collar Snap-on** | | | | | |
| 83252650 | FLEXIMARK® collar SnapOn 2-3.5/10 TR | 10 | 2.0 - 3.5 | 1000 | 1 |
| 83252651 | FLEXIMARK® collar SnapOn 2-3.5/15 TR | 15 | 2.0 - 3.5 | 1000 | 1 |
| 83252695 | FLEXIMARK® collar SnapOn 2-3.5/23 TR | 23 | 2.0 - 3.5 | 500 | 1 |
| 83252653 | FLEXIMARK® collar SnapOn 2.8-5/10 TR | 10 | 2.8 - 5.0 | 1000 | 1 |
| 83252654 | FLEXIMARK® collar SnapOn 2.8-5/15 TR | 15 | 2.5 - 5.0 | 1000 | 1 |
| 83252656 | FLEXIMARK® collar SnapOn 5-8/10 TR | 10 | 5.0 - 8.0 | 500 | 1 |
| 83252657 | FLEXIMARK® collar SnapOn 5-8/15 TR | 15 | 5.0 - 8.0 | 500 | 1 |
| 83252660 | FLEXIMARK® collar SnapOn 8-10/15 TR | 15 | 8.0 - 10.0 | 500 | 1 |
| **FLEXIMARK® Collar closed** | | | | | |
| 83252693 | FLEXIMARK® collar halogenfree 1,4-5/23 TR | 23 | 1.4 - 5.0 | 500 | 1 |
| 83252694 | FLEXIMARK® collar halogen-free 5-11/23 TR | 23 | 5.0 - 11.0 | 200 | 1 |
| 83252675 | FLEXIMARK® collar halogen-free 5-11/30 TR | 30 | 5.0 - 11.0 | 200 | 1 |
| **FLEXIMARK® collar for cable ties** | | | | | |
| 83252676 | FLEXIMARK® collar for cable ties | 30 | | 200 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Pliers FL52ERA





## Benefits

- Creating a centred hole
- Punching device creates accurate hole-punches for cable ties with 2.5mm width
- Can also be used as a knife for shortening character holders
- Lightweight model suitable for all hand sizes

## Application range

- Special hole pliers for character-holders PTE and PGS with 6-12 mm width

## Note

- Single parts (cutting and punching device) can be exchanged
- For characters with 19 mm width please use the tool FL 52 A (article no. 83252024)
- Further spare parts are available

| Article number | Article designation | Character holder | Contents (unit) |
|---|---|---|---|
| **FLEXIMARK® Pliers FL52ERA** | | | |
| 83252047 | FLEXIMARK® Plier FL52ERA | 6 / 9.5 / 12 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

## KMK Label holders






### Benefits
- Printed insert strips are placed inside the label-holder and enclosed by a dust-proof cap

### Application range
- Suitable for both marking and bundling several conductors and cables in indoor areas
- For bundle diameters from 10 to 31 mm

### Product features
- Labelling options: by hand or laser/ink-jet printer

### Norm references / Approvals
- Smudge-proof: DIN 30646:1993-11, DIN VDE 0611-1:1977-11

### Product Make-up
- Strap width of KMK1: 5 mm
- Bundling area of KMK1: 10-25 mm
- Strap width of KMK3: 10 mm
- Bundling area of KMK3: 16-31 mm
- Fastening loops KMK2/KMK4: 5 mm

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Colour delivered**
Transparent

**Material**
Label-holder: PE, halogen-free
Labels: cardboard, DIN A4 perforated, silicon free and halogen-free

**Temperature range**
-40°C to +80°C

### Included
- Labels: 10 sheets with 150 (61742922) or 50 labels (61742926)
- Please order labels separately

| Article number | Article designation | Width x height (mm) | Equipment per piece | Contents (unit) |
|---|---|---|---|---|
| **KMK Label holders** | | | | |
| 61742820 | KMK 1 label-holder | 29.0 x 8.0 | with strap | 100 |
| 61742822 | KMK 2 label-holder | 29.0 x 8.0 | without strap | 100 |
| 61742824 | KMK 3 label-holder | 40.0 x 17.0 | with strap | 50 |
| 61742826 | KMK 4 label-holder | 40.0 x 17.0 | without strap | 50 |
| 61742922 | ES/LP-BW-GB labels | 29.0 x 8.0 | | 10 |
| 61742926 | ES/KMK 3 GB labels | 40.0 x 17.0 | | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

## ETB Label holders



### Benefits
- Suitable for binding and bundling
- The label holder can be opened and closed easily to replace the label
- Good UV-resistance

### Application range
- Marking cables, tubes, items, or as advertising media, baggage labels and any other kind of labelling

### Product features
- The label is folded in a way that can be reduced to a quarter of its size, matching the visible part of the printing field in the label holder

### Product Make-up
- Cable tie dimensions: 200 x 5 mm
- Perforated cardboard (colour: white)

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Material**
Polypropylene (PP)

**Temperature range**
-18°C to +90°C
Mounting temperature: min. +10 °C

### Included
- 61742810: including marking labels (2 sheets with 56 labels each)

| Article number | Article designation | Width x height (mm) | Labels per side | Contents (unit) |
|---|---|---|---|---|
| **ETB Label holders** | | | | |
| 61742810 | ETB holder transparent | 60.0 x 33.0 | | 50 |
| 61742900 | ETB labels | 52.0 x 17.5 | 56 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# FLEXIMARK® Warning signs/Prohibition signs/Mandatory signs

**Info**

- All symbols according to ISO 7010

## Benefits

- Very resistant to UV, moisture, chemicals (e.g. glass cleaner, alcohol, oil)
- Scratch resistant
- Powerful adhesive

## Application range

- Control cabinet manufacturing
- Mechanical engineering
- Robotics
- Safety marking in industrial environment
- Indoor and outdoor applications

## Product features

- Self-adhesive labels

## Technical data

**On request**
Further dimensions and symbols

**Colour delivered**
Warning signs: Yellow
Prohibition signs: Red
Mandatory signs: Blue

**Material**
Laminated polyester (halogen-free)

**Temperature range**
-40°C to +150°C
Processing: min. +10°C

| Picture | Article designation | Description | Side length / diameter | | | Markings / PU | PU |
|---|---|---|---|---|---|---|---|
| | | | 25mm | 50mm | 100mm | | |
| **FLEXIMARK® Warning signs** | | | | | | | |
|  | FLEXIMARK® W001 | General warning sign | 83880016 | 83880017 | 83880018 | 10 | 1 |
|  | FLEXIMARK® W002 | Warning; Explosive material | 83880019 | 83880020 | 83880021 | 10 | 1 |
|  | FLEXIMARK® W012 | Warning; Electricity | 83880049 | 83880050 | 83880051 | 10 | 1 |
|  | FLEXIMARK® W017 | Warning; Hot surface | 83880064 | 83880065 | 83880066 | 10 | 1 |
|  | FLEXIMARK® W021 | Warning; Flammable material | 83880076 | 83880077 | 83880078 | 10 | 1 |
|  | FLEXIMARK® W025 | Warning; Counterrotating rollers | 83880088 | 83880089 | 83880090 | 10 | 1 |
|  | FLEXIMARK® W026 | Warning; Battery charging | 83880091 | 83880092 | 83880093 | 10 | 1 |
| **FLEXIMARK® Prohibition signs** | | | | | | | |
|  | FLEXIMARK® P003 | No open flame; Fire, open ignition source and smoking prohibited | 83880190 | 83880191 | 83880192 | 10 | 1 |
|  | FLEXIMARK® P007 | No access for people with active implanted cardiac devices | 83880202 | 83880203 | 83880204 | 10 | 1 |
|  | FLEXIMARK® P024 | Do not walk or stand here | 83880253 | 83880254 | 83880255 | 10 | 1 |
|  | FLEXIMARK® P031 | Do not alter the state of the switch | 83880274 | 83880275 | 83880276 | 10 | 1 |
| **FLEXIMARK® Mandatory signs** | | | | | | | |
|  | FLEXIMARK® M003 | Wear ear protection | 83880112 | 83880113 | 83880114 | 10 | 1 |
|  | FLEXIMARK® M004 | Wear eye protection | 83880115 | 83880116 | 83880117 | 10 | 1 |
|  | FLEXIMARK® M008 | Wear safety footwear | 83880127 | 83880128 | 83880129 | 10 | 1 |
|  | FLEXIMARK® M009 | Wear protective gloves | 83880130 | 83880131 | 83880132 | 10 | 1 |

# FLEXIMARK® THERMO SPOT




## Benefits

- The attached temperature indicators make it possible to carry out a visual inspection of electrical equipment with a flat surface. A colour change occurs if the temperature is exceeded
- Quickly identifying overheated electrical components makes rapid cause analysis possible. This allows appropriate countermeasures to be initiated to avoid plant downtimes
- 24/7 monitoring and the memory effect make it possible to continuously record temperature exceedance, and can act as an early warning of overheating
- Safe, fast and uncomplicated installation
- Available in different packaging units

## Application range

- For indicating that temperatures have been exceeded
- Irreversible colour change at temperatures from +52°C
- For use with electrical equipment
- Can be used in dry interiors

## Note

- Limitations: These labels will not prevent electrical faults or fires but will aid in monitoring abnormal temperatures and will give visual indication of potential electrical faults and fire risks. These labels do not replace the need to formally install, test, inspect and maintain electrical installations as per the electricity at work act, the electrical installation wiring regulations and manufacturers instructions

## Technical data

**Colour delivered**
White

**Material**
Polyester.
Covering film: Polyester
Adhesive: Acrylic
Color change material:
Non-toxic, white
crystalline solid on a black absorbent backing, adhered with acrylic adhesive.

**Temperature range**
- Activation temperature: 52°C
- Tolerance: +/- 1°C
- Store at room temperature & humidity (i.e.16° C to 27° C & 40% to 60% RH)

| Article number | Article designation | Size | PU |
|---|---|---|---|
| **FLEXIMARK® THERMO SPOT** | | | |
| 83881128 | FLEXIMARK® THERMO SPOT 52°C - 1000 | Ø17 | 1 |
| 83881129 | FLEXIMARK® THERMO SPOT 52°C - 200 | Ø17 | 200 |
| 83881130 | FLEXIMARK® THERMO SPOT 52°C - 50 | Ø17 | 50 |
| 83881131 | FLEXIMARK® THERMO SPOT 52°C - 20 | Ø17 | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# FLEXIMARK® THERMO WRAP



## Benefits

- The attached temperature indicators make visual inspection of electrical equipment possible. A colour change occurs if the temperature is exceeded
- Quickly identifying overheated electrical components makes rapid cause analysis possible. This allows appropriate countermeasures to be initiated to avoid plant downtimes
- 24/7 monitoring and the memory effect make it possible to continuously record temperature exceedance, and can act as an early warning of overheating
- Safe, fast and uncomplicated installation
- Suitable for cable outer diameters of up to 33 mm

## Application range

- For indicating that temperatures have been exceeded
- Irreversible colour change at temperatures from +70°C or +90°C (depending on article)
- For use with power cables
- Can be used in dry interiors

## Note

- Limitations: These labels are designed to use on electrical equipment and as such electrical safety must be assessed by a competent electrician prior to their application.FLEXIMARK® THERMO WRAP is not suitable for unprotected use outdoors or in direct sunlight. The wraps are vulnerable to degradation and nonperformance from prolonged exposure to ultra-violet (UV) light.FLEXIMARK® THERMO WRAP will not prevent electrical faults or fires but will aid in monitoring abnormal temperatures and will give visual indication of abnormal wire insulation temperature above 70°C/90 °C for whatever underlying cause

## Technical data

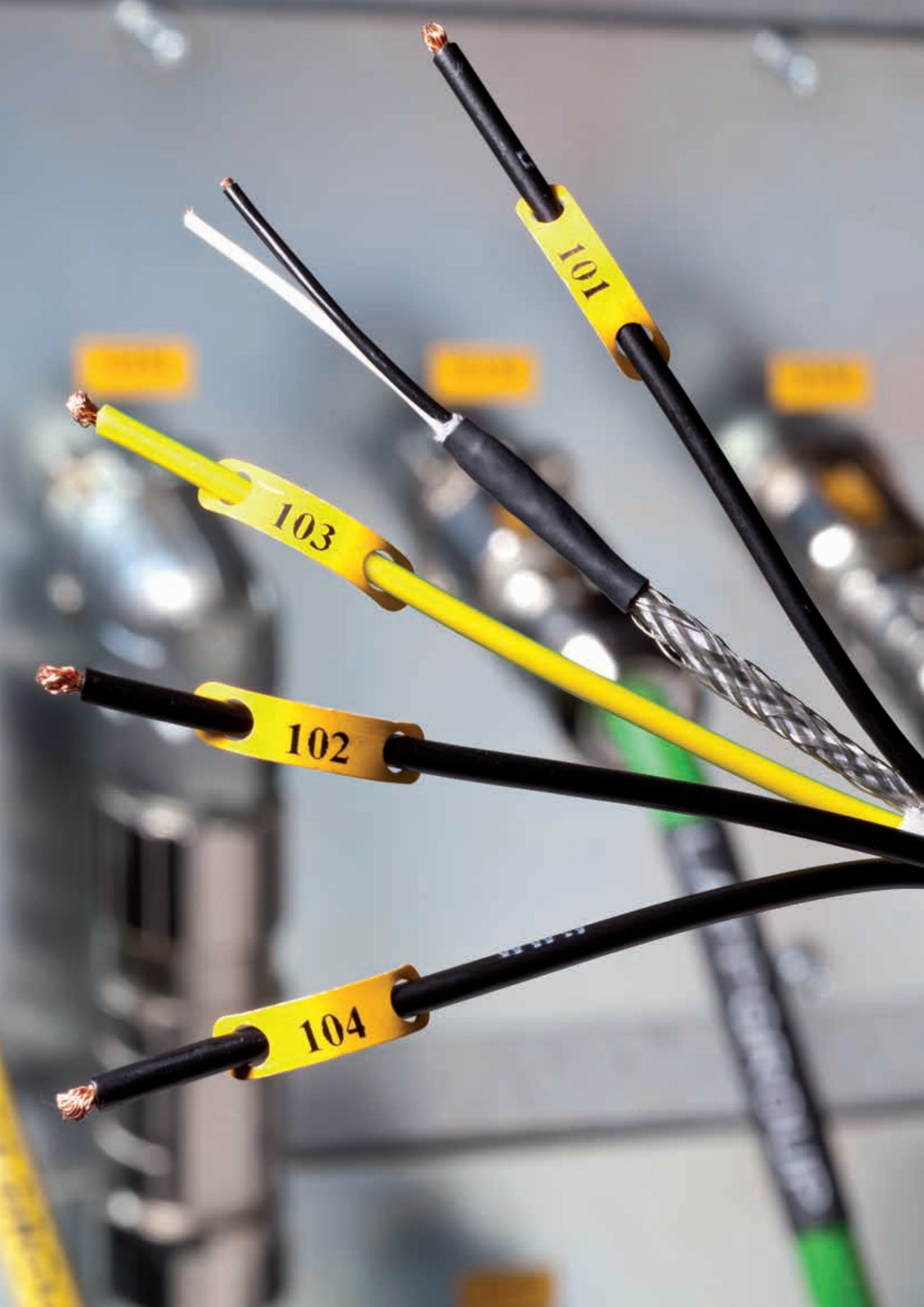
RAL **Colour delivered**
Yellow

**Material**
Polyester.
Covering film: Polyester
Adhesive: Acrylic
Color change material: Non-toxic, white crystalline solid on a black absorbent backing, adhered with acrylic adhesive

**Temperature range**
- Activation temperature: 70°C and 90°C
- Tolerance: +/- 1°C
- Response time: 5 to 20 seconds
- Store at room temperature & humidity (i.e.16°C to 27°C & 40% to 60% RH)

| Article number | Article designation | Size (mm) | PU |
|---|---|---|---|
| **FLEXIMARK® THERMO WRAP** | | | |
| 83881120 | FLEXIMARK® THERMO WRAP 70°C -1000 | 118 x 15 | 1.000 |
| 83881121 | FLEXIMARK® THERMO WRAP 70°C -200 | 118 x 15 | 200 |
| 83881122 | FLEXIMARK® THERMO WRAP 70°C -50 | 118 x 15 | 50 |
| 83881123 | FLEXIMARK® THERMO WRAP 70°C -20 | 118 x 15 | 20 |
| 83881124 | FLEXIMARK® THERMO WRAP 90°C -1000 | 118 x 15 | 1.000 |
| 83881125 | FLEXIMARK® THERMO WRAP 90°C -200 | 118 x 15 | 200 |
| 83881126 | FLEXIMARK® THERMO WRAP 90°C -50 | 118 x 15 | 50 |
| 83881127 | FLEXIMARK® THERMO WRAP 90°C -20 | 118 x 15 | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.


101
103
102
104

# FLEXIMARK® THERMO SPOT-B




## Benefits

- The attached temperature indicators make it possible to carry out a visual inspection of electrical equipment with a flat surface. A colour change occurs if the temperature is exceeded
- Quickly identifying overheated electrical components makes rapid cause analysis possible. This allows appropriate countermeasures to be initiated to avoid plant downtimes
- 24/7 monitoring and the memory effect make it possible to continuously record temperature exceedance, and can act as an early warning of overheating
- Safe, fast and uncomplicated installation
- Available in different packaging units

## Application range

- For indicating that temperatures have been exceeded
- Irreversible colour change at temperatures from +52°C
- For use with electrical equipment
- Can be used in dry interiors

## Note

- Limitations: These labels are not suitable for unprotected use outdoors or in direct sunlight. They are vulnerable to degradation and non-performance from prolonged exposure to ultra-violet (UV) light or high Relative Humidity. These labels will not prevent electrical faults or fires but will aid in monitoring abnormal temperatures and will give visual indication of potential electrical faults and fire risks. These labels do not replace the need to formally install, test, inspect and maintain electrical installations as per the electricity at work act, the electrical installation wiring regulations and manufacturers instructions.
  This information is provided solely for consideration, investigation and verification by the user. FLEXIMARK® THERMO SPOT B are made to the highest standard however they are not suitable for all environmental applications. The customer must ensure that they are suitable for use in their application

## Technical data

RAL **Colour delivered**
Yellow

**Material**
Polyester.
Covering film: Polyester
Adhesive: Acrylic
Color change material: Non-toxic, white crystalline solid on a black absorbent backing, adhered with acrylic adhesive

**Temperature range**
- Activation temperature: 52°C
- Tolerance: +/- 1°C
- Store at room temperature & humidity (i.e.16° C to 27° C & 40% to 60% RH)

| Article number | Article designation | Size (mm) | PU |
|---|---|---|---|
| **FLEXIMARK® THERMO SPOT B** | | | |
| 83881132 | FLEXIMARK® THERMO SPOT-B 52°C - 1000 | 100 x 45 | 1 |
| 83881133 | FLEXIMARK® THERMO SPOT-B 52°C - 200 | 100 x 45 | 200 |
| 83881134 | FLEXIMARK® THERMO SPOT-B 52°C -50 | 100 x 45 | 50 |
| 83881135 | FLEXIMARK® THERMO SPOT-B 52°C - 20 | 100 x 45 | 20 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# FLEXIMARK® THERMO CLIP



## Benefits

- The attached temperature indicators make visual inspection of electrical equipment possible. A colour change occurs if the temperature is exceeded
- Quickly identifying overheated electrical components makes rapid cause analysis possible. This allows appropriate countermeasures to be initiated to avoid plant downtimes
- 24/7 monitoring and the memory effect make it possible to continuously record temperature exceedance, and can act as an early warning of overheating
- Safe, fast and uncomplicated installation
- Halogen-free product that generates no harmful gases in the event of a fire

## Application range

- For indicating that temperatures have been exceeded
- Reversible colour change at temperatures of +53°C to +70°C
- Irreversible colour change at temperatures from +71°C
- For use with power cables
- Can be used in dry interiors

## Note

- Limitations: FLEXIMARK® THERMO CLIP series are suitable for use on 600 VAC/VDC max rated wire insulation. FLEXIMARK® THERMO CLIP series are not suitable for unprotected use outdoors or in direct sunlight. The clips are vulnerable to degradation and non-performance from prolonged exposure to ultra-violet (UV) light. FLEXIMARK® THERMO CLIP series are not suitable for use in sub-zero temperatures. FLEXIMARK® THERMO CLIP series will not prevent electrical faults or fires but will aid in monitoring abnormal temperatures and will give visual indication of abnormal wire insulation temperature above 71°C for whatever underlying cause. Use of FLEXIMARK® THERMO CLIP series does not replace the need to formally inspect, test, maintain and install electrical installations in accordance with locally applicable: Electrical installation/ inspection/maintenance codes/ health and safety requirements and manufacturers instructions. This information is provided solely for consideration, investigation, and verification by the user. FLEXIMARK® THERMO CLIP series are not suitable for all environmental applications. The end user must verify that they are suitable for use in their application

## Technical data

**On request**
Further dimensions and symbols

**Colour delivered**
Purple

**Material**
5-10% Thermochromic Masterbatch. 90-95% Polypropylene, nonhalogenated (Halogen-free)

**Temperature range**
Reversible colour change at temperatures of +53°C to +70°C. Irreversible colour change at temperatures from +71°C

| Article number | Article designation | Size (mm) | PU |
|---|---|---|---|
| **FLEXIMARK® THERMO CLIP** | | | |
| 83881100 | FLEXIMARK® THERMO CLIP H1 70°C - 50 | 2.3 - 4.2 | 50 |
| 83881101 | FLEXIMARK® THERMO CLIP H1 70°C - 1000 | 2.3 - 4.2 | 1.000 |
| 83881102 | FLEXIMARK® THERMO CLIP H1 70°C - 5000 | 2.3 - 4.2 | 5.000 |
| 83881103 | FLEXIMARK® THERMO CLIP H2 70°C - 50 | 4.8 - 7.1 | 50 |
| 83881104 | FLEXIMARK® THERMO CLIP H2 70°C - 500 | 4.8 - 7.1 | 500 |
| 83881105 | FLEXIMARK® THERMO CLIP H2 70°C - 5000 | 4.8 - 7.1 | 5.000 |
| 83881106 | FLEXIMARK® THERMO CLIP H3 70°C - 25 | 8 - 13.6 | 25 |
| 83881107 | FLEXIMARK® THERMO CLIP H3 70°C - 250 | 8 - 13.6 | 250 |
| 83881108 | FLEXIMARK® THERMO CLIP H3 70°C - 2000 | 8 - 13.6 | 2.000 |
| 83881109 | FLEXIMARK® THERMO CLIP H4 70°C - 12 | 13.8 - 23 | 12 |
| 83881110 | FLEXIMARK® THERMO CLIP H4 70°C - 120 | 13.8 - 23 | 120 |
| 83881111 | FLEXIMARK® THERMO CLIP H4 70°C - 500 | 13.8 - 23 | 500 |
| 83881112 | FLEXIMARK® THERMO CLIP H5 70°C - 6 | 23 - 31 | 6 |
| 83881113 | FLEXIMARK® THERMO CLIP H5 70°C - 60 | 23 - 31 | 60 |
| 83881114 | FLEXIMARK® THERMO CLIP H5 70°C - 240 | 23 - 31 | 240 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# FLEXIMARK® THERMO CLIP Starter Kit







## Benefits

- Starter kit as basic equipment with FLEXIMARK® THERMO CLIP temperature indicators in five different sizes for a cable outer diameters of 2.3 31.0 mm
- The use of small parts ensures optimum order and prevents the content from being mixed up. The size of the individual compartments can be individually adapted
- Stackable and robust case made of durable plastic
- The transparent lid provides a perfect overview, even when closed
- The snap closure provides reliable closing

## Application range

- For safe transport and storage of FLEXIMARK® THERMO CLIP temperature indicators
- Especially for use in maintenance, e.g. for inspecting industrial plants

## Note

- Limitations: FLEXIMARK® THERMO CLIP series are suitable for use on 600 VAC/VDC max rated wire insulation. FLEXIMARK® THERMO CLIP series are not suitable for unprotected use outdoors or in direct sunlight. The clips are vulnerable to degradation and non-performance from prolonged exposure to ultra-violet (UV) light. FLEXIMARK® THERMO CLIP series are not suitable for use in sub-zero temperatures. FLEXIMARK® THERMO CLIP series will not prevent electrical faults or fires but will aid in monitoring abnormal temperatures and will give visual indication of abnormal wire insulation temperature above 71°C for whatever underlying cause. Use of FLEXIMARK® THERMO CLIP series does not replace the need to formally inspect, test, maintain and install electrical installations in accordance with locally applicable: Electrical installation/ inspection/ maintenance codes / health and safety requirements and manufacturers instructions. This information is provided solely for consideration, investigation, and verification by the user. FLEXIMARK® THERMO CLIP series are not suitable for all environmental applications. The end user must verify that they are suitable for use in their application

## Technical data

**On request**
Further dimensions and symbols

**Colour delivered**
Purple

**Material**
5-10% Thermochromic Masterbatch. 90-95% Polypropylene, nonhalogenated (Halogen-free)

**Temperature range**
Reversible colour change at temperatures of +53°C to +70°C. Irreversible colour change at temperatures from +71°C.

# FLEXIMARK® Stainless steel kit





## Benefits

- The basic equipment of the FLEXIMARK® stainless steel system in a handy box

## Application range

- Cable and component marking system
- Quick and easy on-site assembly
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

## Norm references / Approvals

- Achilles JQS certified

## Note

- Single parts included in the box could be purchased separately (e.g. special pliers= article no. 61790180)

## Included

- Characters A-Ö / 0-9: 40 pcs.
- Special characters +-/:.ü and symbol for earthing: 40 pcs.
- Blank characters: 40 pcs.
- Character holders (each 5 with boreholes and 5 with fastening loops for cable ties) with lengths of 286, 109, 83.1, 60.4, and 48.8 mm
- Steel cable ties LS 4.6x200: 10 pcs.

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Dimensions**
Character strips: 9.5 x 6 x 0.75 mm
Box: 440 x 380 x 100 mm

**Material**
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

**Temperature range**
-80°C to +500°C

| Article number | Article designation | Version | PU |
|---|---|---|---|
| **FLEXIMARK® Stainless steel kit** | | | |
| 83254222 | FLEXIMARK® Kit Stainless Steel without pliers | without pliers | 1 |
| 83254223 | FLEXIMARK® Kit Stainless Steel with special pliers | with special pliers for ´preventing the signs falling off | 1 |
| 83254224 | FLEXIMARK® Kit Stainless Steel with cable tie pliers | With cable tie pliers | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please request our data sheet for further clarification on the different types of kits.

# FLEXIMARK® Stainless steel characters MR

**Info**

- Included in FLEXIMARK® sample bag (article no.: M3251010)





## Benefits

- Quick, simple and permanent marking on site

## Application range

- Cable and component marking system
- For assembly, the character strips are pushed into the NM stainless steel character holders
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

## Norm references / Approvals

- Achilles JQS certified

## Note

- Cyrillic characters on request

## Included

- Sets contain 200 markers of each character

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Dimensions**
Height x width: approx. 9.5 x 6 mm
Character height: approx. 6.8 mm

**Material**
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

**Temperature range**
-80°C to +500°C

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| **Sets** | | | |
| 83254122 | FLEXIMARK® Character strip MR SET 0-9 | 2000 | 1 |
| 83254120 | FLEXIMARK® Character strip MR SET A-Z | 5200 | 1 |
| **Numbers** | | | |
| 83254179 | FLEXIMARK® Character Strip MR 10-20 1 | 200 | 1 |
| 83254180 | FLEXIMARK® Character Strip MR 10-20 2 | 200 | 1 |
| 83254181 | FLEXIMARK® Character Strip MR 10-20 3 | 200 | 1 |
| 83254182 | FLEXIMARK® Character Strip MR 10-20 4 | 200 | 1 |
| 83254183 | FLEXIMARK® Character Strip MR 10-20 5 | 200 | 1 |
| 83254184 | FLEXIMARK® Character Strip MR 10-20 6/9 | 200 | 1 |
| 83254185 | FLEXIMARK® Character Strip MR 10-20 7 | 200 | 1 |
| 83254186 | FLEXIMARK® Character Strip MR 10-20 8 | 200 | 1 |
| **Letters** | | | |
| 83254150 | FLEXIMARK® Character Strip MR 10-20 A | 200 | 1 |
| 83254151 | FLEXIMARK® Character Strip MR 10-20 B | 200 | 1 |
| 83254152 | FLEXIMARK® Character Strip MR 10-20 C | 200 | 1 |
| 83254153 | FLEXIMARK® Character Strip MR 10-20 D | 200 | 1 |
| 83254154 | FLEXIMARK® Character Strip MR 10-20 E | 200 | 1 |
| 83254155 | FLEXIMARK® Character Strip MR 10-20 F | 200 | 1 |
| 83254156 | FLEXIMARK® Character Strip MR 10-20 G | 200 | 1 |
| 83254157 | FLEXIMARK® Character Strip MR 10-20 H | 200 | 1 |
| 83254158 | FLEXIMARK® Character Strip MR 10-20 I | 200 | 1 |
| 83254159 | FLEXIMARK® Character Strip MR 10-20 J | 200 | 1 |
| 83254160 | FLEXIMARK® Character Strip MR 10-20 K | 200 | 1 |
| 83254161 | FLEXIMARK® Character Strip MR 10-20 L | 200 | 1 |
| 83254162 | FLEXIMARK® Character Strip MR 10-20 M | 200 | 1 |
| 83254163 | FLEXIMARK® Character Strip MR 10-20 N | 200 | 1 |
| 83254164 | FLEXIMARK® Character Strip MR 10-20 O/0 | 200 | 1 |
| 83254165 | FLEXIMARK® Character Strip MR 10-20 P | 200 | 1 |
| 83254166 | FLEXIMARK® Character Strip MR 10-20 Q | 200 | 1 |
| 83254167 | FLEXIMARK® Character Strip MR 10-20 R | 200 | 1 |
| 83254168 | FLEXIMARK® Character Strip MR 10-20 S | 200 | 1 |
| 83254169 | FLEXIMARK® Character Strip MR 10-20 T | 200 | 1 |
| 83254170 | FLEXIMARK® Character Strip MR 10-20 U | 200 | 1 |
| 83254171 | FLEXIMARK® Character Strip MR 10-20 V | 200 | 1 |
| 83254172 | FLEXIMARK® Character Strip MR 10-20 W | 200 | 1 |
| 83254173 | FLEXIMARK® Character Strip MR 10-20 X | 200 | 1 |
| 83254174 | FLEXIMARK® Character Strip MR 10-20 Y | 200 | 1 |
| 83254175 | FLEXIMARK® Character Strip MR 10-20 Z | 200 | 1 |
| 83254177 | FLEXIMARK® Character Strip MR 10-20 Ä | 200 | 1 |
| 83254178 | FLEXIMARK® Character Strip MR 10-20 Ö | 200 | 1 |
| 83254201 | FLEXIMARK® Character Strip MR 10-20 Ü | 200 | 1 |

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| **Symbols** | | | |
| 83254192 | FLEXIMARK® Character Strip MR 10-20 + | 200 | 1 |
| 83254191 | FLEXIMARK® Character Strip MR 10-20 - | 200 | 1 |
| 83254194 | FLEXIMARK® Character Strip MR 10-20 / | 200 | 1 |
| 83254195 | FLEXIMARK® Character Strip MR 10-20 . | 200 | 1 |
| 83254199 | FLEXIMARK® Character Strip MR 10-20 : | 200 | 1 |
| 83254198 | FLEXIMARK® Character Strip MR 10-20 ~ | 200 | 1 |
| 83254193 | FLEXIMARK® Character Strip MR 10-20 = | 200 | 1 |
| 83254200 | FLEXIMARK® Character Strip MR 10-20 Earth | 200 | 1 |
| 83254196 | FLEXIMARK® Character Strip MR 10-20 , | 200 | 1 |
| 83254202 | FLEXIMARK® Character Strip MR 10-20 ( | 200 | 1 |
| 83254189 | FLEXIMARK® Character Strip MR 10-20P blank | 200 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

## FLEXIMARK® Stainless steel character holders NM



**Info**

- PR 1 NM 7 included in FLEXIMARK® sample bag (article no.: M3251010)

### Benefits

- Quick, simple and permanent marking on site

### Application range

- Cable and component marking system
- For mounting MR stainless steel characters
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

### Norm references / Approvals

- Achilles JQS certified

### Note

- Mounted with cable ties (maximum 7.9 mm width) or screws (up to 3 mm Ø)

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Dimensions**
The tolerance of the dimensions is +/-1,5 mm.

**Info**
Height: approx. 11 mm
Screw hole Ø: 3 mm

**Material**
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

**Temperature range**
-80°C to +500°C

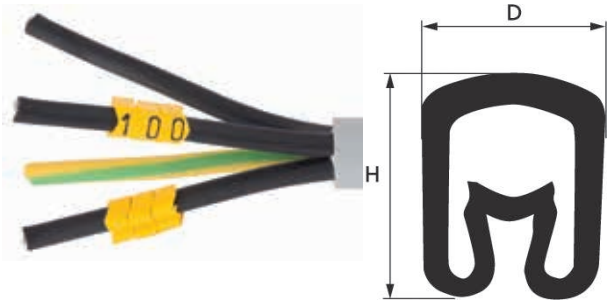
| Article number | Article designation | Length (mm) | Max. Amount of Characters | Markers / PU | PU |
|---|---|---|---|---|---|
| **FLEXIMARK® Stainless steel character holders NM** | | | | | |
| 83254214 | FLEXIMARK® PR10 NM4 | 48 | 6 | 50 | 1 |
| 83254213 | FLEXIMARK® PR10 NM5 | 60 | 8 | 50 | 1 |
| 83254212 | FLEXIMARK® PR10 NM7 | 84 | 12 | 50 | 1 |
| 83254211 | FLEXIMARK® PR10 NM9 | 108 | 16 | 50 | 1 |
| 83254215 | FLEXIMARK® PR10 NM11 | 176 | 26 | 50 | 1 |
| 83254210 | FLEXIMARK® PR10 NM24 | 288 | 46 | 50 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# Marking rings PA

**Info**

- Accessories (storage box, mounting tool) available in the web catalogue




## Benefits

- Closed marking rings with pre-printed number or character
- Anti-rotation protection
- Due to its special profile with spring effects, the 4 different sizes can cover a range of cross-sections from 0.2 to 70 mm²
- Good UV resistance

## Application range

- For single core marking
- Marking before assembly
- These closed collars are intended for cables that are not connected yet

## Product features

- Cross-section in mm²:
  PA 02: 0.2-1.5
  PA 1: 1.5-4
  PA 2: 2.5-16
  PA 3: 16-70
- Diameter application area in mm:
  PA 02: 1.3-3
  PA 1: 2.5-5
  PA 2: 4.0-10.0
  PA 3: 8-16
- Width x heigt mm / sleeve length mm:
  PA 02: 3.5 x 3.6 / 3
  PA 1: 4.2 x 5.5 / 3
  PA 2: 6.6 x 9.5 / 4
  PA 3: 11 x 16.5 / 6

## Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

## Note

- PA 02 also available as collector's box (article no. 61833050, contains 600 rings with inscription 0-9)
- PA 1 also available as collector's box (article no. 61833060, contains 500 rings with inscription 0-9)

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Note**
Sizes PA 1 - PA 3 in web catalogue

**Colour delivered**
Yellow

**Material**
Cadmium-free and silicon-free soft PVC

**Temperature range**
-30°C to +60°C

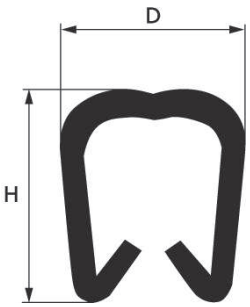
| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| **PA 02** | | | |
| 61817800 | PA 02 / 0 | 200 | 1 |
| 61817810 | PA 02 / 1 | 200 | 1 |
| 61817820 | PA 02 / 2 | 200 | 1 |
| 61817830 | PA 02 / 3 | 200 | 1 |
| 61817840 | PA 02 / 4 | 200 | 1 |
| 61817850 | PA 02 / 5 | 200 | 1 |
| 61817860 | PA 02 / 6 | 200 | 1 |
| 61817870 | PA 02 / 7 | 200 | 1 |
| 61817880 | PA 02 / 8 | 200 | 1 |
| 61817890 | PA 02 / 9 | 200 | 1 |
| 61817900 | PA 02/blank | 200 | 1 |
| 61817910 | PA 02 / A | 200 | 1 |
| 61817920 | PA 02 / B | 200 | 1 |
| 61817930 | PA 02 / C | 200 | 1 |
| 61817940 | PA 02 / D | 200 | 1 |
| 61817950 | PA 02 / E | 200 | 1 |
| 61817960 | PA 02 / F | 200 | 1 |
| 61817970 | PA 02 / G | 200 | 1 |
| 61817980 | PA 02 / H | 200 | 1 |
| 61817990 | PA 02 / I | 200 | 1 |
| 61818000 | PA 02 / J | 200 | 1 |
| 61818011 | PA 02 / K | 200 | 1 |
| 61818020 | PA 02 / L | 200 | 1 |

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| 61818030 | PA 02 / M | 200 | 1 |
| 61818040 | PA 02 / N | 200 | 1 |
| 61818050 | PA 02 / O | 200 | 1 |
| 61818060 | PA 02 / P | 200 | 1 |
| 61818070 | PA 02 / Q | 200 | 1 |
| 61818080 | PA 02 / R | 200 | 1 |
| 61818090 | PA 02 / S | 200 | 1 |
| 61819100 | PA 02 / T | 200 | 1 |
| 61819110 | PA 02 / U | 200 | 1 |
| 61819120 | PA 02 / V | 200 | 1 |
| 61819130 | PA 02 / W | 200 | 1 |
| 61819140 | PA 02 / X | 200 | 1 |
| 61819150 | PA 02 / Y | 200 | 1 |
| 61819160 | PA 02 / Z | 200 | 1 |
| 61819170 | PA 02 / / | 200 | 1 |
| 61819180 | PA 02 / . | 200 | 1 |
| 61819190 | PA 02 / , | 200 | 1 |
| 61819200 | PA 02 / : | 200 | 1 |
| 61819210 | PA 02 / = | 200 | 1 |
| 61819220 | PA 02/earth | 200 | 1 |
| 61819260 | PA 02 / + | 200 | 1 |
| 61819270 | PA 02 / - | 200 | 1 |
| 61819280 | PA 02 / ~ | 200 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Marking rings PC




**Info**

- Accessories (storage box) available in the web catalogue

## Benefits

- Open marking rings with pre-printed number or character
- The shape ensures secure fixation to the cable, while the anti-rotation feature allows for a secure combination marking.
- Good UV resistance
- Easy mounting through clipping

## Application range

- For single core marking
- Marking after assembly
- Also possible to use for marking wires before assembly

## Product features

- Cross-section in $mm^2$:
  PC 10: 1
  PC 20: 2.5
  PC 30: 4
  PC 40: 6
- Diameter application area in mm:
  PC 10: 2.4-3
  PC 20: 3-4
  PC 30: 4-5
  PC 40: 5-6.2
- Width x heigt mm / sleeve length mm:
  PC 10: 3,7 x 3,6 / 3
  PC 20: 4,5 x 4,2 / 3
  PC 30: 5,7 x 5,5 / 3
  PC 40: 6,9 x 6,7 / 4

## Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Note**
Sizes PC 20 - PC 40 in web catalogue

**Colour delivered**
Yellow

**Material**
Cadmium-free and silicon-free hard PVC

**Temperature range**
-30°C to +60°C

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| **PC 10** | | | |
| 61820900 | PC 10 / O | 200 | 1 |
| 61820910 | PC 10 / 1 | 200 | 1 |
| 61820920 | PC 10 / 2 | 200 | 1 |
| 61820930 | PC 10 / 3 | 200 | 1 |
| 61820940 | PC 10 / 4 | 200 | 1 |
| 61820950 | PC 10 / 5 | 200 | 1 |
| 61820960 | PC 10 / 6 | 200 | 1 |
| 61820970 | PC 10 / 7 | 200 | 1 |
| 61820980 | PC 10 / 8 | 200 | 1 |
| 61820990 | PC 10 / 9 | 200 | 1 |
| 61821000 | PC 10 / blank | 200 | 1 |
| 61821010 | PC 10 / A | 200 | 1 |
| 61821020 | PC 10 / B | 200 | 1 |
| 61821030 | PC 10 / C | 200 | 1 |
| 61821040 | PC 10 / D | 200 | 1 |
| 61821050 | PC 10 / E | 200 | 1 |
| 61821060 | PC 10 / F | 200 | 1 |
| 61821070 | PC 10 / G | 200 | 1 |
| 61821080 | PC 10 / H | 200 | 1 |
| 61821090 | PC 10 / I | 200 | 1 |
| 61821100 | PC 10 / J | 200 | 1 |
| 61821110 | PC 10 / K | 200 | 1 |
| 61821120 | PC 10 / L | 200 | 1 |

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| 61821130 | PC 10 / M | 200 | 1 |
| 61821140 | PC 10 / N | 200 | 1 |
| 61821150 | PC 10 / O | 200 | 1 |
| 61821160 | PC 10 / P | 200 | 1 |
| 61821170 | PC 10 / Q | 200 | 1 |
| 61821180 | PC 10 / R | 200 | 1 |
| 61821190 | PC 10 / S | 200 | 1 |
| 61821200 | PC 10 / T | 200 | 1 |
| 61821210 | PC 10 / U | 200 | 1 |
| 61821220 | PC 10 / V | 200 | 1 |
| 61821230 | PC 10 / W | 200 | 1 |
| 61821240 | PC 10 / X | 200 | 1 |
| 61821250 | PC 10 / Y | 200 | 1 |
| 61821260 | PC 10 / Z | 200 | 1 |
| 61821270 | PC 10 / / | 200 | 1 |
| 61821280 | PC 10 / . | 200 | 1 |
| 61821290 | PC 10 / , | 200 | 1 |
| 61821300 | PC 10 / : | 200 | 1 |
| 61821310 | PC 10 / = | 200 | 1 |
| 61821320 | PC 10 / earth | 200 | 1 |
| 61821360 | PC 10 / + | 200 | 1 |
| 61821370 | PC 10 / - | 200 | 1 |
| 61821380 | PC 10 / ~ | 200 | 1 |

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# Marking rings Pliosnap

**Info**

- Accessories (storage box) available in the web catalogue



## Benefits

- Fast and easy assembly
- Mounting wands have a foot for handle-ready position
- Rings grip the conductor tightly withou th risk of damaging the insulation
- Due to chevrons on both sides the markers take up correct orientation

## Application range

- Marking of single cores and cables in terminal blocks, also with limited space
- Marking after assembly

## Product features

- Cross-section in mm²:
  Pliosnap 0: optical fibre cables
  Pliosnap 1: 0.32
  Pliosnap 2: 0.50
  Pliosnap 3: 0.75
  Pliosnap 6: 1-1.5
  Pliosnap 9: 2.5
  Pliosnap 12: 4-6
- Diameter application area in mm:
  Pliosnap 0: 0.8-1
  Pliosnap 1: 1-1.4
  Pliosnap 2: 1.4-1.8
  Pliosnap 3: 1.9-2.6
  Pliosnap 6: 2.6-3.5
  Pliosnap 9: 3.2-4.5
  Pliosnap 12: 4.5-6

## Norm references / Approvals

- Fire behaviour according to UL 94 HB

## Included

- 1 PU = 300 markers on 10 (Pliosnap 0 - 6) or 12 (Pliosnap 9 + 12) carriers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

**Note**
Dielectric strength: 20 kV/mm
Tensile strength at yield: 45 MPa
Elongation at break: 40 %
Elasticity: 1800 MPa

**Colour delivered**
White
Colour Carrier:
Pliosnap 0: black
Pliosnap 1: brown
Pliosnap 2: grey
Pliosnap 3: green
Pliosnap 6: red
Pliosnap 9: blue
Pliosnap 12: yellow

**Material**
Polyoxymethylen (POM)

**Temperature range**
-40 °C to +90 °C

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| **Pliosnap 0** | | | |
| 61919400 | Pliosnap 0/0 WH | 300 | 1 |
| 61919401 | Pliosnap 0/1 WH | 300 | 1 |
| 61919402 | Pliosnap 0/2 WH | 300 | 1 |
| 61919403 | Pliosnap 0/3 WH | 300 | 1 |
| 61919404 | Pliosnap 0/4 WH | 300 | 1 |
| 61919405 | Pliosnap 0/5 WH | 300 | 1 |
| 61919406 | Pliosnap 0/6 WH | 300 | 1 |
| 61919407 | Pliosnap 0/7 WH | 300 | 1 |
| 61919408 | Pliosnap 0/8 WH | 300 | 1 |
| 61919409 | Pliosnap 0/9 WH | 300 | 1 |
| 61919410 | Pliosnap 0/A WH | 300 | 1 |
| 61919411 | Pliosnap 0/B WH | 300 | 1 |
| 61919412 | Pliosnap 0/C WH | 300 | 1 |
| 61919413 | Pliosnap 0/D WH | 300 | 1 |
| 61919414 | Pliosnap 0/E WH | 300 | 1 |
| 61919415 | Pliosnap 0/F WH | 300 | 1 |
| 61919416 | Pliosnap 0/G WH | 300 | 1 |
| 61919417 | Pliosnap 0/H WH | 300 | 1 |
| 61919418 | Pliosnap 0/I WH | 300 | 1 |
| 61919419 | Pliosnap 0/J WH | 300 | 1 |

| Article number | Article designation | Markers / PU | PU |
|---|---|---|---|
| 61919420 | Pliosnap 0/K WH | 300 | 1 |
| 61919421 | Pliosnap 0/L WH | 300 | 1 |
| 61919422 | Pliosnap 0/M WH | 300 | 1 |
| 61919423 | Pliosnap 0/N WH | 300 | 1 |
| 61919424 | Pliosnap 0/O WH | 300 | 1 |
| 61919425 | Pliosnap 0/P WH | 300 | 1 |
| 61919426 | Pliosnap 0/Q WH | 300 | 1 |
| 61919427 | Pliosnap 0/R WH | 300 | 1 |
| 61919428 | Pliosnap 0/S WH | 300 | 1 |
| 61919429 | Pliosnap 0/T WH | 300 | 1 |
| 61919430 | Pliosnap 0/U WH | 300 | 1 |
| 61919431 | Pliosnap 0/V WH | 300 | 1 |
| 61919432 | Pliosnap 0/W WH | 300 | 1 |
| 61919433 | Pliosnap 0/X WH | 300 | 1 |
| 61919434 | Pliosnap 0/Y WH | 300 | 1 |
| 61919435 | Pliosnap 0/Z WH | 300 | 1 |
| 61919436 | Pliosnap 0/+ WH | 300 | 1 |
| 61919437 | Pliosnap 0/- WH | 300 | 1 |
| 61919438 | Pliosnap 0/. WH | 300 | 1 |
| 61919439 | Pliosnap 0/: WH | 300 | 1 |

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FLEXIMARK® products are sold in packaging units. For example, if you want to order 640 labels of LCK 32, you only need to order 1 PU instead of 640 individual labels.

# M1011 Manual embossing machine



## Benefits

- Integrated punch for cable tie holes or screw holes
- Temperature resistant
- Weather resistant
- Resistant to salt water

## Application range

- Robust hand-held embossing machine for aluminium and stainless steel tapes
- Cable and component marking system
- Quick, simple and permanent marking on site
- For outdoor applications

## Note

- Number 1 is not included on the embossing wheel - please use the character “I” instead

## Included

- M1011: Embossing machine, embossing wheel, embossing tape made of aluminium without adhesive layer, embossing tape made of steel without adhesive layer, carrying and protective case

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-Description: Label maker

**General**
Lettering height: 4.7 mm

**Note**
Punching hole diameter: 2 mm
Available characters: A-Z, 2-9, -, .

**Material**
Stainless steel: 14.301 (EN Standard), SAE Grade 304
Thickness of the tapes: 0,12 mm

| Article number | Article designation | Lettering height (mm) | Width W (mm) | Length (m) | PU |
|---|---|---|---|---|---|
| 61742670 | M1011 embosser | 4.7 | | | 1 |
| 61742710 | Aluminium embossing tape without adhesive coating | | 12 | 4.8 | 1 |
| 61742720 | Aluminium embossing tape with adhesive layer | | 12 | 3.65 | 1 |
| 61742700 | Stainless steel embossing tape | | 12 | 6.4 | 1 |

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Warranty period is 1 year but could be enlonged with the registration of your product on the DYMO® homepage



# 9 Tools and cable accessories

## Cutting, Holding, Stripping, Skinning

**Cutting tools**
KNIPEX Diagonal cutter 1099
KNIPEX X-Cut® Compact diagonal cutter 1099
KNIPEX High leverage diagonal cutter 1099
KNIPEX Cable shear 1100
KNIPEX Ratchet cutter 1100
**Pliers**
KNIPEX High leverage combination plier 1101
KNIPEX Flat nose pliers 1101
KNIPEX Snipe nose side cutting pliers 1101
KNIPEX Alligator® Water pump plier 1102
**Electronics pliers**
KNIPEX Electronics pliers 1103
KNIPEX Electronics diagonal cutter 1103
KNIPEX Electronics Super Knips® 1103
**Stripping tools**
KNIPEX Cable knife 1104
KNIPEX Dismantling knife 1104
STAR STRIP stripping tool 1105
ALLROUNDER STRIP dismantling tool 1106
FIBRE STRIP dismantling tool 1106
DATA STRIP stripping tool 1107
FC STRIP stripping tool / FC STRIP PLUS stripping tool 1108
AS-I STRIP special stripping tool 1109
SENSOR STRIP stripping tool 1109
EASY STRIP stripping and cutting tool 1110
UNIVERSAL STRIP stripping tool 1111

## Connection and crimping

**Conductor end sleeves**
Conductor end sleeves insulated 1112
Conductor end sleeves AHK insulated 1113
DIN-Coil conductor end sleeves 1114
TWIN conductor end sleeves 1114
DIN-Coil conductor end sleeves 1115
DIN assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes 1117
Conductor end sleeves XL, insulated 1118
Conductor end sleeves AH, not insulated 1199
**Crimping tools for conductor end sleeves**
QUADRO Plus multifunction tool 1120
PEW 8.185 crimping pliers / PEW 8.286 crimping pliers 1121
Crimping Tool PEW TWISTOR 1122
**Cable Lugs**
Insulated cable lugs 1124
Solderless cable lugs KB 1125
**Panel Connectors**
Panel connectors insulated 1127
Panel connectors non-insulated 1128
Panel connectors with latch 1129
**Tube cable lugs**
Tube cable lugs Cu 1130
Tube cable lugs V2A 1131
Tube cable lugs Ni 1132
Tube cable lugs KR/ KRT/ KRF 1134
**Pressing pliers for CU connections**
T 2288 pressing pliers 1136
V 1311-A pressing pliers, hydraulic 1136
PVX 1300 pressing pliers battery-operated 1137
Die holders for system 1311 1137
Dies for system 1311 and 1300 1138
**Universal crimping tools and appliances**
PEW 12 universal tool 1139
E-PEW 12 universal tool 1139
Crimping inserts for PEW 12 system 1140
**EMC protection**
Screen Connector SC 1141
SHIELD-KON® two-part screen connector 1142
PEW 12 Crimping inserts for SHIELD-KON® screen connectors 1144

## Insulating, protecting, shrinking

**Insulating tapes and insulating sheaths**
3M™ Temflex™ 165 instulating tape 1145
TI insulating tape 1146
Insulating tube ISS 1146
Insulating tube ISY 1147
Copper braid 1147
**Screening**
3M™ 1183 screening tap 1148
**Heat-shrinking products**
Shrink tube PROTECT Box / Shrink tube PROTECT 1149
Shrink tube PROTECT-HF 1150
Shrink tube PROTECT-C 1151
Shrink tube PROTECT-M 1152
TEC sealing cap 1153
TEB branch muff 1153
Ground Straps / Flat Ground Straps 1154

## Binding, bundling, fastening

**Cable bundling engineering**
KW plastic coil 1155
Cable-Eater bunched cable conduit 1156
Spare tool Cable - Eater 1156
**Standard Cable ties**
Basic Tie cable tie 1157
Ty-Fast® Cable ties 1158
**Detectable Cable ties**
Detectable Cable ties 1159
**Premium cable ties with steel nose**
Ty-Rap® Cable ties with steel nose 1160
Ty-Rap® UV-stabilised cable ties with steel nose 1160
Ty-Rap® Heat-resistant cable ties with steel nose 1161
Ty-Rap® Cable tie with steel nose for srewing on 1161
Ty-Rap® Cable ties with steel nose with labelling area 1162
**Releasable cable tie**
Quick tie cable ties 1163
Flex Tie cable tie 1163
**Steel cable ties**
LS steel cable ties 1164
**Assembly tool for cable ties**
Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers 1165
BASIC cable tie pliers 1166
Steel Gun HT-338 Cable tie pliers 1166
**Cable tie sockets**
Tie socket self-adhesive 1167
Mounting socket with saddle 1167
Tie small socket 1168
Tie screw socket 1168
Aluminium screw socket 1169
CC cord clips 1169
Detectable cable tie sockets 1170

## Cable guiding and fixing

**Cable trolley systems**
Cable trolley system for C-rails 1172
Cable trolley system for C-rails stainless steel 1173
**Cable wedge clamps**
RKK Round cable wedge clamps 1174
FKK Flat cable wedge clamps 1174
EKK single clamp / DKK double clamp 1175

## Transporting, storing, unwinding

**Unwinding devices**
CHAMPION Drum dispenser 1176
Drum cardboard 1177
Spooling pallet 1177
**Single core shelves**
TRONIC Single core cart 1178

## KNIPEX Diagonal cutter

**Info**

- Narrow head style for use in confined areas




## KNIPEX X-Cut® Compact diagonal cutter

**Info**

- Less force required due to Optimum co-ordination of the cutting egde angle




## KNIPEX High leverage diagonal cutter

**Info**

- High cutting performance with minimum effort




### Benefits

- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

### Application range

**KNIPEX Diagonal cutter**

- For soft and hard wire

**KNIPEX X-Cut® Compact diagonal cutter**

- For both thicker cables as well as for fine copper wires

**KNIPEX High leverage diagonal cutter**

- For all sorts of wire including piano wire

### Product features

- Precision ground, hardened blades

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC VDE-tested

**Material**
Vanadium steel, forged, multi stage oil-hardened

| Article number | Article designation | Soft wire (mm) | Medium hard wire (mm) | Hard wire (mm) | Pianowire (mm) | Cable diameter (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|---|---|---|---|
| **KNIPEX Diagonal cutter** | | | | | | | | |
| 62120520 | Diagonal cutter SESI 16 | 4 | 3 | 2 | | | 0.216 | 160 |
| **KNIPEX X-Cut® Compact diagonal cutter** | | | | | | | | |
| 62120521 | X-Cut® Compact diagonal cutter SXSI 16 | 4.8 | 3.8 | 2.7 | 2.2 | 12 | 0.175 | 160 |
| **KNIPEX High leverage diagonal cutter** | | | | | | | | |
| 62120522 | High leverage diagonal cutter KSSI 18 | | 3.8 | 2.7 | 2.2 | | 0.28 | 180 |

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* Trade product, no Lapp product.

## KNIPEX Cable shear




**Info**

- Less power required due to favourable transmission ratio and new blade geometry

### Benefits

- Special two-blade structure divides the cutting process into pre-cut and post-cut
- Easy and clean cut by using only one hand
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

### Application range

- Cuts copper and aluminium cables

### Product features

- Precision ground, hardened blades

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

**Material**
High-grade special tool steel, forged, chrome plated

| Article number | Article designation | Cable diameter (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|
| **KNIPEX Cable shear** | | | | |
| 62120523 | Cable shear KASI 20 | 20 | 0.34 | 200 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## KNIPEX Ratchet cutter




**Info**

- Less power required due to very high transmission ratio

### Benefits

- One-hand operation through ratchet principle
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

### Application range

- Cuts copper and aluminium cables
- Not suitable for steel wire and wire ropes

### Product features

- Precision ground, hardened blades
- Swivel knife can be unlocked in any cutting position with a press of the thumb

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

**Material**
High-grade special tool steel, forged, oil-hardened

| Article number | Article designation | Cable diameter (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|
| **KNIPEX Ratchet cutter** | | | | |
| 62120524 | Ratchet shear KSRI 525 | 32 | 0.652 | 250 |
| 62120525 | Ratchet shear KSRI 628 | 52 | 0.835 | 280 |

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* Trade product, no Lapp product.

## KNIPEX High leverage combination plier

**Info**

- 35 % less effort required than with conventional combination pliers




## KNIPEX Flat nose pliers

**Info**

- With knurled gripping surfaces




## KNIPEX Snipe nose side cutting pliers

**Info**

- With cutting edges




### Technical data

**Classification ETIM 5/6**
**KNIPEX High leverage combination plier**
ETIM 5.0/6.0 Class-ID: EC000836
ETIM 5.0/6.0 Class-Description: Combination pliers
**KNIPEX Flat nose pliers**
ETIM 5.0/6.0 Class-ID: EC000833
ETIM 5.0/6.0 Class-Description: Flat nose pliers
**KNIPEX Snipe nose side cutting pliers**
ETIM 5.0/6.0 Class-ID: EC000833
ETIM 5.0/6.0 Class-Description: Flat nose pliers

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

**Material**
**KNIPEX High leverage combination plier**
High-grade special tool steel, forged, multi stage oil-hardened
**KNIPEX Flat nose pliers**
Vanadium electric steel, forged, oil-hardened
**KNIPEX Snipe nose side cutting pliers**
Vanadium electric steel, forged, oil-hardened

### Benefits

- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

### Application range

**KNIPEX High leverage combination plier**
- With gripping zones for versatile use
- With cutting edges for heavy duty and thicker cables

**KNIPEX Flat nose pliers**
- Suitable for finer gripping work

**KNIPEX Snipe nose side cutting pliers**
- Suitable for finer gripping work

### Product features

**KNIPEX High leverage combination plier**
- Long cutting edges for thicker cables

**KNIPEX Flat nose pliers**
- Flat, short, wide jaws, knurled gripping surfaces

**KNIPEX Snipe nose side cutting pliers**
- Pointed, half-rounded jaws, knurled gripping surfaces, with cutting edges

| Article number | Article designation | Medium hard wire (mm) | Hard wire (mm) | Pianowire (mm) | Cable diameter (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|---|---|---|
| **KNIPEX High leverage combination plier** | | | | | | | |
| 62120504 | High leverage combination plier KKZI 20 | | 2.8 | 2.2 | 13 | 0.343 | 200 |
| **Flat nose plier** | | | | | | | |
| 62120502 | Flat nose plier FLZI 16 | | | | | 0.176 | 160 |
| **Snipe nose side cutting plier** | | | | | | | |
| 62120503 | Snipe nose plier FRZI 16 | 2.5 | 1.6 | | | 0.144 | 160 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
* Trade product, no Lapp product.

# KNIPEX Alligator® Water pump plier




**Info**

- Good access to the workpiece due to slim size

## Benefits

- Self-locking on pipes and nuts: no slipping on the workpiece and low handforce required
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

## Application range

- Insensitive to dirt due to robust construction, hence particularly suitable for outdoor work

## Product features

- 9-notch adjustment positioning
- High wear resistance of the gripping surfaces

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000164
ETIM 5.0/6.0 Class-Description: Water pump pliers

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

**Material**
Chrome vanadium electric steel, forged, multi stage oil-hardened

| Article number | Article designation | Clamping width (mm) | Jaw distance (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|---|
| **KNIPEX Alligator® Water pump plier** | | | | | |
| 62120505 | Water pump plier WPZI 25 | 50 | 46 | 0.374 | 250 |

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* Trade product, no Lapp product.

## KNIPEX Electronics pliers

**Info**

- For gripping, holding and bending




## KNIPEX Electronics diagonal cutter

**Info**

- Precise cutting through hardened cutting edges




## KNIPEX Electronics Super Knips®

**Info**

- Also for cutting wires resting on a board




### Benefits

- Smoothly movement for minimum operator fatigue
- Electrically discharging handles
- High ergonomics thanks to multi-component handles

### Application range

- For fine assembly and cutting work, e.g. in electronics and fine mechanics

### Product features

**KNIPEX Electronics pliers**

- Head mirror polished, hence good rust protection

**KNIPEX Electronics diagonal cutter**

- Head mirror polished, hence good rust protection

**KNIPEX Electronics Super Knips®**

- Head polished

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000836
ETIM 5.0/6.0 Class-Description: Combination pliers

**Material**
**KNIPEX Electronics pliers**
High-grade special tool steel, forged, oil-hardened
**KNIPEX Electronics diagonal cutter**
High-grade special tool steel, forged, oil-hardened
**KNIPEX Electronics Super Knips®**
INOX - stainless steel

| Article number | Article designation | Soft wire (mm) | Medium hard wire (mm) | Hard wire (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|---|---|
| **Electronics plier ESD** | | | | | | |
| 62120530 | Electronics plier EGZE 12 | | | | 0.074 | 115 |
| **Electronics diagonal cutter ESD** | | | | | | |
| 62120531 | Electronics diagonal cutter ESSE 12 | 1.6 | 1.2 | 0.6 | 0.082 | 115 |
| **Electronic Super Knips® ESD** | | | | | | |
| 62120532 | Electronic Super Knips® ESKE 13 | 1.6 | 1 | | 0.055 | 125 |

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* Trade product, no Lapp product.

## KNIPEX Cable knife




**Info**

- Solid straight blade for insulation of large cables

## KNIPEX Dismantling knife




**Info**

- Dismantling without damaging the conductor insulation

### Benefits

- Particularly confident grip thanks to slip-proof soft components
- Thumb recess and “finger hook” at the end of the handle ensure a good transmission of force when the blade is pulled
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

### Product features

**KNIPEX Cable knife**

- Transparent protective cap

**KNIPEX Dismantling knife**

- Transparent protective cap
- With guide shoe at the blade point

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000155
ETIM 5.0/6.0 Class-Description: Knife

**Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

**Material**
**KNIPEX Cable knife**
Special tool steel, oil-hardened
**KNIPEX Dismantling knife**
Surgical steel, stainless, vacuum-hardened

| Article number | Article designation | Blade length (mm) | Radius (mm) | Weight (kg) | Length (mm) |
|---|---|---|---|---|---|
| **Cable knife** | | | | | |
| 62120510 | Cable knife KAMI 19 | 50 | | 0.067 | 190 |
| **Dismantling knife** | | | | | |
| 62120511 | Dismantling knife ABMI 18 | 38 | 23.5 | 0.068 | 180 |

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* Trade product, no Lapp product.

# STAR STRIP stripping tool

**Info**

- Special polished stripping knife is suitable for problematical insulation materials such as PUR, fluoropolymers, glass fibre, TPE and rubber





## Benefits

- Large application range thanks to the interchangeable hooks
- Suitable for circular, longitudinal and spiral cuts
- High quality of the blade ensures a good stripping result also for tough insulation materials
- Robust body, long durability- tested for more than 100.000 stripping operations
- High ergonomics and user-friendliness (inter alias due to a lightweight construction)

## Application range

- Adjustable stripping tool for round cables made with various insulation materials (as PVC, PTFE, rubber or PUR)
- Through the interchangeable hooks, the tool can be used for cables with a diameter of 4.5 - 25 mm and 20 - 40 mm

## Product features

- The depth of the blade is adjustable by rotating the upper part of the tool
- Specific locking positions for circular, longitudinal or spiral cuts
- The blade automatically returns to its start position at the end of a stripping process, thus reducing the possibility of breaking the blade
- No special tool is required to replace the hook (other hook is used for releasing the assembled hook)

## Note

- Spare blades are available and can be stored in a compartment of the tool

## Included

- 61735820: Tool with blade, small and large hook without spare blade

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

**Weight**
STAR STRIP with large hook: 116 g

**Length**
Dimensions LxHxB:
Small hook: 150x42x30.5 mm
Big hook: 167x52x30.5 mm

**Colour delivered**
Black

| Article number | Article designation | For outer diameter (mm) | Length (mm) | Pieces / PU |
|---|---|---|---|---|
| **STAR STRIP with one blade, small and big hook (but woithout replacement blade)** | | | | |
| 61735820 | STAR STRIP | 4,5 - 40.0 | 150 | 1 |
| **Spare parts** | | | | |
| 61735821 | STAR STRIP spare blade | | | 1 |
| 61735822 | STAR STRIP spare hook, small | 4,5 - 25.0 | | 1 |
| 61735823 | STAR STRIP spare hook, large | 20.0 - 40.0 | | 1 |

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## ALLROUNDER STRIP dismantling tool







### Benefits

- No adjustment of cutting depth required
- Also suitable for asymmetric cable design (ÖLFLEX® Heat, etc.)
- Higher flexibility
- Multifuncional: with shielded cables the different layers can be easily removed with the tool

### Application range

- Asymmetic cable design (ÖLFLEX® HEAT, HITRONIC DUPLEX, ...)
- Stripping of cable sheathing and conductor insulation of round and flat cables with two parallel blades (4-15mm Ø (round cables), max. 15mm width (flat cables))

### Product features

- Extra blade for longitudinal cut
- 2 stripping notches with length stop for stripping conductors
- Locator Box for limiting cutting depth

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

| Article number | Article designation | Pieces / PU |
|---|---|---|
| **ALLROUNDER STRIP dismantling tool** | | |
| 61735835 | ALLROUNDER STRIP | 1 |
| 61735836 | ALLROUNDER Locator Box | 1 |

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* Trade product, no Lapp product.

## FIBRE STRIP dismantling tool





### Benefits

- No adjustment of cutting depth required
- Also suitable for asymmetric cable design (ÖLFLEX® Heat, etc.)

### Application range

- Fibre optic cables with reinforcement elements inside sheating

### Product features

- Specially coated parallel blades for removing harder jacketing materials of fibre optic cables (diameter <5.9mm)

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

| Article number | Article designation | Pieces / PU |
|---|---|---|
| **FIBRE STRIP dismantling tool** | | |
| 61735834 | FIBRE STRIP | 1 |

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* Trade product, no Lapp product.

# DATA STRIP stripping tool





## Benefits

- Precise due to 9 adjustable positions on the setting wheel
- Easy handling-open the stripping shaft by simply pressing the tool together, insert the cable, turn the tool and open the tool again
- Lightweight and handy design - for your trouser pocket or belt
- Long durability - tested for 50.000 insulation processes
- High safety for the user due to rounded shape, no open blades, “X-position” for blade changes, replacement blade is embedded in plastic surrounding

## Application range

- Precision stripping tool for stripping signal, telephone, AV, control and data transmission cables made up of copper and glass fibres.
- Dismantles most multi-core data cables and glass-fibre cables with a diameter of up to 11 mm (also power cable with PVC sheating could be dismantled)
- Not suitable for PUR materials

## Product features

- The tool is adjustable up to 1.00 mm (0,04“) in steps of 0.1 mm:
  9= 1.0 mm
  8= 0.9 mm
  7= 0.8 mm
  6= 0.7 mm
  5= 0.6 mm
  4= 0.5 mm
  3= 0.4 mm
  2= 0.3 mm
  1= 0.2 mm

## Note

- The “x” position on the wheel enables the tool to close so that the attached blade catridge can be ejected and replaced with a new one quickly and safely

## Suitable cables

- UNITRONIC® LiYY

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

**General**
Insulation thickness: Up to 1 mm

**Diameter in**
For outer diameter: 2.5 - 11 mm

**Weight**
28 g

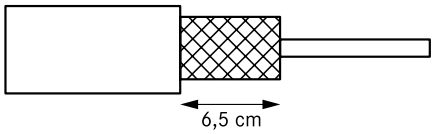
**Length**
Dimensions:
L 90.5 x W 39.5 x H 19 mm

| Article number | Article designation | For outer diameter (mm) | Weight (kg) | Pieces / PU |
|---|---|---|---|---|
| **DATA STRIP stripping tool** | | | | |
| 61735810 | DATA STRIP | 2,5 - 11.0 | 0.028 | 1 |
| 61735811 | DATA STRIP spare blade | | | 1 |

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# FC STRIP stripping tool / FC STRIP PLUS stripping tool






**FC STRIP stripping tool**







**FC STRIP PLUS stripping tool**

## Benefits

**FC STRIP stripping tool**

- Ready-to-connect stripping - outer sheath and copper screening braid are stripped in one simple step
- Prevents cable damage
- Adjusting screws enable the tool to be adjusted for all Fast Connect cables

**FC STRIP PLUS stripping tool**

- 1-, 2- and 3-level stripping in one operation
- Time-saving
- Prevents cable damage
- Higher flexibility

## Application range

**FC STRIP stripping tool**

- Two-level dismantling tool for Fast Connect conductors with an outer diameter 2,5 - 8,0 mm
- Other blades on request

**FC STRIP PLUS stripping tool**

- Coaxial and round data cables (e.g. UNITRONIC®, ETHERLINE®, ...) from 2,5 to 8,0 mm diameter
- Fast Connect cables

## Product features

**FC STRIP stripping tool**

- Preset stripping length for copper screening braid 6.5 mm (blade distance)

**FC STRIP PLUS stripping tool**

- Blade distances and cutting depth can be set individually

## Suitable cables

**FC STRIP stripping tool**

- UNITRONIC® BUS PB FRNC FC

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

| Article number | Article designation | Suitable for: | Pieces / PU |
|---|---|---|---|
| **FC STRIP stripping tool** | | | |
| 21124030 | FC STRIP incl. blue blade | Fast Connect cables | 1 |
| 21124040 | FC STRIP without blade | | 1 |
| 21124041 | FC STRIP blade cartridge blue | PROFIBUS | 1 |
| 21124021 | FC STRIP blade cartridge green | ETHERNET | 1 |
| **FC STRIP PLUS stripping tool** | | | |
| 21124045 | FC STRIP PLUS | Fast Connect cables | 1 |
| 21124092 | FC STRIP PLUS spare blades 3 pcs | | 3 |

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## AS-I STRIP special stripping tool



### Benefits
- Automatic setting of blades
- No damage to single cores

### Application range
- For AS-I cables with PVC, TPE and PUR sheating

### Product features
- Robust tool body is made of glass fibre-reinforced polyamide
- Special shape of the cable is reflected in the blades

### Suitable cables
- UNITRONIC® BUS ASI

### Technical data
ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

| Article number | Article designation | Suitable for: | For insulation | Length (mm) | Weight (kg) | Pieces / PU |
|---|---|---|---|---|---|---|
| **AS-I STRIP special stripping tool** | | | | | | |
| 61735831 | AS-I STRIP special | AS-Interface | TPE, PUR | 160 | 0.12 | 1 |

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* Trade product, no Lapp product.

## SENSOR STRIP stripping tool





### Benefits
- Focussed to the needs of stripping the sheathing of sensor / actuator cables
- With their new blade design the tools strip PVC / PUR cable sheathings precisely from cables without causing damage to the individual conductors or shielding inside
- Fully automated adjustments to the diverse cable diameters
- Push-through opening inside handles to strip any lengths
- Ergonimic design, user friendly, ease of use, lightweight

### Application range
- PUR halogen-free sensor/actuator cables
- Highly flexible TPE-U-cables
- PUR-cables
- PUR/PVC-cables
- Multi-stranded cables, shielded and non-shielded cables

### Product features
- Exchangeable blades, longer lifetime, efficient

### Technical data
ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

**Diameter in**
Sensor Mini: For outer diameter: 3,2-4,4 mm
Sensor Special: For outer diamater: 4,4-7 mm

**Length**
Dimensions LxHxB:16,6x2,8x10,2 mm

| Article number | Article designation | For outer diameter (mm) | Length (mm) | Pieces / PU |
|---|---|---|---|---|
| **SENSOR STRIP stripping tool** | | | | |
| 61735833 | SENSOR STRIP Mini stripping tool | 3,2 - 4,4 | 165 | 1 |
| 61735993 | SENSOR STRIP Special stripping tool | 4,4 - 7.0 | 165 | 1 |
| 61718790 | SENSOR STRIP Mini replacement blade set | 3,2 - 4,4 | | 1 |
| 61718800 | SENSOR STRIP Special replacement blade set | 4,4 - 7.0 | | 1 |

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* Trade product, no Lapp product.

# EASY STRIP stripping and cutting tool







## Benefits

- Easy to handle due to the automatic adjustment for the different crimping cross-sections
- Broad application range thanks to changeable stripping cartridges
- Adjusting lever for fine adjustments ensures that the insulation (particular small dimensions) can be removed without damaging the conductors
- Long durability - tested for more than 150.000 stripping operations
- Ergonomic design due to the soft handle, optimised grip width, angled-head and light construction

## Application range

- Sripping cassettes enable precise stripping of different insulation materials (e.g. PVC/ PTFE) and diameters with a single tool
- For standard cables and conductors (90 % of all applications can be stripped without setting the tool manually)

## Product Make-up

- Two different designs available- pistol shaped (RA) or standard version

## Note

- No MTW single wires 16 mm² can be machined

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

**General**
Stripping range: 0.02 - 16.0 mm²

**Weight**
136 g

**Length**
Overall dimensions: L x H x W:
Standard version: 191x123x20 mm
RA version: 144x186x23 mm

**Info**
Cutting capacity:
Solid cables - 1.5 mm²
Flexible conductors - up to 10 mm²

| Article number | Article designation | For mm² | Colour | For insulation | Cartridge shape | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tool standard version with cartridge** | | | | | | |
| 61735800 | EASY STRIP incl.straight cartridge | 0.02 - 10 | black | PVC etc. | straight | 1 |
| 61735805 | EASY STRIP incl. V-cartridge | 0.1 - 4 | blue | PTFE etc. | V-form | 1 |
| 61735807 | EASY STRIP incl. O-cartridge | 4 - 16 | red | PVC etc. | round | 1 |
| **Tool RA version with cartridge** | | | | | | |
| 61735813 | EASY STRIP RA incl.straight cartridge | 0.02 - 10 | black | PVC etc. | straight | 1 |
| 61735814 | EASY STRIP RA incl. V-cartridge | 0.1 - 4 | blue | PTFE etc. | V-form | 1 |
| 61735815 | EASY STRIP RA incl. O-cartridge | 4 - 16 | red | PVC etc. | round | 1 |
| **Cartridges and replacement items** | | | | | | |
| 61735801 | Straight cartridge | 0.02 - 10 | black | PVC etc. | straight | 1 |
| 61735803 | V-cartridge | 0.1 - 4 | blue | PTFE etc. | V-form | 1 |
| 61735802 | O-cartridge | 4 - 16 | red | PVC etc. | round | 1 |
| 61735806 | EASY STRIP support jaws | | | | | 1 |

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# UNIVERSAL STRIP stripping tool




## Benefits

- No pinching or deforming of cable ends thanks to a special cutting mode
- Interchangeable blades for different cable cross sections
- For use with a great variety of insulation with differing hardness and dimension
- Automatic release after operation

## Application range

- Universal stripping pliers with interchangeable stripping blades for special applications
- Suitable for fluoropolymer & PVC cores, AS-I, Solar, POF cables
- For stripping of sheath and insulation from all single wires and multi-wire cables from 0.03 to 16 mm²
  (Please check the application range of each blade)

## Product features

- Design: chrome-plated with plastic handle cover

## Included

- Tool and blades could be ordered separately or in a set, where the tool and one blade is included
- Tool is always delivered with a length stop

## Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

RAL **Colour delivered**
Orange

| Article number | Article designation | For mm² | For insulation | Length (mm) | Weight (kg) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tool without blades** | | | | | | |
| 21920005 | Universal Strip without stripping knife | | | 194 | 0.41 | 1 |
| **Interchangeable blade** | | | | | | |
| 21920009 | Blade DIN single cores | 0.14 - 6 | PVC | | | 1 |
| 21920126 | POF 1, 2, 4-wire stripping knife | 2.2 - 6.7 | PVC/PUR | | | 1 |
| 21920006 | Flurorpolymer stripping knife | 0.03 - 2.08 | PTFE | | | 1 |
| 21920004 | PTFE stripping knife 2,5-10 | 2.5 - 10 | PTFE | | | 1 |
| 21920008 | PTFE stripping knife 0,5-16 | 0.5 - 16.0 | PTFE | | | 1 |
| 21920135 | AS I stripping knife | | rubber/TPE/PVC | | | 1 |
| 21920122 | Solar stripping knife | 1.5 - 6.0 | XLPO | | | 1 |
| **Complete tool (incl. assembled blade)** | | | | | | |
| 21920141 | Universal Strip DIN single wires | 0.14 - 6 | PVC | | | 1 |
| 21920125 | Universal Strip POF 1, 2, 4-wire | 2.2 - 6.7 | PVC/PUR | | | 1 |
| 21920129 | Universal Strip PTFE 0,03-2,08 | 0.03 - 2.08 | PTFE | | | 1 |
| 21920130 | Universal Strip PTFE 2,5-10 | 2.5 - 10 | PTFE | | | 1 |
| 21920131 | Universal Strip PTFE 0,5-16 | 0.5 - 16.0 | PTFE | | | 1 |
| 21920140 | Universal Strip AS-I | | rubber/TPE/PVC | | | 1 |
| 21920120 | Universal Strip Solar | 1.5 - 6 | XLPO | | | 1 |

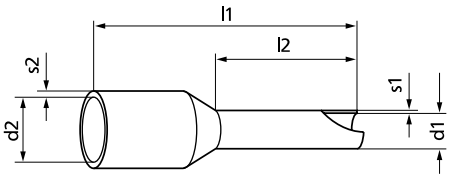
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## Accessories

- Additional blades are available upon request

# Conductor end sleeves insulated






**Info**

- Now with UL approval

## Benefits

- Funnel-shaped opening makes it easy to slip them onto the strands
- The conductor is permanently connected to the collar by crimping

## Application range

- Control cabinets and equipment wiring
- For cables with category 2,5 and 6 conductors
- Not suitable for solid conductors

## Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4
- UL File No. E507990, see table
- Fire behaviour according to UL 94 HB

## Note

- From 16mm sleeve length (l2) 2x crimp

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers
- PEW TWISTOR® crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Note**
Halogen-free

**Material**
Copper/PP
Surface: tin-plated

**Temperature range**
-5°C to +105°C

| Article number | Article designation | For mm² | UL certification | Colour | l1 mm | l2 mm | d1 mm | s1 mm | d2 mm | s2 mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Conductor end sleeves insulated** | | | | | | | | | | | | |
| 61721866 | AHI N 0.25/6 | 0.25 | no | light blue | 10.5 | 6 | 0.8 | 0.25 | 1.8 | 0.25 | PEW 12.090 | 500 |
| 61721867 | AHI L 0.25/8 | 0.25 | no | light blue | 12.5 | 8 | 0.8 | 0.25 | 1.8 | 0.25 | PEW 12.090 | 500 |
| 61721868 | AHI N 0.34/6 | 0.34 | no | turquoise | 10.5 | 6 | 0.8 | 0.25 | 2 | 0.25 | PEW 12.090 | 500 |
| 61721869 | AHI L 0.34/8 | 0.34 | no | turquoise | 12.5 | 8 | 0.8 | 0.25 | 2 | 0.25 | PEW 12.090 | 500 |
| 61801580 | AHI DIN K 0.5/6 | 0.50 | yes | white | 11.5 | 6 | 1.1 | 0.15 | 2.5 | 0.25 | PEW 12.090 | 500 |
| 61801590 | AHI DIN N 0.5/8 | 0.50 | yes | white | 13.5 | 8 | 1.1 | 0.15 | 2.5 | 0.25 | PEW 12.090 | 500 |
| 61801600 | AHI DIN HL 0.5/10 | 0.50 | yes | white | 15.5 | 10 | 1.1 | 0.15 | 2.5 | 0.25 | PEW 12.090 | 500 |
| 61721871 | AHI N 0.5/8 | 0.50 | no | orange | 13.5 | 8 | 1.1 | 0.15 | 2.5 | 0.25 | PEW 12.090 | 500 |
| 61801620 | AHI DIN K 0.75/6 | 0.75 | yes | grey | 12 | 6 | 1.3 | 0.15 | 2.8 | 0.25 | PEW 12.090 | 500 |
| 61801630 | AHI DIN N 0.75/8 | 0.75 | yes | grey | 14 | 8 | 1.3 | 0.15 | 2.8 | 0.25 | PEW 12.090 | 500 |
| 61801640 | AHI DIN HL 0.75/10 | 0.75 | yes | grey | 16 | 10 | 1.3 | 0.15 | 2.8 | 0.25 | PEW 12.090 | 500 |
| 61801650 | AHI DIN L 0.75/12 | 0.75 | yes | grey | 18 | 12 | 1.3 | 0.15 | 2.8 | 0.25 | PEW 12.090 | 500 |
| 61721880 | AHI N 0.75/8 | 0.75 | no | white | 14 | 8 | 1.3 | 0.15 | 2.8 | 0.25 | PEW 12.090 | 500 |
| 61801660 | AHI DIN K 1/6 | 1.00 | yes | red | 12.5 | 6 | 1.5 | 0.15 | 3 | 0.3 | PEW 12.090 | 500 |
| 61801670 | AHI DIN N 1/8 | 1.00 | yes | red | 14.5 | 8 | 1.5 | 0.15 | 3 | 0.3 | PEW 12.090 | 500 |
| 61801680 | AHI DIN HL 1/10 | 1.00 | yes | red | 16.5 | 10 | 1.5 | 0.15 | 3 | 0.3 | PEW 12.090 | 500 |
| 61801690 | AHI DIN L 1/12 | 1.00 | yes | red | 18.5 | 12 | 1.5 | 0.15 | 3 | 0.3 | PEW 12.090 | 500 |
| 61721890 | AHI N 1/8 | 1.00 | no | yellow | 14.5 | 8 | 1.5 | 0.15 | 3 | 0.3 | PEW 12.090 | 500 |
| 61801700 | AHI K 1.5/6 | 1.50 | yes | black | 12.5 | 6 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61801710 | AHI DIN N 1.5/8 | 1.50 | yes | black | 14.5 | 8 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61801720 | AHI DIN HL 1.5/10 | 1.50 | yes | black | 16.5 | 10 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61801730 | AHI DIN L 1.5/18 | 1.50 | yes | black | 24.5 | 18 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61721900 | AHI N 1.5/8 | 1.50 | no | red | 14.5 | 8 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61721910 | AHI HL 1.5/10 | 1.50 | no | red | 16.5 | 10 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61746720 | AHI L 1.5/18 | 1.50 | no | red | 24.5 | 18 | 1.8 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61801750 | AHI DIN N 2.5/8 | 2.50 | yes | blue | 15 | 8 | 2.3 | 0.15 | 4.2 | 0.3 | PEW 12.090 | 500 |
| 61801760 | AHI DIN HL 2.5/12 | 2.50 | yes | blue | 19 | 12 | 2.3 | 0.15 | 4.2 | 0.3 | PEW 12.090 | 500 |
| 61801770 | AHI DIN L 2.5/18 | 2.50 | yes | blue | 25 | 18 | 2.3 | 0.15 | 4.2 | 0.3 | PEW 12.090 | 500 |
| 61801780 | AHI DIN N 4/10 | 4.00 | yes | grey | 17.5 | 10 | 2.9 | 0.2 | 4.8 | 0.3 | PEW 12.090 | 500 |
| 61801790 | AHI DIN HL 4/12 | 4.00 | yes | grey | 20 | 12 | 2.9 | 0.2 | 4.8 | 0.3 | PEW 12.090 | 500 |
| 61801800 | AHI DIN L 4/18 | 4.00 | yes | grey | 26 | 18 | 2.9 | 0.2 | 4.8 | 0.3 | PEW 12.090 | 100 |
| 61801810 | AHI DIN N 6/12 | 6.00 | yes | yellow | 20 | 12 | 3.6 | 0.2 | 6.2 | 0.3 | PEW 12.090 | 100 |
| 61801820 | AHI DIN L 6/18 | 6.00 | yes | yellow | 25 | 18 | 3.6 | 0.2 | 6.2 | 0.3 | PEW 12.090 | 100 |
| 61721940 | AHI N 6/12 | 6.00 | no | black | 20 | 12 | 3.6 | 0.2 | 6.2 | 0.3 | PEW 12.090 | 100 |
| 61721950 | AHI L 6/18 | 6.00 | no | black | 26 | 18 | 3.6 | 0.2 | 6.2 | 0.3 | PEW 12.090 | 100 |
| 61801830 | AHI DIN N 10/12 | 10.00 | yes | red | 21 | 12 | 4.6 | 0.2 | 7.5 | 0.3 | PEW 12.091 | 100 |
| 61801840 | AHI DIN L 10/18 | 10.00 | yes | red | 27 | 18 | 4.6 | 0.2 | 7.5 | 0.3 | PEW 12.091 | 100 |
| 61721960 | AHI N 10/12 | 10.00 | no | ivory | 21 | 12 | 4.6 | 0.2 | 7.5 | 0.3 | PEW 12.091 | 100 |
| 61721970 | AHI L 10/18 | 10.00 | no | ivory | 27 | 18 | 4.6 | 0.2 | 7.5 | 0.3 | PEW 12.091 | 100 |
| 61801850 | AHI DIN N 16/12 | 16.00 | yes | blue | 23 | 12 | 6 | 0.2 | 8.8 | 0.4 | PEW 12.091 | 100 |
| 61801860 | AHI DIN L 16/18 | 16.00 | yes | blue | 29 | 18 | 6 | 0.2 | 8.8 | 0.4 | PEW 12.091 | 100 |
| 61721980 | AHI N 16/12 | 16.00 | no | green | 23 | 12 | 6 | 0.2 | 8.8 | 0.4 | PEW 12.091 | 100 |
| 61721990 | AHI L 16/18 | 16.00 | no | green | 29 | 18 | 6 | 0.2 | 8.8 | 0.4 | PEW 12.091 | 100 |

| Article number | Article designation | For mm² | UL certification | Colour | l1 mm | l2 mm | d1 mm | s1 mm | d2 mm | s2 mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61801870 | AHI DIN N 25/16 | 25.00 | yes | yellow | 29 | 16 | 7.5 | 0.2 | 11 | 0.5 | PEW 12.091 | 50 |
| 61801890 | AHI DIN L 25/22 | 25.00 | yes | yellow | 35 | 22 | 7.5 | 0.2 | 11 | 0.5 | PEW 12.091 | 50 |
| 61746770 | AHI N 25/16 | 25.00 | no | brown | 29 | 16 | 7.5 | 0.2 | 11 | 0.5 | PEW 12.091 | 50 |
| 61746780 | AHI L 25/22 | 25.00 | no | brown | 35 | 22 | 7.5 | 0.2 | 11 | 0.5 | PEW 12.091 | 50 |
| 61801900 | AHI DIN N 35/16 | 35.00 | yes | red | 30 | 16 | 8.5 | 0.2 | 12.5 | 0.5 | PEW 12.331 | 50 |
| 61801920 | AHI DIN L 35/25 | 35.00 | yes | red | 39 | 25 | 8.5 | 0.2 | 12.5 | 0.5 | PEW 12.331 | 50 |
| 61746790 | AHI N 35/16 | 35.00 | no | beige | 30 | 16 | 8.5 | 0.2 | 12.5 | 0.5 | PEW 12.331 | 50 |
| 61746800 | AHI L 35/25 | 35.00 | no | beige | 39 | 25 | 8.5 | 0.2 | 12.5 | 0.5 | PEW 12.331 | 50 |
| 61801930 | AHI DIN N 50/20 | 50.00 | yes | blue | 36 | 20 | 10.5 | 0.3 | 15 | 0.6 | PEW 12.331 | 50 |
| 61801940 | AHI DIN L 50/25 | 50.00 | yes | blue | 41 | 25 | 10.5 | 0.3 | 15 | 0.6 | PEW 12.331 | 50 |
| 61801950 | AHI N 70/20 | 70.00 | no | yellow | 37 | 20 | 12.7 | 0.4 | 16 | 0.6 | PEW 12S.093 | 25 |
| 61801960 | AHI L 70/27 | 70.00 | no | yellow | 44 | 27 | 12.7 | 0.4 | 16 | 0.6 | PEW 12S.093 | 25 |
| 61801970 | AHI N 95/25 | 95.00 | no | red | 44 | 25 | 14.7 | 0.4 | 18 | 0.6 | PEW 12S.094 | 25 |
| 61801980 | AHI N 120/27 | 120.00 | no | blue | 48 | 27 | 16.7 | 0.5 | 21 | 0.7 | | 25 |
| 61801990 | AHI N 150/32 | 150.00 | no | yellow | 58 | 32 | 19.5 | 0.5 | 23 | 1 | | 25 |

K = short; N = medium; HL = large; L = extra large; other sizes and colours are available upon request
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
The manufacturing tolerance is +/- 0,4 mm.

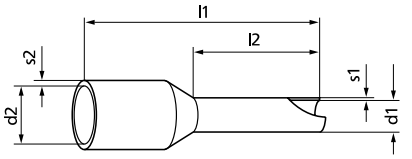
c UL us

## Conductor end sleeves AHK insulated

**Info**

- Now with UL approval






### Benefits

- Thicker insulation and greater wall thickness for higher loads
- Suitable for all short circuit and earth fault-resistant cables up to 3 kV due to enlarged insulation sleeves

### Application range

- For cables with thick insulation
- Special conductor end sleeve model with large plastic collar for thick insulation cables (e.g. NSGAFÖU)
- Suitable for unprotected connections on control and distribution panels, rail vehicles, solar systems, ignition cables etc.

### Norm references / Approvals

- UL File No. E507990, see table

### Suitable cables

- NSGAFÖU 1,8/3 kV

### Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers
- PEW TWISTOR® crimping pliers

### Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Material**
Copper/PP
Surface: tin-plated

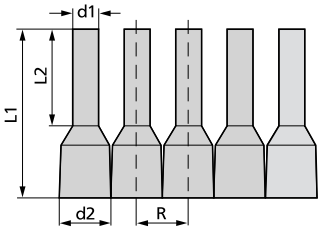
**Temperature range**
-5°C to +105°C

| Article number | Article designation | For mm² | UL certification | Colour | l1 mm | l2 mm | d1 mm | s1 mm | d2 mm | s2 mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Conductor end sleeves AHK insulated** | | | | | | | | | | | | |
| 61746500 | AHK 1.5/8 | 1.50 | yes | black | 17.5 | 8 | 1.8 | 0.15 | 7.5 | 0.3 | PEW 12.090 | 100 |
| 61746501 | AHK 1.5/10 | 1.50 | no | black | 19.5 | 10 | 1.8 | 0.15 | 7.5 | 0.3 | PEW 12.090 | 100 |
| 61746502 | AHK 2.5/8 | 2.50 | yes | blue | 17.5 | 8 | 2.3 | 0.15 | 8 | 0.3 | PEW 12.090 | 100 |
| 61746503 | AHK 2.5/12 | 2.50 | yes | blue | 21.5 | 12 | 2.3 | 0.15 | 8 | 0.3 | PEW 12.090 | 100 |
| 61746504 | AHK 4/10 | 4.00 | yes | grey | 19.5 | 10 | 2.9 | 0.2 | 9.5 | 0.3 | PEW 12.090 | 100 |
| 61746505 | AHK 6/ 12 | 6.00 | yes | yellow | 23 | 12 | 3.6 | 0.2 | 10 | 0.3 | PEW 12.090 | 100 |
| 61746506 | AHK 10/12 | 10.00 | yes | red | 24 | 12 | 4.6 | 0.2 | 11.5 | 0.3 | PEW 12.091 | 100 |
| 61746507 | AHK 16/12 | 16.00 | yes | blue | 25.5 | 12 | 6 | 0.2 | 13.5 | 0.3 | PEW 12.091 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## DIN-Coil conductor end sleeves






### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Material**
Copper/PP
Surface: tin-plated

**Temperature range**
Permanent load -5°C up to +105°C, temporary load +120°C

### Application range

- Insulated conductor end sleeves in strips, DIN 46228, Part 4
- DIN strips, available in coils of up to 3000 items for working with automatic crimping machines

### Included

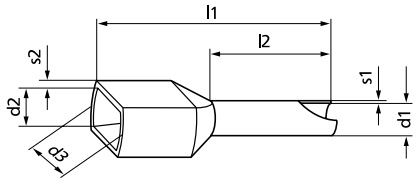
- Coil diameter: approx. 25 cm

| Article number | Article designation | For mm² | Colour | l1 mm | l2 mm | d1 mm | d2 mm | R mm | Contents (unit) |
|---|---|---|---|---|---|---|---|---|---|
| **DIN-Coil conductor end sleeves** | | | | | | | | | |
| 61802052 | DIN coil 0.5 | 0.50 | white | 14.5 | 8 | 1.1 | 2.6 | 3.5 | 3,000 x 1 |
| 61802054 | DIN coil 0.75 | 0.75 | grey | 14.5 | 8 | 1.3 | 2.8 | 3.6 | 3,000 x 1 |
| 61802056 | DIN coil 1.0 | 1.00 | red | 14.5 | 8 | 1.5 | 3 | 3.9 | 3,000 x 1 |
| 61802058 | DIN coil 1.5 | 1.50 | black | 14.5 | 8 | 1.8 | 3.4 | 4.2 | 2,500 x 1 |
| 61802060 | DIN coil 2.5 | 2.50 | blue | 14.5 | 8 | 2.3 | 4.2 | 5 | 1,500 x 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## TWIN conductor end sleeves






### Benefits

- Special shape of plastic collar enables simultaneous holding of two strand conductors
- Correct crimping of two conductors in a TWIN conductor end sleeve achieves a proper electrical and mechanical connection

### Norm references / Approvals

- UL File No. E507990, see table

### Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

### Info

- Now with UL approval

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Info**
Halogen-free

**Material**
Copper/PP
Surface: tin-plated

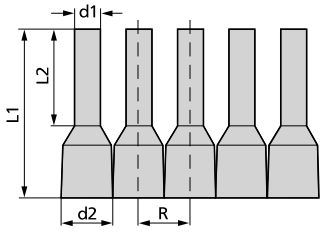
**Temperature range**
Permanent load -5°C up to +105°C, temporary load +120°C

| Article number | Article designation | For mm² | UL certification | Colour | l1 mm | l2 mm | d1 mm | s1 mm | d2 mm | d3 mm | s2 mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TWIN conductor end sleeves** | | | | | | | | | | | | | |
| 61801999 | AHI-TWIN | 2.00 x 0.50 | yes | white | 15 | 8 | 1.5 | 0.15 | 2.3 | 4.5 | 0.25 | PEW 12.090-6 | 500 |
| 61802000 | AHI-TWIN | 2.00 x 0.75 | yes | grey | 15 | 8 | 1.8 | 0.15 | 2.6 | 5.1 | 0.25 | PEW 12.090-6 | 500 |
| 61802010 | AHI-TWIN | 2.00 x 1.00 | yes | red | 15 | 8 | 2.05 | 0.15 | 3 | 5.1 | 0.3 | PEW 12.090-6 | 500 |
| 61802020 | AHI-TWIN | 2.00 x 1.50 | yes | black | 16 | 8 | 2.3 | 0.15 | 3.5 | 6.4 | 0.3 | PEW 12.090-6 | 500 |
| 61802030 | AHI-TWIN | 2.00 x 2.50 | yes | blue | 18.5 | 10 | 2.9 | 0.2 | 4 | 7.5 | 0.3 | PEW 12.090-6 | 500 |
| 61802032 | AHI-TWIN | 2.00 x 4.00 | yes | grey | 23 | 12 | 3.8 | 0.2 | 4.9 | 8.6 | 0.3 | PEW 12.090-6 | 100 |
| 61802033 | AHI-TWIN | 2.00 x 6.00 | yes | yellow | 25 | 14 | 4.6 | 0.2 | 5.8 | 9.6 | 0.4 | PEW 12.097 | 100 |
| 61802034 | AHI-TWIN | 2.00 x 10.00 | yes | red | 26 | 14 | 6.5 | 0.2 | 7 | 12.6 | 0.4 | PEW 12.097 | 100 |
| 61802035 | AHI-TWIN | 2.00 x 16.00 | yes | blue | 30 | 14 | 8.2 | 0.2 | 9.6 | 18.4 | 0.4 | PEW 12.097 | 50 |

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# DIN-Coil conductor end sleeves






## Benefits

- End sleeves on coil for maximum simplification and time saving
- Ideally suited for automated cable assembly in large quantities
- Particularly easy to combine with GLW automatic crimping machines
- UL certification according to technical data enables use of the product in the North American region

## Application range

- Insulated conductor end sleeves in strips, DIN 46228, Part 4
- DIN strips, available in coils of up to 3000 items for working with automatic crimping machines
- To get a (partially) automated crimp connection by means of an automatic crimping machine

## Included

- Coil diameter: approx. 25 cm

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Material**
Copper/PP
Surface: tin-plated

**Temperature range**
Permanent load -5 °C up to +105 °C, temporary load +120 °C

| Article number | Article designation | For mm² | Colour | l1 mm | l2 mm | d1 mm | d2 mm | R mm | Contents (unit) |
|---|---|---|---|---|---|---|---|---|---|
| **DIN-Coil conductor end sleeves** | | | | | | | | | |
| 61802052 | DIN coil 0.5 | 0.50 | white | 14.5 | 8 | 1.1 | 2.6 | 3.5 | 3,000 x 1 |
| 61802054 | DIN coil 0.75 | 0.75 | grey | 14.5 | 8 | 1.3 | 2.8 | 3.6 | 3,000 x 1 |
| 61802056 | DIN coil 1.0 | 1.00 | red | 14.5 | 8 | 1.5 | 3.0 | 3.9 | 3,000 x 1 |
| 61802058 | DIN coil 1.5 | 1.50 | black | 14.5 | 8 | 1.8 | 3.4 | 4.2 | 2,500 x 1 |
| 61802060 | DIN coil 2.5 | 2.50 | blue | 14.5 | 8 | 2.3 | 4.2 | 5.0 | 1,500 x 1 |
| 61802053 | GER coil 0.5 | 0.50 | orange | 14.5 | 8 | 1.1 | 2.6 | 3.5 | 3,000 x 1 |
| 61802055 | GER coil 0.75 | 0.75 | white | 14.5 | 8 | 1.3 | 2.8 | 3.6 | 3,000 x 1 |
| 61802057 | GER coil 1.0 | 1.00 | yellow | 14.5 | 8 | 1.5 | 3.0 | 3.9 | 3,000 x 1 |
| 61802059 | GER coil 1.5 | 1.50 | red | 14.5 | 8 | 1.8 | 3.4 | 4.2 | 2,500 x 1 |

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.


Ty-Rap

# DIN assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes



DIN assorted boxes conductor end sleeves



AHI assorted boxes



## Benefits

- Convenient assortment boxes - several diameters always at your fingertips

## Norm references / Approvals

- The insulated conductor end sleeves are in accordance with DIN 46228, part 4 (0.25 mm² and 0.34 mm² not standardised) in assortment boxes

## Product Make-up

**DIN assorted boxes conductor end sleeves**

- DIN assortment box I:
  30 x 0.25 - 6 mm BU, 30 x 0.34 - 6 mm YE, 30 x 0.5 - 8 mm WH, 30 x 0.75 - 8 mm GY, 30 x 1.00 - 8 mm RD
- DIN assortment box II:
  50 x 0.5 - 8 mm WH, 100 x 0.75 - 8 mm GY, 100 x 1.00 - 8 mm RD, 100 x 1.5 - 8 mm BK, 50 x 2.5 - 8 mm BU
- DIN assortment box III:
  40 x 4.00 - 10 mm GY, 20 x 6.0 - 12 mm YE, 20 x 10.00 - 12 mm RD, 10 x 16.00 - 12 mm BU

**AHI assorted boxes**

- AHI assortment box I (yellow):
  30 x 0.25 - 6 mm LBU, 30 x 0.34 - 6 mm TQ, 30 x 0.5 - 8 mm ON, 30 x 0.75 - 8 mm WH, 30 x 1.00 - 8 mm YE
- AHI assortment box II (orange):
  50 x 0.5 - 8 mm OG, 100 x 0.75 - 8 mm WH, 100 x 1.00 - 8 mm YE, 100 x 1.5 - 8 mm RD, 50 x 2.5 - 8 mm BU
- AHI assortment box III (blue):
  50 x 4.00 - 10 mm GY, 20 x 6.0 - 12 mm BK, 20 x 10.00 - 12 mm WH, 10 x 16.00 - 12 mm GN

**TWIN assorted boxes**

- 2x0,75 - 8mm, 2x1,00 - 8mm, 2x1,5 - 8mm, 2x2,50 - 10mm

## Suitable tools

**DIN assorted boxes conductor end sleeves**

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers

**AHI assorted boxes**

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers

**TWIN assorted boxes**

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

## Technical data

ETIM

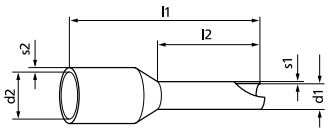
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000524
ETIM 5.0/6.0 Class-Description: Assortment box for installation- and connection material

| Article number | Article designation | For mm² | Suitable crimp insert | Contents (unit) | PU |
|---|---|---|---|---|---|
| **DIN assortment box** | | | | | |
| 61802040 | DIN assortment box I | 0.25 - 1.00 | PEW 12.090 | 150 x 1 | 1 |
| 61802041 | DIN assortment box II | 0.50 - 2.50 | PEW 12.090 | 400 x 1 | 1 |
| 61802042 | DIN assortment box III | 4.00 - 16.00 | PEW 12.090 / PEW 12.091 | 100 x 1 | 1 |
| **AHI assortment box** | | | | | |
| 61794720 | AHI assortment box I | 0.25 - 1.00 | PEW 12.090 | 150 x 1 | 1 |
| 61794730 | AHI assortment box II | 0.50 - 2.50 | PEW 12.090 | 400 x 1 | 1 |
| 61794740 | AHI assortment box III | 4.00 - 16.00 | PEW 12.090 / PEW 12.091 | 100 x 1 | 1 |
| **TWIN assortment box** | | | | | |
| 61802046 | TWIN assortment box | 2 x 0.75 - 2 x 2.5 | PEW 12.090-6 | 200 x 1 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Conductor end sleeves XL, insulated






## Benefits

- The specially produced conductor end sleeves with funnel-shaped insulation sleeve opening make it significantly easier to slip on the strands

## Application range

- Suitable conductor end sleeves for UL(MTW)-CSA-HAR multi-standard single cores
- Because of their certifications for numerous markets, special conductor end sleeves with the cross sections listed below are needed for our multi-standard single cores
- The conductor is permanently connected to the collar by crimping

## Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4

## Note

- For 2.5 mm², 4 mm², 6 mm² and 10 mm² the standard AHI end sleeves could be used as the insulation thickness does only vary slightly from “standard cables”

## Suitable cables

- MULTI-STANDARD SC 1
- MULTI-STANDARD SC 2.1
- MULTI-STANDARD SC 2.2

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers
- PEW TWISTOR® crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Info**
Halogen-free and silicone-free

**Material**
Sleeve made of tin-plated electrolytic copper
Polypropylene plastic collar

**Temperature range**
Permanent load -5 °C up to +105 °C, temporary load +120 °C

| Article number | Article designation | For mm² | UL certification | Colour | l1 mm | l2 mm | d1 mm | s1 mm | d2 mm | s2 mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Conductor end sleeves XL, insulated** | | | | | | | | | | | | |
| 61802061 | Conductor end sleeves XL 0.5 WH 8 | 0.50 | no | white | 13.5 | 8 | 1.1 | 0.15 | 3 | 0.25 | PEW 12.090 | 500 |
| 61802062 | Conductor end sleeves XL 0.5 WH 10 | 0.50 | no | white | 15.5 | 10 | 1.1 | 0.15 | 3 | 0.25 | PEW 12.090 | 500 |
| 61802063 | Conductor end sleeves XL 0.75 GY 8 | 0.75 | no | grey | 14 | 8 | 1.3 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61802064 | Conductor end sleeves XL 0.75 GY 10 | 0.75 | no | grey | 16 | 10 | 1.3 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61802065 | Conductor end sleeves XL 1.0 RD 8 | 1.00 | no | red | 14 | 8 | 1.5 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61802066 | Conductor end sleeves XL 1.0 RD 10 | 1.00 | no | red | 16 | 10 | 1.5 | 0.15 | 3.4 | 0.3 | PEW 12.090 | 500 |
| 61802067 | Conductor end sleeves XL 1.5 BK 8 | 1.50 | no | black | 14 | 8 | 1.8 | 0.15 | 3.8 | 0.3 | PEW 12.090 | 500 |
| 61802068 | Conductor end sleeves XL 1.5 BK 10 | 1.50 | no | black | 16 | 10 | 1.8 | 0.15 | 3.8 | 0.3 | PEW 12.090 | 500 |
| 61802069 | Conductor end sleeves XL 16.0 BU 12 | 16.00 | no | blue | 23 | 12 | 6 | 0.2 | 9.5 | 0.4 | PEW 12.091 | 100 |

Sleeves are available in 8 and 10 mm lengths, depending on the type of application.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Similar products

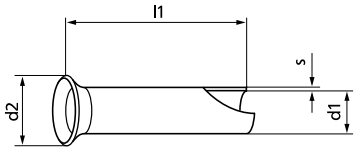
- Conductor end sleeves insulated

# Conductor end sleeves AH, not insulated

**Info**

- Now with UL approval






## Benefits

- Slightly funnel-shaped opening makes it easy to slip it onto the core

## Application range

- Control cabinet wiring

## Norm references / Approvals

- In accordance with DIN 46228
- UL File No. E507990, see table

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system
- PEW 8.185 crimping pliers
- PEW 8.186 crimping pliers
- PEW TWISTOR® crimping pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

**Material**
Tinned electrolyte copper

**Temperature range**
- 55°C up to +200 °C

| Article number | Article designation | For mm² | UL certification | l1 mm | d1 mm | d2 mm | s mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|
| **Conductor end sleeves AH, not insulated** | | | | | | | | | |
| 62120200 | AH DIN 0.5/6 | 0.50 | yes | 6 | 1 | 2.1 | 0.15 | PEW 12.090 | 500 |
| 62120210 | AH DIN 0.75/6 | 0.75 | yes | 6 | 1.2 | 2.3 | 0.15 | PEW 12.090 | 500 |
| 61721530 | AH DIN 0.75/10 | 0.75 | yes | 10 | 1.2 | 2.3 | 0.15 | PEW 12.090 | 500 |
| 62120220 | AH DIN 1/6 | 1.00 | yes | 6 | 1.4 | 2.5 | 0.15 | PEW 12.090 | 500 |
| 61721540 | AH DIN 1/10 | 1.00 | yes | 10 | 1.4 | 2.5 | 0.15 | PEW 12.090 | 500 |
| 62120230 | AH DIN 1.5/7 | 1.50 | yes | 7 | 1.7 | 2.8 | 0.15 | PEW 12.090 | 500 |
| 61721550 | AH DIN 1.5/10 | 1.50 | yes | 10 | 1.7 | 2.8 | 0.15 | PEW 12.090 | 500 |
| 62120240 | AH DIN 2.5/7 | 2.50 | yes | 7 | 2.2 | 3.4 | 0.15 | PEW 12.090 | 500 |
| 61721560 | AH DIN 2.5/12 | 2.50 | yes | 12 | 2.2 | 3.4 | 0.15 | PEW 12.090 | 500 |
| 62120250 | AH DIN 4/9 | 4.00 | yes | 9 | 2.8 | 4 | 0.2 | PEW 12.090 | 500 |
| 62120260 | AH DIN 6/10 | 6.00 | yes | 10 | 3.5 | 4.7 | 0.2 | PEW 12.090 | 500 |
| 62120270 | AH DIN 10/12 | 10.00 | yes | 12 | 4.5 | 5.8 | 0.2 | PEW 12.091 | 500 |
| 62120280 | AH DIN 16/12 | 16.00 | yes | 12 | 5.8 | 7.5 | 0.2 | PEW 12.091 | 500 |

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# QUADRO Plus multifunction tool







## Benefits

- Integration of four key functions in one tool: cutting, insulation Stripping, twisting and crimping
- Perfect synthesis of ergonomics and functionality
- High mechanical advantage assures easy crimping
- Changing the magazine for another cross-section takes only seconds
- No adjustment necessary for different cross-sections

## Application range

- Multi-function tool
- Twisting
- Crimping
- Cutting
- Connection and crimping of insulated end sleeves

## Product features

- Cutting of wires up to 2.5 mm diameter
- Fanning out of strands is prevented by the integrated twist device

## Norm references / Approvals

- Trapezoidal pressing in accordance with VDE 0609 Part I
- GS-logo for proven safety

## Note

- Only use the end sleeves which are particular meant for the QUADRO Plus tool

## Included

- Article no. 61805300: Case with tool, three magazines and end sleeves
- Article no. 61805302: Storage box for conductor end sleeves

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002778
ETIM 5.0/6.0 Class-Description: Stripping and crimping machine

| Article number | Article designation | For mm² | AWG | UL certification | Colour | l1 mm | l2 mm | d1 mm | d2 mm | R mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **QUADRO Plus multifunction tool** | | | | | | | | | | | |
| 61805300 | QUADRO Plus Set | 0.50 - 2.50 | | no | | | | | | | 1 |
| 61805302 | QUADRO Plus magazine | 0.50 - 2.50 | | no | | | | | | | 1 |
| **DIN-strips for QUADRO Plus** | | | | | | | | | | | |
| 61805170 | DIN Strips 0,50 | 0.5 | 20 | no | white | 14 | 8 | 1.1 | 2.6 | 3.5 | 500 |
| 61805180 | DIN Strips 0,75 | 0.7 | 20 | no | grey | 14 | 8 | 1.3 | 2.8 | 3.6 | 500 |
| 61805190 | DIN Strips 1,00 | 1.0 | 18 | no | red | 14 | 8 | 1.5 | 3 | 3.9 | 500 |
| 61805200 | DIN Strips 1,50 | 1.5 | 16 | no | black | 14 | 8 | 1.8 | 3.4 | 4.2 | 500 |
| 61805210 | DIN Strips 2,50 | 2.5 | 14 | no | blue | 14 | 8 | 2.3 | 4.2 | 5 | 500 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# PEW 8.185 crimping pliers / PEW 8.286 crimping pliers




PEW 8.185 crimping pliers




PEW 8.286 crimping pliers

## Benefits

- Ergonomic handles and very low hand force required
- Uniform feed on the crimp die guarantees exact crimping profiles
- DIN compliant crimping quality due to integral lock (self-releasing mechanism)
- Automatic self-adjustment to requested wire size

## Application range

- For pressing insulated and non-insulated conductor end sleeves
- Could be used up to a sleeve length of 20 mm (for sleeves longer than 12 mm at least 2 crimps are necessary)

## Product features

- Made of chromium-plated tool steel

## Note

- End sleeves up to 12 mm only needs to be pressed once, longer end sleeves (up to a 20 mm lengths) needs to be pressed at least twice

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | For mm² | Crimping profile | Weight (kg) | Length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **PEW 8.185 crimping pliers** | | | | | | |
| 61813736 | PEW 8.185 | 0.08 - 16.00 | square | 0.38 | 180 | 1 |
| **PEW 8.286 crimping pliers** | | | | | | |
| 61813737 | PEW 8.186 | 0.08 - 16.00 | hexagon | 0.38 | 180 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Similar products

- PEW 8.87 crimping pliers

NEW

# Crimping Tool PEW TWISTOR



61814612



61814613

## Benefits

- 360° rotatable crimp insert enables the tool to be adjusted to changing assembly conditions in the best possible way
- Properties of crimping pliers with front and side entry combined in one tool
- Perfect for tight or changing environments Side entry ensures an ergonomically optimal crimping process, front entry is particularly suitable for narrow environments and machines
- Covers a large cross-section range without adjusting the crimping tool
- For end sleeves with a cross-section range of up to 10 mm² or 16 mm², depending on the variant

## Application range

- For crimping insulated and non-insulated ferrules as well as TWIN ferrules according to DIN 46228
- Version “TWISTOR® 16” for square crimping of the ferrules
- Version “TWISTOR® T” for trapezoidal compression of the ferrules

## Product features

- Made of chromium-plated tool steel

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

**General**
Pressing length: up to 16 mm
Crimping profile: Square

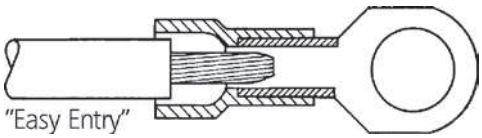
| Article number | For mm² | Crimping profile | Weight (kg) | Length (mm) |
|---|---|---|---|---|
| **Crimping Tool PEW TWISTOR** | | | | |
| 61814612 | 0.14 - 16.00 | square | - | 185 |
| 61814613 | 0.14 - 10.00 | trapezoid | - | 196 |

TWISTOR® is a registered trademark of Rennsteig Werkzeuge GmbH, Germany (GER)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# Insulated cable lugs






## Benefits

- EASY-ENTRY funnel shape of the plastic sleeve enables simple, fast and safe insertion of the conductor
- No risk of bent and crushed cables
- For good strength and improved current conduction

## Application range

- Manufacturing of control cabinets and equipment

## Product features

- Hard-soldered cable lug that can be pressed in any position
- For first-class connection with simple operating principle
- Electrolytic tinning for max. corrosion protection
- Flat receptacle material in contact pressing is double-folded and hard-soldered
- Metal sleeves with internal corrugation

## Norm references / Approvals

- Tested in accordance with DIN IEC 60352
- File Number E334109, see table

## Note

- Butt connector: Solid conductors and fine stranded wires and diverse cross-sections can be crimped together

## Design

- 1 = ring cable lugs
  2 = forked cable lugs
  3 = pin cable lugs
  4 = circular connector
  5 = connector sleeve
  6 = butt connector
  7 = end connector
  (see pictures- from left to right)

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001052
ETIM 5.0/6.0 Class-Description: Solderless copper terminals for copper conductors

**General**
Other sizes and colours (also DIN) are available upon request
Halogen-free

**Material**
High-quality electrolytic copper for good conductivity
Polyamide insulation

**Temperature range**
-20°C to +105°C
Short-term: up to +120°C

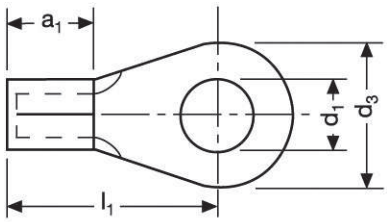
| Article number | Article designation | For mm² | UL certification | Connection bolt | Colour | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Ring cable lugs** | | | | | | | |
| 63104010 | L-RZ 3 | 0.25 - 0.75 | no | M 3 | green | PEW 12.064 | 100 |
| 63104020 | L-RZ 4 | 0.25 - 0.75 | no | M 4 | green | PEW 12.064 | 100 |
| 63104030 | L-RZ 5 | 0.25 - 0.75 | no | M 5 | green | PEW 12.064 | 100 |
| 63104040 | L-RA 3 | 0.5 - 1.5 | yes | M 3 | red | PEW 12.060 | 100 |
| 63104050 | L-RA 35 | 0.5 - 1.5 | yes | M 3.5 | red | PEW 12.060 | 100 |
| 63104060 | L-RA 4 | 0.5 - 1.5 | yes | M 4 | red | PEW 12.060 | 100 |
| 63104070 | L-RA 5 | 0.5 - 1.5 | yes | M 5 | red | PEW 12.060 | 100 |
| 63104080 | L-RA 6 | 0.5 - 1.5 | yes | M 6 | red | PEW 12.060 | 100 |
| 63104160 | L-RB 3 | 1.5 - 2.5 | yes | M 3 | blue | PEW 12.060 | 100 |
| 63104170 | L-RB 4 | 1.5 - 2.5 | yes | M 4 | blue | PEW 12.060 | 100 |
| 63104180 | L-RB 5 | 1.5 - 2.5 | yes | M 5 | blue | PEW 12.060 | 100 |
| 63104190 | L-RB 6 | 1.5 - 2.5 | yes | M 6 | blue | PEW 12.060 | 100 |
| 63104200 | L-RB 8 | 1.5 - 2.5 | yes | M 8 | blue | PEW 12.060 | 100 |
| 63104340 | L-RC 4 | 4 - 6 | yes | M 4 | yellow | PEW 12.060 | 100 |
| 63104350 | L-RC 5 | 4 - 6 | yes | M 5 | yellow | PEW 12.060 | 50 |
| 63104360 | L-RC 6 | 4 - 6 | yes | M 6 | yellow | PEW 12.060 | 50 |
| 63104370 | L-RC 8 | 4 - 6 | yes | M 8 | yellow | PEW 12.060 | 100 |
| 63104380 | L-RC 10 | 4 - 6 | yes | M 10 | yellow | PEW 12.060 | 50 |
| **Fork cable lugs** | | | | | | | |
| 63105010 | L-RZ 3 F | 0.25 - 0.75 | no | M 3 | green | PEW 12.064 | 100 |
| 63105020 | L-RZ 4 F | 0.25 - 0.75 | no | M 4 | green | PEW 12.064 | 100 |
| 63105050 | L-RA 4 F | 0.5 - 1.5 | yes | M 4 | red | PEW 12.060 | 100 |
| 63105060 | L-RA 5 F | 0.5 - 1.5 | yes | M 5 | red | PEW 12.060 | 100 |
| 63105070 | L-RA 6 F | 0.5 - 1.5 | yes | M 6 | red | PEW 12.060 | 100 |
| 63105130 | L-RB 4 F | 1.5 - 2.5 | yes | M 4 | blue | PEW 12.060 | 100 |
| 63105140 | L-RB 5 F | 1.5 - 2.5 | yes | M 5 | blue | PEW 12.060 | 100 |
| 63105150 | L-RB 6 F | 1.5 - 2.5 | yes | M 6 | blue | PEW 12.060 | 100 |
| 63105210 | L-RC 4 F | 4 - 6 | yes | M 4 | yellow | PEW 12.060 | 100 |
| 63105220 | L-RC 5 F | 4 - 6 | yes | M 5 | yellow | PEW 12.060 | 100 |
| 63105230 | L-RC 6 F | 4 - 6 | yes | M 6 | yellow | PEW 12.060 | 50 |
| 63105040 | L-RA 35 F | 0.5 - 1.5 | yes | M 3.5 | red | PEW 12.060 | 100 |
| 63105110 | L-RB 3 F | 1.5 - 2.5 | yes | M 3 | blue | PEW 12.060 | 100 |
| 63105120 | L-RB 35 F | 1.5 - 2.5 | yes | M 3.5 | blue | PEW 12.060 | 100 |

| Article number | Article designation | For mm² | UL certification | Connection bolt | Colour | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Flange fork cable lugs** | | | | | | | |
| 63108010 | L-RA 35 FF | 0.5 - 1.5 | no | M 3.5 | red | PEW 12.060 | 100 |
| 63108040 | L-RB 4 FF | 1.5 - 2.5 | no | M 4 | blue | PEW 12.060 | 100 |
| 63108050 | L-RB 5 FF | 1.5 - 2.5 | no | M 5 | blue | PEW 12.060 | 100 |
| **Pin cable lugs** | | | | | | | |
| 63107010 | L-RZP | 0.25 - 0.75 | no | | green | PEW 12.064 | 100 |
| 63107020 | L-RAP | 0.5 - 1.5 | yes | | red | PEW 12.060 | 100 |
| 63107040 | L-RBP | 1.5 - 2.5 | yes | | blue | PEW 12.060 | 100 |
| 63107070 | L-RCP | 4 - 6 | yes | | yellow | PEW 12.060 | 100 |
| **Circular connector** | | | | | | | |
| 63110010 | L-RABM | 0.5 - 1.5 | no | | red | PEW 12.060 | 100 |
| 63110020 | L-RB 5 BM | 1.5 - 2.5 | no | | blue | PEW 12.060 | 100 |
| **Connector sleeve** | | | | | | | |
| 63111010 | L-RAB | 0.5 - 1.5 | no | | red | PEW 12.060 | 100 |
| 63111020 | L-RB 5 B | 1.5 - 2.5 | no | | blue | PEW 12.060 | 100 |
| **Butt connector** | | | | | | | |
| 63106020 | L-RAA 15 | 0.5 - 1.5 | yes | | red | PEW 12.060 | 100 |
| 63106040 | L-RBB 25 | 1.5 - 2.5 | yes | | blue | PEW 12.060 | 100 |
| 63106080 | L-RCC 6 | 4 - 6 | yes | | yellow | PEW 12.060 | 50 |
| **End joint** | | | | | | | |
| 63112010 | L-RBJ | 1.5 - 2.5 | no | | transparent | PEW 12.060 | 100 |
| 63112020 | L-RCJ | 4 - 6 | no | | transparent | PEW 12.060 | 50 |

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Production tolerance ± 0,5 mm

## Solderless cable lugs KB






### Benefits

- For first-class connection with simple operating principle
- Thus providing the best electrical conductivity (least resistance)

### Application range

- For cables with category 2,5 and 6 conductors
- Manufacturing of control cabinets and equipment
- Trains and buses

### Norm references / Approvals

- In accordance with VG 88710
- Coil form DIN 46234

### Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool r
- Crimping inserts for PEW 12 system
- PVX 1300 pressing pliers battery-operated

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001052
ETIM 5.0/6.0 Class-Description: Solderless copper terminals for copper conductors

**Note**
s = thickness of material

**Material**
High-quality electrolytic copper for good conductivity

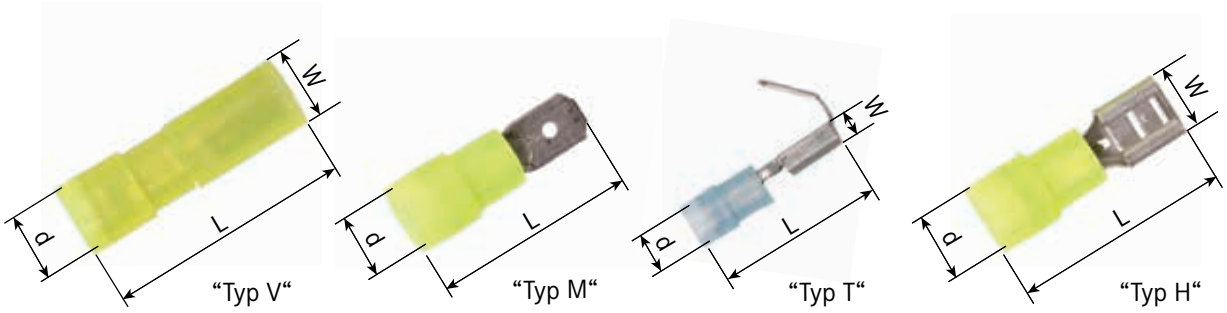
**Temperature range**
Temperature range up to +120°C

| Article number | Article designation | For mm² | UL certification | d1 | d3 | l1 | a1 | s | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solderless cable lugs KB** | | | | | | | | | | |
| 63204015 | KB1-2,5R DIN 46234 | 0.5 - 1.5 | no | 2.8 | 6 | 11 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204025 | KB1-3R DIN 46234 | 0.5 - 1.5 | no | 3.2 | 6 | 11 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204035 | KB1-3,5R DIN 46234 | 0.5 - 1.5 | no | 3.7 | 6 | 11 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204045 | KB1-4R DIN 46234 | 0.5 - 1.5 | no | 4.3 | 8 | 12 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204055 | KB1-5R DIN 46234 | 0.5 - 1.5 | no | 5.3 | 10 | 13 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204065 | KB1-6R DIN 46234 | 0.5 - 1.5 | no | 6.5 | 10 | 13 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204075 | KB1-8R DIN 46234 | 0.5 - 1.5 | no | 8.4 | 14 | 17 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204085 | KB1-10R DIN 46234 | 0.5 - 1.5 | no | 10.5 | 14 | 17 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204095 | KB2,5-3R DIN 46234 | 1.5 - 2.5 | no | 3.2 | 6 | 11 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204105 | KB2,5-3,5R DIN 46234 | 1.5 - 2.5 | no | 3.7 | 6 | 11 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204115 | KB2,5-4R DIN 46234 | 1.5 - 2.5 | no | 4.3 | 8 | 12 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204125 | KB2,5-5R DIN 46234 | 1.5 - 2.5 | no | 5.3 | 10 | 14 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204135 | KB2,5-6R DIN 46234 | 1.5 - 2.5 | no | 6.5 | 11 | 16 | 5 | 0.8 | PEW 12.1071 | 100 |

| Article number | Article designation | For mm² | UL certification | d1 | d3 | l1 | a1 | s | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| 63204145 | KB2,5-8R DIN 46234 | 1.5 - 2.5 | no | 8.4 | 14 | 17 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204155 | KB2,5-10R DIN 46234 | 1.5 - 2.5 | no | 10.5 | 14 | 17 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204165 | KB2,5-12R DIN 46234 | 1.5 - 2.5 | no | 13 | 18 | 20 | 5 | 0.8 | PEW 12.1071 | 100 |
| 63204175 | KB6-4R DIN 46234 | 2.5 - 6 | no | 4.3 | 8 | 14 | 6 | 1 | PEW 12.1071 | 100 |
| 63204185 | KB6-5R DIN 46234 | 2.5 - 6 | no | 5.3 | 10 | 15 | 6 | 1 | PEW 12.1071 | 100 |
| 63204195 | KB6-6R DIN 46234 | 2.5 - 6 | no | 6.5 | 11 | 16 | 6 | 1 | PEW 12.1071 | 100 |
| 63204205 | KB6-8R DIN 46234 | 2.5 - 6 | no | 8.4 | 14 | 19 | 6 | 1 | PEW 12.1071 | 100 |
| 63204215 | KB6-10R DIN 46234 | 2.5 - 6 | no | 10.5 | 18 | 21 | 6 | 1 | PEW 12.1071 | 100 |
| 63204225 | KB6-12R DIN 46234 | 2.5 - 6 | no | 13 | 18 | 21 | 6 | 1 | PEW 12.1071 | 100 |
| 63204235 | KB10-5R DIN 46234 | 10 | no | 5.3 | 10 | 16 | 8 | 1.1 | PEW 12.1071 | 100 |
| 63204245 | KB10-6R DIN 46234 | 10 | no | 6.5 | 11 | 17 | 8 | 1.1 | PEW 12.1071 | 100 |
| 63204255 | KB10-8R DIN 46234 | 10 | no | 8.4 | 14 | 20 | 8 | 1.1 | PEW 12.1071 | 100 |
| 63204265 | KB10-10R DIN 46234 | 10 | no | 10.5 | 18 | 21 | 8 | 1.1 | PEW 12.1071 | 100 |
| 63204275 | KB10-12R DIN 46234 | 10 | no | 13 | 22 | 23 | 8 | 1.1 | PEW 12.1071 | 100 |
| 63204285 | KB16-5R DIN 46234 | 16 | no | 5.3 | 11 | 20 | 10 | 1.2 | PEW 12.033 | 100 |
| 63204295 | KB16-6R DIN 46234 | 16 | no | 6.5 | 11 | 20 | 10 | 1.2 | PEW 12.033 | 100 |
| 63204305 | KB16-8R DIN 46234 | 16 | no | 8.4 | 14 | 22 | 10 | 1.2 | PEW 12.033 | 100 |
| 63204315 | KB16-10R DIN 46234 | 16 | no | 10.5 | 18 | 24 | 10 | 1.2 | PEW 12.033 | 100 |
| 63204325 | KB16-12R DIN 46234 | 16 | no | 13 | 22 | 26 | 10 | 1.2 | PEW 12.033 | 100 |
| 63204335 | KB25-5R DIN 46234 | 25 | no | 5.3 | 12 | 25 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204345 | KB25-6R DIN 46234 | 25 | no | 6.5 | 12 | 25 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204355 | KB25-8R DIN 46234 | 25 | no | 8.4 | 16 | 25 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204365 | KB25-10R DIN 46234 | 25 | no | 10.5 | 18 | 26 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204375 | KB25-12R DIN 46234 | 25 | no | 13 | 22 | 31 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204385 | KB25-16R DIN 46234 | 25 | no | 17 | 35 | 36 | 11 | 1.5 | PEW 12.033 | 100 |
| 63204395 | KB35-6R DIN 46234 | 35 | no | 6.5 | 15 | 26 | 12 | 1.6 | | 100 |
| 63204405 | KB35-8R DIN 46234 | 35 | no | 8.4 | 16 | 26 | 12 | 1.6 | | 100 |
| 63204415 | KB35-10R DIN 46234 | 35 | no | 10.5 | 18 | 27 | 12 | 1.6 | | 100 |
| 63204425 | KB35-12R DIN 46234 | 35 | no | 13 | 22 | 31 | 12 | 1.6 | | 100 |
| 63204435 | KB35-16R DIN 46234 | 35 | no | 17 | 28 | 36 | 12 | 1.6 | | 100 |
| 63204445 | KB50-6R DIN 46234 | 50 | no | 6.5 | 18 | 34 | 16 | 1.8 | | 100 |
| 63204455 | KB50-8R DIN 46234 | 50 | no | 8.4 | 18 | 34 | 16 | 1.8 | | 100 |
| 63204465 | KB50-10R DIN 46234 | 50 | no | 10.5 | 18 | 34 | 16 | 1.8 | | 100 |
| 63204475 | KB50-12R DIN 46234 | 50 | no | 13 | 22 | 36 | 16 | 1.8 | | 100 |
| 63204485 | KB50-16R DIN 46234 | 50 | no | 17 | 28 | 40 | 16 | 1.8 | | 100 |
| 63204495 | KB70-6R DIN 46234 | 70 | no | 6.5 | 22 | 38 | 18 | 2 | | 100 |
| 63204505 | KB70-8R DIN 46234 | 70 | no | 8.4 | 22 | 38 | 18 | 2 | | 100 |
| 63204515 | KB70-10R DIN 46234 | 70 | no | 10.5 | 22 | 38 | 18 | 2 | | 100 |
| 63204525 | KB70-12R DIN 46234 | 70 | no | 13 | 22 | 38 | 18 | 2 | | 100 |
| 63204535 | KB70-16R DIN 46234 | 70 | no | 17 | 28 | 42 | 18 | 2 | | 100 |
| 63204545 | KB95-8R DIN 46234 | 95 | no | 8.4 | 24 | 42 | 20 | 2.5 | | 50 |
| 63204555 | KB95-10R DIN 46234 | 95 | no | 10.5 | 24 | 42 | 20 | 2.5 | | 50 |
| 63204565 | KB95-12R DIN 46234 | 95 | no | 13 | 24 | 42 | 20 | 2.5 | | 50 |
| 63204575 | KB95-16R DIN 46234 | 95 | no | 17 | 28 | 44 | 20 | 2.5 | | 50 |
| 63204585 | KB120-8R DIN 46234 | 120 | no | 8.4 | 24 | 44 | 22 | 3 | | 25 |
| 63204595 | KB120-10R DIN 46234 | 120 | no | 10.5 | 24 | 44 | 22 | 3 | | 25 |
| 63204605 | KB120-12R DIN 46234 | 120 | no | 13 | 24 | 44 | 22 | 3 | | 25 |
| 63204615 | KB120-16R DIN 46234 | 120 | no | 17 | 28 | 48 | 22 | 3 | | 25 |
| 63204625 | KB150-10R DIN 46234 | 150 | no | 10.5 | 30 | 50 | 24 | 3.2 | | 25 |
| 63204635 | KB150-12R DIN 46234 | 150 | no | 13 | 30 | 50 | 24 | 3.2 | | 25 |
| 63204645 | KB150-16R DIN 46234 | 150 | no | 17 | 30 | 50 | 24 | 3.2 | | 25 |
| 63204655 | KB185-10R DIN 46234 | 185 | no | 10.5 | 36 | 50 | 28 | 3.5 | | 20 |
| 63204665 | KB185-12R DIN 46234 | 185 | no | 13 | 36 | 50 | 28 | 3.5 | | 20 |
| 63204675 | KB185-16R DIN 46234 | 185 | no | 17 | 36 | 50 | 28 | 3.5 | | 20 |
| 63204685 | KB240-10R DIN 46234 | 240 | no | 10.5 | 38 | 56 | 32 | 4 | | 10 |
| 63204695 | KB240-12R DIN 46234 | 240 | no | 13 | 38 | 56 | 32 | 4 | | 10 |
| 63204705 | KB240-16R DIN 46234 | 240 | no | 17 | 38 | 56 | 32 | 4 | | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Panel connectors insulated




## Benefits

- Hard-soldered cable lug that can be pressed in any position
- Thus providing the best electrical conductivity (least resistance)
- No risk of bent and crushed cables

## Application range

- Control cabinet manufacturing
- Cable assembly

## Norm references / Approvals

- File Number E334111, see table

## Design

- For higher tensile strength
- For good strength and improved current conduction
- Flat receptacle material in contact pressing is double-folded and hard-soldered
- EASY-ENTRY funnel shape of the plastic sleeve enables simple, fast and safe insertion of the conductor
- 1 = push-on female terminal, type H
  2 = push-on piggyback terminal, type T
  3 = push-on male terminal, type M
  4 = push-on female terminal (fully insulated), type V

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

**Material**
Brass tin-plated
Polycarbonate insulation

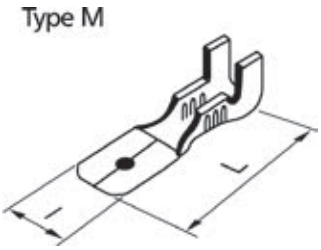
**Temperature range**
-20°C to +105°C
Short-term: up to +120°C

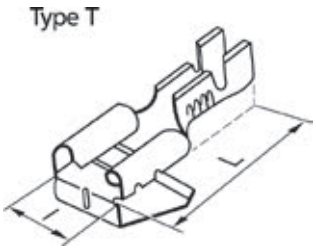
| Article number | Article designation | For mm² | UL certification | Footnote | Colour | Blade connection | d mm | L | W mm | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blade receptacle according to DIN 46245 and similar (type H)** | | | | | | | | | | | |
| 63101020 | L-RA 29 H | 0.50 - 1.50 | yes | | red | 2.8 x 0.5 | 3.3 | 18.5 | 3.5 | PEW 12.060 | 100 |
| 63101010 | L-RA 28 H | 0.50 - 1.50 | yes | | red | 2.8 x 0.8 | 3.3 | 18.5 | 3.5 | PEW 12.060 | 100 |
| 63101030 | L-RA 49 H | 0.50 - 1.50 | yes | 1.3 | red | 4.8 x 0.5 | 3.7 | 19 | 5.7 | PEW 12.060 | 100 |
| 63101040 | L-RA 48 H | 0.50 - 1.50 | yes | 1.3 | red | 4.8 x 0.8 | 3.7 | 19 | 5.7 | PEW 12.060 | 100 |
| 63101050 | L-RA 63 H | 0.50 - 1.50 | yes | | red | 6.3 x 0.8 | 4 | 20 | 7.6 | PEW 12.060 | 100 |
| 63101060 | L-RB 48 H | 1.50 - 2.50 | yes | 1.3 | blue | 4.8 x 0.5 | 4.4 | 19 | 5.7 | PEW 12.060 | 100 |
| 63101070 | L-RB 49 H | 1.50 - 2.50 | yes | 1.3 | blue | 4.8 x 0.8 | 4.4 | 19 | 5.7 | PEW 12.060 | 100 |
| 63101080 | L-RB 63 H | 1.50 - 2.50 | yes | | blue | 6.3 x 0.8 | 4.5 | 20 | 7.6 | PEW 12.060 | 100 |
| 63101110 | L-RC 63 H | 4.00 - 6.00 | yes | | yellow | 6.3 x 0.8 | 6.4 | 24 | 7.6 | PEW 12.060 | 100 |
| 63101120 | L-RC 95 H | 4.00 - 6.00 | no | | yellow | 9.5 x 1.2 | 6.2 | 31 | 11 | PEW 12.060 | 100 |
| **Blade connector (type M)** | | | | | | | | | | | |
| 63103010 | L-RA 63 M | 0.50 - 1.50 | yes | | red | 6.3 x 0.8 | 4 | 22 | | PEW 12.060 | 100 |
| 63103020 | L-RB 63 M | 1.50 - 2.50 | yes | | blue | 6.3 x 0.8 | 4.5 | 22 | | PEW 12.060 | 100 |
| 63103040 | L-RC 63 M | 4.00 - 6.00 | yes | 1.3 | yellow | 6.3 x 0.8 | 6.3 | 25 | | PEW 12.060 | 100 |
| **Blade receptacle branch (type T)** | | | | | | | | | | | |
| 63102010 | L-RA 63 T | 0.50 - 1.50 | no | 1.3 | red | 6.3 x 0.8 | 3.7 | 22 | 7.4 | PEW 12.060 | 100 |
| 63102020 | L-RB 63 T | 1.50 - 2.50 | no | 1.3 | blue | 6.3 x 0.8 | 4.3 | 22 | 7.5 | PEW 12.060 | 50 |
| **Fully insulated blade receptacle (type V)** | | | | | | | | | | | |
| 61794951 | L-RA 29 V | 0.50 - 1.50 | yes | 2.3 | red | 2.8 x 0.5 | 3.8 | 19.3 | 5 | PEW 12.060 | 100 |
| 61794952 | L-RA 28 V | 0.50 - 1.50 | yes | 2.3 | red | 2.8 x 0.8 | 3.8 | 19.3 | 5 | PEW 12.060 | 100 |
| 61794953 | L-RA 49 V | 0.50 - 1.50 | yes | 2.3 | red | 4.8 x 0.5 | 3.6 | 20.2 | 7.4 | PEW 12.060 | 100 |
| 61794955 | L-RA 48 V | 0.50 - 1.50 | yes | 2.3 | red | 4.8 x 0.8 | 3.6 | 20.2 | 7.4 | PEW 12.060 | 100 |
| 61794960 | L-RA 63 V | 0.50 - 1.50 | yes | | red | 6.3 x 0.8 | 4.4 | 21 | 8.8 | PEW 12.060 | 100 |
| 61794969 | L-RB 48 V | 1.50 - 2.50 | yes | 2.3 | blue | 4.8 x 0.8 | 4.3 | 20 | 7.4 | PEW 12.060 | 100 |
| 61794970 | L-RB 63 V | 1.50 - 2.50 | yes | | blue | 6.3 x 0.8 | 4.5 | 21 | 8.8 | PEW 12.060 | 100 |
| 61794971 | L-RC 63 V | 4.00 - 6.00 | yes | 2.3 | yellow | 6.3 x 0.8 | 5.3 | 26 | 9 | PEW 12.060 | 100 |

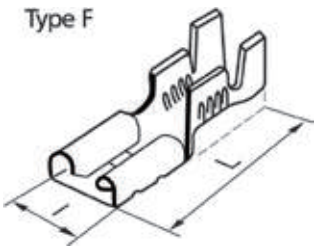
1 = PVC insulation, not easy-entry; 2 = polyamide (nylon) insulation, not easy-entry; 3 = unsoldered, with additional brass sleeve
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Panel connectors non-insulated






## Benefits

- For electrical connection of different components
- Maximum corrosion protection due to electrolytically tinned brass

## Note

- The choice of the correct tool is depending on the cross-section of the conductor and on the blade connection

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

**Material**
Brass tin-plated

**Temperature range**
Temperature range up to +90°C

| Article number | Article designation | For mm² | UL certification | Blade connection | l | L | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **Blade receptacle according to DIN 46247** | | | | | | | | |
| 63501060 | L-BA 285 F | 0.50 - 1.00 | no | 2.8 x 0.5 | 5 | 12.7 | PEW 12.045 | 100 |
| 63501070 | L-BA 288 F | 0.50 - 1.00 | no | 2.8 x 0.8 | 5 | 12.7 | PEW 12.045 | 100 |
| 63501080 | L-BA 485 F | 0.75 - 1.50 | no | 4.8 x 0.5 | 6.4 | 16 | PEW 12.838 | 100 |
| 63501090 | L-BA 488 F | 0.75 - 1.50 | no | 4.8 x 0.8 | 6.4 | 16 | PEW 12.838 | 100 |
| 63501120 | L-BA 638 F | 0.75 - 1.50 | no | 6.3 x 0.8 | 7.6 | 19 | PEW 12.050 | 100 |
| 63501130 | L-BB 638 F | 1.50 - 2.50 | no | 6.3 x 0.8 | 7.6 | 19 | PEW 12.050 | 100 |
| 63501140 | L-BC 638 F | 4.00 - 6.00 | no | 6.3 x 0.8 | 7.6 | 19 | PEW 12.050 | 100 |
| **Blade receptacle with branching** | | | | | | | | |
| 63501150 | L-BA 638 T | 0.50 - 1.50 | no | 6.3 x 0.8 | 7.5 | 19 | PEW 12.050 | 100 |
| **Panel connectors (Plugs)** | | | | | | | | |
| 63501071 | L-BA 288 M | 0.50 - 1.00 | no | 2.8 x 0.8 | 5.5 | 13 | PEW 12.045 | 100 |
| 63501520 | L-BA 638 M | 0.50 - 1.00 | no | 6.3 x 0.8 | 8 | 19 | PEW 12.050 | 100 |
| 63501530 | L-BB 638 M | 1.50 - 2.50 | no | 6.3 x 0.8 | 8 | 19 | PEW 12.050 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Similar products

- Panel connectors with latch

# Panel connectors with latch



## Benefits

- For electrical connection of different components

## Note

- The choice of the correct tool is depending on the cross-section of the conductor and on the blade connection

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- Crimping inserts for PEW 12 system

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

**Material**
BM 638 M + B 638 F: brass blank
BM-C 638 M + B-C 638 F: brass tinned

**Temperature range**
Type M: max. +90 °C
Type F: max. +110 °C

| Article number | Article designation | For mm² | UL certification | Blade connection | l | L | Suitable crimp insert | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **Blade connector with locking notch (type M)** | | | | | | | | |
| 63501020 | BM 638 M | 1.00 - 2.50 | no | 6.3 x 0.8 | 16 | 28 | PEW 12.050 | 100 |
| 63501022 | BM-C 638 M | 4.00 - 6.00 | no | 6.3 x 0.8 | 16 | 28 | PEW 12.050 | 100 |
| **Blade receptacle with locking notch (type F)** | | | | | | | | |
| 63501010 | B 638 F | 1.50 - 2.50 | no | 6.3 x 0.8 | 7.5 | 19 | PEW 12.743 | 100 |
| 63501012 | B-C 638 F | 4.00 - 6.00 | no | 6.3 x 0.8 | 7.5 | 19 | PEW 12.745-1 | 100 |

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# Tube cable lugs Cu



## Benefits

- Withstand temperatures up to +180°C
- Compatible with equally heat-resistant ÖLFLEX® HEAT cables/single cores (e.g. ÖLFLEX® HEAT 180 product series)
- Heat resistance tested in 1000 test cycles with ÖLFLEX® HEAT 180 cables, in accordance with DIN EN IEC 61238-1-1
- Suitable for use with KLAUKE crimping tools
- UL certification according to technical data enables the product to be used in the North American market

## Application range

- For creating a safe crimp connection with multi-wire and fine-wire round cables in classes 2 and 5 in accordance with DIN EN 60228

## Norm references / Approvals

- UL certifications can be found in the data sheet

## Technical data

**Material**
Tinned electrolyte copper

**Temperature range**
Up to +180°C

| Article number | Material description | cross-section [mm²] | for screw in thread | screw hole [mm] | Delivery Unit [pcs./PU] |
|---|---|---|---|---|---|
| **Tube cable lugs Cu** | | | | | |
| 63207053 | 91R3 COPPER CABLE LUG 0.75 M3 | 0.75 | M3 | 3.2 mm | 100 |
| 63207054 | 91R4 COPPER CABLE LUG 0.75 M4 | 0.75 | M4 | 4.3 mm | 100 |
| 63207055 | 91R5 COPPER CABLE LUG 0.75 M5 | 0.75 | M5 | 5.3 mm | 100 |
| 63207056 | 92R3 COPPER CABLE LUG 1.5 M3 | 1.5 | M3 | 3.2 mm | 100 |
| 63207057 | 92R4 COPPER CABLE LUG 1.5 M4 | 1.5 | M4 | 4.3 mm | 100 |
| 63207058 | 92R5 COPPER CABLE LUG 1.5 M5 | 1.5 | M5 | 5.3 mm | 100 |
| 63207059 | 92R6 COPPER CABLE LUG 1.5 M6 | 1.5 | M6 | 6.4 mm | 100 |
| 63207061 | 93R3 COPPER CABLE LUG 2.5 M3 | 2.5 | M3 | 3.2 mm | 100 |
| 63207062 | 93R4 COPPER CABLE LUG 2.5 M4 | 2.5 | M4 | 4.3 mm | 100 |
| 63207063 | 93R5 COPPER CABLE LUG 2.5 M5 | 2.5 | M5 | 5.3 mm | 100 |
| 63207064 | 93R6 COPPER CABLE LUG 2.5 M6 | 2.5 | M6 | 6.4 mm | 100 |
| 63207065 | 93R8 COPPER CABLE LUG 2.5 M8 | 2.5 | M8 | 8.4 mm | 100 |
| 63207066 | 94R4 COPPER CABLE LUG 4 M4 | 4.0 | M4 | 4.3 mm | 100 |
| 63207067 | 94R5 COPPER CABLE LUG 4 M5 | 4.0 | M5 | 5.3 mm | 100 |
| 63207068 | 94R6 COPPER CABLE LUG 4 M6 | 4.0 | M6 | 6.4 mm | 100 |
| 63207069 | 94R8 COPPER CABLE LUG 4 M8 | 4.0 | M8 | 8.4 mm | 100 |
| 63207071 | 95R4 COPPER CABLE LUG 6 M4 | 6,0 | M4 | 4.3 mm | 100 |
| 63207072 | 95R5 COPPER CABLE LUG 6 M5 | 6,0 | M5 | 5.3 mm | 100 |
| 63207073 | 95R6 COPPER CABLE LUG 6 M6 | 6,0 | M6 | 6.4 mm | 100 |
| 63207074 | 95R8 COPPER CABLE LUG 6 M8 | 6,0 | M8 | 8.4 mm | 100 |
| 63207075 | 2R5 COPPER CABLE LUG 10 M5 | 10.0 | M5 | 5.3 mm | 100 |
| 63207076 | 2R6 COPPER CABLE LUG 10 M6 | 10.0 | M6 | 6.4 mm | 100 |
| 63207077 | 2R8 COPPER CABLE LUG 10 M8 | 10.0 | M8 | 8.4 mm | 100 |
| 63207078 | 2R10 COPPER CABLE LUG 10 M10 | 10.0 | M10 | 10.5 mm | 100 |
| 63207079 | 2R12 COPPER CABLE LUG 10 M12 | 10.0 | M12 | 13.0 mm | 100 |
| 63207080 | 3R5 COPPER CABLE LUG 16 M5 | 16.0 | M5 | 5.3 mm | 100 |
| 63207081 | 3R6 COPPER CABLE LUG 16 M6 | 16.0 | M6 | 6.4 mm | 100 |
| 63207082 | 3R8 COPPER CABLE LUG 16 M8 | 16.0 | M8 | 8.4 mm | 100 |
| 63207083 | 3R10 COPPER CABLE LUG 16 M10 | 16.0 | M10 | 10.5 mm | 100 |
| 63207084 | 3R12 COPPER CABLE LUG 16 M12 | 16.0 | M12 | 13.0 mm | 100 |

* Trade product, no Lapp product

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

# Tube cable lugs V2A



## Benefits

- Withstand temperatures up to +400°C
- Compatible with equally heat-resistant ÖLFLEX® HEAT cables/single cores
- Suitable for use with KLAUKE crimping tools
- The flat mounting surface and precise processing simplify the crimping process

## Application range

- For creating a safe crimp connection with multi-wire and fine-wire round cables in classes 2 and 5 in accordance with DIN EN 60228
- Resistant to corrosion and acid

## Technical data

**Material**
Stainless steel V2A

**Temperature range**
Temperature (max.) +400°C

| Article number | Material description | cross-section [mm²] | for screw in thread | screw hole [mm] | Delivery Unit [pcs./PU] |
|---|---|---|---|---|---|
| **Tube cable lugs V2A** | | | | | |
| 63207037 | 79V4 V2A CABLE LUG 0.5-1.0 M4 | 0.5-1.0 | M4 | 4.3 mm | 25 |
| 63207038 | 79V5 V2A CABLE LUG 0.5-1.0 M5 | 0.5-1.0 | M5 | 5.5 mm | 25 |
| 63207039 | 80V4 V2A CABLE LUG 1.5-2.5 M4 | 1.5-2.5 | M4 | 4.3 mm | 25 |
| 63207041 | 80V5 V2A CABLE LUG 1.5-2.5 M5 | 1.5-2.5 | M5 | 5.5 mm | 25 |
| 63207042 | 80V6 V2A CABLE LUG 1.5-2.5 M6 | 1.5-2.5 | M6 | 6.5 mm | 25 |
| 63207043 | 81V4 V2A CABLE LUG 4-6 M4 | 4.0-6.0 | M4 | 4.3 mm | 25 |
| 63207044 | 81V5 V2A CABLE LUG 4-6 M5 | 4.0-6.0 | M5 | 5.5 mm | 25 |
| 63207045 | 81V6 V2A CABLE LUG 4-6 M6 | 4.0-6.0 | M6 | 6.5 mm | 25 |
| 63207046 | 82V5 V2A CABLE LUG 10 M5 | 10.0 | M5 | 5.5 mm | 25 |
| 63207047 | 82V6 V2A CABLE LUG 10 M6 | 10.0 | M6 | 6.5 mm | 25 |
| 63207048 | 82V8 V2A CABLE LUG 10 M8 | 10.0 | M8 | 8.5 mm | 25 |
| 63207049 | 83V5 V2A CABLE LUG 16 M5 | 16.0 | M5 | 5.5 mm | 25 |
| 63207051 | 83V6 V2A CABLE LUG 16 M6 | 16.0 | M6 | 6.5 mm | 25 |
| 63207052 | 83V8 V2A CABLE LUG 16 M8 | 16.0 | M8 | 8.5 mm | 25 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Tube cable lugs Ni



## Benefits

- Whithstands temperatures up to +650°C
- Compatible with equally heat-resistant ÖLFLEX® HEAT single cores with nickel conductors
- The lowest contact resistances are achieved when contacting with pure nickel conductors
- Suitable for use with KLAUKE crimping tools
- The flat mounting surface and precise processing simplify the crimping process

## Application range

- For creating a safe crimp connection with multi-wire and fine-wire round cables in classes 2 and 5 in accordance with DIN EN 60228

## Technical data

**Material**
Nickel alloy

**Temperature range**
Temperature (max.): +650°C

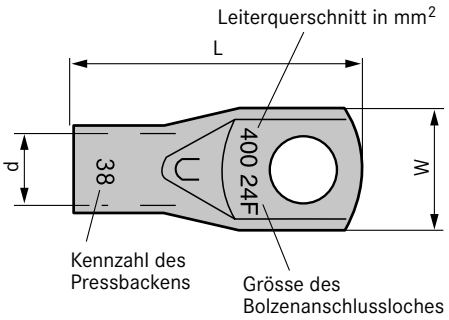
| Article number | Material description | cross-section [mm²] | for screw in thread | screw hole [mm] | Delivery Unit [pcs./PU] |
|---|---|---|---|---|---|
| **Tube cable lugs Ni** | | | | | |
| 63207020 | 56N3 NICKEL CABLE LUG 0.5-1.0 M3 | 0.5-1.0 | M3 | 3.2 mm | 100 |
| 63207021 | 56N4 NICKEL CABLE LUG 0.5-1.0 M4 | 0.5-1.0 | M4 | 4.3 mm | 100 |
| 63207022 | 56N5 NICKEL CABLE LUG 0.5-1.0 M5 | 0.5-1.0 | M5 | 5.3 mm | 100 |
| 63207023 | 57N3 NICKEL CABLE LUG 1.5-2.5 M3 | 1.5-2.5 | M3 | 3.2 mm | 100 |
| 63207024 | 57N4 NICKEL CABLE LUG 1.5-2.5 M4 | 1.5-2.5 | M4 | 4.3 mm | 100 |
| 63207025 | 57N5 NICKEL CABLE LUG 1.5-2.5 M5 | 1.5-2.5 | M5 | 5.3 mm | 100 |
| 63207026 | 57N6 NICKEL CABLE LUG 1.5-2.5 M6 | 1.5-2.5 | M6 | 6.5 mm | 100 |
| 63207027 | 58N4 NICKEL CABLE LUG 4-6 M4 | 4.0-6.0 | M4 | 4.3 mm | 100 |
| 63207028 | 58N5 NICKEL CABLE LUG 4-6 M5 | 4.0-6.0 | M5 | 5.3 mm | 100 |
| 63207029 | 58N6 NICKEL CABLE LUG 4-6 M6 | 4.0-6.0 | M6 | 6.5 mm | 100 |
| 63207030 | 58N8 NICKEL CABLE LUG 4-6 M8 | 4.0-6.0 | M8 | 8.5 mm | 100 |
| 63207031 | 59N5 NICKEL CABLE LUG 10 M5 | 10.0 | M5 | 5.3 mm | 100 |
| 63207032 | 59N6 NICKEL CABLE LUG 10 M6 | 10.0 | M6 | 6.5 mm | 100 |
| 63207033 | 60N5 NICKEL CABLE LUG 16 M5 | 16.0 | M5 | 5.3 mm | 100 |
| 63207034 | 60N6 NICKEL CABLE LUG 16 M6 | 16.0 | M6 | 6.5 mm | 100 |
| 63207035 | 60N8 NICKEL CABLE LUG 16 M8 | 16.0 | M8 | 8.5 mm | 100 |
| 63207036 | 60N10 NICKEL CABLE LUG 16 M10 | 16.0 | M10 | 10.5 mm | 100 |

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



# Tube cable lugs KR/ KRT/ KRF






## Benefits

- With inspection hole (starting from 4 mm²)
- High-quality electrolytic copper ensures a good crimping quality

## Application range

- KR: For fine and multi-wire copper conductors (class 2 an 5) with a cross-sectional range of 0.75 -10.00 mm²
- KRT: For multi-wire copper conductors (class 2)with a cross-sectional range of 10 - 1000 mm²
- KRF: For fine wire copper conductors (class 2, 5 and 6) with a cross-sectional range of 16 - 800 mm²
- Mainly for connection to rails and to copper connectors
- Max. 48 kV

## Norm references / Approvals

- In combination with recommended crimp tool fulfill requirments of EN-IEC 61238:1, BS 4579:1 and VDE 0220:1
- UL file number: E205350 (see table)

## Suitable tools

- T 2288 pressing pliers
- V 1311-A pressing pliers, hydraulic
- PVX 1300 pressing pliers battery-operated
- Die holders for system 1311
- Dies for system 1311 and 1300

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001051
ETIM 5.0/6.0 Class-Description: Tube cable lug for copper conductors

**Material**
Tinned electrolyte copper (Cu/Sn4 , tin surface of 4µ)

**Temperature range**
Temperature range up to +90°C
Working temperature: 110°C,
max. +140°C

| Article number | Article designation | Screw hole Ø (mm) | UL certification | Length (mm) | Pressing dies | d mm | W mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **KR** | | | | | | | | |
| 61796480 | KR 0,75/3 | 3 | no | 16 | | 1.3 | 6 | 100 |
| 61796490 | KR 0,75/4 | 4 | no | 17 | | 1.3 | 6 | 100 |
| 61796500 | KR 1,5/3 | 3 | yes | 16 | | 1.8 | 6.5 | 100 |
| 61796510 | KR 1,5/4 | 4 | yes | 17 | | 1.8 | 6.5 | 100 |
| 61796520 | KR 1,5/5 | 5 | yes | 18 | | 1.8 | 7.5 | 100 |
| 61796530 | KR 2,5/3 | 3 | yes | 17 | | 2.3 | 7.5 | 100 |
| 61796540 | KR 2,5/4 | 4 | yes | 18 | | 2.3 | 7.5 | 100 |
| 61796550 | KR 2,5/5 | 5 | yes | 19 | | 2.3 | 8.5 | 100 |
| 61796560 | KR 2,5/6 | 6 | yes | 19 | | 2.3 | 8.5 | 100 |
| 61796570 | KR 4/4 | 4 | yes | 21 | | 3 | 8.5 | 100 |
| 61796580 | KR 4/5 | 5 | yes | 22 | | 3 | 9 | 100 |
| 61796590 | KR 4/6 | 6 | yes | 23 | | 3 | 10 | 100 |
| 61796600 | KR 6/4 | 4 | yes | 22 | | 4 | 9.5 | 100 |
| 61796610 | KR 6/5 | 5 | yes | 22 | | 4 | 9.5 | 100 |
| 61796620 | KR 6/6 | 6 | yes | 23 | | 4 | 10 | 100 |
| 61796630 | KR 6/8 | 8 | yes | 30 | | 4 | 13.5 | 100 |
| 61796631 | KR 10/5 | 5 | yes | 29 | B 7/ B 8 | 5 | 11.5 | 100 |
| 61796632 | KR 10/6 | 6 | yes | 29 | B 7/ B 8 | 5 | 11.5 | 100 |
| 61796633 | KR 10/8 | 8 | yes | 33 | B 7/ B 8 | 5 | 13.5 | 100 |
| **KRT** | | | | | | | | |
| 61796640 | KRT 10/5 | 5 | yes | 29 | B 7 | 4.5 | 10 | 100 |
| 61796650 | KRT 10/6 | 6 | yes | 29 | B 7 | 4.5 | 10 | 100 |
| 61796660 | KRT 10/8 | 8 | yes | 34 | B 7 | 4.5 | 13 | 100 |
| 61796670 | KRT 10/10 | 10 | yes | 34 | B 7 | 4.5 | 16 | 100 |
| 61796680 | KRT 10/12 | 12 | yes | 41 | B 7 | 4.5 | 19 | 100 |
| 61796690 | KRT 16/5 | 5 | yes | 34 | B 8.5 | 5.5 | 12 | 100 |
| 61796700 | KRT 16/6 | 6 | yes | 34 | B 8.5 | 5.5 | 12 | 100 |
| 61796710 | KRT 16/8 | 8 | yes | 39 | B 8.5 | 5.5 | 15 | 100 |
| 61796720 | KRT 16/10 | 10 | yes | 39 | B 8.5 | 5.5 | 16 | 100 |
| 61796730 | KRT 16/12 | 12 | yes | 47 | B 8.5 | 5.5 | 19 | 100 |
| 61796740 | KRT 25/6 | 6 | yes | 43 | B 10 | 7 | 14 | 100 |
| 61796750 | KRT 25/8 | 8 | yes | 43 | B 10 | 7 | 15 | 100 |
| 61796760 | KRT 25/10 | 10 | yes | 43 | B 10 | 7 | 16 | 100 |
| 61796770 | KRT 25/12 | 12 | yes | 48 | B 10 | 7 | 19 | 100 |
| 61796780 | KRT 35/6 | 6 | yes | 49 | B 12 | 8.5 | 17 | 100 |
| 61796790 | KRT 35/8 | 8 | yes | 49 | B 12 | 8.5 | 17 | 100 |
| 61796800 | KRT 35/10 | 10 | yes | 49 | B 12 | 8.5 | 19 | 100 |

| Article number | Article designation | Screw hole Ø (mm) | UL certification | Length (mm) | Pressing dies | d mm | W mm | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| 61796810 | KRT 35/12 | 12 | yes | 53 | B 12 | 8.5 | 22 | 100 |
| 61796820 | KRT 50/6 | 6 | yes | 53 | B 14 | 10 | 20 | 50 |
| 61796830 | KRT 50/8 | 8 | yes | 53 | B 14 | 10 | 20 | 50 |
| 61796840 | KRT 50/10 | 10 | yes | 53 | B 14 | 10 | 20 | 50 |
| 61796850 | KRT 50/12 | 12 | yes | 56 | B 14 | 10 | 22 | 50 |
| 61796860 | KRT 70/8 | 8 | yes | 55 | B 16 | 12 | 23 | 50 |
| 61796870 | KRT 70/10 | 10 | yes | 55 | B 16 | 12 | 23 | 50 |
| 61796880 | KRT 70/12 | 12 | yes | 58 | B 16 | 12 | 23 | 50 |
| 61796890 | KRT 95/8 | 8 | yes | 60 | B 18 | 13.5 | 26 | 50 |
| 61796900 | KRT 95/10 | 10 | yes | 60 | B 18 | 13.5 | 26 | 50 |
| 61796910 | KRT 95/12 | 12 | yes | 63 | B 18 | 13.5 | 26 | 50 |
| 61796920 | KRT 95/16 | 16 | yes | 69 | B 18 | 13.5 | 28 | 50 |
| 61796930 | KRT 120/10 | 10 | yes | 64 | B 19 | 15 | 28 | 50 |
| 61796940 | KRT 120/12 | 12 | yes | 64 | B 19 | 15 | 28 | 50 |
| 61796950 | KRT 120/16 | 16 | yes | 70 | B 19 | 15 | 28 | 50 |
| 61796960 | KRT 150/12 | 12 | no | 76 | B 22 | 17 | 32 | 25 |
| 61796970 | KRT 150/16 | 16 | no | 76 | B 22 | 17 | 32 | 25 |
| 61796990 | KRT 185/12 | 12 | no | 79 | 13 B 24 | 19 | 35 | 25 |
| 61797000 | KRT 185/16 | 16 | no | 79 | 13 B 24 | 19 | 35 | 25 |
| 61797020 | KRT 240/12 | 12 | no | 86 | 13 B 26 | 21 | 38 | 25 |
| 61797030 | KRT 240/16 | 16 | no | 86 | 13 B 26 | 21 | 38 | 25 |
| 61797050 | KRT 300/16 | 16 | no | 100 | 13 B 30 | 24 | 44 | 10 |
| 61797080 | KRT 400/20 | 20 | no | 114 | 13 B 32 | 26 | 48 | 10 |
| **KRF** | | | | | | | | |
| 61803020 | KRF 16/6 | 6 | yes | 34 | B 9 | 6 | 13 | 100 |
| 61803030 | KRF 16/8 | 8 | yes | 34 | B 9 | 6 | 13 | 100 |
| 61803040 | KRF 16/10 | 10 | yes | 38 | B 9 | 6 | 16 | 100 |
| 61803050 | KRF 16/12 | 12 | yes | 47 | B 9 | 6 | 22 | 100 |
| 61803060 | KRF 25/6 | 6 | yes | 39 | B 11 | 8 | 16 | 100 |
| 61803070 | KRF 25/8 | 8 | yes | 39 | B 11 | 8 | 16 | 100 |
| 61803080 | KRF 25/10 | 10 | yes | 42 | B 11 | 8 | 17 | 100 |
| 61803090 | KRF 25/12 | 12 | yes | 47 | B 11 | 8 | 22 | 100 |
| 61803110 | KRF 35/6 | 6 | yes | 47 | B 13 | 9 | 18 | 100 |
| 61803120 | KRF 35/8 | 8 | yes | 47 | B 13 | 9 | 18 | 100 |
| 61803130 | KRF 35/10 | 10 | yes | 47 | B 13 | 9 | 18 | 100 |
| 61803140 | KRF 35/12 | 12 | yes | 52 | B 13 | 9 | 22 | 100 |
| 61803160 | KRF 50/8 | 8 | yes | 50 | B 14.4 | 11 | 21 | 100 |
| 61803170 | KRF 50/10 | 10 | yes | 50 | B 14.5 | 11 | 21 | 100 |
| 61803180 | KRF 50/12 | 12 | yes | 53 | B 14.5 | 11 | 21 | 100 |
| 61803190 | KRF 50/16 | 16 | yes | 59 | B 14.5 | 11 | 27 | 100 |
| 61803200 | KRF 70/8 | 8 | yes | 55 | B 17 | 13 | 25 | 50 |
| 61803210 | KRF 70/10 | 10 | yes | 55 | B 17 | 13 | 25 | 50 |
| 61803220 | KRF 70/12 | 12 | yes | 58 | B 17 | 13 | 25 | 50 |
| 61803230 | KRF 70/16 | 16 | yes | 64 | B 17 | 13 | 28 | 50 |
| 61803240 | KRF 95/10 | 10 | yes | 69 | B 20 | 15 | 29 | 50 |
| 61803250 | KRF 95/12 | 12 | yes | 69 | B 20 | 15 | 29 | 50 |
| 61803260 | KRF 95/16 | 16 | yes | 69 | B 20 | 15 | 29 | 50 |
| 61803270 | KRF 120/10 | 10 | yes | 73 | B 22 | 17 | 32 | 25 |
| 61803280 | KRF 120/12 | 12 | yes | 73 | B 22 | 17 | 32 | 25 |
| 61803290 | KRF 120/16 | 16 | yes | 73 | B 22 | 17 | 32 | 25 |
| 61803300 | KRF 150/12 | 12 | yes | 80 | B 25/13 B 25 | 19 | 36 | 25 |
| 61803310 | KRF 150/16 | 16 | yes | 80 | B 25/13 B 25 | 19 | 36 | 25 |
| 61803330 | KRF 185/12 | 12 | yes | 86 | 13 B 27 | 21 | 39 | 20 |
| 61803340 | KRF 185/16 | 16 | yes | 86 | 13 B 27 | 21 | 39 | 20 |
| 61803350 | KRF 185/20 | 20 | yes | 93 | 13 B 27 | 21 | 39 | 20 |
| 61803360 | KRF 240/12 | 12 | yes | 96 | 13 B 30 | 22.5 | 42 | 10 |
| 61803370 | KRF 240/16 | 16 | yes | 96 | 13 B 30 | 22.5 | 42 | 10 |
| 61803380 | KRF 240/20 | 20 | yes | 95 | 13 B 30 | 22.5 | 42 | 10 |
| 61803390 | KRF 300/16 | 16 | yes | 99 | 13 B 32 | 24.5 | 46 | 10 |
| 61803400 | KRF 300/20 | 20 | yes | 99 | 13 B 32 | 24.5 | 46 | 10 |
| 61803420 | KRF 400/16 | 16 | yes | 111 | 13 B 38 | 30 | 56 | 10 |
| 61803430 | KRF 400/20 | 20 | yes | 126 | 13 B 38 | 30 | 56 | 10 |
| 61803440 | KRF 400/24 | 24 | yes | 118 | 13 B 38 | 30 | 56 | 10 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## T 2288 pressing pliers



### Benefits
- Forced locking guarantees complete pressing
- Handy for on-site electric fitters
- Small size

### Application range
- For pressing copper connections of 10 - 25 mm²
- For pressing tube cable lugs (KRT) and butt connectors

### Norm references / Approvals
- Tested in accordance with standard SS-EN61238-1

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

**Note**
Crimping profile: Hexagonal

| Article number | Article designation | For mm² | Crimping profile | Weight (kg) | Length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **T 2288 pressing pliers** | | | | | | |
| 61790961 | T 2288 | 10.0 - 25.0 | hexagon | 0.6 | 300 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## V 1311-A pressing pliers, hydraulic



### Benefits
- Automatic quick feed of pressing dies and mandrels
- Requires low hand force, about 245 N at max. force
- Ergonomic handles
- Pressing head rotates by 180 degrees
- Few tool parts, easy to change

### Application range
- System 1311 for pressing copper connections of 10 - 400 mm²

### Included
- Complete unit, no external pump required
- Supplied with wooden carry box
- Pressing dies and die holders need to be ordered seperately

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

**On request**
Battery powered tool on request

**Note**
Crimping profile: Hexagonal and mandrel
Pressing force: 130 kN (13 t)

| Article number | Article designation | For mm² | Inner die holders | Outer die holders | Weight (kg) | Length (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **V 1311-A pressing pliers, hydraulic** | | | | | | | |
| 61795925 | V 1311-A | 10.0 - 400.0 | V 1316 | V 1318 | 4.9 | 590 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# PVX 1300 pressing pliers battery-operated

**Info**

- Two-stage DUAL crimping technique (first hexagonal pressing, then additional mandrel pressing)



## Benefits

- Pressure strength control using pressure monitoring
- Buzzing signal and flashing light if right pressure is not achieved
- Display with information on the tool and service interval
- Single-handed operation for easy handling
- Rapid feed for more efficient crimping

## Application range

- Battery powered crimp tool for crimping of CU terminals KRF/KRT 10-400 mm²
- Same accessories as V1311-A pliers

## Product features

- Crimps/charge: 60-120 depending on size and temperature
- Battery type: Makita 5 Ah
- Charging time: 40 min

## Included

- Supplied with robust plastic case, battery charger and instruction manual
- Pressing dies and die holders need to be ordered seperately

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

**Note**
Crimping profile: DUAL (hexagonal + mandrel) or hexagonal
Pressing force: 124 kN (13 t)

| Article number | Article designation |
|---|---|
| **PVX 1300 pressing pliers battery-operated** | |
| 61813872 | Crimping tool PVX 1300 |
| 61813875 | Crimping Plier PVX 1300 without battery |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Die holders for system 1311

## Application range

- Both the inner die holder V1316 and the outer die holder V1318 is needed

## Note

- Only needed for dies which have no “13” in article designation

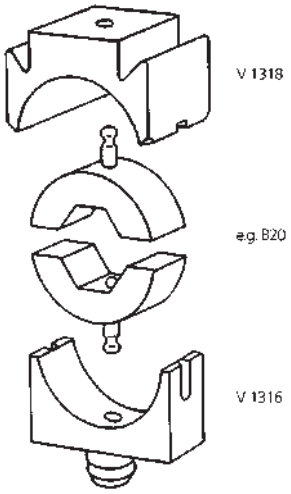
## Suitable tools

- V 1311-A pressing pliers, hydraulic
- PVX 1300 pressing pliers battery-operated

## Technical data

ETIM

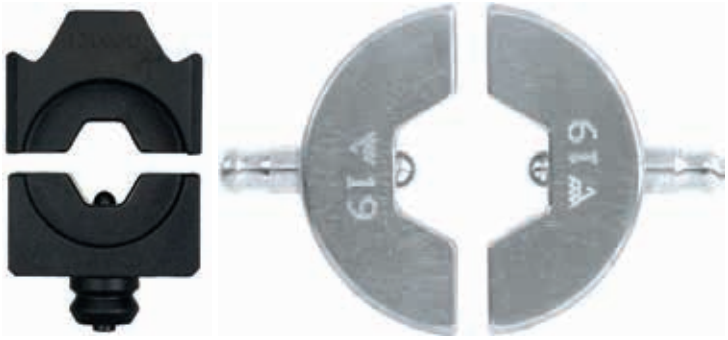
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection




| Article number | Article designation | Dies per PU | PU |
|---|---|---|---|
| **Die holders for system 1311** | | | |
| 61795941 | V 1316 inner die-holder | 1 | 1 |
| 61795942 | V 1318 outer die-holder | 1 | 1 |

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Dies for system 1311 and 1300




**Info**

- Two-stage DUAL crimping technique (first hexagonal pressing, then additional mandrel pressing)

## Application range

- Pressing dies for V 1311 and PVX 1300 for crimping cable lugs (KRT/KRF) and butt connectors (KST/KSF)

## Included

- Pressing dies are delivered in pairs
- For pressing dies where the article designation begins with "13B" no extra die holders are neededsd, for all other dies you need to order the die holders separately

## Suitable tools

- V 1311-A pressing pliers, hydraulic
- PVX 1300 pressing pliers battery-operated

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | For KRT/KST mm² | For KRF/KSF mm² | PU |
|---|---|---|---|---|
| **Pressing dies DUAL** | | | | |
| 61795982 | 13DB8 | | 10 | 1 |
| 61795983 | 13DB9 | | 16 | 1 |
| 61795984 | 13DB11 | | 25 | 1 |
| 61813899 | 13DB13 | | 35 | 1 |
| 61795952 | 13DB14,5 | | 50 | 1 |
| 61795985 | 13DB17 | | 70 | 1 |
| 61813874 | 13DB20 | | 95 | 1 |
| 61813871 | 13DB22 | | 120 | 1 |
| 61795986 | 13DB25 | | 150 | 1 |
| 61813873 | 13DB27 | | 185 | 1 |
| 61795987 | 13DB30 | | 240 | 1 |
| 61795988 | 13DB32 | | 300 | 1 |
| **Pressing dies hexagonal** | | | | |
| 61795950 | B7 | 10 | | 1 |
| 61795951 | B8 | | 10 | 1 |
| 61795960 | B8,5 | 16 | | 1 |
| 61795970 | B9 | | 16 | 1 |
| 61795971 | B10 | 25 | | 1 |
| 61795972 | B11 | | 25 | 1 |
| 61795980 | B12 | 35 | | 1 |
| 61795981 | B13 | | 35 | 1 |
| 61795990 | B14 | 50 | | 1 |
| 61795991 | B14,5 | | 50 | 1 |
| 61796000 | B16 | 70 | | 1 |
| 61796001 | B17 | | 70 | 1 |
| 61796010 | B18 | 95 | | 1 |
| 61796020 | B19 | 120 | | 1 |
| 61796021 | B20 | | 95 | 1 |
| 61796030 | B22 | 150 | 120 | 1 |
| 61796031 | B24 | 185 | | 1 |
| 61796032 | B25 | | 150 | 1 |
| 61796043 | 13B26 | 240 | | 1 |
| 61796047 | 13B27 | | 185 | |
| 61796044 | 13B30 | 300 | 240 | 1 |
| 61796045 | 13B32 | 400 | 300 | 1 |
| 61796046 | 13B38 | | 400 | 1 |

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## PEW 12 universal tool



### Benefits
- Parallel jaw closing
- Ergonomic handles
- One or two-hand operation
- Inserts are easily changeable

### Application range
- Compatible with most of the crimping dies for the PEW 12 system (see product description of the cirmping dies)
- Crimping of almost all crimped connections with conductor cross-sections 0.08-95 mm²

### Product features
- Version PEW 12S has a larger opening angle and is therefore intended for the larger PEW 12S crimping dies (see item description of the crimping dies)

### Included
- Crimping tool will be delivered without case and without inserts
- Empty case inludes placeholders for 15 crimping dies and 4 locators

### Technical data

ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

RAL
**Colour delivered**
Burnished
Chrome-plated pressing pliers available upon request (article no. 61813800)

| Article number | Article designation | Pieces / PU |
|---|---|---|
| **Pliers** | | |
| 61813807 | PEW 12 without inserts | 1 |
| 61814610 | PEW 12S without inserts | 1 |
| 61813819 | Case for PEW 12 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## E-PEW 12 universal tool



### Benefits
- Electromechanical tool with Li-Ion battery
- Dependable, reliable, low maintenance
- Precise tap positioning of contacts
- Quickstop, no overcrimping
- Process monitoring on multifunction display:
  - Battery charge level
  - Service interval display
  - Overheating / overload warning

### Application range
- Compatible with most of the crimping dies for the PEW 12 system (see product description of the cirmping dies)
- Crimping of almost all crimped connections with conductor cross-sections 0.08-95 mm²
- Various applications in the cable assembly

### Included
- Supplied in plastic case (500 x 420 x 125 mm)
- Tool without crimping dies and locators
- Including battery and battery recharger

### Technical data

ETIM
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

RAL
**Colour delivered**
Black

| Article number | Article designation | Weight (kg) |
|---|---|---|
| **E-PEW 12 universal tool** | | |
| 61813817 | E-PEW 12 | 4.7 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Crimping inserts for PEW 12 system




### Benefits
- Product code is engraved on the upper and on the lower part of the die set
- Inserts are easily changeable

### Note
- High flexibility: Interchangeable inserts that fit into either the PEW 12 / PEW 12S manual crimping tool, the E-PEW 12 electric crimping tool or the CM 25-1 crimping machine (compatibility see table)

### Included
- Crimping dies are delivered without tool

### Suitable tools
- PEW 12 universal tool
- E-PEW 12 universal tool

### Info
- Extended portfolio

### Technical data
ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | Suitable for: | Pressing range (mm²) | Crimping profile | Shield Ø (mm) | PEW 12 | PEW 12S | E-PEW | CM 25-1 | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|---|
| **Insulated and non-insulated conductors end sleeves** | | | | | | | | | | |
| 61813802 | PEW 12.090 | | 0.5 - 6.0 | trapezoid | | x | | x | x | 1 |
| 61813803 | PEW 12.091 | | 10.0 - 25.0 | w-pressing | | x | | x | x | 1 |
| 61813993 | PEW 12.331 | | 35.0 - 50.0 | w-pressing | | x | | x | | 1 |
| 61813911 | PEW 12S.093 | | 70 | w-pressing | | | x | x | | 1 |
| 61813912 | PEW 12S.094 | | 95 | w-pressing | | | x | x | | 1 |
| **TWIN end sleeves** | | | | | | | | | | |
| 61813913 | PEW 12.090-6 | | 2x0,5 - 2x4 | trapezoid pressing | | x | | x | x | 1 |
| 61815642 | PEW 12.097 | | 2x6 - 2x16 | w-pressing | | x | | x | x | 1 |
| **Insulated cable lugs and panel connectors** | | | | | | | | | | |
| 61813914 | PEW 12.064 | | 0,14 - 1 | conical ISO crimp | | x | | x | | 1 |
| 61813812 | PEW 12.060 | | 0.5 - 6.0 | conical ISO crimp | | x | | x | | 1 |
| **Non-insulated cable lugs** | | | | | | | | | | |
| 61813916 | PEW 12.1071 | | 0.5 - 10 | w-pressing | | x | | x | x | 1 |
| 61813862 | PEW 12.033 | | 16 - 25 | mandrel pressing | | x | | x | x | 1 |
| **Non-insulated panel connectorsX** | | | | | | | | | | |
| 61814600 | PEW 12.045 | Tab width 2.8 | 0.1 - 2.5 | roller pressing | | x | | x | | 1 |
| 61814601 | PEW 12.045 Locator | Tab width 2.8 | 0.1 - 2.5 | | | x | | x | x | 1 |
| 61813991 | PEW 12.838 | Tab width 4.8 | 0.5 - 1.5 | roller pressing | | x | | x | x | 1 |
| 61813992 | PEW 12.838 Locator | Tab width 4.8 | 0.5 - 1.5 | | | x | | x | x | 1 |
| 61813808 | PEW 12.050 | Tab width 6.3 | 0.5 - 6.0 | roller pressing | | x | | x | x | 1 |
| 61815643 | PEW 12.743 | Tab width 6.3 | 1,5 -2,5 | roller pressing | | x | | x | x | 1 |
| 61815644 | PEW 12.743 Locator | Tab width 6.3 | 1,5 -2,5 | | | x | | x | x | 1 |
| 61815645 | PEW 12.745-1 | Tab width 6.3 | 4 - 6 | roller pressing | | x | | x | x | 1 |
| 61815646 | PEW 12.745-1 Locator | Tab width 6.3 | 4 - 6 | | | x | | x | x | 1 |
| **One piece screen connectors RSK** | | | | | | | | | | |
| 61815636 | PEW 12.1449/101 B | RSK 5101 | | Special crimping profile | 1.80-2.28 | x | | x | | 1 |
| 61815637 | PEW 12.1450/201 C | RSK 5201 | | Special crimping profile | 2.29-2.55 | x | | x | | 1 |
| 61815638 | PEW 12.1341/201 D | RSK 5201 | | Special crimping profile | 2.56-3.00 | x | | x | | 1 |
| 61815639 | PEW 12.1451/201 E | RSK 5201 | | Special crimping profile | 3.01-3.34 | x | | x | | 1 |
| 61815640 | PEW 12.1452/201 F | RSK 5201 | | Special crimping profile | 3.35-3.65 | x | | x | | 1 |
| 61815641 | PEW 12.1453/301 G | RSK 5301 | | Special crimping profile | 3.66-4.13 | x | | x | | 1 |
| 61813869 | PEW 12.374/301 H | RSK 5301 | | Special crimping profile | 4.14-4.71 | x | | x | | 1 |
| 61813868 | PEW 12.373/301 J | RSK 5301 | | Special crimping profile | 4.72-5.12 | x | | x | | 1 |
| 61813864 | PEW 12.599/401 K | RSK 5401 | | Special crimping profile | 5.13-5.86 | x | | x | | 1 |
| 61813865 | PEW 12.375/401 L | RSK 5401 | | Special crimping profile | 5.87-6.36 | x | | x | | 1 |
| 61813866 | PEW 12.354/401 M | RSK 5401 | | Special crimping profile | 6.37-7.00 | x | | x | | 1 |
| 61813867 | PEW 12.619/401 N | RSK 5401 | | Special crimping profile | 7.01-7.62 | x | | x | | 1 |
| **Two-part screen connectors SHIELD-KON®** | | | | | | | | | | |
| 61813881 | PEW 12.1425 SK | GSC 101 / 128 / 149 / 156 / 175 | | Hexagonal pressing | | x | | x | | 1 |
| 61813882 | PEW 12.1426 SK | GSC 187 / 194 / 199 / 205 / 219 / 225 / 232 | | Hexagonal pressing | | x | | x | | 1 |
| 61813883 | PEW 12.1427 SK | GSC 261 / 275 / 281 / 287 / 297 | | Hexagonal pressing | | x | | x | | 1 |
| 61813884 | PEW 12.1428 SK | GSC 312 / 327 / 348 | | Hexagonal pressing | | x | | x | | 1 |
| 61813885 | PEW 12.1429 SK | GSC 359 / 375 | | Hexagonal pressing | | x | | x | | 1 |
| 61813886 | PEW 12.1430 SK | GSC 405 / 415 / 425 | | Hexagonal pressing | | x | | x | | 1 |
| 61813887 | PEW 12S.1440 SK | GSC 460 / 500 | | Hexagonal pressing | | | x | x | | 1 |

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# Screen Connector SC

One-piece screen connector, EMC, tinnend electrolytic copper, For screen diameters: 1.27mm-7.62mm




61721367



61721365



61721368

## Benefits

- Successor to ABB's one-piece Shield-Kon® RSK shield connector, compatible with the corresponding hand tool
- Simple and fast screen contacting thanks to proven crimp connection. An even easier handling of hand tools and screen connectors is achieved together with the "Desk Bracket PEW12" (article number 61813830)
- The double C-shape of the screen connector accommodates the stripped, shielded cable on the one hand, and a stripped wire that can be connected to the application's grounding system on the other
- The electrically conductive coating of the galvanized surface and the large-area screen contacting cause a low-impedance transition between the cable screen and the screen connector. High-frequency interference is thus safely dissipated (EMC)

## Application range

- Can be used in cabinets as well as on motor controls, enclosures or machine systems
- For contacting shielded cables with ground level
- For protection against electromagnetic interference and for potential equalization

## Suitable inserts

- PEW12 crimping insertd for SHIELD-KON screen connectors

## Suitable cables

- Screened or foiled cables with a diameter over screen of 1.27-7.62mm

## Technical data

**Classification ETIM 5/6**
EETIM 5.0/6.0 Class-ID: EC002650
ETIM 5.0/6.0 Class-Description: Connection for screened wires

**Material**
Tinned electrolyte copper

**Temperature range**
-65°C to +125°C

| Article number | Article designation | Crimping profile | Shield Ø (mm) |
|---|---|---|---|
| **Screen Connector SC** | | | |
| 61721365 | SC01 | roller pressing | 1.27-2.28 |
| 61721366 | SC02 | roller pressing | 2.29-3.65 |
| 61721367 | SC03 | roller pressing | 3.66-5.12 |
| 61721368 | SC04 | roller pressing | 5.13-7.62 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# SHIELD-KON® two-part screen connector



**Info**

- Consists of inner and outer sleeve

## Benefits

- A hard, stable inner sleeve absorbs the pressure and protects the conductor on the inside from mechanical stress
- Hexagonal shaped crimpimg of the soft outer sleeve guarantees a perfect electrical and mechanical connection

## Application range

- For screen cables with a dielectric diameter from 1.1 to 9,4 mm (diameter after removing the screen)
- Telecommunication
- Railway applications

## Norm references / Approvals

- Corrosion test in compliance with IEC 68-2-42
- Test samples were stored for 10 days in a damp SO2 industrial atmosphere at 25 °C
- This test showed only negligible increases in the contact resistance, which means that the crimped connections can be considered gas-proof

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool
- PEW 12 Crimping inserts for SHIELD-KON® screen connectors

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002650
ETIM 5.0/6.0 Class-Description: Connection for screened wires

**Material**
Bronze
Galvanically galvanized

**Temperature range**
Temperature shock test
100 cycles of temperature changes between -40°C and +155°C produced a negligible change in the contact resistance.

| Article number | Article designation | Colour | Inner x outer sleeve Ø (mm) | Suitable crimp insert | Nest | Pieces / PU |
|---|---|---|---|---|---|---|
| **Inner sleeves** | | | | | | |
| 61749430 | GSB 046 | silver | 1.17 x 1.90 | | | 100 |
| 61749440 | GSB 058 | yellow | 1.47 x 2.10 | | | 100 |
| 61749450 | GSB 063 | red | 1.60 x 2.23 | | | 100 |
| 61749460 | GSB 071 | green | 1.87 x 2.44 | | | 100 |
| 61749470 | GSB 080 | blue | 2.00 x 2.63 | | | 100 |
| 61749480 | GSB 090 | orange | 2.20 x 2.90 | | | 100 |
| 61749490 | GSB 096 | purple | 2.44 x 3.02 | | | 100 |
| 61749500 | GSB 101 | yellow | 2.56 x 3.16 | | | 100 |
| 61749510 | GSB 109 | red | 2.76 x 3.36 | | | 100 |
| 61749520 | GSB 115 | silver | 2.92 x 3.70 | | | 100 |
| 61749530 | GSB 124 | green | 3.14 x 3.68 | | | 100 |
| 61749540 | GSB 128 | silver | 3.25 x 3.86 | | | 100 |
| 61749550 | GSB 134 | orange | 3.40 x 4.00 | | | 100 |
| 61749560 | GSB 149 | blue | 3.78 x 4.54 | | | 100 |
| 61749570 | GSB 156 | red | 3.96 x 4.90 | | | 100 |
| 61749580 | GSB 165 | silver | 4.20 x 4.92 | | | 100 |
| 61749590 | GSB 175 | green | 4.44 x 5.46 | | | 100 |
| 61749600 | GSB 187 | yellow | 4.75 x 5.76 | | | 100 |
| 61749610 | GSB 194 | blue | 4.93 x 5.76 | | | 100 |
| 61749620 | GSB 205 | orange | 5.20 x 6.22 | | | 100 |
| 61749630 | GSB 219 | silver | 5.56 x 6.35 | | | 100 |
| 61749640 | GSB 225 | yellow | 5.71 x 6.50 | | | 100 |
| 61749650 | GSB 232 | red | 5.90 x 6.70 | | | 100 |
| 61749660 | GSB 250 | green | 6.35 x 7.14 | | | 100 |
| 61749670 | GSB 261 | blue | 6.63 x 7.54 | | | 100 |
| 61749680 | GSB 266 | silver | 6.75 x 7.54 | | | 100 |
| 61749690 | GSB 275 | orange | 6.98 x 7.77 | | | 100 |
| 61749700 | GSB 281 | yellow | 7.14 x 8.40 | | | 100 |
| 61749710 | GSB 287 | silver | 7.29 x 8.30 | | | 100 |
| 61749720 | GSB 297 | red | 7.54 x 8.50 | | | 100 |
| 61749730 | GSB 312 | purple | 7.92 x 9.20 | | | 100 |
| 61749740 | GSB 348 | orange | 8.84 x 10.20 | | | 100 |
| 61749750 | GSB 375 | blue | 9.52 x 10.30 | | | 100 |
| **Outer sleeves** | | | | | | |
| 61749810 | GSC 101 | silver | 2.56 x 3.16 | PEW 12.1425 SK | 19 | 100 |
| 61749820 | GSC 128 | blue | 3.25 x 3.86 | PEW 12.1425 SK | 00 | 100 |
| 61749830 | GSC 149 | purple | 3.78 x 4.54 | PEW 12.1425 SK | 01 | 100 |
| 61749840 | GSC 156 | yellow | 3.96 x 4.90 | PEW 12.1425 SK | 02 | 100 |
| 61749850 | GSC 175 | blue | 4.40 x 5.46 | PEW 12.1425 SK | 03 | 100 |
| 61749860 | GSC 187 | orange | 4.75 x 5.76 | PEW 12.1426 SK | 6 | 100 |
| 61749870 | GSC 194 | red | 4.93 x 5.79 | PEW 12.1426 SK | 6 | 100 |
| 61749880 | GSC 199 | silver | 5.05 x 5.97 | PEW 12.1426 SK | 6 | 100 |
| 61749890 | GSC 205 | yellow | 5.20 x 6.22 | PEW 12.1426 SK | 8 | 100 |
| 61749900 | GSC 219 | green | 5.56 x 6.35 | PEW 12.1426 SK | 8 | 100 |
| 61749910 | GSC 225 | purple | 5.71 x 6.50 | PEW 12.1426 SK | 9 | 100 |

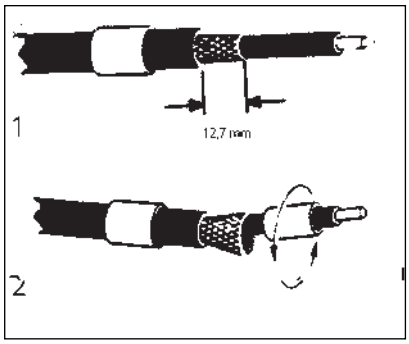
| Article number | Article designation | Colour | Inner x outer sleeve Ø (mm) | Suitable crimp insert | Nest | Pieces / PU |
|---|---|---|---|---|---|---|
| 61749920 | GSC 232 | orange | 5.90 x 6.70 | PEW 12.1426 SK | 10 | 100 |
| 61749930 | GSC 261 | yellow | 6.63 x 7.54 | PEW 12.1427 SK | 11 | 100 |
| 61749940 | GSC 275 | silver | 6.98 x 7.77 | PEW 12.1427 SK | 12 | 100 |
| 61749950 | GSC 281 | purple | 7.14 x 8.40 | PEW 12.1427 SK | 14 | 100 |
| 61749960 | GSC 287 | blue | 7.29 x 8.30 | PEW 12.1427 SK | 14 | 100 |
| 61749970 | GSC 297 | green | 7.54 x 8.50 | PEW 12.1427 SK | 14 | 100 |
| 61749980 | GSC 312 | yellow | 7.95 x 9.20 | PEW 12.1428 SK | 15 | 100 |
| 61749990 | GSC 327 | silver | 8.30 x 9.45 | PEW 12.1428 SK | 16 | 100 |
| 61750000 | GSC 348 | orange | 8.84 x 9.98 | PEW 12.1428 SK | 17 | 100 |
| 61750010 | GSC 359 | purple | 9.12 x 10.13 | PEW 12.1429 SK | 50 | 100 |
| 61750020 | GSC 375 | yellow | 9.52 x 10.30 | PEW 12.1429 SK | 51 | 100 |
| 61750030 | GSC 405 | red | 10.28 x 11.50 | PEW 12.1430 SK | 52 | 100 |
| 61750040 | GSC 415 | blue | 10.54 x 11.76 | PEW 12.1430 SK | 52 | 100 |
| 61750050 | GSC 425 | silver | 10.80 x 12.06 | PEW 12.1430 SK | 54 | 100 |
| 61750060 | GSC 460 | silver | 11.68 x 12.95 | PEW 12S.1440 SK | 56 | 100 |
| 61750070 | GSC 500 | green | 12.70 x 14.60 | PEW 12S.1440 SK | 57 | 100 |

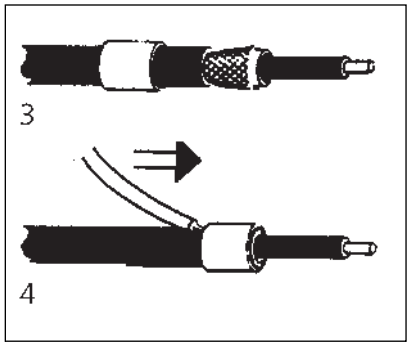
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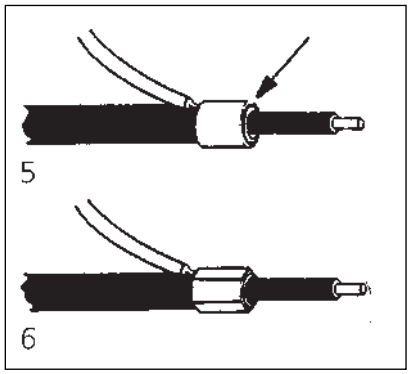
SHIELD-KON® two-part screen connector

## Installation:

1. After stripping the screen (approx. 12.7 mm length), push the outer sleeve onto the outer insulation. If this is too thick, push on the outer sleeve from the front after step 3.
2. Extend the screen braiding by rotating the inside conductor slightly and pushing the inner sleeve under the screen braiding.
3. Position the inner sleeve in such a way that about 1.6 mm is still protruding from the end of the screen, and press on the braiding.
4. Push the conductor under the outer sleeve and push the outer sleeve over the braiding.
5. Position the outer sleeve and make sure that the ends of all wires in the screen braiding and the outer conductor are hidden.
6. Crimp both sleeves.




## Which inner sleeve goes with which outer sleeve?

### Inner sleeve GSB:
Determine the maximum outer diameter of the inner sheath under the braid/screen. From the chart, select the matching inner sleeve (outer diameter of inner sheath = inner diameter of inner sleeve). If the values are in-between two sizes please select the next size.

### Outer sleeve GSC:
Add 1.5-2 mm to the outer diameter of the selected inner sleeve and then select the outer sleeve (resulting diameter after addition = inner diameter of outer sleeve).

### Press insert:
Based on of the selected outer sleeve, you can now determine the appropriate press insert.

# PEW 12 Crimping inserts for SHIELD-KON® screen connectors




## Benefits

- Product code is engraved on the upper and on the lower part of the die set
- Inserts are easily changeable
- Parallel jaw closing
- One or two-hand operation

## Application range

- Crimping of RSK One-piece screen connectors and SHIELD-KON Two-part screen connectors

## Note

- High flexibility: Interchangeable inserts that fit into either the PEW 12 / PEW 12S manual crimping tool, the E-PEW 12 electric crimping tool or the CM 25-1 crimping machine (compatibility see table)

## Included

- Crimping dies are delivered without tool

## Suitable tools

- PEW 12 universal tool
- E-PEW 12 universal tool

## Technical data

ETIM

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

| Article number | Article designation | Crimping profile | Shield Ø (mm) | Suitable connectors | Pieces / PU |
|---|---|---|---|---|---|
| **One piece screen connectors RSK** | | | | | |
| 61815635 | PEW 12.1448/101 A | Special crimping profile | 1.2-1.7 | RSK 5101 | 1 |
| 61815636 | PEW 12.1449/101 B | Special crimping profile | 1.8-2.2 | RSK 5101 | 1 |
| 61815637 | PEW 12.1450/201 C | Special crimping profile | 2.2-2.5 | RSK 5201 | 1 |
| 61815638 | PEW 12.1341/201 D | Special crimping profile | 2.5-3.0 | RSK 5201 | 1 |
| 61815639 | PEW 12.1451/201 E | Special crimping profile | 3.0-3.3 | RSK 5201 | 1 |
| 61815640 | PEW 12.1452/201 F | Special crimping profile | 3.3-3.6 | RSK 5201 | 1 |
| 61815641 | PEW 12.1453/301 G | Special crimping profile | 3.6-4.1 | RSK 5301 | 1 |
| 61813869 | PEW 12.374/301 H | Special crimping profile | 4.1-4.7 | RSK 5301 | 1 |
| 61813868 | PEW 12.373/301 J | Special crimping profile | 4.7-5.1 | RSK 5301 | 1 |
| 61813864 | PEW 12.599/401 K | Special crimping profile | 5.1-5.8 | RSK 5401 | 1 |
| 61813865 | PEW 12.375/401 L | Special crimping profile | 5.8-6.3 | RSK 5401 | 1 |
| 61813866 | PEW 12.354/401 M | Special crimping profile | 6.3-7.0 | RSK 5401 | 1 |
| 61813867 | PEW 12.619/401 N | Special crimping profile | 7.0-7.6 | RSK 5401 | 1 |
| **Two-part screen connectors SHIELD-KON®** | | | | | |
| 61813881 | PEW 12.1425 SK | Hexagonal pressing | | GSC 101 / 128 / 149 / 156 / 175 | 1 |
| 61813882 | PEW 12.1426 SK | Hexagonal pressing | | GSC 187 / 194 / 199 / 205 / 219 / 225 / 232 | 1 |
| 61813883 | PEW 12.1427 SK | Hexagonal pressing | | GSC 261 / 275 / 281 / 287 / 297 | 1 |
| 61813884 | PEW 12.1428 SK | Hexagonal pressing | | GSC 312 / 327 / 348 | 1 |
| 61813885 | PEW 12.1429 SK | Hexagonal pressing | | GSC 359 / 375 | 1 |
| 61813886 | PEW 12.1430 SK | Hexagonal pressing | | GSC 405 / 415 / 425 | 1 |
| 61813887 | PEW 12S.1440 SK | Hexagonal pressing | | GSC 460 / 500 | 1 |

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# 3M™ Temflex™ 165 instulating tape

## Benefits

- Waterproof
- Adhesive on one side
- Resistant to most solvents
- Self-extinguishing

## Application range

- Multipurpose insulating tape made from PVC
- Universal electrical insulating tape for insulating, bundling, marking

## Norm references / Approvals

- Type acc. to VDE: type 5

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description: Adhesive tape

**Note**
Ultimate elongation: 170 %
Tear strength: 20 N / 10 mm

**Info**
Thickness: 0.15 mm

**Material**
PVC

**Test voltage**
Dielectric strength: 40 kV/mm

**Temperature range**
0 °C to +90 °C



| Article number | Article designation | Colour | Length (m) x tape width (mm) x thickness (mm) | Material | Pieces / PU |
|---|---|---|---|---|---|
| **3M™ Temflex™ 165 instulating tape** | | | | | |
| 61721040 | INSULATING TAPE IB 1015 WH | white | 10 x 15 x 0.15 | PVC | 10 |
| 61721030 | INSULATING TAPE IB 1015 BK | black | 10 x 15 x 0.15 | PVC | 10 |
| 61721050 | INSULATING TAPE IB 1015 GN | green | 10 x 15 x 0.15 | PVC | 10 |
| 61721060 | INSULATING TAPE IB 1015 BU | blue | 10 x 15 x 0.15 | PVC | 10 |
| 61721070 | INSULATING TAPE IB 1015 RD | red | 10 x 15 x 0.15 | PVC | 10 |
| 61721080 | INSULATING TAPE IB 1015 GN/YE | GN-YE | 10 x 15 x 0.15 | PVC | 10 |
| 61721045 | INSULATING TAPE IB 1015 YE | yellow | 10 x 15 x 0.15 | PVC | 10 |
| 61721120 | INSULATING TAPE IB 2515 RD | red | 25 x 15 x 0.15 | PVC | 10 |
| 61721130 | INSULATING TAPE IB 2515 GN | green | 25 x 15 x 0.15 | PVC | 10 |
| 61721140 | INSULATING TAPE IB 2525 BK | black | 25 x 25 x 0.15 | PVC | 10 |

Temflex™ 165 is a registered trademark of 3M.
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* Trade product, no Lapp product.

## TI insulating tape



### Benefits

- Protects against corrosion
- Non-aging
- Chemical resistance
- Not self-adhesive, no residues
- Wide temperature range for applications in harsh climatic environments

### Application range

- Insulating tapes and self-amalgamating tape
- For sealing of transition points where water shouldn't enter
- For bundling several wire harnessings (e.g. automotive industry)
- Problem-free and assured sealing of fine screens up to 3/8" for nearly all materials

### Technical data

**Colour delivered**
White

**Material**
Non-adhesive fluoropolymer tape

**Temperature range**
-240 °C to +250 °C

| Article number | Article designation | Colour | Length (m) x tape width (mm) x thickness (mm) | Material | Pieces / PU |
|---|---|---|---|---|---|
| **TI insulating tape** | | | | | |
| 61713080 | TI 1212 insulating tape | white | 12.0 x 12.0 x 0.1 | PTFE | 10 |

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## Insulating tube ISS



### Benefits

- Provides good insulation against heat, cold or temperature fluctuations
- Resistant to most chemicals
- Good weather and UV-resistance

### Application range

- Insulating tube

### Note

- Not suitable for shrinking

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose

**Note**
Dielectric strength: 18 kV/mm

**Material**
Silicone
UV-resistant

**Temperature range**
-60 °C up to +220 °C

| Article number | Article designation | Colour | Internal Ø x wall thickness (mm) | Material | PU (m) |
|---|---|---|---|---|---|
| **Insulating tube ISS** | | | | | |
| 61760060 | ISS 2 | natural | 2.00 x 0.40 | Silicone | 100 |
| 61760070 | ISS 3 | natural | 3.00 x 0.40 | Silicone | 100 |
| 61760080 | ISS 4 | natural | 4.00 x 0.75 | Silicone | 100 |
| 61760090 | ISS 5 | natural | 5.00 x 0.90 | Silicone | 100 |
| 61760100 | ISS 6 | natural | 6.00 x 0.90 | Silicone | 100 |
| 61760110 | ISS 7 | natural | 7.00 x 0.90 | Silicone | 100 |
| 61760120 | ISS 8 | natural | 8.00 x 1.00 | Silicone | 50 |
| 61760130 | ISS 9 | natural | 9.00 x 1.05 | Silicone | 50 |
| 61760140 | ISS 10 | natural | 10.00 x 1.05 | Silicone | 50 |

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# Insulating tube ISY



### Application range
- Insulating tube
- For insulation of connections

### Product features
- Smooth surface

### Norm references / Approvals
- IEC 60684-3-100

### Note
- Not suitable for shrinking

### Design
- Colours: black RAL 9005, white similar to RAL 9003

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose

**Note**
Dielectric strength: 14 kV/mm

**Info**
Without fabric

**Colour delivered**
Black and white

**Material**
Soft PVC

**Temperature range**
-20 °C ... +85 °C

| Article number | Article designation | Colour | Internal Ø x wall thickness (mm) | Material | PU (m) |
|---|---|---|---|---|---|
| **Insulating tube ISY** | | | | | |
| 61793030 | ISY 2 | black | 2.00 x 0.40 | PVC | 1000 |
| 61793040 | ISY 3 | black | 3.00 x 0.40 | PVC | 750 |
| 61793050 | ISY 4 | black | 4.00 x 0.50 | PVC | 500 |
| 61793060 | ISY 5 | black | 5.00 x 0.60 | PVC | 500 |
| 61793070 | ISY 6 | black | 6.00 x 0.60 | PVC | 400 |
| 61793080 | ISY 7 | black | 7.00 x 0.70 | PVC | 500 |
| 61793090 | ISY 8 | black | 8.00 x 0.70 | PVC | 500 |
| 61793100 | ISY 9 | black | 9.00 x 0.70 | PVC | 400 |
| 61793110 | ISY 10 | black | 10.00 x 0.70 | PVC | 300 |
| 61793116 | ISY 10 | white | 10.00 x 0.70 | PVC | 300 |
| 61793119 | ISY 16 | black | 16.00 x 1.00 | PVC | 150 |

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# Copper braid



### Application range
- EMC-compliant screening
- Can be used as earthing tape
- Automotive industry

### Design
- Variable diameter by tightening the braid

### Included
- 1 PU is devided in 2 pieces of 50 mt each

### Suitable conduits
- SILVYN® EMC AS-CU

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001182
ETIM 5.0/6.0 Class-Description: Braided hose

**General**
Minor differences are possible depending on the production batch

**Note**
Degree of coverage: 85 % at maximum opening

**Material**
Tinned-copper

**Temperature range**
-30°C to +105°C
Max. temperature: +120°C (short-term)

| Article number | Article designation | mm² | Diameter in mm | Number of wires x Ø (mm) | Copper index (kg/km) | PU (m) |
|---|---|---|---|---|---|---|
| **Copper braid** | | | | | | |
| 61721370 | CU 14 | 1.32 | 1 - 4 | 24 x 7 x 0,1 | 13.2 | 100 |
| 61721380 | CU 410 | 4.14 | 4 - 10 | 24 x 22 x 0,1 | 41.4 | 100 |
| 61721390 | CU 1020 | 8.29 | 10 - 20 | 48 x 22 x 0,1 | 81.9 | 100 |
| 61721395 | CU 2050 | 18.1 | 20 - 50 | 48 x 12 x 0,2 | 183 | 100 |

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# 3M™ 1183 screening tape





## Benefits

- Electrically-conductive strip provides exceptional screening of electromagnetic fields
- Uniform foil composition and its good conductivity to the substrate ensures low contact resistance, which is crucial for the degree of screening
- Solderable and corrosion-resistant
- Acrylic adhesive that is resistant to solvents

## Application range

- Electromagnetic field screening
- Electrostatic discharge

## Product features

- Copper foil is plated with a thin layer of tin
- Tin-plating is compatible with a wide range of base materials such as aluminium, lead and tin alloys, and galvanised steels

## Norm references / Approvals

- UL 510 approved
- UL File Number: E17385

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description: Adhesive tape

**Caution**
Adhesion (stripping force) : 3.8 N/10 mm
Tear strength: 44 N/10 mm

**Note**
Contact resistance (in acc. with MIL-STD-202): 0.005 Ω

**Info**
Storage: Good stability when stored in a cool and dry location (room temperature and approx. 50% relative humidity)

**Colour delivered**
Silver grey (RAL 7001)

**Material**
Smooth tin-plated copper film as a lining with a conductive acrylic adhesive

**Temperature range**
-10 °C to +80 °C

| Article number | Article designation | Width (mm) | PU (m) |
|---|---|---|---|
| **3M™ 1183 screening tape** | | | |
| 61721420 | 3M™ 1183 / 9x16,5 | 9 | 16.5 |
| 61721421 | 3M™ 1183 / 12x16,5 | 12 | 16.5 |
| 61721422 | 3M™ 1183 / 19x16,5 | 19 | 16.5 |
| 61721423 | 3M™ 1183 / 25x16,5 | 25 | 16.5 |

Scotch™ 1183 is a registered trademark of 3M
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* Trade product, no Lapp product.

# Shrink tube PROTECT Box / Shrink tube PROTECT

**Info**

- Thin walled



Shrink tube PROTECT Box



Shrink tube PROTECT

## Benefits

- Flexible
- Excellent physical and mechanical properties
- Approved for the use in North America and Canada

## Application range

- Insulation, protection and cable bundling
- Green-yellow shrink tube: For identifying and marking earthing connectors and cables

## Product features

- Flame-retardant (except colour: Transparent)
- Silicone-free
- UV-resistant (only colour: Black)

## Norm references / Approvals

- UL 224 approval (except colour: Transparent)
- UL file no.: E476215 (except colour: Transparent)

## Note

- Not resistant against engine oils

## Included

**Shrink tube PROTECT Box**

- Stackable boxes for easy storage

**Shrink tube PROTECT**

- Plastic bag with 1m units

## Suitable tools

- HG 2320 hot-air pistol

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

**On request**
Other colours are available upon request

**Note**
Thin walled
Dielectric strength: 20 kV/mm

**Info**
Shrinking ratio: 2:1

**Colour delivered**
Black
Transparent
Green-yellow

**Material**
Cross-linked polyolefin

**Temperature range**
-55°C to +135°C
Shrinking temperature: +90°C

| Article number | Article description | Colour | Shrinkage range (mm) | Panel thickness, shrunk +- 0.1 mm | PU (m) | PU |
|---|---|---|---|---|---|---|
| **Shrink tube PROTECT Box** | | | | | | |
| 61742423 | PROTECT Box 1,2/0,6 BK | black | 1.2 - 0.6 | 0,41 | 12 | 1 |
| 61742424 | PROTECT Box 1,6/0,8 BK | black | 1.6 - 0.8 | 0,43 | 12 | 1 |
| 61742425 | PROTECT Box 2,4/1,2 BK | black | 2.4 - 1.2 | 0,51 | 12 | 1 |
| 61742426 | PROTECT Box 3,2/1,6 BK | black | 3.2 - 1.6 | 0,51 | 12 | 1 |
| 61742427 | PROTECT Box 4,8/2,4 BK | black | 4.8 - 2.4 | 0,51 | 10 | 1 |
| 61742428 | PROTECT Box 6,4/3,2 BK | black | 6.4 - 3.2 | 0,64 | 8 | 1 |
| 61742429 | PROTECT Box 9,5/4,7 BK | black | 9.5 - 4.7 | 0,64 | 7 | 1 |
| 61742430 | PROTECT Box 12,7/6,4 BK | black | 12.7 - 6.4 | 0,64 | 6 | 1 |
| 61742431 | PROTECT Box 19,1/9,5 BK | black | 19.1 - 9.5 | 0,77 | 5 | 1 |
| 61742433 | PROTECT Box 25,4/12,7 BK | black | 25.4 - 12.7 | 0,89 | 3 | 1 |
| 61742434 | PROTECT Box 1,2/0,6 TR | transparent | 1.2 - 0.6 | 0,41 | 12 | 1 |
| 61742435 | PROTECT Box 1,6/0,8 TR | transparent | 1.6 - 0.8 | 0,43 | 12 | 1 |
| 61742436 | PROTECT Box 2,4/1,2 TR | transparent | 2.4 - 1.2 | 0,51 | 12 | 1 |
| 61742437 | PROTECT Box 3,2/1,6 TR | transparent | 3.2 - 1.6 | 0,51 | 12 | 1 |
| 61742438 | PROTECT Box 4,8/2,4 TR | transparent | 4.8 - 2.4 | 0,51 | 10 | 1 |
| 61742439 | PROTECT Box 6,4/3,2 TR | transparent | 6.4 - 3.2 | 0,64 | 8 | 1 |
| 61742440 | PROTECT Box 9,5/4,7 TR | transparent | 9.5 - 4.7 | 0,64 | 7 | 1 |
| 61742441 | PROTECT Box 12,7/6,4 TR | transparent | 12.7 - 6.4 | 0,64 | 6 | 1 |
| 61742442 | PROTECT Box 19,1/9,5 TR | transparent | 19.1 - 9.5 | 0,77 | 5 | 1 |
| 61742443 | PROTECT Box 25,4/12,7 TR | transparent | 25.4 - 12.7 | 0,89 | 3 | 1 |
| **Shrink tube PROTECT** | | | | | | |
| 61742400 | PROTECT 1,2/0,6 BK | black | 1.2 - 0.6 | 0,41 | 50 x 1 | 1 |
| 61742401 | PROTECT 1,6/0,8 BK | black | 1.6 - 0.8 | 0,43 | 50 x 1 | 1 |
| 61742402 | PROTECT 2,4/1,2 BK | black | 2.4 - 1.2 | 0,51 | 50 x 1 | 1 |
| 61742403 | PROTECT 3,2/1,6 BK | black | 3.2 - 1.6 | 0,51 | 50 x 1 | 1 |
| 61742404 | PROTECT 4,8/2,4 BK | black | 4.8 - 2.4 | 0,51 | 50 x 1 | 1 |
| 61742405 | PROTECT 6,4/3,2 BK | black | 6.4 - 3.2 | 0,64 | 25 x 1 | 1 |
| 61742406 | PROTECT 9,5/4,7 BK | black | 9.5 - 4.7 | 0,64 | 25 x 1 | 1 |
| 61742407 | PROTECT 12,7/6,4 BK | black | 12.7 - 6.4 | 0,64 | 25 x 1 | 1 |
| 61742408 | PROTECT 19,1/9,5 BK | black | 19.1 - 9.5 | 0,77 | 25 x 1 | 1 |
| 61742409 | PROTECT 25,4/12,7 BK | black | 25.4 - 12.7 | 0,89 | 15 x 1 | 1 |
| 61742416 | PROTECT 3,2/1,6 GN/YE | green-yellow | 3.2 - 1.6 | 0,51 | 50 x 1 | 1 |
| 61742417 | PROTECT 4,8/2,4 GN/YE | green-yellow | 4.8 - 2.4 | 0,51 | 50 x 1 | 1 |
| 61742418 | PROTECT 6,4/3,2 GN/YE | green-yellow | 6.4 - 3.2 | 0,64 | 25 x 1 | 1 |
| 61742419 | PROTECT 9,5/4,7 GN/YE | green-yellow | 9.5 - 4.7 | 0,64 | 25 x 1 | 1 |
| 61742420 | PROTECT 12,7/6,4 GN/YE | green-yellow | 12.7 - 6.4 | 0,64 | 25 x 1 | 1 |
| 61742421 | PROTECT 19,1/9,5 GN/YE | green-yellow | 19.1 - 9.5 | 0,77 | 25 x 1 | 1 |
| 61742422 | PROTECT 25,4/12,7 GN/YE | green-yellow | 25.4 - 12.7 | 0,89 | 15 x 1 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Shrink tube PROTECT-HF







**Info**

- Thin walled
- Halogen-free

## Benefits

- Flexible
- Halogen-free products do not develop corrosive or toxic gases in the event of a fire, are flame-retardant, show little fire propagation and develop only little smoke
- PROTECT-HF RW: Can be flattened for marking purposes, suitable for railway applications

## Application range

- Insulation, protection and cable bundling
- Green-yellow shrink tube: For identifying and marking earthing connectors and cables
- PROTECT-HF RW: For railway applications and marking systems

## Product features

- Halogen-free
- Good chemical resistance
- Flame retardant
- Silicone-free
- UV-resistant (only colour: Black)

## Norm references / Approvals

- PROTECT-HF / Box: Flammability class FMVSS 302
- PROTECT-HF RW: Flammability class ASTM D 635-HB, Railway normative (BS-6853 (1999) Vehicle category 1A, EN 45545-2 HL 3, LUL 1-085 A3), Boeing BSS 7239 toxic gas generation M7

## Included

- PROTECT-HF Box: Stackable boxes for easy storage
- PROTECT-HF: Plastic bag with 1m units
- PROTECT-HF RW: Delivered on spool

## Suitable tools

- HG 2320 hot-air pistol

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

**On request**
Other colours are available upon request

**Note**
Thin walled
Dielectric strength: 20 kV/mm

**Info**
Shrinking ratio: 2:1

**Colour delivered**
Black, Green-yellow, Yellow, White

**Material**
Polyolefin

**Temperature range**
Shrinking temperature: +90°C
PROTECT-HF / Box: -30 °C to +105 °C
PROTECT-HF RW: -55°C to +105°C

| Article number | Article description | Colour | Shrinkage range (mm) | Panel thickness, shrunk +- 0.1 mm | PU (m) | PU |
|---|---|---|---|---|---|---|
| **Shrink tube PROTECT-HF Box** | | | | | | |
| 61742489 | PROTECT-HF Box 1,2/0,6 BK | black | 1.2 - 0.6 | 0,41 | 15 | 1 |
| 61742490 | PROTECT-HF Box 1,6/0,8 BK | black | 1.6 - 0.8 | 0,43 | 15 | 1 |
| 61742491 | PROTECT-HF Box 2,4/1,2 BK | black | 2.4 - 1.2 | 0,51 | 15 | 1 |
| 61742492 | PROTECT-HF Box 3,2/1,6 BK | black | 3.2 - 1.6 | 0,51 | 15 | 1 |
| 61742493 | PROTECT-HF Box 4,8/2,4 BK | black | 4.8 - 2.4 | 0,51 | 12 | 1 |
| 61742494 | PROTECT-HF Box 6,4/3,2 BK | black | 6.4 - 3.2 | 0,65 | 12 | 1 |
| 61742495 | PROTECT-HF Box 9,5/4,7 BK | black | 9.5 - 4.7 | 0,65 | 10 | 1 |
| 61742496 | PROTECT-HF Box 12,7/6,4 BK | black | 12.7 - 6.4 | 0,65 | 8 | 1 |
| 61742497 | PROTECT-HF Box 19,1/9,5 BK | black | 19.1 - 9.5 | 0,77 | 5 | 1 |
| 61742498 | PROTECT-HF Box 25,4/12,7 BK | black | 25.4 - 12.7 | 0,89 | 3 | 1 |
| **Shrink tube PROTECT-HF** | | | | | | |
| 61742472 | PROTECT-HF 1,2/0,6 BK | black | 1.2 - 0.6 | 0,41 | 100 x 1 | 1 |
| 61742473 | PROTECT-HF 1,6/0,8 BK | black | 1.6 - 0.8 | 0,43 | 100 x 1 | 1 |
| 61742474 | PROTECT-HF 2,4/1,2 BK | black | 2.4 - 1.2 | 0,51 | 100 x 1 | 1 |
| 61742475 | PROTECT-HF 3,2/1,6 BK | black | 3.2 - 1.6 | 0,51 | 50 x 1 | 1 |
| 61742476 | PROTECT-HF 4,8/2,4 BK | black | 4.8 - 2.4 | 0,51 | 50 x 1 | 1 |
| 61742477 | PROTECT-HF 6,4/3,2 BK | black | 6.4 - 3.2 | 0,65 | 50 x 1 | 1 |
| 61742478 | PROTECT-HF 9,5/4,7 BK | black | 9.5 - 4.7 | 0,65 | 50 x 1 | 1 |
| 61742479 | PROTECT-HF 12,7/6,4 BK | black | 12.7 - 6.4 | 0,65 | 50 x 1 | 1 |
| 61742480 | PROTECT-HF 19,1/9,5 BK | black | 19.1 - 9.5 | 0,77 | 50 x 1 | 1 |
| 61742481 | PROTECT-HF 25,4/12,7 BK | black | 25.4 - 12.7 | 0,89 | 10 x 1 | 1 |
| 61742482 | PROTECT-HF 3,2/1,6 GN/YE | green-yellow | 3.2 - 1.6 | 0,51 | 50 x 1 | 1 |
| 61742483 | PROTECT-HF 4,8/2,4 GN/YE | green-yellow | 4.8 - 2.4 | 0,51 | 50 x 1 | 1 |
| 61742484 | PROTECT-HF 6,4/3,2 GN/YE | green-yellow | 6.4 - 3.2 | 0,65 | 50 x 1 | 1 |
| 61742485 | PROTECT-HF 9,5/4,7 GN/YE | green-yellow | 9.5 - 9.5 | 0,65 | 50 x 1 | 1 |
| 61742486 | PROTECT-HF 12,7/6,4 GN/YE | green-yellow | 12.7 - 6.4 | 0,65 | 50 x 1 | 1 |
| 61742487 | PROTECT-HF 19,1/9,5 GN/YE | green-yellow | 19.1 - 9.5 | 0,77 | 50 x 1 | 1 |
| 61742488 | PROTECT-HF 25,4/12,7 GN/YE | green-yellow | 25.4 - 12.7 | 0,89 | 10 x 1 | 1 |

| Article number | Article description | Colour | Shrinkage range (mm) | Panel thickness, shrunk +- 0.1 mm | PU (m) | PU |
|---|---|---|---|---|---|---|
| **Shrink tube PROTECT-HF RW** | | | | | | |
| 61742499 | PROTECT-HF RW 2,4/1,2 BK | black | 2.4 - 1.2 | 0.43 - 0.6 | 300 | 1 |
| 61742501 | PROTECT-HF RW 3,2/1,6 BK | black | 3.2 - 1.6 | 0.55 - 0.72 | 300 | 1 |
| 61742502 | PROTECT-HF RW 4,8/2,4 BK | black | 4.8 - 2.4 | 0.55 - 0.72 | 300 | 1 |
| 61742503 | PROTECT-HF RW 6,4/3,2 BK | black | 6.4 - 3.2 | 0.65 - 0.8 | 300 | 1 |
| 61742504 | PROTECT-HF RW 9,5/4,7 BK | black | 9.5 - 4.7 | 0.65 - 0.75 | 150 | 1 |
| 61742505 | PROTECT-HF RW 12,7/6,4 BK | black | 12.7 - 6.4 | 0.65 - 0.75 | 100 | 1 |
| 61742506 | PROTECT-HF RW 19,1/9,5 BK | black | 19.1 - 9.5 | 0.7 - 0.85 | 50 | 1 |
| 61742507 | PROTECT-HF RW 25,4/12,7 BK | black | 25.4 - 12.7 | 0.85 - 1.0 | 50 | 1 |
| 61742508 | PROTECT-HF RW 2,4/1,2 WH | white | 2.4 - 1.2 | 0.43 - 0.6 | 300 | 1 |
| 61742509 | PROTECT-HF RW 3,2/1,6 WH | white | 3.2 - 1.6 | 0.55 - 0.72 | 300 | 1 |
| 61742510 | PROTECT-HF RW 4,8/2,4 WH | white | 4.8 - 2.4 | 0.55 - 0.72 | 300 | 1 |
| 61742511 | PROTECT-HF RW 6,4/3,2 WH | white | 6.4 - 3.2 | 0.65 - 0.8 | 300 | 1 |
| 61742512 | PROTECT-HF RW 9,5/4,7 WH | white | 9.5 - 4.7 | 0.65 - 0.75 | 150 | 1 |
| 61742513 | PROTECT-HF RW 12,7/6,4 WH | white | 12.7 - 6.4 | 0.65 - 0.75 | 100 | 1 |
| 61742514 | PROTECT-HF RW 19,1/9,5 WH | white | 19.1 - 9.5 | 0.7 - 0.85 | 50 | 1 |
| 61742523 | PROTECT-HF RW 25,4/12,7 WH | white | 25.4 - 12.7 | 0.85 - 1.0 | 50 | 1 |
| 61742515 | PROTECT-HF RW 2,4/1,2 YE | yellow | 2.4 - 1.2 | 0.43 - 0.6 | 300 | 1 |
| 61742516 | PROTECT-HF RW 3,2/1,6 YE | yellow | 3.2 - 1.6 | 0.55 - 0.72 | 300 | 1 |
| 61742517 | PROTECT-HF RW 4,8/2,4 YE | yellow | 4.8 - 2.4 | 0.55 - 0.72 | 300 | 1 |
| 61742518 | PROTECT-HF RW 6,4/3,2 YE | yellow | 6.4 - 3.2 | 0.65 - 0.8 | 300 | 1 |
| 61742519 | PROTECT-HF RW 9,5/4,7 YE | yellow | 9.5 - 4.7 | 0.65 - 0.75 | 150 | 1 |
| 61742520 | PROTECT-HF RW 12,7/6,4 YE | yellow | 12.7 - 6.4 | 0.65 - 0.75 | 100 | 1 |
| 61742521 | PROTECT-HF RW 19,1/9,5 YE | yellow | 19.1 - 9.5 | 0.7 - 0.85 | 50 | 1 |
| 61742522 | PROTECT-HF RW 25,4/12,7 YE | yellow | 25.4 - 12.7 | 0.85 - 1.0 | 50 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Shrink tube PROTECT-C

**Info**

- Double walled



## Benefits

- Good chemical resistance
- High mechanical stability
- Good weather-resistance
- High shrink ratio and adhesive coating

## Application range

- Particularly suitable for corrosion and damp protected casings as well as highly contoured components

## Product features

- Adhesive lining bonds to plastic, rubber, neoprene, steel and polyethylene
- Silicone-free
- UV-resistant

## Included

- Plastic bag with 0.6 m units

## Suitable tools

- HG 2320 hot-air pistol

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

**Note**
Double-walled
Dielectric strength: 15 kV/mm

**Info**
Shrinking ratio: 3:1

**Colour delivered**
Black

**Material**
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside silicone, cadmium and lead free

**Temperature range**
-55°C to +110°C
Shrinking temperature: > 100°C

| Article number | Article description | Shrinkage range (mm) | Panel thickness, shrunk +- 0.1 mm | PU (m) | PU |
|---|---|---|---|---|---|
| **Shrink tube PROTECT-C** | | | | | |
| 61742449 | PROTECT-C 3/1 BK | 3.0 - 1.0 | 1,0 | 12 | 1 |
| 61742450 | PROTECT-C 6/2 BK | 6.0 - 2.0 | 1,1 | 9 | 1 |
| 61742451 | PROTECT-C 9/3 BK | 9.0 - 3.0 | 1,3 | 6 | 1 |
| 61742452 | PROTECT-C 12/4 BK | 12.0 - 4.0 | 1,7 | 5.4 | 1 |
| 61742453 | PROTECT-C 18/6 BK | 18.0 - 6.0 | 2,0 | 3.6 | 1 |
| 61742454 | PROTECT-C 24/8 BK | 24.0 - 8.0 | 2,5 | 3 | 1 |

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# Shrink tube PROTECT-M



**Info**

- Medium walled

## Benefits

- Is designed to withstand the severe mechanical requirements of submersible and direct-buried installations
- High resistance to abrasion, corrosion and chemicals
- Good weather-resistance

## Application range

- Thick and medium-wall shrink tubes for 600 V, 90°C low voltage applications in continuous use
- Ideal for the protection of cable joints and terminations in low voltage power applications

## Product features

- Adhesive lining bonds to plastic, rubber, neoprene,steel and polyethylene
- Silicone-free
- UV-resistant
- Halogen-free

## Included

- Plastic bags with 1.0 m units

## Suitable tools

- HG 2320 hot-air pistol

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

**Note**
PROTECT-M: Medium wall
Dielectric strength: 15 kV/mm

**Info**
Shrinking ratio: 3:1

**Colour delivered**
Black

**Material**
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside

**Temperature range**
-40°C to +120°C
Shrinking temperature: +110°C

| Article number | Article description | Shrinkage range (mm) | Panel thickness, shrunk +- 0.1 mm | PU (m) | PU |
|---|---|---|---|---|---|
| **Medium wall** | | | | | |
| 61742460 | PROTECT-M 12/3 BK | 12.0 - 3.0 | 2,2 | 15 | 1 |
| 61742461 | PROTECT-M 33/8 BK | 33.0 - 8.0 | 2,6 | 10 | 1 |
| 61742462 | PROTECT-M 40/12 BK | 40.0 - 12.0 | 2,6 | 5 | 1 |
| 61742463 | PROTECT-M 56/17 BK | 56.0 - 17.0 | 2,9 | 3 | 1 |
| 61742464 | PROTECT-M 92/26 BK | 92.0 - 26.0 | 3,15 | 1 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## TEC sealing cap

### Benefits
- Secure sealing through thermoplastic adhesive coating on the inside
- Good resistance to chemicals and solvents
- Ensures high tensile strength and mechanical protection

### Application range
- For sealing cable ends against the see page of moisture and contaminants

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000218
ETIM 5.0/6.0 Class-Description: Heat-shrink end cap

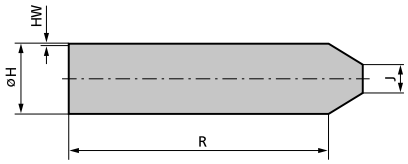
**General**
UV-resistant
Double-walled

**Colour delivered**
Black

**Material**
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Halogen-free and silicone-free

**Temperature range**
-55°C to +100 °C
Shrink temperature: 135°C






| Article number | Article description | H max. (mm) | H min. mm | J max. mm | Cable Ø (mm) | R* after shrinking (mm) | Panel thickness HW* (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|
| **TEC sealing cap** | | | | | | | | |
| 61830000 | TEC 15/4,5 | 15 | 4.5 | 4 | 5.0 - 12.0 | 30 | 2 | 10 |
| 61830010 | TEC 25/9 | 25 | 9 | 6.5 | 10.0 - 22.0 | 50 | 2.3 | 10 |
| 61830020 | TEC 36/15 | 36 | 15 | 10.5 | 17.0 - 30.0 | 80 | 3 | 10 |
| 61830040 | TEC 55/25 | 55 | 25 | 16 | 28.0 - 47.0 | 130 | 3.3 | 10 |
| 61830050 | TEC 80/40 | 80 | 40 | 17 | 45.0 - 70.0 | 150 | 4 | 10 |
| 61830060 | TEC 102/60 | 102 | 60 | 26 | 68.0 - 90.0 | 140 | 4 | 10 |
| 61830070 | TEC 148/57 | 148 | 57 | 27 | 80.0 - 133.0 | 105 | 3.3 | 10 |

1. after shrinking +/- 10%; 2. after shrinking +/- 20%
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## TEB branch muff

### Benefits
- Secure sealing through thermoplastic adhesive coating on the inside
- Good resistance to chemicals and solvents
- Ensures high tensile strength and mechanical protection

### Application range
- Insulation and sealing of cable splices

### Design
- Double-walled

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001170
ETIM 5.0/6.0 Class-Description: Branch-splice joint (set)

**General**
UV-resistant

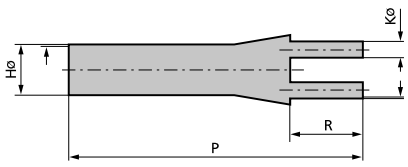
**Info**
Shrinking ratio: > 2:1

**Colour delivered**
Black

**Material**
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Halogen-free and silicone-free

**Temperature range**
-55°C to +100 °C
Shrinking temperature: +120°C

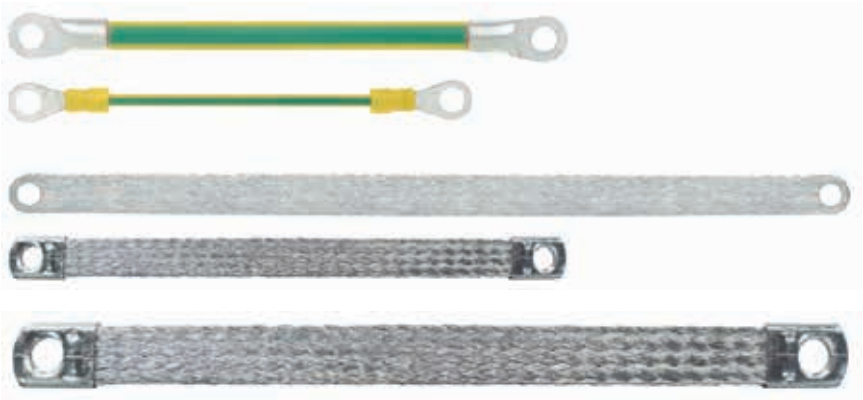





| Article number | Article description | Number of cores | H max. (mm) | H min. (mm) | K max. (mm) | K min. (mm) | P* (mm) | R* (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|---|---|
| **TEB branch muff** | | | | | | | | | |
| 61830110 | TEB 2-30/12 | 2 | 30 | 12 | 14 | 4 | 93 | 23 | 10 |
| 61830120 | TEB2-60/23 | 2 | 60 | 23 | 25 | 7.5 | 118 | 29 | 10 |
| 61830130 | TEB3-60/24 | 3 | 60 | 24 | 27 | 7 | 165 | 50 | 10 |
| 61830140 | TEB4-40/15 | 4 | 40 | 15 | 13 | 3 | 105 | 26 | 10 |
| 61830150 | TEB4-55/21 | 4 | 55 | 21 | 20 | 5.5 | 150 | 40 | 10 |
| 61830160 | TEB4-75/26 | 4 | 75 | 26 | 28 | 7.5 | 175 | 45 | 10 |
| 61830170 | TEB4-90/32 | 4 | 90 | 34 | 32 | 10 | 198 | 58 | 1 |

1. after shrinking +/- 10%; 2. after shrinking +/- 20%
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Ground Straps / Flat Ground Straps



## Application range

- Control cabinet manufacturing
- The protective earth safety measure is prescribed by standard
- Fixed and moving metal parts, such as doors in switch cabinet construction, must be earthed

## Product features

- Fixed lengths for M6 and M8 screws

## Norm references / Approvals

- UL File number: E501239, see table

## Product Make-up

- Ground straps:
  - Strands of bare copper wires
  - PVC-based core insulation
  - Assembled with ring cable lugs
- Pressure-welded flat ground straps:
  - Strand made of tinned-copper wires
  - Welded ends
- Flat ground straps with sleeves:
  - Strands made of tinned-copper wires
  - Assembled with pressed contact sleeves

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000490
ETIM 5.0/6.0 Class-Description:
Accessories for earthing and lightning

**Core identification code**
Assembled ground straps
Green/Yellow

**Conductor stranding**
Assembled ground straps
IEC 60 228 Class 6
Assembled flat ground straps
IEC 60 228 Class 6, tin-plated
Extra-fine wire

**Minimum bending radius**
Assembled ground straps
7 x outer diameter
Assembled flat ground straps
2 x thickness of the strap

**Test voltage**
Assembled ground straps
2500 V

**Temperature range**
Assembled ground straps
-30°C to +70°C

| Article number | Article designation | UL certification | Cross-section (mm²) | For | Length (mm) | Thickness (mm) +- 0,5 mm | Copper index kg/1.000 pieces | PU |
|---|---|---|---|---|---|---|---|---|
| **Ground straps** | | | | | | | | |
| 4571120 | Ground strap 1 x 4/M6/170 mm GN/YE | no | 4 | M6 | 170 | | 6.5 | 25 |
| 4571123 | Ground strap 1x4/M8/300mm GN/YE | no | 4 | M8 | 300 | | 11.4 | 25 |
| 4571121 | Ground straps 1x16/M6/170mm GN/YE | no | 16 | M6 | 170 | | 26.2 | 25 |
| 4571198 | Ground strap 1x16/M6/500mm GN/YE | no | 16 | M6 | 500 | | 76.8 | 25 |
| 4571124 | Ground strap 1x16/M8/300mm GN/YE | no | 16 | M8 | 300 | | 46.2 | 25 |
| 4571122 | Ground strap 1x25/M6/170mm GN/YE | no | 25 | M6 | 170 | | 40.8 | 25 |
| 4571125 | Ground strap 1x25/M8/300mm GN/YE | no | 25 | M8 | 300 | | 72 | 25 |
| **Pressure-welded flat ground straps** | | | | | | | | |
| 4571132 | Flat ground strap/press. 1X10/M6/200mm | no | 10 | M6 | 200 | 1 | 18 | 25 |
| 4571135 | Flat ground strap/press. 1x10/M6/300mm | no | 10 | M6 | 300 | 1 | 27 | 25 |
| 70399965 | Flat ground strap/press. 1X16/M6/200mm | no | 16 | M6 | 200 | 1.5 | 30.72 | 25 |
| 70399966 | Flat ground strap/press. 1X16/M6/300mm | no | 16 | M6 | 300 | 1.5 | 46.08 | 25 |
| 4571133 | Flat ground strap/press. 1x16/M8/200mm | no | 16 | M8 | 200 | 1.5 | 29 | 25 |
| 4571136 | Flat ground strap/press. 1x16/M8/300mm | no | 16 | M8 | 300 | 1.5 | 43.5 | 25 |
| 4571134 | Flat ground strap/press. 1X25/M8/200mm | no | 25 | M8 | 200 | 1.5 | 45 | 25 |
| 4571137 | Flat ground strap/press. 1x25/M8/300mm | no | 25 | M8 | 300 | 1.5 | 67.5 | 25 |
| 70399969 | Flat ground strap/press. 1X25/M8/500mm | no | 25 | M8 | 500 | 1.5 | 120 | 25 |
| **Flat ground straps with terminals** | | | | | | | | |
| 4571196 | Flat ground strap/terminals 1x6/M6/200mm | yes | 6 | M6 | 200 | 2 | 15 | 25 |
| 4571197 | Flat ground strap/terminals 1x6/M6/300mm | yes | 6 | M6 | 300 | 2 | 20 | 25 |
| 4571126 | Flat ground straps/terminals 1x10/M6/200mm | yes | 10 | M6 | 200 | 2.5 | 25 | 25 |
| 4571129 | Flat ground strap/terminals 1x10/M6/300mm | yes | 10 | M6 | 300 | 2.5 | 32 | 25 |
| 4571127 | Flat ground strap/terminals 1x16/M8/200mm | yes | 16 | M8 | 200 | 3 | 35 | 25 |
| 4571130 | Flat ground strap/terminals 1x16/M8/300mm | yes | 16 | M8 | 300 | 3 | 51 | 25 |
| 4571128 | Flat ground strap/terminals 1x25/M8/200mm | yes | 25 | M8 | 200 | 3.5 | 55 | 25 |
| 4571131 | Flat ground strap/terminals 1x25/M8/300mm | yes | 25 | M8 | 300 | 3.5 | 80 | 25 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
* Trade product, no Lapp product.

# KW plastic coil



## Benefits

- Flexibility of the cables is largely preserved
- Spiral-shaped cut tube
- For time-saving cable and wire bundling

## Application range

- For the manufacturing of cable harnesses with branch-offs
- For protection against mechanical stress

## Product features

- Black version: Fire behaviour according to UL 94 HB

## Included

- Article no. 61759940: Winding tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

**General**
Black version: UV-resistant

**Material**
Black version: Polyamide (silikone free and halogene free)
Nature and coloured version: polyethylene

**Temperature range**
Black version: -40°C to +120°C
Natural and coloured Version: -50°C to 85°C

| Article number | Article description | Colour | Bundling area mm | PU (m) |
|---|---|---|---|---|
| **KW plastic coil** | | | | |
| 61600010 | Plastic spiral KW 2 | natural | 2.0 - 7.0 | 50 |
| 61600015 | Plastic spiral KW 2 | black | 2.0 - 7.0 | 50 |
| 61722850 | Plastic spiral KW 2 | blue | 2.0 - 7.0 | 50 |
| 61722856 | Plastic spiral KW 2 | yellow | 2.0 - 7.0 | 50 |
| 61600040 | Plastic spiral KW 5 | natural | 5.0 - 20.0 | 30 |
| 61600045 | Plastic spiral KW 5 | black | 5.0 - 20.0 | 25 |
| 61722851 | Plastic spiral KW 5 | blue | 5.0 - 20.0 | 25 |
| 61600050 | Plastic spiral KW 5 | yellow | 5.0 - 20.0 | 25 |
| 61600070 | Plastic spiral KW 10 | natural | 10.0 - 40.0 | 30 |
| 61722840 | Plastic spiral KW 10 | black | 10.0 - 40.0 | 25 |
| 61722852 | Plastic spiral KW 10 | blue | 10.0 - 40.0 | 25 |
| 61600080 | Plastic spiral KW 10 | yellow | 10.0 - 40.0 | 25 |

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Cable-Eater bunched cable conduit



**Info**

- Now also available as small PUs (2m)

## Benefits

- Reusable
- Very flexible without material fatigue
- Fast and easy assembly through using the cable insertion tools

## Application range

- Bundling and protection for fixed and mobile electrical installations
- Machines
- Robot-building
- Control cabinets
- Office machines and systems for data processing

## Product features

- Good UV-resistance
- Good resistance to: Alcohols, fats, mineral oils, heating oil and petrol

## Included

- Suitable insertion tool
- Bunches cable conduit large PUs on a roll, small PUs in bags with Euro-standard holes

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

**Note**
Halogen-free
Flame-retardant according to UL 94 HB

**Colour delivered**
White, black, light grey

**Material**
Polypropylene (PP)

**Temperature range**
-30°C to +85°C

| Article number | Article description | Colour | Bundling area mm | Inner Ø (mm) | Panel thickness (mm) | Tool | PU (m) |
|---|---|---|---|---|---|---|---|
| **Cable-Eater bunched cable conduit** | | | | | | | |
| 61830302 | SHR-08-PPW | white | 6.0 - 9.0 | 8 | 0.8 | STKP 8 | 100 |
| 61830312 | SHR-15-PPW | white | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 50 |
| 61830322 | SHR-20-PPW | white | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 30 |
| 61830332 | SHR-25-PPW | white | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 20 |
| 61830333 | SHR-32-PPW | white | 29.0 - 32.0 | 32 | 1.3 | STKP 32 | 15 |
| 61830300 | SHR-08-PPB | black | 6.0 - 9.0 | 8 | 0.8 | STKP 8 | 100 |
| 61830310 | SHR-15-PPB | black | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 50 |
| 61830320 | SHR-20-PPB | black | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 30 |
| 61830330 | SHR-25-PPB | black | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 20 |
| 61830335 | SHR-32-PPB | black | 29.0 - 32.0 | 32 | 1.3 | STKP 32 | 15 |
| 61830390 | SHR-08-PPG | light grey | 6.0 - 9.0 | 8 | 0.8 | STKP 8 | 100 |
| 61830391 | SHR-15-PPG | light grey | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 50 |
| 61830392 | SHR-20-PPG | light grey | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 30 |
| 61830393 | SHR-25-PPG | light grey | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 20 |
| 61830394 | SHR-32-PPG | light grey | 29.0 - 32.0 | 32 | 1.3 | STKP 32 | 15 |
| **Small PU** | | | | | | | |
| 61830401 | SHR-15-PPW 2m | white | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 2 |
| 61830402 | SHR-20-PPW 2m | white | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 2 |
| 61830403 | SHR-25-PPW 2m | white | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 2 |
| 61830396 | SHR-15-PPB 2m | black | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 2 |
| 61830397 | SHR-20-PPB 2m | black | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 2 |
| 61830398 | SHR-25-PPB 2m | black | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 2 |
| 61830406 | SHR-15-PPG 2m | light grey | 10.0 - 16.0 | 15 | 0.8 | STKP 15 | 2 |
| 61830407 | SHR-20-PPG 2m | light grey | 17.0 - 21.0 | 20 | 0.9 | STKP 20/25 | 2 |
| 61830408 | SHR-25-PPG 2m | light grey | 21.0 - 28.0 | 25 | 1 | STKP 20/25 | 2 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Spare tool Cable - Eater



## Application range

- Cable pull-in tool for SILVYN® RILL PA6 SINUS and for the Cable-Eater

## Suitable conduits

- SILVYN® SINUS PA6

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

| Article number | Article description | Bundling area mm | Pieces / PU |
|---|---|---|---|
| **Cable Eater tool** | | | |
| 61830340 | STKP 8 | 6.0 - 9.0 | 1 |
| 61830350 | STKP 15 | 10.0 - 16.0 | 1 |
| 61830360 | STKP 20 / 25 | 17.0 - 25.0 | 1 |
| 61830370 | STKP 25 | 21.0 - 28.0 | 1 |
| 61830380 | STKP 32 | 29.0 - 32.0 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Basic Tie cable tie



## Benefits

- High resistance to bases, oils, greases, oil derivates and aromatic solvents
- UV-resistant (black version)

## Application range

- Multipurpose cable tie for many applications

## Norm references / Approvals

- E-File number: E352714
- Fire behaviour according to UL94 V-2

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers
- BASIC cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Material**
Polyamide 6.6
Halogen-free

**Temperature range**
-40°C up to +85°C
Installation temperature:
-10°C up to +60°C

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Tensile strength in N | Pieces / PU |
|---|---|---|---|---|---|---|
| **Natural** | | | | | | |
| 61831001 | Basic Tie 98x2.5 NAT | yes | 98.0 x 2.5 | 1.0 - 21.0 | 80.0 | 100 |
| 61831003 | Basic Tie 160x2.6 NAT | yes | 160.0 x 2.6 | 1.0 - 40.0 | 80.0 | 100 |
| 61831004 | Basic Tie 200x2.6 NAT | yes | 200.0 x 2.6 | 2.0 - 51.0 | 80.0 | 100 |
| 61831005 | Basic Tie 140x3.5 NAT | yes | 140.0 x 3,5 | 2.5 - 32.0 | 180.0 | 100 |
| 61831006 | Basic Tie 200x3.5 NAT | yes | 200.0 x 3,5 | 3.0 - 50.0 | 180.0 | 100 |
| 61831007 | Basic Tie 290x3.5 NAT | yes | 290.0 x 3.5 | 3.0 - 79.0 | 180.0 | 100 |
| 61831013 | Basic Tie 370x3.5 NAT | yes | 370.0 x 3.5 | 2.0 - 103.0 | 180.0 | 100 |
| 61831009 | Basic Tie 160x4.5 NAT | yes | 160.0 x 4.5 | 2.5 - 38.0 | 220.0 | 100 |
| 61831011 | Basic Tie 200x4.5 NAT | yes | 200.0 x 4.5 | 3.0 - 50.0 | 220.0 | 100 |
| 61831014 | Basic Tie 290x4.5 NAT | yes | 290.0 x 4.5 | 3.5 - 78.0 | 220.0 | 100 |
| 61831016 | Basic Tie 360x4.5 NAT | yes | 360.0 x 4,5 | 3.5 - 100.0 | 220.0 | 100 |
| 61831020 | Basic Tie 240x7.8 NAT | yes | 240.0 x 7.8 | 3.5 - 63.0 | 540.0 | 100 |
| 61831021 | Basic Tie 300x7.5 NAT | yes | 300.0 x 7.5 | 4.0 - 80.0 | 540.0 | 100 |
| 61831022 | Basic Tie 365x7.5 NAT | yes | 365.0 x 7.5 | 8.0 - 100.0 | 540.0 | 100 |
| 61831023 | Basic Tie 450x7.5 NAT | yes | 450.0 x 7,5 | 35.0 - 130.0 | 540.0 | 100 |
| 61831024 | Basic Tie 540x7.5 NAT | yes | 540.0 x 7,5 | 35.0 - 158.0 | 540.0 | 100 |
| 61831025 | Basic Tie 750x7.5 NAT | yes | 750.0 x 7,5 | 35.0 - 220.0 | 540.0 | 100 |
| 61831026 | Basic Tie 780x9.0 NAT | yes | 780.0 x 9.0 | 34.0 - 233.0 | 700.0 | 100 |
| **Black (UV-resistant)** | | | | | | |
| 61831041 | Basic Tie 98x2.5 BK | yes | 98.0 x 2.5 | 1.0 - 21.0 | 80.0 | 100 |
| 61831043 | Basic Tie 160x2.6 BK | yes | 160.0 x 2.6 | 1.0 - 40.0 | 80.0 | 100 |
| 61831044 | Basic Tie 200x2.6 BK | yes | 200.0 x 2.6 | 2.0 - 51.0 | 80.0 | 100 |
| 61831045 | Basic Tie 140x3.5 BK | yes | 140.0 x 3,5 | 2.5 - 32.0 | 180.0 | 100 |
| 61831046 | Basic Tie 200x3.5 BK | yes | 200.0 x 3,5 | 3.0 - 50.0 | 180.0 | 100 |
| 61831047 | Basic Tie 290x3.5 BK | yes | 290.0 x 3.5 | 3.0 - 79.0 | 180.0 | 100 |
| 61831053 | Basic Tie 370x3.5 BK | yes | 370.0 x 3.5 | 2.0 - 103.0 | 180.0 | 100 |
| 61831049 | Basic Tie 160x4.5 BK | yes | 160.0 x 4.5 | 2.5 - 38.0 | 220.0 | 100 |
| 61831051 | Basic Tie 200x4.5 BK | yes | 200.0 x 4.5 | 3.0 - 50.0 | 220.0 | 100 |
| 61831054 | Basic Tie 290x4.5 BK | yes | 290.0 x 4.5 | 3.5 - 78.0 | 220.0 | 100 |
| 61831056 | Basic Tie 360x4.5 BK | yes | 360.0 x 4,5 | 3.5 - 100.0 | 220.0 | 100 |
| 61831060 | Basic Tie 240x7.8 BK | yes | 240.0 x 7.8 | 3.5 - 63.0 | 540.0 | 100 |
| 61831061 | Basic Tie 300x7.5 BK | yes | 300.0 x 7.5 | 4.0 - 80.0 | 540.0 | 100 |
| 61831062 | Basic Tie 365x7,5 BK | yes | 365.0 x 7.5 | 8.0 - 100.0 | 540.0 | 100 |
| 61831063 | Basic Tie 450x7.5 BK | yes | 450.0 x 7,5 | 35.0 - 130.0 | 540.0 | 100 |
| 61831064 | Basic Tie 540x7.5 BK | yes | 540.0 x 7,5 | 35.0 - 158.0 | 540.0 | 100 |
| 61831065 | Basic Tie 750x7.5 BK | yes | 750.0 x 7,5 | 35.0 - 220.0 | 540.0 | 100 |
| 61831066 | Basic Tie 780x9.0 BK | yes | 780.0 x 9.0 | 34.0 - 233.0 | 700.0 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Ty-Fast® Cable ties



## Benefits

- The integrally formed polyamide pawl combines low insertion and high locking strength
- Sure grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool

## Application range

- Multipurpose cable tie for many applications

## Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Natural** | | | | | | |
| 61810350 | CABLE TIES TY-FAST® 100-18-M NR | yes | 112.0 x 2.4 | 25.0 | 80 | 1000 |
| 61810360 | CABLE TIES TY-FAST® 125-18-M NR | yes | 136.0 x 2.4 | 32.0 | 80 | 1000 |
| 61810380 | CABLE TIES TY-FAST® 125-40 NR | yes | 141.0 x 3.6 | 32.0 | 180 | 1000 |
| 61810390 | CABLE TIES TY-FAST® 200-40-C NR | yes | 205.0 x 3.6 | 50.0 | 180 | 1000 |
| 61810400 | CABLE TIES TY-FAST® 300-40 NR | yes | 290.0 x 3.6 | 76.0 | 180 | 1000 |
| 61810410 | CABLE TIES TY-FAST® 175-50 NR | yes | 186.0 x 4.6 | 44.0 | 220 | 1000 |
| 61810420 | CABLE TIES TY-FAST® 300-50 NR | yes | 291.0 x 4.6 | 76.0 | 220 | 1000 |
| 61810430 | CABLE TIES TY-FAST® 400-50 NR | yes | 366.0 x 4.6 | 102.0 | 220 | 1000 |
| 61810440 | CABLE TIES TY-FAST® 200-120-D NR | yes | 219.0 x 7.6 | 50.0 | 540 | 500 |
| 61810450 | CABLE TIES TY-FAST® 400-120 NR | yes | 375.0 x 7.6 | 102.0 | 540 | 500 |
| **Black (UV-resistant)** | | | | | | |
| 61810460 | CABLE TIES TY-FAST® 100-18X-M BK | yes | 112.0 x 2.4 | 25.0 | 80 | 1000 |
| 61810470 | CABLE TIES TY-FAST® 125-18X-M BK | yes | 136.0 x 2.4 | 32.0 | 80 | 1000 |
| 61810490 | CABLE TIES TY-FAST® 125-40X BK | yes | 141.0 x 3.6 | 32.0 | 180 | 1000 |
| 61810500 | CABLE TIES TY-FAST® 200-40X-M BK | yes | 205.0 x 3.6 | 50.0 | 180 | 1000 |
| 61810510 | CABLE TIES TY-FAST® 300-40X BK | yes | 290.0 x 3.6 | 76.0 | 180 | 1000 |
| 61810520 | CABLE TIES TY-FAST® 175-50X BK | yes | 186.0 x 4.6 | 44.0 | 220 | 1000 |
| 61810530 | CABLE TIES TY-FAST® 300-50X BK | yes | 291.0 x 4.6 | 76.0 | 220 | 1000 |
| 61810540 | CABLE TIES TY-FAST® 400-50X BK | yes | 366.0 x 4.6 | 102.0 | 220 | 1000 |
| 61810550 | CABLE TIES TY-FAST® 200-120X-D BK | yes | 219.0 x 7.6 | 50.0 | 540 | 500 |
| 61810560 | CABLE TIES TY-FAST® 400-120X BK | yes | 375.0 x 7.6 | 102.0 | 540 | 500 |

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* Trade product, no Lapp product.

ECOLAB

# Detectable Cable ties








## Benefits

- Detectable cable ties with an unique compound that can be detected by X-Ray equipment, metal detectors and visual inspection equipment
- Minimize the risk of product contamination
- The colour blue facilitates visual detection
- Help achieve the HACCP EU-Directive
- Polyamid version: resistant to conventional solvents such as alcohol and ketone, aliphatic and aromatic hydrocarbons such as oil, grease, gasoline and weak alkalis; not resistant to acids (weak or strong) and metallic salts
  Polypropylene version: especially resistant against chemical detergents

## Application range

- Are particularly recommended for applications using detection systems, where cable tie installation residuals (cut tails) are not allowed in the finished product
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical production

## Norm references / Approvals

- Flammability class:
  Ty-Rap® NDT: UL 94 V-2
  Ty-Rap® PDT and Detect: UL 94 HB
- Only the PDT cable ties with steel nose are ECOLAB certified

## Note

- Storage requirements: nylon (polyamide) is, by its nature, susceptible to external influences. Cable ties are mechanically moistened in order to ensure optimal use. As such, they must be stored in a cool, dry location and must not be exposed to direct sunlight. Cable ties are packed in plastic bags to retain moisture; these should remain closed until the cable ties are used

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Blue

**Material**
Polyamide 6.6 or polypropylene with metal parts
Halogen-free and silicone-free

**Temperature range**
-40°C up to +85°C
Installation temperature:
-5°C up to +60°C

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Without steel nose/ PA 6.6** | | | | | | |
| 61723360 | Cable Tie Detect 98x2.5 BU | no | 98.0 x 2.5 | 1.0 - 21.0 | 80.0 | 100 |
| 61723364 | Cable Tie Detect 140x3.5 BU | no | 140.0 x 3.5 | 2.0 - 32.0 | 180.0 | 100 |
| 61723365 | Cable Tie Detect 200x3.5 BU | no | 200.0 x 3.5 | 3.0 - 50.0 | 180.0 | 100 |
| 61723361 | Cable Tie Detect 200x4.5 BU | no | 200.0 x 4.5 | 3.0 - 50.0 | 220.0 | 100 |
| 61723366 | Cable Tie Detect 290x4.5 BU | no | 290.0 x 4.5 | 3.5 - 78.0 | 220.0 | 100 |
| 61723362 | Cable Tie Detect 360x4.5 BU | no | 360.0 x 4.5 | 3.5 - 100.0 | 220.0 | 100 |
| 61723363 | Cable Tie Detect 365x7.5 BU | no | 365.0 x 7.5 | 8.0 - 100.0 | 540.0 | 100 |
| **With steel nose (brand TY-RAP®) / PA 6.6** | | | | | | |
| 61723351 | CABLE TIES TY-RAP® TY523MR-NDT 92x2.3 BU | no | 92.0 x 2.3 | 2.0 - 16.0 | 80 | 100 |
| 61723359 | CABLE TIES TY-RAP® TY524MR-NDT 140X3.6 BU | no | 140.0 x 3.6 | 2.0 - 29.0 | 180.0 | 100 |
| 61723352 | CABLE TIES TY-RAP® TY525MR-NDT 186X4.6 BU | no | 186.0 x 4.6 | 3.5 - 45.0 | 220 | 100 |
| 61723353 | CABLE TIES TY-RAP® TY528MR-NDT 361X4.8 BU | no | 361.0 x 4.8 | 3.5 - 102.0 | 220 | 100 |
| 61723354 | CABLE TIES TY-RAP® TY527MR-NDT 340X7 BU | no | 340.0 x 7.0 | 6.0 - 90.0 | 540 | 100 |
| **With steel nose (brand TY-RAP®) / polypropylene** | | | | | | |
| 61723355 | CABLE TIES TY-RAP® TY523MR-PDT 93X2,3 BU | no | 92.0 x 2.4 | 2.0 - 16.0 | 50 | 100 |
| 61723356 | CABLE TIES TY-RAP® TY525MR-PDT 186X4,6 BU | no | 186.0 x 4.8 | 3.5 - 45.0 | 130 | 100 |
| 61723357 | CABLE TIES TY-RAP® TY528MR-PDT 361X4,8 BU | no | 360.0 x 4.8 | 3.5 - 102.0 | 130 | 100 |
| 61723358 | CABLE TIES TY-RAP® TY527MR-PDT 345X6,9 BU | no | 340.0 x 7.0 | 6.0 - 90.0 | 270 | 100 |

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* Trade product, no Lapp product.

# Ty-Rap® Cable ties with steel nose



# Ty-Rap® UV-stabilised cable ties with steel nose



## Benefits

- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations
- The steel blade is fixed to the tie head and is made from corrosion-resistant, anti-magnetic steel (type 316)

## Application range

**Ty-Rap® Cable ties with steel nose**

- Good quality cable ties with steel nose for demanding environments

**Ty-Rap® UV-stabilised cable ties with steel nose**

- Used for outdoor installation and maintenance of power plants

## Product features

**Ty-Rap® UV-stabilised cable ties with steel nose**

- Contain 2% Carbon to meet military specifications

## Norm references / Approvals

- UL file number TY-RAP®: E49405, see table
- Fire behaviour according to UL94 V-2

## Included

- Items provided with the add-in "B" (e.g. TYB 24 M) are supplied in a handy workbox, where the cable ties are arranged properly

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
**Ty-Rap® Cable ties with steel nose**
Natural colour
**Ty-Rap® UV-stabilised cable ties with steel nose**
Black (RAL 9005), UV-resistant

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Natural** | | | | | | |
| 61715000 | CABLE TIES TY-RAP® TYB 23 M 92X2.4 NA | yes | 92.0 x 2.3 | 2.0 - 16.0 | 80 | 1000 |
| 61716250 | CABLE TIES TY-RAP® TY 232 M 203X2.4 NA | yes | 203.0 x 2.3 | 2.0 - 50.0 | 80 | 1000 |
| 61716310 | CABLE TIES TY-RAP® TY 234 M 356X2.4 NA | yes | 356.0 x 2.3 | 2.0 - 102.0 | 80 | 1000 |
| 61715060 | CABLE TIES TY-RAP® TYB 24 M 140X3.6 NA | yes | 140.0 x 3.6 | 2.0 - 29.0 | 180 | 1000 |
| 61716370 | CABLE TIES TY-RAP® TY 242 M 208X3.6 NA | yes | 208.0 x 3.6 | 2.0 - 50.0 | 180 | 1000 |
| 61715180 | CABLE TIES TY-RAP® TY 26 M 284X3.6 NA | yes | 284.0 x 3.6 | 2.0 - 76.0 | 180 | 1000 |
| 61716430 | CABLE TIES TY-RAP® TY 244 M 368X3.6 NA | yes | 368.0 x 3.6 | 2.0 - 103.0 | 180 | 1000 |
| 61715120 | CABLE TIES TY-RAP® TYB 25 M 186X4.8 NA | yes | 186.0 x 4.8 | 3.5 - 45.0 | 220 | 1000 |
| 61716490 | CABLE TIES TY-RAP® TY 253 M 295X4.8 NA | yes | 290.0 x 4.8 | 3.5 - 78.0 | 220 | 1000 |
| 61715300 | CABLE TIES TY-RAP® TY 28 M 361X4.8 NA | yes | 361.0 x 4.8 | 3.5 - 102.0 | 220 | 1000 |
| 61716550 | CABLE TIES TY-RAP® TY 272 M 223X7.6 NA | yes | 223.0 x 6.9 | 6.0 - 50.0 | 540 | 500 |
| 61715240 | CABLE TIES TY-RAP® TY 27 M 340X7.0 NA | yes | 340.0 x 7.0 | 6.0 - 90.0 | 540 | 500 |
| 61715360 | CABLE TIES TY-RAP® TY 29 M 771X6.9 NA | yes | 771.0 x 6.9 | 6.0 - 229.0 | 540 | 500 |
| **Black (UV-resistant)** | | | | | | |
| 61723010 | CABLE TIES TY-RAP® TYB 23 MX 92X2.3 BK | yes | 92.0 x 2.3 | 2.0 - 16.0 | 80 | 1000 |
| 61723110 | CABLE TIES TY-RAP® TY 232 MX 203X2.3 BK | yes | 203.0 x 2.3 | 2.0 - 50.0 | 80 | 1000 |
| 61723120 | CABLE TIES TY-RAP® TY 234 MX 356X2.3 BK | yes | 356.0 x 2.3 | 2.0 - 102.0 | 80 | 1000 |
| 61723020 | CABLE TIES TY-RAP® TYB 24 MX 140X3.6 BK | yes | 140.0 x 3.6 | 2.0 - 29.0 | 180 | 1000 |
| 61723130 | CABLE TIES TY-RAP® TY 242 MX 208X3.6 BK | yes | 208.0 x 3.6 | 2.0 - 50.0 | 180 | 1000 |
| 61723040 | CABLE TIES TY-RAP® TY 26 MX 284X3.6 BK | yes | 284.0 x 3.6 | 2.0 - 76.0 | 180 | 1000 |
| 61723140 | CABLE TIES TY-RAP® TY 244 MX 368X3.6 BK | yes | 368.0 x 3.6 | 2.0 - 103.0 | 180 | 1000 |
| 61723030 | CABLE TIES TY-RAP® TYB 25 MX 186X4.8 BK | yes | 186.0 x 4.8 | 3.5 - 45.0 | 220 | 1000 |
| 61723150 | CABLE TIES TY-RAP® TY 253 MX 290X4.8 BK | yes | 290.0 x 4.8 | 3.5 - 78.0 | 220 | 1000 |
| 61723060 | CABLE TIES TY-RAP® TY 28 MX 361X4.8 BK | yes | 361.0 x 4.8 | 3.5 - 102.0 | 220 | 1000 |
| 61723160 | CABLE TIES TY-RAP® TY 272 MX 223X6.9 BK | yes | 223.0 x 6.9 | 6.0 - 50.0 | 540 | 500 |
| 61723050 | CABLE TIES TY-RAP® TY 27 MX 340X7.0 BK | yes | 340.0 x 7.0 | 6.0 - 90.0 | 540 | 500 |
| 61723070 | CABLE TIES TY-RAP® TY 29 MX 771X6.9 BK | yes | 771.0 x 6.9 | 6.0 - 229.0 | 540 | 500 |

B = box, otherwise plastic bag
TY-RAP® is a registered trademark of ABB.
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* Trade product, no Lapp product.

# Ty-Rap® Heat-resistant cable ties with steel nose



## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Light green- transparent

**Material**
Heat-resistant polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40 °C to +105 °C

## Benefits

- Contains all the advantages of TY-RAP®, with higher heat-resistance

## Application range

- Can be used in areas exposed to high temperatures such as electrical heating devices or heating installations

## Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

## Design

- Heat-resistant cable ties have the extension “M”

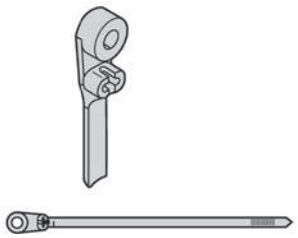
## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Ty-Rap® Heat-resistant cable ties with steel nose** | | | | | | |
| 61723470 | CABLE TIES TY-RAP® TYH 23 M 92X2.4 TR | yes | 92.0 x 2.4 | 2.0 - 16.0 | 80 | 1000 |
| 61723460 | CABLE TIES TY-RAP® TYH 232 M 203X2.4 TR | yes | 203.0 x 2.4 | 2.0 - 50.0 | 80 | 1000 |
| 61723440 | CABLE TIES TY-RAP® TYH 24 M 140X3.6 TR | yes | 140.0 x 3.6 | 2.0 - 29.0 | 130 | 1000 |
| 61723430 | CABLE TIES TY-RAP® TYH 242 M 208X3.6 TR | no | 208.0 x 3.6 | 2.0 - 50.0 | 130 | 1000 |
| 61723410 | CABLE TIES TY-RAP® TYH 26 M 284X3.6 TR | yes | 284.0 x 3.6 | 2.0 - 76.0 | 130 | 1000 |
| 61723420 | CABLE TIES TY-RAP® TYH 25 M 186X4.8 TR | yes | 186.0 x 4.8 | 3.5 - 45.0 | 220 | 1000 |
| 61723380 | CABLE TIES TY-RAP® TYH 28 M 360X4.8 TR | yes | 360.0 x 4.8 | 3.5 - 102.0 | 220 | 1000 |
| 61723390 | CABLE TIES TY-RAP® TYH 272 M 222X7.6 TR | yes | 222.0 x 7.6 | 6.0 - 50.0 | 540 | 500 |
| 61723400 | CABLE TIES TY-RAP® TYH 27 M 340X7 TR | yes | 340.0 x 7.0 | 6.0 - 90.0 | 540 | 500 |
| 61723350 | CABLE TIES TY-RAP® TYH 29 M 771X6.9 NA | yes | 771.0 x 6.9 | 6.0 - 229.0 | 530 | 500 |

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# Ty-Rap® Cable tie with steel nose for srewing on






## Benefits

- Cable ties with fasteners
- Allows installation and bundling in one step
- Steel nose ensures secure and durable binding

## Application range

- For assembly with screws, bolts and rivets
- Simultaneous installation and bundling
- Possible application areas: Cable assemblies, pre- and final installation of parts and bundles, and for maintenance-free installation of cables and ducts

## Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

## Design

- Also deliverable in black and UV-resistant

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Natural colour

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | UL certification | Hole Ø (mm) | Length x width (mm) | Bundling Ø (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Ty-Rap® Cable tie with steel nose for srewing on** | | | | | | | |
| 61715420 | CABLE TIES TY-RAP® TY 33 M 102X2.3 NA | yes | 2.8 | 102.0 x 2.3 | 2.0 - 16.0 | 80 | 1000 |
| 61715480 | CABLE TIES TY-RAP® TY 34 M 151X3.5 NA | yes | 4.2 | 151.0 x 3.5 | 2.0 - 29.0 | 180 | 1000 |
| 61720000 | CABLE TIES TY-RAP® TY 635 M 198X4.8 NA | yes | 3.5 | 198.0 x 4.7 | 3.5 - 45.0 | 220 | 1000 |
| 61715540 | CABLE TIES TY-RAP® TY 35 M 198X4.7 NA | yes | 4.8 | 199.0 x 4.7 | 3.5 - 45.0 | 220 | 1000 |
| 61720070 | CABLE TIES TY-RAP® TY 1435 M 198X4.8 NA | yes | 6.3 | 198.0 x 4.7 | 3.5 - 45.0 | 220 | 1000 |
| 61715600 | CABLE TIES TY-RAP® TY 37 M 356X7.7 NA | yes | 6.3 | 356.0 x 7.7 | 6.0 - 90.0 | 540 | 500 |

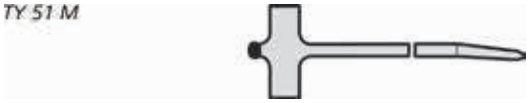
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* Trade product, no Lapp product.

# Ty-Rap® Cable ties with steel nose with labelling area










## Benefits

- Cable ties with marking area
- Allows binding and marking in one step
- Easy assembly as all edges are rounded
- The patented stainless steel locking hook guarantees a secure hold under harsh conditions

## Application range

- For bundling and marking of cables, cable bundles, hydraulic and pneumatic supply lines

## Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

## Design

- TY 51 M: Area positioned at right angle to the cable tie
- TY 53 M/TY 532 M: Area positioned above the lock at right angle to the cable tie

## Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Natural colour

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | UL certification | Length x width (mm) | Bundling Ø (mm) | Labelling surface (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Right-angled surface** | | | | | | | |
| 61716020 | CABLE TIES TY-RAP® TY 51 M 92X2.4 NA | yes | 92.0 x 2.4 | 10.0 - 16.0 | 25 x 8 | 80 | 500 |
| **Parallel surface** | | | | | | | |
| 61715840 | CABLE TIES TY-RAP® TY 46 MD 184X4.8 NA | yes | 184.0 x 4.8 | 9.5 - 45.0 | 30 x 24 | 220 Double | 500 |
| 61715880 | CABLE TIES TY-RAP® TY 46 MT 184X4.8 NA | yes | 184.0 x 4.8 | 9.5 - 45.0 | 46 x 24 | 220 Triple | 500 |
| 61715920 | CABLE TIES TY-RAP® TY 46 MF 184X4.8 NA | yes | 184.0 x 4.8 | 9.5 - 45.0 | 63 x 24 | 220 Quadruple | 250 |
| 61715780 | CABLE TIES TY-RAP® TY 546 M 184X4.8 NA | yes | 184.0 x 4.8 | 9.5 - 45.0 | 13 x 24 | 220 | 100 |
| 61715950 | CABLE TIES TY-RAP® TY 548 M 360X4.8 NA | yes | 360.0 x 4.8 | 19.0 - 102.0 | 13 x 54 | 220 | 100 |
| **Right-angled area above** | | | | | | | |
| 61716080 | CABLE TIES TY-RAP® TY 53 M 102X2.4 NA | yes | 102.0 x 2.4 | 2.0 - 16.0 | 21 x 9 | 80 | 500 |
| 61716560 | CABLE TIES TY-RAP® TY 532 M 212X2.4 NA | yes | 212.0 x 2.4 | 2.0 - 51.0 | 21 x 9 | 80 | 1000 |

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Smaller packing units are available upon request.
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# Quick tie cable ties

### Benefits
- Low-cost, reopenable and reusable cable ties suitable for lightweight loads
- Round profile guarantees high mechanical strength and a firm seal
- Dual-closure design makes it possible to create a hanging loop

### Application range
- When something has to be bundled or fixed quickly at short notice
- For sealing of bags and sacks

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Black (UV-resistant)
Red

**Material**
Polyethylene

**Temperature range**
-40°C to +70°C



| Article number | Article description | Colour | UL certification | Length x width (mm) | Tensile strength (N) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Red** | | | | | | |
| 61710040 | Quick Tie 120x3.5 RD | red | no | 120.0 x 3.5 | 130.0 | 100 |
| 61710041 | Quick Tie 240x3.9 RD | red | no | 240.0 x 3.9 | 180.0 | 100 |
| 61710042 | Quick Tie 320x4.4 RD | red | no | 320.0 x 4.4 | 230.0 | 100 |
| 61710180 | Quick Tie 500x5.7 RD | red | no | 500.0 x 5.7 | 250.0 | 100 |
| 61710043 | Quick Tie 665x6.6 RD | red | no | 665.0 x 6.6 | 370.0 | 100 |
| **Black** | | | | | | |
| 61721101 | Quick Tie 120x3.5 BK | black | no | 120.0 x 3.5 | 130.0 | 100 |
| 61721102 | Quick Tie 240x3.9 BK | black | no | 240.0 x 3.9 | 180.0 | 100 |
| 61721103 | Quick Tie 320x4.4 BK | black | no | 320.0 x 4.4 | 230.0 | 100 |
| 61710190 | Quick Tie 500x5.7 BK | black | no | 500.0 x 5.7 | 250.0 | 100 |
| 61721104 | Quick Tie 665x6.6 BK | black | no | 665.0 x 6.6 | 370.0 | 100 |

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# Flex Tie cable tie

**Info**
- Hook and loop ties for flexible use



### Benefits
- For easy and quick bundling
- Cable friendly: Prevent injuries of cable outer sheating
- Could be reused again
- No corrosion, as hook and loop ties are made of organic textiles
- No sharp edges, reduce the risk of injury

### Application range
- Bundling of cables and conduits
- Vibration resistant (e.g. robotics)
- Where frequently changes or constant access is required (e.g. event technology, laboratories)
- Bundling of sensitive cables (e.g. fiber optic cables, data cables)

### Norm references / Approvals
- Fire behaviour according to UL 94 V2, see table

### Design
- Tie: With slotted head
- Roll: Endless roll à 25m to cut individually
- Strap: Made of hook and separate loop, with buckle

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**Colour delivered**
Black

**Material**
Tie + Roll: PP and Velour PA
Strap: PA 6, PA 6.6., PU coating

| Article number | Article description | Fire behaviour according to UL 94 V2 | Length (mm) | Width (mm) | Pieces / PU |
|---|---|---|---|---|---|
| **Flex Tie cable tie** | | | | | |
| 61823711 | Flex Tie 150x20 | yes | 150 | 20 | 100 |
| 61823712 | Flex Tie 200x20 | yes | 200 | 20 | 100 |
| 61823713 | Flex Tie 330x20 | yes | 330 | 20 | 100 |
| 61823717 | Flex Tie Roll 10 (25m) | yes | | 10 | 1 |
| 61823718 | Flex Tie Roll 20 (25m) | yes | | 20 | 1 |
| 61823719 | Flex Tie Roll 30 (25m) | yes | | 30 | 1 |
| 61823714 | Flex Strap 300x25 | no | 330 | 25 | 10 |
| 61823715 | Flex Strap 360x25 | no | 360 | 25 | 10 |
| 61823716 | Flex Strap 480x25 | no | 480 | 25 | 10 |

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# LS steel cable ties



**Info**

- LS 4.6x100 included in FLEXIMARK® sample bag (article no. M3251010)

## Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Secure ball lock, self-locking
- Minimum space required due to the flat binder heads

## Application range

- For fixing FLEXIMARK® stainless steel marking
- Could be used in any industry with a demanding environment (e.g. oil & gas, railways, F&B)
- Outdoor applications and usage under the most extreme conditions, as corrosion and weathering resistant

## Norm references / Approvals

- DNV 2397
- UL File number: E193947
- Tested according to IEC 62275: 2006
- Achilles JQS certified

## Suitable tools

- Steel Gun HT-338 Cable tie pliers

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

**On request**
Other sizes are available upon request

**Material**
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)
Material thickness: 0,26 mm

**Temperature range**
-80°C to +500°C

| Article number | Article description | Length x width (mm) | Bundling Ø (mm) | Minimum tensile strength (N/mm²) | Pieces / PU |
|---|---|---|---|---|---|
| **Without polyester coating** | | | | | |
| 61812947 | LS 4.6x100 | 100.0 x 4.6 | 21.0 | 45.3 | 100 |
| 61812948 | LS 4.6x125 | 125.0 x 4.6 | 32.0 | 45.3 | 100 |
| 61812949 | LS 4.6x150 | 150.0 x 4.6 | 40.0 | 45.3 | 100 |
| 61812950 | LS 4.6x200 | 200.0 x 4.6 | 51.0 | 45.3 | 100 |
| 61812960 | LS 4.6x360 | 360.0 x 4.6 | 102.0 | 45.3 | 100 |
| 61812970 | LS 4.6x520 | 520.0 x 4.6 | 152.0 | 45.3 | 100 |
| 61812980 | LS 4.6x680 | 680.0 x 4.6 | 203.0 | 45.3 | 100 |
| 61812990 | LS 4.6x840 | 840.0 x 4.6 | 254.0 | 45.3 | 100 |
| 61813000 | LS 7.9x200 | 200.0 x 7.9 | 51.0 | 113.3 | 100 |
| 61813010 | LS 7.9x360 | 360.0 x 7.9 | 102.0 | 113.3 | 100 |
| 61813020 | LS 7.9x520 | 520.0 x 7.9 | 152.0 | 113.3 | 100 |
| 61813030 | LS 7.9x680 | 680.0 x 7.9 | 203.0 | 113.3 | 100 |
| 61813040 | LS 7.9x840 | 840.0 x 7.9 | 254.0 | 113.3 | 100 |
| 61813050 | LS 7.9x1010 | 1,016.0 x 7.9 | 305.0 | 113.3 | 100 |
| **With polyester coating** | | | | | |
| 61813085 | LSC 4.6x100 | 100.0 x 4.6 | 21.0 | 45.3 | 100 |
| 61813086 | LSC 4.6x125 | 125.0 x 4.6 | 32.0 | 45.3 | 100 |
| 61813087 | LSC 4.6x150 | 150.0 x 4.6 | 40.0 | 45.3 | 100 |
| 61813088 | LSC 4.6x200 | 200.0 x 4.6 | 51.0 | 45.3 | 100 |
| 61813089 | LSC 4.6x360 | 360.0 x 4.6 | 102.0 | 45.3 | 100 |
| 61813090 | LSC 4.6x520 | 520.0 x 4.6 | 152.0 | 45.3 | 100 |
| 61813091 | LSC 4.6x680 | 680.0 x 4.6 | 203.0 | 45.3 | 100 |
| 61813092 | LSC 4.6x840 | 840.0 x 4.6 | 254.0 | 45.3 | 100 |
| 61813093 | LSC 7.9x200 | 200.0 x 7.9 | 51.0 | 113.3 | 100 |
| 61813094 | LSC 7.9x360 | 360.0 x 7.9 | 102.0 | 113.3 | 100 |
| 61813096 | LSC 7.9x520 | 520.0 x 7.9 | 152.0 | 113.3 | 100 |
| 61813097 | LSC 7.9x680 | 680.0 x 7.9 | 203.0 | 113.3 | 100 |
| 61813098 | LSC 7.9x840 | 840.0 x 7.9 | 254.0 | 113.3 | 100 |

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# Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

**Info**

- Improved push ring and optimized blade and drawbar suspension







## Benefits

- Tip can be rotated 360° for easy assembly
- Adjustable tension-setting and automatic cutting mechanism
- Large feed-opening (25,4 mm width) facilitates inserting of the cable ties
- Ergonomic design (rounded design) and user-friendliness
- Reduced user stress and strain

## Application range

- Cable tie gun for plastic cable ties
- Allows quick and economical binding, fixing and mounting of plastic cable ties
- Increased service life due to the optimal tension setting for each cable tie
- Waste prevention on the floor - cable tie rests were prevented from falling down

## Product features

- Adjustable grip diameter enables adaption to the hand size of the user
- Anti-recoil mechanism prevents shaking
- Easy and practical storage of the replacement blades inside the tool (one replacemet blade is included inside the tool)
- Lightweight
- Nose made of stainless steel guarantees a longer lifetime of the tool

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description: Cable tie tool

**Caution**
Tension is manually adjustable

**Note**
Length x width x height:
178x127x38 mm
ERG 50: 65-83 N for setting 1,
175-220 N for setting 8
ERG 120: 175-250 N for setting 1,
450-580 N for setting 8

**Colour delivered**
ERG 50: Black head
ERG 120: Orange head

**Material**
Shock-resistant polymer
Soft rubber grip

| Article number | Article description | For cable ties | Cable tie width (mm) | Weight (kg) | Pieces / PU |
|---|---|---|---|---|---|
| **Ty-Gun ERG 50** | | | | | |
| 62120120 | Ty-Gun ERG 50 | Plastic | 2.4 - 4.8 | 0.26 | 1 |
| 62120121 | Ty-Gun ERG 50 spare blades | Plastic | 2.4 - 4.8 | | 2 |
| **Ty-Gun ERG 120** | | | | | |
| 62120125 | Ty-Gun ERG 120 | Plastic | 4.8 - 7.6 | 0.278 | 1 |
| 62120126 | Ty-Gun ERG 120B spare blades | Plastic | 4.8 - 7.6 | | 1 |

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* Trade product, no Lapp product.

## BASIC cable tie pliers



### Benefits

- The tightening force can be adapted gradually:
  Setting 0: 29,4N
  Setting 1: 58,9N
  Setting 2: 98,1N
  Setting 3: 127,5N
- Low-cost starter product

### Application range

- Cable tie gun for plastic cable ties
- For tightening and cutting cable ties

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description:
Cable tie tool

| Article number | Article description | For cable ties | Cable tie width (mm) | PU |
|---|---|---|---|---|
| **BASIC cable tie pliers** | | | | |
| 62120321 | BASIC Cable tie tool | Plastic | 2.2 - 4.8 | 1 |

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## Steel Gun HT-338 Cable tie pliers




### Benefits

- Handy processing tool for stainless steel ties (up to 0,3 mm thick)
- Cable tie is automatically cut at its end once the required tension is achieved
- Sharp edges are avoided
- Stripping force can be adjusted in increments

### Application range

- For stainless steel cable ties

### Note

- Guaranteed up to 2.000 pulls
- Use the adjusting screw to receive a clean cut - the right tension is depending on the type of cable used
- Further spare parts are available

### Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description:
Cable tie tool

| Article number | Article description | For cable ties | Max. cable tie width (mm) | D x V mm | Weight (kg) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Steel Gun HT-338 Cable tie pliers** | | | | | | |
| 83250022 | FLEXIMARK® HT-338 | Stainless steel | 7.9 | 178 x 140 | 0.56 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Tie socket self-adhesive

### Benefits
- Option for cross-mounting / double-mounting on the crossover points of the cable harness
- Easy to handle

### Application range
- The cable ties are slotted through the eyelets for fixing cables or other items to the wall
- Wiring of switch cabinets, motor vehicles and office machines, etc.

### Norm references / Approvals
- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

### Note
- Walls must be smooth and grease-free
- Minimum adhesive application time: 10 sec, recommended adhesive curing time: 24 h

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

**Colour delivered**
Black
Natural colour

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-15 °C to +50 °C
Minimum working temperature: +10°C



| Article number | Article description | Colour | Diameter (mm) | Tie width (mm) | Length x width (mm) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Tie socket self-adhesive** | | | | | | |
| 61718612 | Adhesive socket 19 x 19 NA | natural | 3.2 | 3.6 | 19.0 x 19.0 | 100 |
| 61718611 | Adhesive socket 19 x 19 BK | black | 3.2 | 3.6 | 19.0 x 19.0 | 100 |
| 61718614 | Adhesive socket 28 x 28 NA | natural | 5,3 | 5.3 | 28.0 x 28.0 | 100 |
| 61718613 | Adhesive socket 28 x 28 BK | black | 5,3 | 5.3 | 28.0 x 28.0 | 100 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Mounting socket with saddle

### Benefits
- Compact construction ensures high stability
- Prism-shaped saddle of this mounting socket enables torsion-safe fastening and bundling of cables

### Application range
- Fastening elements for cable ties
- For fastening with screws or rivets
- Typical areas of application: Process control systems, control cabinet manufacturing and mechanical engineering

### Norm references / Approvals
- UL 94 V-2

### Included
- Without screws, rivets, etc.

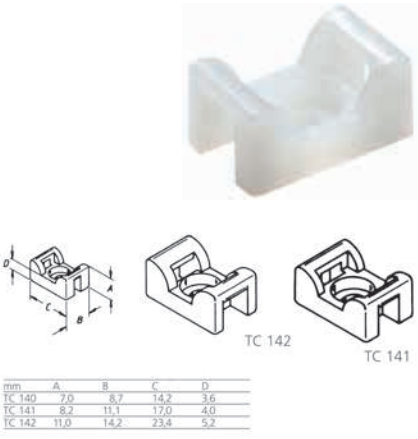
### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

**Colour delivered**
White

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C



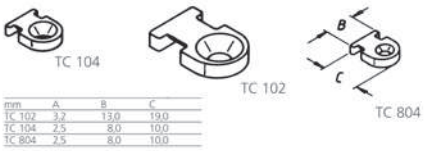

| mm | A | B | C | D |
|---|---|---|---|---|
| TC 140 | 7,0 | 8,7 | 14,2 | 3,6 |
| TC 141 | 8,2 | 11,1 | 17,0 | 4,0 |
| TC 142 | 11,0 | 14,2 | 23,4 | 5,2 |

| Article number | Article description | Fastening type | Material | Diameter (mm) | Tie width (mm) | Weight (g/100 pieces) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Mounting socket with saddle** | | | | | | | |
| 61724920 | TC 140 | screwing | PA 6.6 | 2.8 | 2.4 | 47 | 500 |
| 61724510 | TC 141 | screwing | PA 6.6 | 3.5 | 4.8 | 77 | 500 |
| 61724910 | TC 142 | screwing | PA 6.6 | 5.2 | 7.6 | 120 | 500 |

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* Trade product, no Lapp product.

## Tie small socket






| mm | A | B | C |
|---|---|---|---|
| TC 102 | 3.2 | 13.0 | 19.0 |
| TC 104 | 2.5 | 8.0 | 10.0 |
| TC 804 | 2.5 | 8.0 | 10.0 |

### Benefits
- Particular small and low design
- Easy to handle

### Application range
- Fastening elements for cable ties
- Fastening with counter-sunk screws or rivets
- Typical areas of application: Control cabinet manufacture, motor vehicles, office machines

### Norm references / Approvals
- File number: E49405
- UL 94 V-2

### Included
- Without screws, rivets, etc.

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

**Colour delivered**
Natural colour

**Material**
Polyamide 6.6
Halogen-free and silicone-free

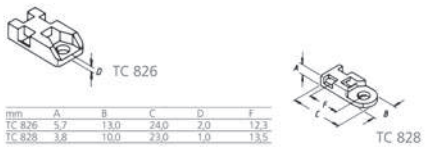
**Temperature range**
-40°C to +85°C

| Article number | Article description | Fastening type | Material | Diameter (mm) | Tie width (mm) | Weight (g/100 pieces) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Tie small socket** | | | | | | | |
| 61724400 | TC 102 | screwing | PA 6.6 | 4,4 | 4.8 | 50 | 1000 |
| 61724420 | TC 104 | screwing | PA 6.6 | 3,4 | 2.4 | 11 | 1000 |
| 61724720 | TC 804 | screwing | PA 6.6 | 2.4 | 2.4 | 11 | 1000 |

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* Trade product, no Lapp product.

## Tie screw socket






| mm | A | B | C | D | F |
|---|---|---|---|---|---|
| TC 826 | 5.7 | 13.0 | 24.0 | 2.0 | 12.3 |
| TC 828 | 3.8 | 10.0 | 23.0 | 1.0 | 13.5 |

### Benefits
- Low overall height
- Possibility for cross mounting

### Application range
- Fastening elements for cable ties
- For fastening with screws or rivets
- Typical areas of application: Control cabinet manufacture, motor vehicles, office machines

### Norm references / Approvals
- File number: E49405
- UL 94 V-2

### Included
- Delivered without screws

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

**Colour delivered**
Natural colour

**Material**
Polyamide 6.6
Halogen-free and silicone-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | Fastening type | Material | Diameter (mm) | Tie width (mm) | Weight (g/100 pieces) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Tie screw socket** | | | | | | | |
| 61724810 | TC 826 | screwing | PA 6.6 | 4.2 | 4.8 | 197 | 1000 |
| 61724820 | TC 828 | screwing | PA 6.6 | 4.2 | 4.8 | 40 | 1000 |

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## Aluminium screw socket

### Benefits
- Excellent in matching contours
- Low height and low weight
- Heat-resistant
- Non-aging

### Application range
- Fastening elements for cable ties

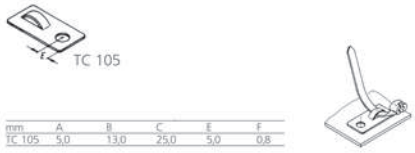
### Included
- Delivered without screws

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

**Material**
Aluminium (3003, ASTMB-209)

**Temperature range**
-100°C to +450°C




| Article number | Article description | Fastening type | Material | Tie width (mm) | Weight (g/100 pieces) | Pieces / PU |
|---|---|---|---|---|---|---|
| **Aluminium screw socket** | | | | | | |
| 61724430 | TC 105 | screwing | aluminium | 4.8 | 67 | 1000 |

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* Trade product, no Lapp product.

## CC cord clips

### Benefits
- The special support is designed for the quick insertion and removal of one or more cables without compromising the cable insulation
- Special mounting preparations are no longer necessary

### Application range
- Fastening elements for cables and conductors
- Nylon dual-adhesive clips
- Excellent for laying several cables in parallel
- Suitable for cables up to an outer diameter of 14,5 mm

### Norm references / Approvals
- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

### Technical data
**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

**General**
Self-adhesive on many surfaces

**On request**
Upon request: Black colour

**Colour delivered**
Natural colour

**Material**
Polyamide 6.6

**Temperature range**
-40°C to +85°C

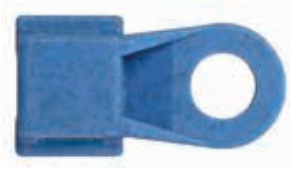


| Article number | Article description | Max. bundle Ø (mm) | Socket area x height (mm) | Pieces / PU |
|---|---|---|---|---|
| **CC cord clips** | | | | |
| 61723810 | CC 5 | 4.5 | 19 / 19 x 10 | 100 |
| 61723820 | CC 11 | 8.5 | 26 / 26 x 12 | 100 |
| 61723840 | CC 21 | 14.5 | 26 / 26 x 16 | 100 |

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# Detectable cable tie sockets







## Benefits

- Retrievable cable tie sockets with a special polymer compound that activates metal detectors, X-ray equipment and visual detection systems
- Minimize the risk of product contamination
- The colour blue facilitates visual detection
- Polyamid version: Resistant to conventional solvents such as alcohol and ketone, aliphatic and aromatic hydrocarbons such as oil, grease, gasoline and weak alkalis; not resistant to acids (weak or strong) and metallic salts
  Polypropylene version: Especially resistant against chemical detergents
- Help achieve the HACCP EU-Directive

## Application range

- Are recommended for applications using detection systems to detect foreign objects where plastic residuals are not allowed in the finished product
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical production

## Norm references / Approvals

- UL 94 V-2

## Included

- Delivered without screws

## Technical data

**Colour delivered**
Blue

**Material**
Polyamide 6.6 or polypropylene with metal parts
Halogen-free

**Temperature range**
-40°C to +85°C

| Article number | Article description | Fastening type | Material | Diameter (mm) | Tie width (mm) | Length x width (mm) | Pieces / PU |
|---|---|---|---|---|---|---|---|
| **Socket with 4 entries (Picture 1)** | | | | | | | |
| 61724100 | Socket Detect XS PA | screwing | PA 6.6 with metal parts | 3 | 3.6 | 13.0 x 13.0 | 100 |
| 61724101 | Socket Detect S PA | screwing | PA 6.6 with metal parts | 3 | 3.6 | 20.0 x 20.0 | 100 |
| 61724102 | Socket Detect M PA | screwing | PA 6.6 with metal parts | 4,5 | 4.8 | 28.0 x 28.0 | 100 |
| 61724103 | Socket Detect L PA | screwing | PA 6.6 with metal parts | 4,5 | 7.6 | 38.0 x 38.0 | 100 |
| 61724107 | Socket Detect S PP | screwing | PP with metal parts | 3 | 3.6 | 19.1 x 19.1 | 100 |
| 61724108 | Socket Detect M PP | screwing | PP with metal parts | 3 | 7.6 | 29.0 x 29.0 | 100 |
| **Small Socket (Picture 2)** | | | | | | | |
| 61724104 | Small Socket Detect PA | screwing | PA 6.6 with metal parts | 3 | 4.8 | 21.2 x 10.0 | 100 |
| 61724109 | Small Socket Detect PP | screwing | PP with metal parts | 4,4 | 4.8 | 19.1 x 12.7 | 1000 |
| **Socket with saddle (Picture 3)** | | | | | | | |
| 61724105 | Saddle Socket Detect XS PA | screwing | PA 6.6 with metal parts | 4,3 | 4.7 | 14.9 x 9.5 | 100 |
| 61724106 | Saddle Socket Detect S PA | screwing | PA 6.6 with metal parts | 4,5 | 9 | 22.2 x 15.9 | 100 |
| 61724110 | Saddle Socket Detect XS PP | screwing | PP with metal parts | 3,8 | 4.8 | 17.0 x 11.1 | 100 |
| 61724111 | Saddle Socket Detect S PP | screwing | PP with metal parts | 5.2 | 7.6 | 23.4 x 14.2 | 100 |

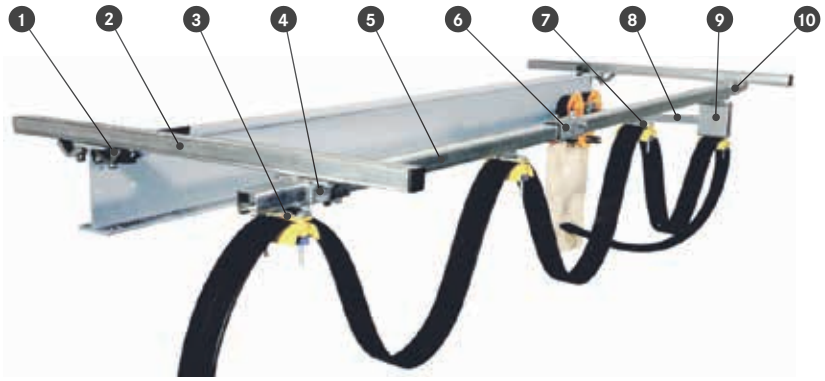
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# Cable Trolley Systems Overview

All cable trolley systems are available as a flat cable system or round cable system. Various mounting options are available:
- C-profile rails with wall brackets or directly on beams / ceilings
- with a steel wire
- or on an I-beam

| Mounting | Picture | Characteristics | Application areas |
|---|---|---|---|
| **C30** |  | • Suitable for C profiles 30 x 32mm<br>• Max. cable diameter round: 36mm<br>• Max. cable dimensions flat: 30 x 54mm<br>• Max. cable load: 20kg<br>• Material: Galvanized steel | • Mounted offset to the beam, thus more flexible<br>• Wall mounting possible<br>• Crane and conveying machinery, hoisting equipment<br>• E.g. indoor cranes, sawmills, ... |
| **C40** |  | • Suitable for C profiles 40 x 40mm<br>• Max. cable diameter round: 36mm<br>• Max. cable dimensions flat: 35 x 132mm<br>• Max. cable load: 32kg<br>• Material: Galvanized steel | • For higher weights and wider cable dimensions |
| **C30 Stainless Steel** |  | • Suitable for C profiles 30 x 32mm<br>• Max. cable diameter round: 36mm<br>• Max. cable dimensions flat: 30 x 54mm<br>• Max. cable load: 20kg<br>• Material: Stainless steel | • For demanding environments<br>• E.g. washing plants, food and beverage industry, harbours |
| **Steel Wire** |  | • Suitable for steel wire<br>• Max. cable diameter round: 36mm<br>• Max. cable dimensions flat: 15 x 44mm<br>• Max. cable load: 6kg<br>• Material: Galvanized steel | • For cables with lower weight<br>• E.g. pendant stations |
| **I-Beam** |  | • Suitable for I-beam<br>• Max. cable diameter round: 36mm<br>• Max. cable dimensions flat: 15 x 54mm<br>• Max. cable load: 20kg<br>• Material: Galvanized steel | • Less mounting space required as there is offset to the beam |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.




1. Girder clips
2. Support arm
3. End clamp
4. Support brackets for flexible mounting
5. C-profile rail
6. Track coupler
7. Cable trolley
8. Towing arm
9. Towing trolley
10. End stop

# Cable trolley system for C-rails



**Info**

- C30 and C40 System in GALVANIZED steel
- For steel wire and I-beam system refer to the web catalogue
- Configuration tool on our homepage

## Benefits

- Gentle cable clamps prevent the cables from sharp bends
- Dustproof ball bearings (wheels) guarantee smooth running in the rails

## Application range

- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Not suitable for applications in explosive environments

## Note

- Round- and flat cables are not allowed to be combined side by side or below each other
- Don't assemble more than three clamps for round cables below each other
- Bending radius on the bracket corresponds to a fixed installation
- Cable trolleys with suffix "b" are suitable for cables with a larger bending radius (see data sheet)

## Product Make-up

- The installation of a system depends on various criteria, e.g. maximum cable sl ack, cable weight, and operating length

## Included

- Delivery length of the C-profile 6 m

## Suitable conduits

- Compressed-air hoses can be installed as well

## Technical data

**Classification ETIM 5/6**
ETIM 8 Class-ID: EC002935
ETIM 8 Class-Description: Accessories for cable carrying system

**General**
Max. cable load:
C30 System: 20 kg
C40 System: 32 kg

**Material**
Metal parts: Galvanized steel
Clamps: Polyamide 6

**Temperature range**
-40°C to +120°C

| Article number | Article designation | System | Max. flat cable dimensions mm | max. round cable diameter mm | Pieces / PU |
|---|---|---|---|---|---|
| **Cable trolley flat cables** | | | | | |
| 62200421 | Cable trolley flat C30 15x54 | C30 | 15 x 54 | | 1 |
| 62200442 | Cable trolley flat C30 30x54 | C30 | 30 x 54 | | 1 |
| 62200477 | Cable trolley flat C30 22x54 b | C30 | 22 x 54 | | 1 |
| 62200420 | Towing trolley flat C30 30x54 | C30 | 30 x 54 | | 1 |
| 62200482 | Towing trolley flat C30 22x54 b | C30 | 22 x 54 | | 1 |
| 62200422 | End clamp flat C30 30x54 | C30 | 30 x 54 | | 1 |
| 62200483 | End clamp flat C30 22x54 b | C30 | 22 x 54 | | 1 |
| 62200464 | Cable trolley flat C40 22x52 | C40 | 22 x 52 | | 1 |
| 62200479 | Cable trolley flat C40 22x72 | C40 | 22 x 72 | | 1 |
| 62200419 | Cable trolley flat C40 22x97 | C40 | 22 x 97 | | 1 |
| 62200480 | Cable trolley flat C40 22x132 | C40 | 22 x 132 | | 1 |
| 62200446 | Cable trolley flat C40 35x72 | C40 | 35 x 72 | | 1 |
| 62200457 | Cable trolley flat C40 35x97 | C40 | 35 x 97 | | 1 |
| 62204505 | Cable trolley flat C40 35x132 | C40 | 35 x 132 | | 1 |
| 62200465 | Towing trolley flat C40 22x52 | C40 | 22 x 52 | | 1 |
| 62200488 | Towing trolley flat C40 22x72 | C40 | 22 x 72 | | 1 |
| 62200418 | Towing trolley flat C40 22x97 | C40 | 22 x 97 | | 1 |
| 62200489 | Towing trolley flat C40 22x132 | C40 | 22 x 132 | | 1 |
| 62200447 | Towing trolley flat C40 35x72 | C40 | 35 x 72 | | 1 |
| 62200458 | Towing trolley flat C40 35x97 | C40 | 35 x 97 | | |
| 62200466 | Towing trolley flat C40 35x132 | C40 | 35 x 132 | | 1 |
| 62200484 | End clamp flat C40 22x52 | C40 | 22 x 52 | | 1 |
| 62200485 | End clamp flat C40 22x72 | C40 | 22 x 72 | | 1 |
| 62200417 | End clamp flat C40 22x97 | C40 | 22 x 97 | | 1 |
| 62200486 | End clamp flat C40 22x132 | C40 | 22 x 132 | | 1 |
| 62200448 | End clamp flat C40 35x72 | C40 | 35 x 72 | | 1 |
| 62200459 | End clamp flat C40 35x97 | C40 | 35 x 97 | | 1 |
| 62204504 | End clamp flat C40 35x132 | C40 | 35 x 132 | | 1 |
| **Cable trolley round cable** | | | | | |
| 62200434 | Cable trolley round C30 | C30 | | | 1 |
| 62200435 | Towing trolley round C30 | C30 | | | 1 |
| 62200478 | Cable trolley round C40 | C40 | | | 1 |
| 62200481 | Towing trolley round C40 | C40 | | | 1 |
| 62200437 | Clamp round 10-16mm | | | 10 - 16 | 1 |
| 62200438 | Clamp round 17-25mm | | | 17 - 25 | 1 |
| 62200439 | Clamp round 26-36mm | | | 26 - 36 | 1 |
| 62200436 | End clamp round | C30, C40 | | | 1 |

| Article number | Article designation | System | Max. flat cable dimensions mm | max. round cable diameter mm | Pieces / PU |
|---|---|---|---|---|---|
| **Fastening components** | | | | | |
| 62200440 | C Profile rail 6m C30 | C30 | | | 1 |
| 62200424 | Track coupler C30 | C30 | | | 1 |
| 62200427 | Support brackets flex. C30 | C30 | | | 1 |
| 62200429 | Support brackets wall C30 | C30 | | | 1 |
| 62200425 | End stop C30 | C30 | | | 1 |
| 62200432 | Support arm 800mm C30 | C30 | | | 1 |
| 62200444 | C Profile rail 6m C40 | C40 | | | 1 |
| 62200445 | Track coupler C40 | C40 | | | 1 |
| 62200456 | Support brackets flex. C40 | C40 | | | 1 |
| 62200461 | Support brackets wall C40 | C40 | | | 1 |
| 62200449 | End stop C40 | C40 | | | 1 |
| 62200467 | Support arm 800mm C40 | C40 | | | 1 |
| 62200460 | Wall bracket | C30, C40 | | | 1 |
| 62200430 | Towing arm 400mm | C30, C40 | | | 1 |
| 62200431 | Towing arm 630mm | C30, C40 | | | 1 |
| 62200433 | Girder clips | C30, C40 | | | 1 |

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# Cable trolley system for C-rails stainless steel

**Info**

- Configuration tool on our homepage

## Benefits

- Gentle cable clamps prevent the cables from sharp bends
- Dustproof ball bearings (wheels) guarantee smooth running in the rails

## Application range

- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Washing plants
- Not suitable for applications in explosive environments

## Note

- Round- and flat cables are not allowed to be combined side by side or below each other
- Don‘t assemble more than three clamps for round cables below each other
- Bending radius on the bracket corresponds to a fixed installation

## Product Make-up

- The installation of a system depends on various criteria, e.g. maximum cable slack, cable weight, and operating length

## Included

- Delivery length of the C-profile 6 m

## Suitable conduits

- Compressed-air hoses can be installed as well

## Technical data

**General**
Max. cable load: 20 kg

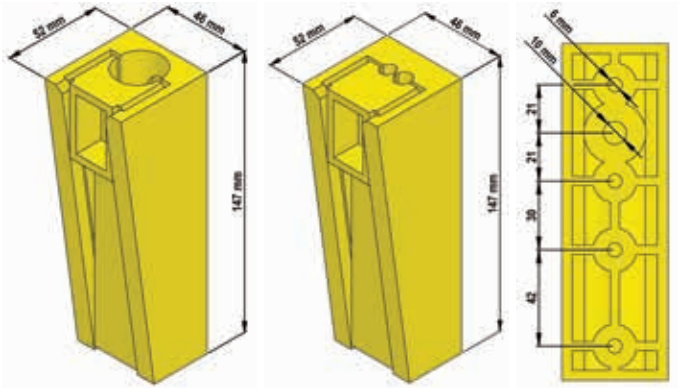
**Material**
Metal parts: Stainless steel
Nuts and bolts: Stainless steel
Clamps: Polyamide

**Temperature range**
-40°C to +120°C

| Article number | Article designation | System | Max. flat cable dimensions mm | max. round cable diameter mm | Pieces / PU |
|---|---|---|---|---|---|
| **Cable trolley flat cables** | | | | | |
| 62200453 | Cable trolley flat C30 15x54 stainless | C30 stainless steel | 15 x 54 | | 1 |
| 62200462 | Cable trolley flat C30 30x54 stainless | C30 stainless steel | 30 x 54 | | 1 |
| 62200630 | Towing trolley flat C30 30x54 stainless | C30 stainless steel | 30 x 54 | | 1 |
| 62200640 | End clamp flat C30 30x54 stainless | C30 stainless steel | 30 x 54 | | 1 |
| **Cable trolley round cable** | | | | | |
| 62200120 | Cable trolley round C30 stainless | C30 stainless steel | | | 1 |
| 62200680 | Towing trolley round C30 stainless | C30 stainless steel | | | 1 |
| 62200130 | Clamp round 10-16mm stainless | C30 stainless steel | | 10 - 16 | 1 |
| 62200463 | Clamp round 17-25mm stainless | C30 stainless steel | | 17 - 25 | 1 |
| 62200700 | Clamp round 26-36mm stainless | C30 stainless steel | | 26 - 36 | 1 |
| 62200690 | End clamp round stainless | C30 stainless steel | | | 1 |
| **Fastening components** | | | | | |
| 62200454 | C Profile rail 6m C30 stainless | C30 stainless steel | | | 1 |
| 62200600 | Track coupler C30 stainless | C30 stainless steel | | | 1 |
| 62200610 | Support brackets flex. C30 stainless | C30 stainless steel | | | 1 |
| 62200487 | Support brackets wall C30 stainless | C30 stainless steel | | | 1 |
| 62200620 | End stop C30 stainless | C30 stainless steel | | | 1 |
| 62200660 | Support arm 800mm C30 stainless | C30 stainless steel | | | 1 |
| 62200650 | Towing arm 400mm stainless | C30 stainless steel | | | 1 |
| 62200670 | Girder clips stainless | C30 stainless steel | | | 1 |

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## RKK Round cable wedge clamps



### Benefits

- The wedged clamps hold the cable without damaging it and without restricting the necessary movement of the cable

### Application range

- Mounting of round control cables

### Product Make-up

- RKK 01 for 2 cables (7-10mm and 8-11mm)

**Info**

- Suitable installation sheets in the web catalog

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

**Note**
Clamping force: 343N

**Material**
Polyamide 6.6 - halogen-free

**Temperature range**
-20°C to +50°C

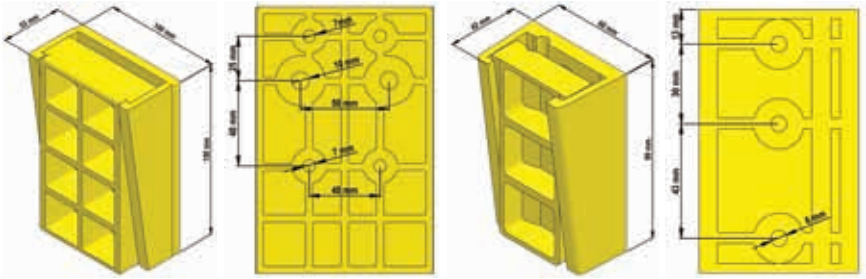
| Article number | Article designation | Number of cables | For cable outer Ø (mm) | Weight (g) | Pieces / PU |
|---|---|---|---|---|---|
| **RKK Round cable wedge clamps** | | | | | |
| 52026020 | RKK 01 | 2 | 7.0 - 11.0 | 200 | 1 |
| 52026024 | RKK 02 | 1 | 18.0 - 21.5 | 180 | 1 |
| 52026028 | RKK 04 | 1 | 24.5 - 26.0 | 150 | 1 |
| 52026030 | RKK 05 | 1 | 19.0 - 24.0 | 170 | 1 |
| 52026022 | RKK 06 | 1 | 11.5 - 14.0 | 184 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- MP 11/13/12/14 installation sheets

## FKK Flat cable wedge clamps



### Benefits

- On the shaft side, the mounting plate can be screwed onto the wall or bolted or welded to the rail bracket
- The mounting plate can be bolted or welded to the lift cage

### Application range

- Mounting flat control cables

### Product Make-up

- The small wedge-shaped cable clamp can hold up to 2 flat cables, the big one up to 3 flat cables

### Suitable cables

- ÖLFLEX® LIFT F

**Info**

- Suitable installation sheets in the web catalog

### Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002407
ETIM 5.0/6.0 Class-Description: Accessories for installation rail current/data cable

**Info**
Clamping force (at overall cable thickness):
FKK 08: 2-10mm = 600-800N
FKK 07: 2-9mm / 16-17mm = 800N
Minimum insert depth for wedge:
FKK 08: 60% = 60mm
FKK 07: 60% = 90mm

**Material**
Polyamide 6.6 - halogen-free

**Temperature range**
Operating temperature: -20°C to +50°C

| Article number | Article designation | Number of cables | Max. total cable length (mm) | Weight (g) | Pieces / PU |
|---|---|---|---|---|---|
| **FKK Flat cable wedge clamps** | | | | | |
| 52026051 | FKK 08 | 1 - 2 | 50 x 10 | 103 | 1 |
| 52026050 | FKK 07 | 1 - 3 | 90x17 | 349 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- MP 11/13/12/14 installation sheets

# EKK single clamp / DKK double clamp



EKK single clamp



DKK double clamp

## Benefits

- Secure protection without restricting the mobility of the cable cores
- Wide clamping range

## Application range

- Simple and reliable mounting clamps for lift control cables

## Note

- Installation guidelines for ÖLFLEX® -LIFT RH and RS lift control cables can be found in the appendix T5
- Maximum load for each clamp: 800 N (80 kg)
- Only for vertical assembly

## Included

- Impact anchor, screws and safety discs are supplied as installation accessories

## Technical data

**Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

**Temperature range**
High mechanical load: +65 °C
Low mechaniical load: +100 °C

| Article number | Article designation | For cable Ø (mm) | Length x width x height (mm) | Weight (kg/piece) | Pieces / PU |
|---|---|---|---|---|---|
| **Single clamp** | | | | | |
| 52026000 | EKK 18 | 15 - 18 | 125 x 45 x 120 | 1.4 | 1 |
| 52026011 | EKK 26 | 19 - 26 | 125 x 45 x 120 | 1.4 | 1 |
| **DKK** | | | | | |
| 52026010 | DKK 18 | 15 - 18 | 125 x 85 x 120 | 2 | 1 |
| 52026012 | DKK 26 | 19 - 26 | 125 x 85 x 120 | 2 | 1 |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# CHAMPION Drum dispenser



**Info**

- For professional and gentle unwinding of even sensitive cables

## Benefits

- Robust construction with 200 kg load capacity
- Safer stability thanks to noise-reducing rubber feet
- Easily adjustable carrier rollers with 3 different positions
- Maintenance-free

## Application range

- Drum dispenser for everyday use in the workshop or on the construction site
- Also as storage solution in the workshop
- With additional rollers for mobile use

## Product features

- For drum diameter from 150 up to 900mm
- Available in two sizes for drums up to 520 or 670mm width
- Lightweight hybrid frame made of glass fiber reinforced polyamide and aluminum
- Provided with 4 non-slip rubber feet
- Optionally with 4 rollers for drum transport

## Technical data

**Dimensions**
52: 577x565x120mm
67: 727x565x120mm

**General data**
Weight:
52: 7.2kg
67: 9.0kg
Material: glass-fiber reinforced polyamide and aluminium

| Article number | Article designation |
|---|---|
| **CHAMPION Drum dispenser** | |
| 85008070 | CHAMPION 52 |
| 85008071 | CHAMPION 67 |
| 85008072 | CHAMPION Steering rollers set |
| 85008073 | CHAMPION Rubber feet (4 pc) |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Drum cardboard

**Info**

- The cardboard can also be ordered filled with a cable. In this case, please contact our customer service



## Benefits

- Simple unwinding directly from the box
- Can be stacked at the Location
- Dispenser solution (reusable)
- Cardboard provides protection against damage and contamination

## Application range

- Transporting, storing and unwinding of cable drums

## Product features

- Folding and tilting system allows easy insertion of the drum
- Suitable for drums with a flange diameter of 40cm
- Manual transport by means of carrier handles
- For unwinding, the cable is simply pulled through the opening in the cardboard

## Technical data

**Dimensions**
Drum width: up to 40cm
Dimensions:
L=480, W=430, H=450mm

**General data**
Max. load: 30 kg

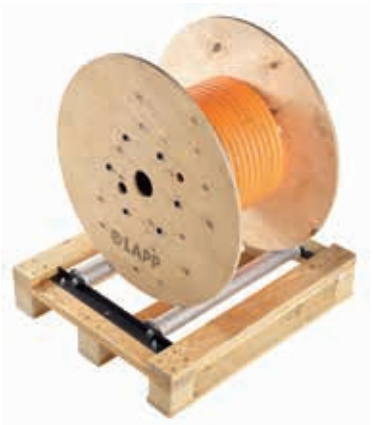
| Article number | Article designation |
|---|---|
| **Drum cardboard** | |
| 85008061 | Drum cardboard |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Spooling pallet

**Info**

- The pallet can also be ordered filled with a cable. In this case, please contact our customer service



## Benefits

- By using the rolls, the unwinding of the cable directly from the pallet is possible in a simple way
- No need to move the drum thus reducing any risk of damage
- Reusable

## Application range

- Transporting, storing and unwinding of cable drums

## Product features

- Pallet frame with two integrated rolls
- Suitable for drums with a flange diameter of up to 90cm
- Pallet can be picked up from all four sides by the forklift
- Suitable for export as IPPC treated

## Technical data

**Dimensions**
Drum width: up to 90cm
Dimensions: L=800, W=800mm

**General data**
Max. load: 500 kg
Weight: 16 kg

| Article number | Article designation |
|---|---|
| **Spooling pallet** | |
| 85008062 | Spooling pallet |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# TRONIC Single core cart








**Info**

- Matching single wire rings under H05V-K and H07V-K (Maxi ring) available

## Benefits

- Easy removal of single core rings
- Easy placement of the rings
- Flexible storage capacities
- Kanban-capable

## Application range

- Storage of single wires
- Mobile Solution “Articles about Man / Machine”

## Product features

- TRONIC module consists of 2 TRONIC mounted on a holder

## Suitable cables

- H05V-K <HAR>
- H07V-K <HAR>
- H07V-U
- MULTI-STANDARD SC 1
- MULTI-STANDARD SC 2.1
- MULTI-STANDARD SC 2.2

## Technical data

**Dimensions**
Fits for cable rings:
Cable outerdiameter: max. 10 mm
Coil Diameter: max. 295 mm
Inner diameter: 80-180 mm
Heigth: max. 80 mm

**General data**
Max. load per TRONIC: 7 kg

**Material**
Painted steel

| Article number | Article designation | Includes | Capacity of rings | Dimension in mm | Weight (kg) |
|---|---|---|---|---|---|
| **Single modules** | | | | | |
| 85001632 | TRONIC | | 1 | D=310.0, H=103.0 | 0.7 |
| 85001625 | TRONIC Module | | 2 | L=335.0, W=335.0, H=280.0 | 2.6 |
| **Carts incl. modules** | | | | | |
| 85001621 | TRONIC Module single core cart 6x2 | 6 TRONIC Module | 12 | L=610.0, W=580.0, H=1160.0 | 29 |
| 85001624 | TRONIC single core cart 12 | 12 TRONIC | 12 | L=670.0, W=610.0, H=950.0 | 19 |
| 85001622 | TRONIC Module single core cart 18x2 | 18 TRONIC Module | 36 | L=840.0, W=820.0, H=1400.0 | 93 |
| 85001629 | TRONIC single core cart 48 | 48 TRONIC | 48 | L=865.0, W=770.0, H=1460.0 | 106 |

TRONIC is a brand name of the company Meccanica Nicoletti S.R.L.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

# Appendix

# 10 Appendix

## Technical tables


| | | |
|---|---|---|
| **T0** | Safe use of our products | 1181 |
| **T1** | Chemical resistance of cables | 1185 |
| **T2** | Assembly guidelines – PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®) | 1187 |
| **T3** | Assembly guidelines – ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD cables in cable chains | 1188 |
| **T4** | Assembly guidelines – ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR | 1189 |
| **T5** | Assembly guidelines – Lift/elevator control cables – ÖLFLEX® LIFT N | 1190 |
| **T6** | Type designations | 1191 |
| **T7** | Core ID code for ÖLFLEX® cables | 1194 |
| **T7** | Core ID code for UNITRONIC® cables | 1195 |
| **T8** | Extension and compensating cables - colour codes and background information | 1196 |
| **T9** | Core ID code as per VDE colour code | 1198 |
| **T9** | Core ID code as per DIN colour code | 1199 |
| **T10** | Core ID code as per VDE colour code for telephone cables | 1200 |
| **T11** | Conductor resistances and strand structure (metric) | 1201 |
| **T12** | Current ratings – basic table | 1202 |
| **T12** | Current ratings – reduction tables | 1203 |
| **T13** | Current rating as per National Electrical Code of the USA | 1210 |
| **T14** | European Construction Products Regulation | 1211 |
| **T15** | Properties of cable insulation and sheathing | 1212 |
| **T16** | Anglo-American dimensions | 1214 |
| **T21** | Thread dimensions for cable glands | 1216 |
| **T21** | Tightening torques and installation dimensions for cable glands | 1217 |
| **T21** | Installation dimensions for multi-cable entry systems | 1218 |
| **T22** | Protection ratings to DIN EN 60529 | 1219 |
| **T23** | Cable glands | 1220 |
| **T24** | Chemical resistance of plastics | 1224 |
| **T25** | Registered trademarks | 1226 |
| **T27** | Fire load calculations for cables | 1227 |
| **T28** | Radiation resistance | 1228 |
| **T29** | Using UL-approved cables | 1230 |
| **T30** | Environmental information | 1233 |
| **T31** | EPIC® housings and inserts | 1234 |
| **T31** | EPIC® industrial connectors – definitions and instructions for use | 1236 |

**LAPP worldwide** 1237

# 1. General

The **resistance** of the product materials in the application environment, correct product assembly and the subjected load in the context of permitted limit values (technical data) have a significant impact on the safety and durability of our products. The products are not suitable for the use inside airplanes and helicopters, incl. drones or other direct air and space travel applications. Notes on product usage and technical data can primarily be found on the catalogue product pages, both in the text sections and the tables provided.

**Selection tables** A1–A15 provide an overview of similar products and enable comparisons to be drawn based on important product properties (e. g. "permitted temperature range", "permitted bending radius") and main application parameters (e.g. "outdoor use, unprotected"), thus facilitating the selection process.

The **"technical tables"** (T1–T31) focus on the following:

- Chemical resistance (T1, T24), radiation resistance (T28), weather and oil resistance (T15)
- Assembly of PROFIBUS and Industrial Ethernet cables (T2), assembly of cables for cable chains (T3), assembly of cables for conveyor technology (T4, T5)
- Assembly/installation/fastening of cables in special cases (T19)
- Assembly, thread dimensions and tightening torques of cable glands (T21)
- Electrical load capacity, conversion factors, installation type according to VDE, Germany (T12)
- Electrical load capacity, installation type according to NEC, USA (T13)
- Load capacity with regard to thermal stress and tensile strain (T19)
- Conductor cross-sections with different measurement systems (T16)

This and the following information on special product groups/topics represents guidelines on the use and application of our products, but does not cover all aspects of professional project planning for electrical equipment.

Length or metre markings on our cables are intended solely as tools for a rough estimation, such as determining the approximate cable length, and are neither metrically registered nor intended for precise measurement. The starting point for counting is freely chosen, and any accuracy is not warranted. Any issues related to metre markings – such as missing markings, irregular intervals or shorter or longer distances between markings – are not considered defects, and are not quality characteristics. To determine the exact length, calibrated cable measuring devices must be used.

Cables might contain talc which, as with most dusts or particulate matter, can cause temporary discomfort and skin irritation due to an allergic reaction.

### Do you have any questions?

Simply contact us; we are happy to help: **www.lapp.com**

# 2. Cables and wires

The applications of cables and wires are extremely diverse and thus governed by a whole range of application standards in the various standard groups (IEC, EN, NEC, ...).
One example is the international standard IEC 60204-1:2009, Electrical equipment of machines – Part 1: General requirements) with reference to the requirements of cables and wires as well as their application conditions.

In all cases, meeting these **general** specifications requires the user to professionally check for the existence of **specific** product standards containing other/extended requirements that may take precedence.

In this case, help is available on the catalogue product pages in the form of product and application standards – e. g. "Oil resistance according to VDE 0473-811" or "Railway applications: DIN EN 50306-2". In the field of low-voltage harmonised cables (e.g. H05VV5-F/ÖLFLEX® 140), DIN EN 50565-2 (VDE 0298-565-2) in table 1A provides a list of requirements and criteria that are largely applicable to other low-voltage cables as well as notes on recommended applications.

In addition, the application information provided in IEC publication 62440:2008-02 Ed. 1.0 must be observed for electrical cables with nominal voltages up to 450/750 V.

A summary of the most important information on cable and wire applications contained in the aforementioned documents is provided below.

### General

Conductors, cables and wires must be selected such that they are suitable for the relevant operating conditions (e. g. voltage, current, protection against electric shock, bundling of cables and wires) and external influences (e.g. ambient temperature, presence of water or corrosive materials, mechanical stress, incl. stress experienced during installation, fire risks).

### Electrical voltage

The control and connecting cables listed in the catalogue are subject to the **"Low Voltage Directive" 2014/35/EU for electrical equipment with a nominal voltage between 50 and 1000 V (alternating current) and between 75 and 1500 V (direct current)**.

The nominal voltage is the reference voltage for which cables and wires are constructed and tested. The nominal voltage of cables and wires used with AC supplies must be greater than or equal to the nominal supply voltage. More information on DC supplies or operating voltages in Europe can be found in EN 50565-1 for harmonised cable types and in VDE 0298-3 for cable types without harmonisation, for example.

The nominal voltage of cables and wires is expressed by the ratio $U_0/U$ in volts, whereby:

- **$U_0$** is the effective voltage between a phase conductor and the earth (metal sheath/screening of the cable/surrounding medium/protective grounding conductor)
- **U** is the effective voltage between two phase conductors of a multi-core cable or a system of single-core cables

For cables and wires subjected to voltages over 50 V AC or 120 V DC, the test voltage is a minimum of 2000 V AC for a duration of 5 minutes. For alternating currents with a maximum of 50 V and direct currents with a maximum of 120 V (typical values for SELV or PELV systems), the test voltage must be a minimum of 500 V AC for a duration of 5 minutes.

## 2. Cables and wires – continued

### Conductor cross-sections with different measurement systems

IEC 60228 is an important international standard that describes cables with metric cross-sections. North America and other regions currently employ conductor cross-sections according to the AWG (American Wire Gauge) system with Kcmil" used for larger cross-sections. A table is provided under T16 to assist with safe, alternative usage of cables from both these measurement systems.

### Tensile strain

The following applies to **all** conductors up to maximum tensile strain of 1000 N: Max. 15 N per $mm^2$ conductor cross-section (excl. screening, concentric conductors and divided protective conductors) for static tensile strain when **using** moving/flexible cables and cables for/in fixed installation. Max. 50 N per $mm^2$ conductor cross-section (excl. screening, concentric conductors and divided protective conductors) for static tensile strain when **assembling** cables for/in fixed installation.

### Flexible use – stationary use/Definitions

- **Continuous flexing**
  Cables are in constant linear motion in automated applications. They are subjected to continuous forces applied during bending motions.
  Typical application:
  Horizontal and vertical c-tracks of power chains, automated assemblies, etc.
- **Flexible/occasional flexing**
  Cables are moved randomly in a non-automated application. They are susceptible to occasional uncontrolled movement.
  Typical application:
  Flexible cable tray routings, machine tools, residential electronics, portable power equipment, etc.
- **Stationary use/fixed installation**
  Cables are installed and left in their original position. They are only moved for maintenance, repair or retrofitting.
  Typical application:
  Cable trays, conduits, wire paths installed in buildings, machines, manufacturing facilities, etc.

### Cables for use in power/cable chains

These cables are indicated by the code "FD" or "CHAIN" in their product names. In addition to the general information on assembly and project planning contained in technical table T3, particular attention must be paid to the specifications relating to individual cables.

These are specifically:

- Restrictions on the traversing path length.
- Restrictions on the minimum bending radius for flexible applications. The radius implemented with the power/cable chain must not be lower than the minimum bending radius! The minimum bending radius is defined as the inner radius relative to the surface of the curved cable.
- Restrictions on the operating temperature. The specified temperature range shall be observed and must not be undershot or exceeded. Flexible cable operation at the lower and upper temperature range limit can shorten the service life.

### Torsion movement in wind turbine generators

The torsional motion of wind turbines is very different to that in robotic applications. In comparison with the quick, highly dynamic movements of robots, the motion in the loop between the nacelle and tower of a wind turbine is slow. Moreover, the rotation of the cable on its axis of about 150° per 1 m cable and the rotational speed of 1 revolution per minute is below that of conventional robotic applications. To verify these requirements, our cables are tested in our in-house testing facility. To take the different materials into account, different tests are performed in order to achieve meaningful results, even at the temperature resistance of the cables.

Based on the test results, the cables are assigned the relevant internal LAPP rating for torsion in wind turbine generators, which is adapted to the requirements of leading wind turbine manufacturers:

| | Number of cycles | Temperature range | Torsion angle |
|---|---|---|---|
| TW-0 | 5,000 | ≥ +5 °C | ± 150 °/1 m |
| TW-1 | 2,000 | ≥ -20 °C | ± 150 °/1 m |
| TW-2 | 2,000 | ≥ -40 °C | ± 150 °/1 m |

### Transport and storage

Cables and wires that are **not** designated for outdoor use must be stored indoors, in dry conditions and protected from direct sunlight. If stored outside, all cable and wire ends must be sealed to prevent the ingress of water.

The ambient temperature for transport and storage must be between -25 °C and +55 °C (max. +70 °C for no longer than 24 hours). Particularly at lower temperatures mechanical stress caused by vibration, shock, bending and twisting must be avoided. This is especially important for PVC-insulated cables and wires. The following guidelines apply for the maximum storage period of cables and wires before use and without prior testing:

- One year if stored outdoors
- Two years if stored indoors

## 3. Industrial connectors

For industrial connectors please see (NEW) Technical Table T31.

## 4. Cable glands and cable bushings

SKINTOP® and SKINDICHT® cable glands and cable entries represent the highest quality and over 30 years of expertise in the relevant areas of application.

Along with quality, the correct usage of these products with regard to operational safety is the most important factor. For this reason, we would like to remind you to observe all relevant standards for your intended application. In addition to the technical data on the product pages, please also refer to the technical tables in our main catalogue (T21 – thread dimensions for cable glands, tightening torques and installation dimensions for cable glands/T22 – protection ratings according to EN 60529), as well as the supplied package leaflets describing product usage (e.g. package leaflet for products acc. to DIN EN 60079-0, DIN EN 60079-7).

## 5. Cable protection and guiding systems

SILVYN® cable protection systems offer additional protection for cables and wires. If used in a specified system and professionally fitted by a certified electrician, SILVYN® products will meet the properties detailed on the catalogue pages.

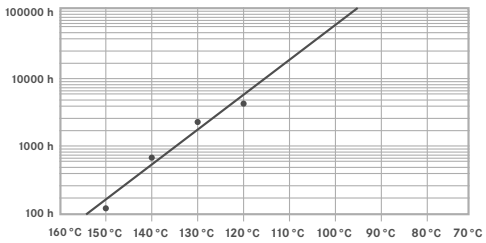
When configuring and assembling the SILVYN® CHAIN energy supply systems, the assembly instructions detailed in table T3 “Assembly guidelines for ÖLFLEX® FD and UNITRONIC® FD cables in cable chains” must be followed. To ensure to the correct installation of a SILVYN® CHAIN energy supply system, please refer to the information in our current special SILVYN® CHAIN catalogue.

## 6. Ready-to-use parts, tools and printers

Products in the field of cable accessories are system-tested to ensure optimal assembly. The commissioning and processing of these products must only be performed by authorised electricians and in accordance with the supplied information.

## 7. Service life

The average service life of cables is dictated not just by the mechanical and chemical stress, but also by the operating or ambient temperature. As is customary in mechanical engineering, the continuous temperature range of a cable, as specified in our technical data, refers almost exclusively to a period of at least 20,000 h. The adjacent example of an ageing curve according to Arrhenius illustrates the behaviour of an insulating material on the basis of time and temperature. The material tested here has a temperature index of approx. +110 °C at 20,000 h. The material can also be specified with an index of +135 °C, but in this case only for a duration of approx. 3000 h.



## 8. Connection technology

The quality of an electrical connection greatly depends on the choice of suitable components in the relevant nominal cross-sections and the use of recommended tools for processing.

Size differences between the cable and the tubular cable lug/conductor end sleeve are attributable to the fact that class 5 and 6 conductors can be pressed with just one crimp contact – even if the conductors have different structures (bunched, stranded or compressed conductors). Despite the sleeves appearing to be too large for the relevant cross-sections, the correct combination of conductor, contact and tool will ensure gas-tight crimping. The dimensional accuracy at the aforementioned connection points is governed by standards, incl.:

- DIN EN 60228 (VDE 0295), September 2005 – "Conductors for cables and insulated leads"
- DIN 46228 – 4, September 1990 – "Tubular end-sleeves with plastic sleeve"
- Crimping quality according to DIN 46228-1 and DIN EN 50027

## 9. Testing and inspection

The operator must ensure that the correct functioning and condition of electrical systems and equipment is checked by or under the supervision of a certified electrician. This must occur prior to initial commissioning and before reactivation following any modifications or maintenance work.

Inspection intervals must be set such that any problems that can reasonably be expected are identified in good time. In many cases, the service life of LAPP products can only be established empirically in the relevant applications. Indicators for inspection intervals can be based, for example, on the temperature load (see "Service life") or the number of permitted alternating bending cycles for cable chains (see information on relevant product pages in the catalogue).

As a rule, cables and wires in fixed installations will have a longer service life and will thus also be suitable for longer inspection intervals.

Shorter intervals are recommended for cables and wires used at the limit of their permitted parameters. This applies to the following in particular (see also "Technical data" and "Application" on the relevant product pages in the catalogue):

- Minimum bending radius
- Temperature range
- Presence of radiation (e.g. sunlight)
- Existence of tensile strain
- Influence of surrounding chemical substances and unverified resistance
- In the case of water accumulation or condensation in the area of the connection points. Cables and wires should be subjected to a visual inspection to identify any changes to their appearance. This should be done no later than when the cables or wires are likely to have been exposed to excessive loads (be they electrical, thermal, mechanical or chemical).

## 10. Fire properties

The behaviour of products in the case of a fire (reaction to fire) is of great importance to building installation. The EU has converted the various national regulations throughout Europe into a uniform rating system. The Construction Products Regulation (Regulation (EU) No. 305/2011) of 09/03/2011 came into force on 01/07/2013 and is binding for all member states.

Please find more details in this catalogue's appendix under Technical tables T14.

## 11. Copyright and updated standards

We aim to observe the copyright of the images/graphics and texts used in this catalogue, and to primarily utilise our own or licence-free images/graphics and texts.

By specifying standards and using extracts from standards, we aim to support our customers with important information on the safe use of our products.

Please note that as the catalogue becomes older, the specified standards/extracts from standards may no longer be fully up to date.

To preserve copyright and ensure that standards are up to date, we recommend that our customers and users of this catalogue refer to the latest applicable standards from an authorised source.

**Example:** Technical table T12 – Load capacity

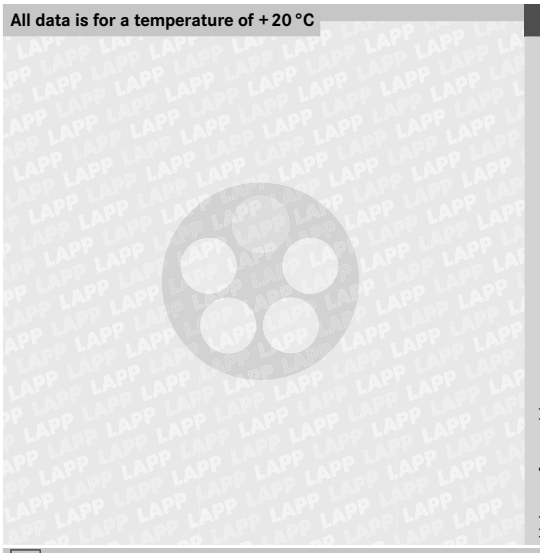
Extracts from DIN VDE 0298-4 (issued 2013-06) are used in the pending catalogue edition, with approval 162.013 from DIN (Deutsches Institut für Normung e. V.) and the VDE (Verband der Elektrotechnik Elektronik Informationstechnik e. V.). The application of the standards is based on the versions with the most recent issue date.

These are available from VDE VERLAG GmbH, Bismarckstraße 33, 10625 Berlin, Germany, www.vde-verlag.de and
Beuth Verlag GmbH, Burggrafenstraße 6, 10787 Berlin, Germany.

| All data is for a temperature of +20 °C | Cable designations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ÖLFLEX® SMART 108, ÖLFLEX® CLASSIC 100, 110, 115 CY, 100 BK, 110 BK, 110 CY BK, ÖLFLEX® 2YSLCY, 9YSLCY, ÖLFLEX® EB, EB CY, SF, UNITRONIC® 100, 100 CY | ÖLFLEX® FD 90, FD 90 CY, ÖLFLEX® 140, 140 CY, TRAY II CY, ÖLFLEX® CHAIN 809, 809 CY, 809 SC, 809 SC CY, ÖLFLEX® CHAIN TM, ÖLFLEX® CHAIN TM CY, ÖLFLEX® 150, 150 CY, 191, 191 CY, ÖLFLEX® FD 891/891 CY, TRAY II, ÖLFLEX® SERVO 719 CY, ÖLFLEX® SERVO 719, ÖLFLEX® SERVO 728 CY, ÖLFLEX® SERVO 7DSL, ÖLFLEX® SERVO FD 781 CY, ÖLFLEX® CONTROL TM/TM CY | ÖLFLEX® CLASSIC 100 SY, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 110 SY, 110 CY, ÖLFLEX® FD CLASSIC 810, 810 CY | ÖLFLEX® CLASSIC 400 P, 400 CP, 415 CP, 440 P, 440 CP, 408 P, 409 P, 450 P, 500 P, 540 CP, 540 P, 550 P, ÖLFLEX® PETRO C HFFR, ÖLFLEX® SERVO FD 796 P, 796 CP, 798 CP, FD 7DSL, CLASSIC 810 P, 810 CP, 855 P, 855 CP, 865 CP, ÖLFLEX® FD 891 P, ÖLFLEX® CHAIN 808 P, 808 CP, ÖLFLEX® CHAIN 896 P, ÖLFLEX® CHAIN 90 P, ÖLFLEX® CHAIN 90 CP, ÖLFLEX® Robot 900, F1, ÖLFLEX® CRANE PUR, UNITRONIC® LiYD11Y, UNITRONIC® FD P, UNITRONIC® FD CP, UNITRONIC® FD CP (TP), HITRONIC® with PUR sheath, UNITRONIC® PUR, SERVO cable as per SIEMENS® FX8 PLUS Standard | ÖLFLEX® CRANE round and flat | ÖLFLEX® LIFT T, LIFT S, ÖLFLEX® CRANE 2S, ÖLFLEX® LIFT F, ÖLFLEX® SF, Single-core products LiFY, LiFY 1 kV | ÖLFLEX® HEAT 105, ÖLFLEX® CHAIN PN | ÖLFLEX® HEAT 180 | ÖLFLEX® HEAT 205/260 |
| **Inorganic chemicals** | | | | | | | | | |
| Alums, cold-saturated concentration | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ |
| Aluminium salts, any concentration | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ |
| Ammonia, aqueous, 10% concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ammonium acetate, aqueous, any concentration | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ |
| Ammonium carbonate, aqueous, any concentration | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | | ○ |
| Ammonium chloride, aqueous, any concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ |
| Barium salts, any concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Boric acid, aqueous | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Calcium chloride, aqueous, cold-saturated concentration | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Calcium nitrate, aqueous, cold-saturated concentration | ○ | ○ | ○ | | ○ | ○ | ○ | ✖ | ○ |
| Chromium salts, aqueous, cold-saturated concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ |
| Potassium carbonate, aqueous (potash) | ○ | ○ | ○ | | ✖ | ○ | ○ | ○ | ○ |
| Potassium chlorate, aqueous, cold-saturated concentration | ○ | ○ | ○ | | ○ | ○ | ○ | | ○ |
| Potassium chloride, aqueous, cold-saturated concentration | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Potassium dichromate, aqueous | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Potassium iodide, aqueous | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ |
| Potassium nitrate, aqueous, cold-saturated concentration | ○ | ○ | | | | | | | |
| Potassium permanganate, aqueous | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ○ | ○ | ○ |
| Potassium sulphate, aqueous | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Copper salts, aqueous, cold-saturated concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Magnesium salts, aqueous, cold-saturated concentration | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Sodium bicarbonate, aqueous (natron) | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Sodium bisulphite, aqueous | ○ | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ |
| Sodium chloride, aqueous (table salt) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Sodium thiosulphate, aqueous (fixing salt) | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |
| Nickel salts, aqueous, cold-saturated concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Phosphoric acid, 50% concentration | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ✖ | ○ |
| Mercury, 100% concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Mercury salts, aqueous, cold-saturated concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Nitric acid, 30% concentration | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ○ |
| Hydrochloric acid, concentrated | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ○ |
| Sulphur, 100% concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ✖ | ○ |
| Sulphur dioxide, gaseous | ○ | ○ | ○ | | ○ | ○ | ○ | ✖ | ○ |
| Carbon disulphide | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ○ |
| Hydrogen sulphide | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ✖ | ○ |
| Sea water | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Silver salts, aqueous | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hydrogen peroxide, 3% concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Zinc salts, aqueous | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ✖ | ○ |
| Tin(II) chloride | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ |
| **Organic chemicals** | | | | | | | | | |
| Ethanol, 100% concentration | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | ○ | ○ |
| Formic acid, 30% concentration | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | | ○ |
| Petrol | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | ✖ | ✖ | ○ |
| Succinic acid, aqueous, cold-saturated concentration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ |
| Acetic acid, 20% concentration | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | ○ | ○ |
| Hydraulic oil | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | | ○ |
| Isopropanol, 100% concentration | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | ✖ | ○ |
| Machinery oil | ✖ | ○ | ✖ | ○ | ✖ | ✖ | ✖ | ✖ | ○ |
| Methanol, 100% concentration | ✖ | ✖ | ✖ | ✖ | ○ | ✖ | ✖ | ✖ | ○ |
| Oxalic acid, aqueous, cold-saturated concentration | ○ | ○ | ○ | | ✖ | ○ | ○ | ✖ | ○ |
| Cutting oil | ✖ | ○ | ✖ | ○ | ✖ | ✖ | ✖ | | ○ |
| Plant-based oils + fats | ✖ | ○ | ✖ | ○ | ✖ | ✖ | ✖ | ✖ | ○ |
| Tartaric acids, aqueous | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ |
| Citric acid | ○ | ○ | ○ | ✖ | ○ | ○ | ○ | ○ | ○ |

○ no or slight reaction = good resistance
✖ slight to moderate reaction = moderate resistance
✖ moderate to strong reaction = low/no resistance

Whilst this information is accurate to the best of our knowledge and experience, it must be treated as a non-binding guideline only. In many cases, tests must be carried out under working conditions to reach a definitive conclusion.



| All data is for a temperature of + 20 °C | Cable designations | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Halogen-free cables, NHXMH, J-H(ST)H, ÖLFLEX® 130 H, 135 CH, 130 H BK 0,6 / 1 KV, 135 CH BK 0,6 / 1 KV, UNITRONIC® LiHH, LiHCH, LiHCH(TP) | HITRONIC® fibre-optic cables | UNITRONIC® FD, FD CY, UNITRONIC® LiYY, LiYCY, LiYCY(TP), UNITRONIC® Li2YCY(TP), Li2YCY PiMF, ETHERLINE® LAN | J-Y(ST)Y, JE-Y(ST)Y, JE-LiYCY, J-2Y(ST)Y, J-YY, JE-YY | Coaxial cables (PE), A-2Y(L)2Y, A-2YF(L)2Y, HITRONIC® with PE sheath | ESUY copper earthing cable, X00V3-D | ÖLFLEX® CRANE NSHTÖU, NSGAFÖU; H01N2-D, ÖLFLEX® CRANE VS (N)SHTÖU, H05RN-F, H07RN-F, 07RN8-F | LiY single cores, H05V-K, H07V-K, LiFY, LiFY 1 kV, Multi-Standard SC 1, Multi-Standard SC 2.1, Multi-Standard SC 2.2 | H05RR-F | ÖLFLEX® ROBUST 200, 210, 215 C, ÖLFLEX® ROBUST FD, ROBUST FD C, UNITRONIC® ROBUST, ROBUST C ETHERLINE® ROBUST |
| **Inorganic chemicals** | | | | | | | | | | |
| Alums, cold-saturated concentration | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Aluminium salts, any concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Ammonia, aqueous, 10 % concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | | ⊗ | | ⊗ |
| Ammonium acetate, aqueous, any concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ | ⊗ | ✖ | ⊗ |
| Ammonium carbonate, aqueous, any concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Ammonium chloride, aqueous, any concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Barium salts, any concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Boric acid, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Calcium chloride, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Calcium nitrate, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Chromium salts, aqueous, cold-saturated concentration | | ⊗ | ⊗ | ⊗ | | ⊗ | ⊗ | ⊗ | ⊗ | ✖ |
| Potassium carbonate, aqueous (potash) | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Potassium chlorate, aqueous, cold-saturated concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ | ⊗ | ⊗ | ⊗ |
| Potassium chloride, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Potassium dichromate, aqueous | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Potassium iodide, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | |
| Potassium nitrate, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Potassium permanganate, aqueous | | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ⊗ | ⊗ |
| Potassium sulphate, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Copper salts, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Magnesium salts, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Sodium bicarbonate, aqueous (natron) | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Sodium bisulphite, aqueous | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Sodium chloride, aqueous (table salt) | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Sodium thiosulphate, aqueous (fixing salt) | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Nickel salts, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Phosphoric acid, 50 % concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ | ⊗ |
| Mercury, 100 % concentration | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Mercury salts, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Nitric acid, 30 % concentration | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Hydrochloric acid, concentrated | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Sulphur, 100 % concentration | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ | ✖ |
| Sulphur dioxide, gaseous | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Carbon disulphide | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Hydrogen sulphide | | ⊗ | ⊗ | ⊗ | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ |
| Sea water | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Silver salts, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Hydrogen peroxide, 3 % concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ |
| Zinc salts, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Tin(II) chloride | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| **Organic chemicals** | | | | | | | | | | |
| Ethanol, 100 % concentration | ✖ | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ⊗ | ⊗ |
| Formic acid, 30 % concentration | ✖ | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ⊗ | |
| Petrol | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Succinic acid, aqueous, cold-saturated concentration | | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Acetic acid, 20 % concentration | ✖ | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ✖ | ⊗ |
| Hydraulic oil | ✖ | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | ✖ | ✖ |
| Isopropanol, 100 % concentration | | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ⊗ | ⊗ |
| Machinery oil | ✖ | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | ✖ | ✖ |
| Methanol, 100 % concentration | ✖ | ✖ | ✖ | ✖ | ⊗ | ✖ | ⊗ | ✖ | ⊗ | ⊗ |
| Oxalic acid, aqueous, cold-saturated concentration | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ✖ | ⊗ | ⊗ | ⊗ |
| Cutting oil | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Plant-based oils + fats | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ | ✖ |
| Tartaric acids, aqueous | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Citric acid | ✖ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |

⊗ no or slight reaction = good resistance
✖ slight to moderate reaction = moderate resistance
✖ moderate to strong reaction = low/no resistance

Whilst this information is accurate to the best of our knowledge and experience, it must be treated as a non-binding guideline only. In many cases, tests must be carried out under working conditions to reach a definitive conclusion.

# PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®)

- Only use cables that have been designed for the relevant type of application (fixed installation, flexible or highly flexible application, torsional load, cable trailer systems, routing outdoors/underground). These cables have a specific design and have undergone the corresponding testing.

- Please note the electrical properties listed in the data sheet when selecting cables. Depending on the design, higher damping values can occur or there may be limitations on the transmission length.

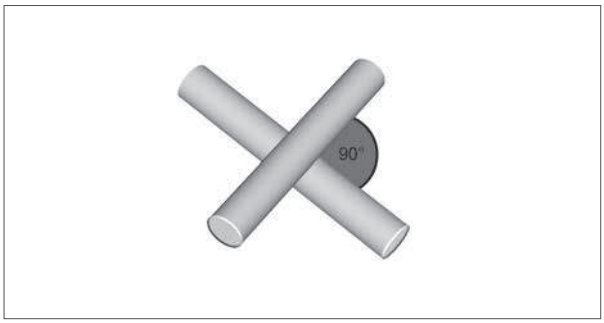
- PROFINET has the following conductor types:
  **Type A:** fixed installation
  **Type B:** flexible application, occasional flexing
  **Type C:** highly flexible application, torsion, cable chain, etc.

| Pairs/Type | Type A | Type B | Type C |
|---|---|---|---|
| 2-pair (2x2) | AWG22/1 | AWG22/7 | AWG22/1-19 |
| 4-pair (4x2) | min. AWG23/1 | min. AWG23/1 | min. AWG24/1-19 |

- In a system comprising different PROFINET categories and power cables, all of the cables should be separate bundles and run along separate ducts.

- The minimum clearances between power cables and data network cables are listed in IEC 61918. For unshielded power cables next to data network cables without separating strips or for non-metallic separating strips, the minimum clearance is 200 mm. The clearance is reduced if metallic separating strips are used. Shielded power cables can be installed directly next to bus systems. As a general rule, the greater the clearance is, the less interference there will be.

- Cables from different categories must always cross one another at an angle of 90°.




- Use the appropriate cable entries when introducing the cable into the control cabinet.
  We recommend using suitable fibre-optic cables when installing cables outdoors. Observe the relevant installation regulations.

- Always route backup cables along separate paths to ensure they remain undamaged, should damage occur to the main cable.

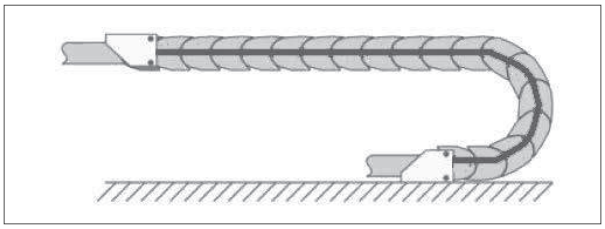
- Protect copper conductors and fibre-optic cables outside of cable carrier systems using plastic pipes or, in the case of a heavy mechanical load, using metal pipes.

- Data network cables can only be subjected to a defined tension load, otherwise the transmission characteristics could change.
  Replace any cables that have been mechanically overloaded or damaged.

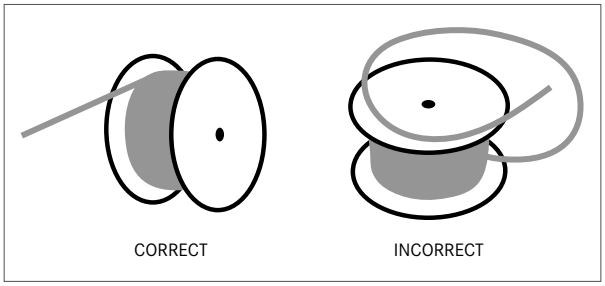
- Observe the temperature range for the cables. Deviations from these temperatures will result in a lower mechanical and electrical cable rating and will damage the cables.

- Applications involving torsion require a special cable design, as do cables for cable chains and cable trolley systems. These cables cannot be swapped.

- For cable chain cables, it is imperative that the minimum bending radius is observed, otherwise there may be cable damage or a risk of system failure.
  Make sure that cables in the bending radius run along the neutral zone, i.e. there must be no forced guidance through the chain in the inner or outer radius, so that the cables can still move relative to one another and to the chain.



- The cables must be unreeled from the ring or drum free of any twists (at a tangent). Additionally, the cables should not be pulled over sharp corners or edges.




- "Electromagnetic compatibility" (EMC) is now a basic requirement to be fulfilled during installation. As such, include all metal system parts in the equipotential bonding concept and use only screened cables and connectors, or alternatively use fibre-optic cables and fibre-optic connectors that are resistant to electromagnetic interference.

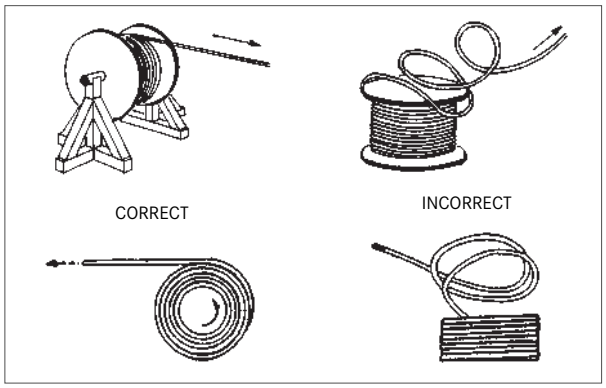
**RECOMMENDATION:** a detailed "Planning and Installation Guide" for PROFIBUS and/or PROFINET is available from the PROFIBUS User Organisation (PNO) in Karlsruhe, Germany.

**Internet: www.profibus.com**
**www.profinet.com**

# ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD cables in cable chains

1. Cable chains must be selected in accordance with the relevant project documentation of the chain manufacturers. The bending radius must comply with the minimum bending radius of the cables. If possible, we recommend avoiding a multi-layer cable configuration, i. e. > 25 cores, and instead distributing the required quantity amongst several cables.

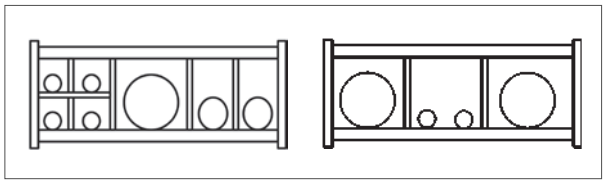
2. The cables must be unreeled from the ring or drum free of any twists (at a tangent) and must be laid out straight. This work should be carried out before starting the installation work so that the cables can relax during this time.
Due to the manufacturing process, the markings on the cable jacket run round in a gentle spiral. Therefore, this feature cannot be used to ensure that the cables have been straightened out without any twists.




3. The cable temperature should not drop below +5 °C at any point during installation.

4. The cables also need to be installed without any twisting when inserted into the chambers. If a cable is twisted during installation, it can lead to premature damage to the core stranding. This effect can be reinforced during operation and result in so-called cork-screwing. This leads to core breaks, which ultimately cause malfunctions.

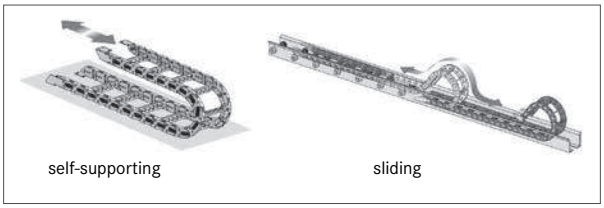
5. The cables must lie loosely next to each other in the chain chambers. They should be separated as much as possible using separators. The clearance between the cables and the cross bar, the separators or the neighbouring cables should be at least 10% of the cable diameter.



6. The cables should be installed symmetrically in terms of their weight and size; those with greater diameters and weights on the outside, those with smaller diameters and weights on the inside. They can also be placed in descending size order from inside to outside. Avoid arranging the cables above one another without the use of a shelf.

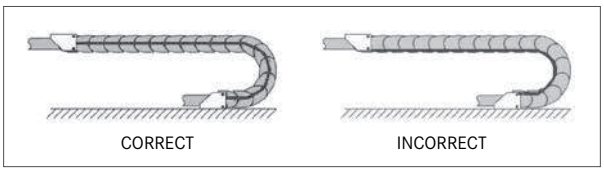
7. If the chain configurations are suspended vertically, additional free space must be provided in terms of the stay height, as the cables lengthen during operation. After a short period of operation, it is important to check whether the cables are still running along the neutral zone. It may be necessary to readjust them.

8. With self-supporting chain configurations, a cable is fastened both to the moving point and to the fixed point. Suitable cable supports from the chain manufacturer should be used here. In the case of high accelerations, cable ties only have limited suitability. Avoid tying multiple cables together. The cables must not be secured or in any way bound together in the moving part of the chain. The clearance between the fixed point and the bending movements should be sufficiently large.




9. With sliding chains, we recommend that the cable only be fastened to the moving point. A small cable reserve length should be factored in at the fixed point.
(Note the assembly instructions of the chain manufacturer).

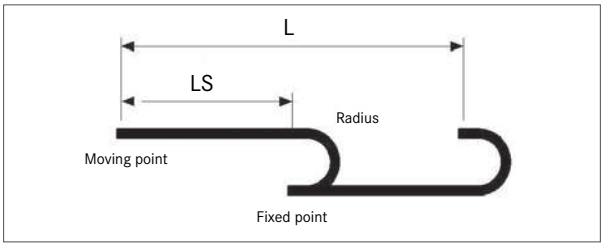
10. Make sure that the cables in the bending radius run in the neutral zone, i. e. there must be no forced guidance through the chain in the inner or outer radius, so that the cables can still move relative to one another and to the chain.



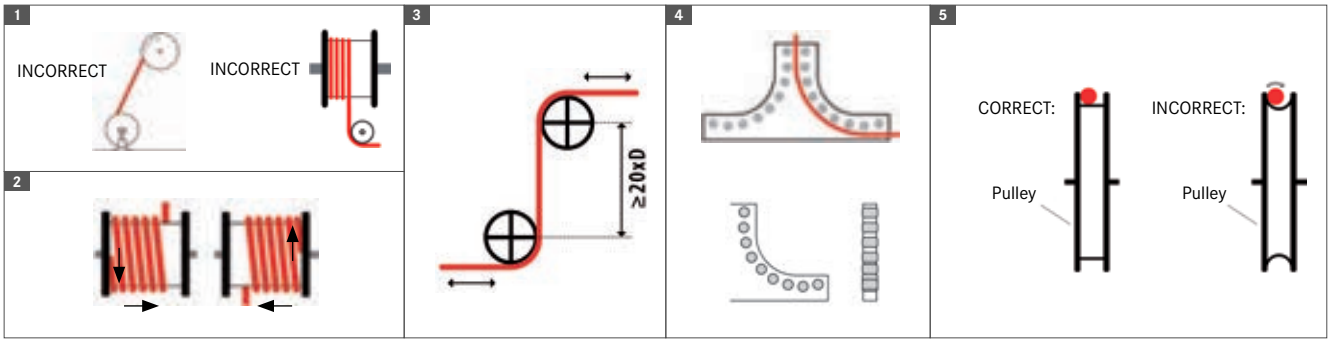

11. If a cable does not run smoothly, i.e. if it becomes twisted along the longitudinal axis during operation, the cable should be rotated gradually at one of the fastening points until it runs smoothly again.

12. The length-changing characteristics of a cable and a chain differ considerably from one another in terms of their absolute sizes. In the first few hours of operation, cables undergo natural lengthening. With chains, it takes many hours of operation for this effect to take place. This oppositional behaviour should be addressed by regularly checking the installation position of the cables. We recommend carrying out the inspections regularly, every three months, in the first year of operation – after this they should be carried out whenever a maintenance interval is due. This involves checking that the cables in the bending radius can move completely freely.
It may be necessary to make readjustments.
We recommend incorporating the maintenance instructions into the inspection plan of the system.

13. The travel distance (L) results from 2 x the chain length (LS)



# ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR




1. The delivery drum must be transported as close as possible to the installation location. Avoid rolling the cable drum unnecessarily. If it is not possible to transport the drum directly to the system, we recommend unreeling the cable from the drum using guide pulleys. A drag rope and a cable grip should also be used.

2. The cable can only be unreeled using cable stands or unwinders and only from above. When doing so, the cable must also be stretched out straight, and must not be deflected or pulled over any sharp edges. The cable temperature should not fall below +5 °C during this process (LAPP's recommendation).

3. The entire length of cable must be laid out prior to installation. Avoid rewinding the cable from the delivery drum directly onto the unit drum. When laying the cable, avoid "S"-shaped bends or other similar deflections. The cable must be free of twists when wound on the unit drum. Likewise, it must be possible to connect and fasten the cable to the feed-in point without any twisting (fig. 1).

4. The core layer structure of windable ÖLFLEX® CRANE cables has an "S"-shaped core stranding design. We therefore strongly recommend that you ensure the first layer of the cable is wound onto the drum in the correct direction, depending on the feed-in position of the cable alongside the drum body, as shown in the figure 2. Otherwise the cores could become damaged.

5. If a feed-in point is passed over during operation, a pulling protection drum with the correct diameter should be used underneath the travel path. At least 1-2 cable windings should be placed on this drum in order to evenly distribute the tensile forces. A deflection funnel with a defined radius should be used above the drum.

6. To fasten the cable to the feed-in point, it is essential to use sufficiently large clamps or cable support grips in order to ensure cable-friendly strain relief. The clearance between the fastening and the drum should be at least 40 x D.

7. With a fully unreeled cable, at least 2 cable windings should remain on the unit drum to provide strain relief.

8. The bending diameter for ÖLFLEX® CRANE NSHTÖU, on cables with an outer diameter of up to 21.5 mm, must not be less than 10 times the cable diameter, and 12.5 times for cables with larger outer diameters.
With ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR, the bending diameter must be at least 15 times greater than the cable diameter. The relevant minimum bending radius is listed both on the corresponding catalogue page and the product data sheet.

9. "S"-shaped bends in the cable should be avoided during operation. However, if this is not possible, the space between the deflection pulley axes must be at least 20 times the cable diameter for cables with an outer diameter of less than 21.5 mm, and at least 25 times for cables with larger outer diameters.

10. For the installation and operation of the cables ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR, the maximum tension load of the cable should be observed for each dimension based on the integrated supporting elements (see product page in catalogue). For cables with large outer diameters (approximately 21.5 mm and above), we recommend using guide pulleys to minimise friction on the outer sheath when changing direction (fig. 4).

11. In order to prevent the cable from twisting, the inner contact surface of the pulley must not have a concave shape. To ensure that the cable runs smoothly, the inner width of the guiding groove must be at least 10% greater than the outer diameter of the cable (fig. 5).

12. These cables fulfil the requirements stipulated by VDE 0250 and VDE 0298-3 (use/installation). Any loads exceeding those specified will reduce the service life of the cable.

# Lift/elevator control cables – ÖLFLEX® LIFT N

## A General information

1. The cables must be free of twists when being installed, and this should be done at temperatures of at least +5 °C. VDE 0298-4/ LAPP table T12, column C applies for the current rating values.

2. The inner bending radius of the cable must not be less than 20 times the outer cable diameter.

3. The maximum suspension length depends on the supporting element in the cable in each case (see the product's catalogue pages).

4. The delivery drum must be transported to (or as close as possible to) the installation location. If possible, avoid rolling the drum. If the drum must be rolled, only move the drum in the specified direction (see fig. 1).

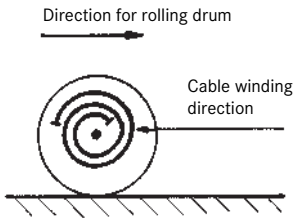
## B Suspending the cables

1. When pulling the cables into the shaft, unreel them tangentially from the drum. Unreeling the cable axially from the drum will result in the cable twisting and will affect the core stranding, which may in turn cause malfunctions (see fig. 2).

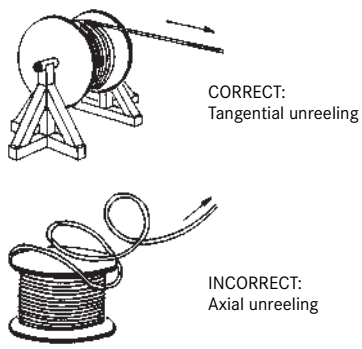
2. To ensure the cable is fitted without twists, allow the cable to briefly hang freely in the shaft. The best way to do this is to pull the control cable into the lift shaft from the bottom of the shaft.

3. The gap between the lift cabin and bottom of the shaft must be sufficiently large, and must be used in full for the cable loop height (see fig. 3).

1




2




## C Further information

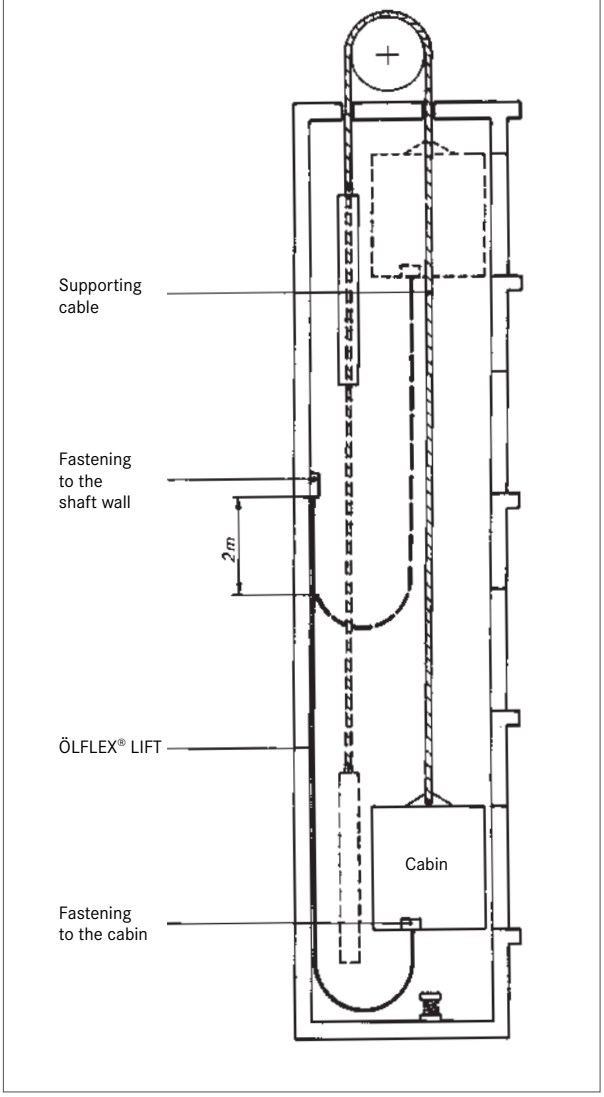
1. It is essential that sufficiently large clamps are used to secure the cables (e.g. LAPP cable wedge clamps type EKK or DKK). For suspension lengths greater than 50 m, the supporting element must also be damped separately.

2. The fastening point on the shaft wall must be at least 2 m above the centre of the travel distance (see fig. 3).

3. If the cable does not run smoothly, i.e. if the cable leaves the max. gradient line during operation, rotate the control cable slightly at one of the fastening points until the cable runs smoothly again.

4. If several control cables need to be installed for the lift unit, for technical reasons we recommend suspending the individual cables such that the height of the various loops differs by approx. 15 cm (stepped suspension).

3



# Table 6-1: Type designations for control cables and harmonised cables (excerpts)

## Control cables

□□□□□ □□ x □
1 2 3 4 5 6 7 8

**1. Basic type**

| | |
|---|---|
| N | VDE standard<br>(N) in line with VDE |

**2. Insulating material**

| | |
|---|---|
| Y | Thermoplastic resins |
| X | Cross-linked thermoplastic resins |
| G | Elastomers |
| HX | Halogen-free materials |

**3. Cable designation**

| | |
|---|---|
| A | Core cable |
| D | Solid wire |
| AF | Fine-wire core cable |
| F | Socket core |
| L | Fluorescent tube cable |
| LH | Connecting cable,<br>light mechanical loads |
| MH | Connecting cable,<br>moderate mechanical loads |
| SH | Connecting cable,<br>heavy mechanical loads |
| SSH | Connecting cable for special loads |
| SL | Control cable/welding cable |
| S | Control cable |
| LS | Light control cable |
| FL | Flat cable |
| Si | Silicone cable |
| Z | Twin cable |
| GL | Glass fibre |
| Li | Braided conductor as per VDE 0812 |
| LiF | Braided conductor as per VDE 0812,<br>extra-fine wire |

**4. Special features**

| | |
|---|---|
| T | Supporting element |
| Ö | Enhanced oil resistance |
| U | Flame-retardant |
| w | Heat-resistant, weather-resistant |
| FE | Insulation retained for a limited time |
| C | Screening braid |
| D | Screening as Cu wire wrapping |
| S | Steel wire braiding as mech. protection |

**5. Sheaths**

As point 2.
"Insulating material" P/PUR polyurethane

**6. Protective conductor**

| | |
|---|---|
| -O | Without protective conductor |
| -J | With protective conductor |

**7. Number of cores**

... number of cores

**8. Conductor cross-section**

Figures in mm²

**EXAMPLE: NSHTÖU 24G 1.5**
ÖLFLEX® CRANE NSHTÖU cable, 24-core,
with protective cond., cross-section: 1.5 mm²

## Harmonised cables

□□ □□□ – □ □□□
1 2 3 4 5 6 7 8 9

**1. Basic type**

| | |
|---|---|
| H | Harmonised type |
| A | National type |
| X or S | in the style of a harmonised type |

**2. Nominal voltage**

| | |
|---|---|
| 01 | 100/100 volts |
| 03 | 300/300 volts |
| 05 | 300/500 volts |
| 07 | 450/750 volts |

**3. Insulating material**

| | |
|---|---|
| V | PVC |
| V2 | PVC +90 °C |
| V3 | PVC flexible at cold temperatures |
| B | Ethylene propylene rubber |
| E | PE polyethylene |
| X | XPE, cross-linked PE |
| R | Rubber |
| S | Silicone rubber |

**4. Outer/inner sheath material**

| | |
|---|---|
| V | PVC |
| V2 | PVC +90 °C |
| V3 | PVC flexible at cold temperatures |
| V5 | PVC with enhanced oil resistance |
| R | Rubber |
| N | Chloroprene based rubber |
| Q | Polyurethane |
| J | Glass fibre braiding |
| T | Textile braiding |
| S | Silicone rubber |

**5. Special features**

| | |
|---|---|
| C4 | Copper wire screen braiding |
| H | Flat cable, divisible |
| H2 | Flat cable, not divisible |
| H6 | Flat cable, not divisible,<br>for lifts |
| H8 | Helical/spiral cable |

**6. Conductor type**

| | |
|---|---|
| U | Single-wire |
| R | Multi-wire |
| K | Fine-wire (fixed installation) |
| F | Fine-wire (flexible installation) |
| H | Extra-fine wire |
| Y | Tinsel wire |
| D | Fine-wire conductor<br>for welding cable |
| E | Extra-fine wire conductor<br>for welding cable |

**7. Number of cores**

... number of cores

**8. Protective conductor**

| | |
|---|---|
| X | Without protective conductor |
| G | With protective conductor |

**9. Conductor cross-section**

Figures in mm²

**EXAMPLE: H05 VV-F 3G 1.5**
Medium PVC hose, 3-core,
with protective cond., cross-section: 1.5 mm²

## Telecommunications cables

□□ – □□□ □ x □ x □ □□
1 2 3 4 5 6 7 8 9 10

**1. Basic type**

| | |
|---|---|
| A- | Outdoor cable |
| G- | Mining cable |
| J- | Installation cable |
| Li | Stranded conductor, flexible cable |
| S- | Jumper cable |

**2. Additional designation**

| | |
|---|---|
| J | Induction protection |
| E | Electronics |

**3. Insulating material**

| | |
|---|---|
| Y | PVC |
| 11Y | PUR |
| 2Y | Polyethylene |
| O2Y | Cellular PE |
| 9Y | PP |
| 5Y | PTFE |
| 6Y | FEP |
| 7Y | ETFE |
| H | Halogen-free compound |

**4. Special features**

| | |
|---|---|
| C | Copper screen braiding |
| D | Copper wrapping |
| (ST) | Metal foil screening |
| (L) | Aluminium strip |
| F | Petroleum jelly filling |
| LD | Corrugated aluminium sheath |
| (K) | Copper strip screening |
| (Z) | Steel wire braiding |
| W | Corrugated steel sheath |
| b | Armouring |

**5. Sheathing**

(see point 3. "Insulating material")

**6. Number of elements**

... number of stranding elements

**7. Stranding element**

| | |
|---|---|
| 1 | Single core |
| 2 | Pair |
| 3 | Triple |

**8. Conductor diameter or cross section**

... in mm or mm²

**9. Stranding element**

| | |
|---|---|
| St | Star quad (phantom) |
| StI | Star quad (trunk cable) |
| StIII | Star quad (local cable) |
| TF | Star quad for TF |
| S | Signal cable (railway) |
| PiMF | Screened pair |
| (TP) | Twisted Pair |
| PiD | Pairs in copper wrapping |

**10. Stranding type**

| | |
|---|---|
| Lg | Twisted into layers |
| Bd | Twisted into bundles |

**EXAMPLE: A2Y(L)2Y 6 x 2 x 0.8 Bd**
Telephone cable for local network
with PE insulation and layered sheath

# Table 6-2: Type designations for telecommunications cables and fibre-optic cables

## Fibre-optic cables

□ – □□□□□□ □□ □ □

1 2 3 4 5 6 7 8 9 10

**1. Product application area**

| | |
|---|---|
| A | Outdoor cable |
| AT | Outdoor cable, divisible |
| J | Indoor cable |
| J/A or U | Indoor/outdoor cable, universal cable |

**2. Buffered fibre type**

| | |
|---|---|
| B | Loose tube, unfilled |
| D | Loose tube, filled |
| V | Tight-buffered fibres |

**3. Design elements**

| | |
|---|---|
| F | Petroleum jelly filling |
| Q | Swelling tape |

**4. Further design elements**

| | |
|---|---|
| S | Metal element in cable core |

**5. Sheath materials**

| | |
|---|---|
| 2Y | PE sheath |
| 11Y | PUR sheath |
| H | Halogen-free sheath |
| (ZM) | With metallic strain relief elements |
| (ZN) | With non-metallic strain relief elements |
| (ZN)2Y | PE sheath with non-metallic strain relief elements |

**6. Armouring**

| | |
|---|---|
| B | Armouring |
| B2Y | Armouring with PE casing |
| (BN) | Glass yarn armouring |
| (SG) | Steel sheath |
| (SR) | Corrugated steel sheath |
| (SR)2Y | Corrugated steel sheath with PE Sheath |

**7. Number of fibres**

Number of fibres

**8. Fibre type**

| | |
|---|---|
| E | Single-mode fibre glass/glass (SM GOF) |
| G | Gradient fibre glass/glass (MM GOF) |
| K | Step index fibre glass/plastic (PCF) |
| P | Polymer optical fibre/plastic (POF) |

**9. Core diameter/fibre sheath diameter**

| | |
|---|---|
| 50/125 | Multimode glass fibre |
| 62.5/125 | Multimode glass fibre |
| 9/125 | Single-mode glass fibre |
| 200/230 | Plastic-coated glass fibre |
| 980/1000 | Polymer optical fibre |

**10. Category: fibre quality**

| | |
|---|---|
| OM4 | For 50/125 OM4 multimode fibres |
| OM3 | For 50/125 OM3 multimode fibres |
| OM2 | For 50/125 OM2 multimode fibres |
| OM1 | For 62.5/125 OM1 multimode fibres |
| OS2 | For 9/125 OS2 Single-mode fibres (G 652D) |

**EXAMPLE 1: A-DQ(ZN)(SR)2Y 12G 50/125 OM3**
Outdoor cable with corrugated steel sheath, central loose tube, non-metallic strain relief made of glass yarn, 12 fibres, 50/125 µm OM3 multimode fibres

**EXAMPLE 2: J-V2Y(ZN)11Y 2P 980/1000**
Plastic fibre-optic cable, two-fibre (duplex), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

## Type designations for UNITRONIC® SENSOR



**S/A cables**
e.g. item no. 22260339

| Connection on left | Cable | Connection on right |
|---|---|---|

**AB- C4- M12MS- 2.0PUR- M12FA-2L**

- Automation Bus
- Cordset
- Number of pins (**4**)
- Connector/thread (**M12**)
- Connector/design (**straight connector**)
- Cable length in m (**2.0 m**)
- Cable material – outer sheath (**PUR**)
- Connector/thread (**M12**)
- Connector/design (**angled socket**)
- Status display/number of LEDs (**2L**)

**MS** – straight connector
**MA** – angled connector
**FS** – straight socket
**FA** – angled socket
**M8, M12, M16, M23** – thread
**L** – status display/LEDs
**SH** – screened version
**HD** – Hygienic Design
**VA** – stainless steel knurl
**M12Y** – M12 Y connector
**B** – bridged
**3-, 4-, 5-, 8-, ..** number of pins
**A, AD, B, BI, C, CI** – valve connector type
**S** – valve connector with Z diode
**SV** – valve connector with varistor
**SVC** – valve connector with varistor and commutator
**SUP** – valve connector with suppressor diode



**mountable connector** e.g. item no. 22260127

**AB- C5- M12FS-PG7-SH**

- Automation Bus
- Connector
- Number of pins (**5**)
- Connector/thread (**M12**)
- Connector/design (**straight connector**)
- Cable connection/screw connection (**PG7**)
- Screened version (**SH**)

**MS** – straight connector
**MA** – angled connector
**FS** – straight socket
**FA** – angled socket
**P** – piercing connection
**SH** – screened version
**M8, M12, M16, M23** – thread
**3-, 4-, 5-, 8-, ..** number of pins
**PG7, PG9, PG11, PG13** – cable connection
**F0.34** (fast connection, max. 0.34 mm² cond. cross-sec.)
**F0.75** (fast connection, max. 0.75 mm² cond. cross-sec.)
**M16-0.5** (M16 flush-type conn. with 0.5 m PUR strand)
**PG9-0.5** (PG9 flush-type conn. with 0.5 m PUR strand)
**DSI** – flush-type connector (rear wall mounting)
**PO** – flush-type connector (can be positioned)



**S/A passive distributor box** e.g. item no. 22260025

**AB- B8-M12L-16-10.0PUR**

- Automation Bus
- Box
- Number of slots (**8**)
- S/A connection/thread (**M12**)
- Status display/LED signals (**L**)
- Number of inputs/outputs (**16**)
- Length of master cable in m (**10.0**)
- Cable material – outer sheath (**PUR**)

INFO: S/A box with **double** assignment → (number of inputs/outputs) / (number of slots) = 2

**PUR** - distributor box with perm. connected master cable (PUR)
**C** - distributor box with master cable conn. (pluggable screw connection)
**M8L** - distributor box with M8 slots and LED signals
**M16** - distributor box with M16 master cable conn.
**M12** - distributor box with M12 master cable conn.

Further abbreviations:

**AB-PC** – Automation Bus Power Cable
**AB-PB** – Automation Bus PROFIBUS
**AB-DN** – Automation Bus DeviceNet
**AB-ASI** – Automation Bus AS-Interface
**AB-ASI-J** – AS-Interface distributor

# Table 6-3: Data communication systems for ETHERNET technology

## Industrial Ethernet article code for patchcords



Connector, left side — Connector, right side

**IE - PNC - 5 - M12D - S - 1 - P - 2 - 22 - FD - RJ45 - S**

- Type
- Bussystem
- Category
- Connector, left side
- Connector design, left side
- Cable length
- Outer sheath material
- Pairs
- AWG (cross section)
- Type of application
- Connector, right side
- Connector design, right side

**1. Type**

| | |
|---|---|
| IE | Industrial Ethernet |

**2. Bussystem**

| | |
|---|---|
| N/A | Default Ethernet |
| PNA | PROFINET® Type A |
| PNB | PROFINET® Type B |
| PNC | PROFINET® Type C |
| EC | EtherCAT® |

**3. Category**

| | |
|---|---|
| 5 | Cat.5/Cat.5e |
| 6 | Cat.6 |
| 6 A | Cat.$6_A$ |

**4. Connector, left side**

| | |
|---|---|
| M8 | M8 A-coded, male |
| M8F | M8 A-coded, female |
| M12D | M12 D-coded, male |
| M12DF | M12 D-coded, female |
| M12X | M12 X-coded, male |
| M12XF | M12 X-coded, female |
| RJ45 | RJ45 male |

**5. Connector design, left side**

| | |
|---|---|
| S | Straight (180°) |
| A | Angled (90°) |

**6. Cable length**

| | |
|---|---|
| 0.5 | 0.5 m |
| 1 | 1 m |
| 2 | 2 m |
| 5 | 5 m |
| 10 | 10 m |
| 15 | 15 m |
| 20 | 20 m |

**7. Outer sheath material**

| | |
|---|---|
| H | Halogen free |
| P | PUR |
| Y | PVC |

**8. Pairs**

| | |
|---|---|
| 2 | 2 x 2 cores |
| 4 | 4 x 2 cores |

**9. AWG (cross section)**

| | |
|---|---|
| 22 | AWG22 |
| 23 | AWG23 |
| 24 | AWG24 |
| 26 | AWG26 |
| 27 | AWG27 |

**10. Type of application**

| | |
|---|---|
| 1 | Fixed installation |
| 7 | Flexible application |
| FD | Cable chain application |
| T | Torsion stressed application |

**11. Connector, right side**

| | |
|---|---|
| M8 | M8 A-coded, male |
| M8F | M8 A-coded, female |
| M12D | M12 D-coded male |
| M12DF | M12 D-coded female |
| M12X | M12 X-coded male |
| M12XF | M12 X-coded female |
| RJ45 | RJ45 male |
| OE | Open conductor end |

**12. Connector design, right side**

| | |
|---|---|
| S | Straight (180°) |
| A | Angled (90°) |

## EPIC® DATA Code for Ethernet applications



**ED - IE - 90 - M12 - X - RM - 6A - A - 54 - FD - FC - AC**

- Type
- Bussystem
- Cable outlet
- Type of connection
- Coding
- Mounting version
- Category
- Standard for pin assignment
- Protection class
- Special requirements
- Cable connection
- Additional

**1. Type**

| | |
|---|---|
| ED | EPIC® DATA |

**2. Bussystem**

| | |
|---|---|
| IE | Indutrial Ethernet |

**3. Cable outlet**

| | |
|---|---|
| 90 | 90° |
| AX | Straight (0°) |

**4. Type of connection**

| | |
|---|---|
| N/A/RJ45 | RJ45 male |
| RJ45F | RJ45 female |
| M12 | M12 male |
| M12F | M12 female |
| M8 | M8 male |
| HY | Hybrid |
| H | H3A |

**5. Coding**

| | |
|---|---|
| N/A | D-coded |
| A | A-coded |
| D | D-coded |
| X | X-coded |

**6. Mounting version**

| | |
|---|---|
| RM | Rear-mounting |
| FM | Front-mounting |

**7. Category**

| | |
|---|---|
| 5 | Cat.5/Cat.5e |
| 6 | Cat.6 |
| 6 A | Cat.$6_A$ |

**8. Standard for pin assignment**

| | |
|---|---|
| A | T568A |
| B | T568B |
| PN | PROFINET® |

**9. Protection class**

| | |
|---|---|
| N/A | IP20 (= Standard) |
| 54 | IP54 |
| 65 | IP65 |
| 67 | IP67 |
| 68 | IP68 |

**10. Special requirements**

| | |
|---|---|
| FD | Especially for 19 wire stranded cores |

**11. Cable connection**

| | |
|---|---|
| N/A | Screw (= Standard) |
| FC | Fastconnect |
| FZ | Spring type |

**12. Additional**

| | |
|---|---|
| AC-DC | Accessory Dust Cap |

## Colour code for ÖLFLEX® cables

The colour code applies to the following cables starting from 6 cores: ÖLFLEX® CLASSIC 100 300/500 V, ÖLFLEX® CLASSIC 100 450/750 V, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 100 SY and ÖLFLEX® CLASSIC 100 BK 0.6/1 KV. It contains colours and colour combinations for up to 102 cores, and consists of 11 basic colours. The different variations of the basic colours are achieved by using one or two coloured stripes, meaning each core can be easily distinguished from the rest. The VDE colour code applies for cables with up to 5 cores (inclusive). Please also see T9.
The cores are counted from the inside to the outside, and the green/yellow core is always the last core in the outer layer.

### Basic colours

0 green/yellow
1 white
2 black
3 blue
4 brown
5 grey
6 red
7 violet
8 pink
9 orange
10 transparent
11 beige

### Basic colours with white stripe

12 black/white
13 blue/white
14 brown/white
15 grey/white
16 red/white
17 violet/white
18 pink/white
19 orange/white
20 transparent/white
21 beige/white

### Basic colours with black stripe

22 blue/black
23 brown/black
24 grey/black
25 red/black
26 violet/black
27 pink/black
28 orange/black
29 transparent/black
30 beige/black

### Basic colours with blue stripe

31 brown/blue
32 grey/blue
33 red/blue
34 pink/blue
35 orange/blue
36 transparent/blue
37 beige/blue

### Basic colours with brown stripe

38 grey/brown
39 red/brown
40 violet/brown
41 pink/brown
42 orange/brown
43 transparent/brown
44 beige/brown

### Basic colours with grey stripe

45 red/grey
46 violet/grey
47 pink/grey
48 orange/grey
49 transparent/grey
50 beige/grey

### Basic colours with red stripe

51 orange/red
52 transparent/red
53 beige/red

### Basic colours with violet stripe

54 pink/violet
55 orange/violet
56 transparent/violet
57 beige/violet

### Basic colours with pink stripe

58 transparent/pink
59 beige/pink

### Basic colours with orange stripe

60 transparent/orange
61 beige/orange

### Basic colours with white/black stripes

62 blue/white/black
63 brown/white/black
64 grey/white/black
65 red/white/black
66 violet/white/black
67 pink/white/black
68 orange/white/black
69 transp./white/black
70 beige/white/black

### Basic colours with white/blue stripes

71 brown/white/blue
72 grey/white/blue
73 red/white/blue
74 violet/white/blue
75 pink/white/blue
76 orange/white/blue
77 transp./white/blue
78 beige/white/blue

### Basic colours with white/brown stripes

79 grey/white/brown
80 red/white/brown
81 violet/white/brown
82 pink/white/brown
83 orange/white/brown
84 transp./white/brown
85 beige/white/brown

### Basic colours with white/grey stripes

86 red/white/grey
87 violet/white/grey
88 pink/white/grey
89 orange/white/grey
90 transp./white/grey
91 beige/white/grey

### Basic colours with white/red stripes

92 blue/white/red
93 brown/white/red
94 violet/white/red
95 pink/white/red
96 orange/white/red

### Basic colours with white/violet stripes

97 brown/white/violet
98 orange/white/violet

### Basic colours with black/blue stripes

99 brown/black/blue
100 grey/black/blue
101 red/black/blue

# Colour code for UNITRONIC® 100 cables

It contains colours and colour combinations for up to 102 cores, and consists of 10 basic colours. The different variations of the basic colours are achieved by using one or two coloured stripes, or by ring marking, meaning each core can be easily distinguished from the rest. The cores are counted from the inside to the outside, and the green/yellow core is always the last core in the outer layer.

## Basic colours

| | |
|---|---|
| 0 | green/yellow |
| 1 | black |
| 2 | blue |
| 3 | brown |
| 4 | beige |
| 5 | yellow |
| 6 | green |
| 7 | violet |
| 8 | pink |
| 9 | orange |
| 10 | transparent |

## Basic colours with white stripe

| | |
|---|---|
| 11 | red/white |
| 12 | blue/white |
| 13 | yellow/white |
| 14 | green/white |
| 15 | violet/white |
| 16 | orange/white |
| 17 | brown/white |

## Basic colours with red stripe

| | |
|---|---|
| 18 | blue/red |
| 19 | yellow/red |
| 20 | green/red |
| 21 | white/red |
| 22 | orange/red |
| 23 | brown/red |

## Basic colours with black stripe

| | |
|---|---|
| 24 | red/black |
| 25 | blue/black |
| 26 | yellow/black |
| 27 | green/black |
| 28 | violet/black |
| 29 | white/black |
| 30 | orange/black |
| 31 | brown/black |

## Basic colours with green stripe

| | |
|---|---|
| 32 | red/green |
| 33 | grey/green |
| 34 | violet/green |
| 35 | white/green |
| 36 | orange/green |
| 37 | brown/green |

## Basic colours with yellow stripe

| | |
|---|---|
| 38 | red/yellow |
| 39 | blue/yellow |
| 40 | violet/yellow |
| 41 | white/yellow |
| 42 | brown/yellow |

## Basic colours with blue stripe

| | |
|---|---|
| 43 | red/blue |
| 44 | white/blue |
| 45 | orange/blue |
| 46 | brown/blue |

## Basic colours with violet stripe

| | |
|---|---|
| 47 | yellow/violet |
| 48 | green/violet |
| 49 | white/violet |
| 50 | orange/violet |
| 51 | brown/violet |

## Basic colour: black, coloured stripe

| | |
|---|---|
| 52 | black/white |
| 53 | black/yellow |
| 54 | black/red |
| 55 | black/green |
| 56 | black/blue |
| 57 | black/violet |

## Basic colour: grey, coloured stripe

| | |
|---|---|
| 58 | grey/white |
| 59 | grey/black |
| 60 | grey/yellow |
| 61 | grey/red |
| 62 | grey/blue |
| 63 | grey/violet |

## Basic colours with grey stripe

| | |
|---|---|
| 64 | red/grey |
| 65 | blue/grey |
| 66 | yellow/grey |
| 67 | green/grey |
| 68 | violet/grey |
| 69 | white/grey |
| 70 | orange/grey |

## Basic colours with white/red stripes

| | |
|---|---|
| 71 | blue/white/red |
| 72 | yellow/white/red |
| 73 | green/white/red |
| 74 | brown/white/red |

## Basic colours with white/black stripes

| | |
|---|---|
| 75 | red/white/black |
| 76 | blue/white/black |
| 77 | yellow/white/black |
| 78 | green/white/black |
| 79 | violet/white/black |
| 80 | orange/white/black |
| 81 | brown/white/black |

## Basic colours with white/green stripes

| | |
|---|---|
| 82 | red/white/green |
| 83 | yellow/white/green |
| 84 | violet/white/green |
| 85 | orange/white/green |
| 86 | brown/white/green |

## Basic colours with white/blue stripes

| | |
|---|---|
| 87 | red/white/blue |
| 88 | yellow/white/blue |
| 89 | orange/white/blue |
| 90 | brown/white/blue |

## Basic colours with white/violet stripes

| | |
|---|---|
| 91 | yellow/white/violet |
| 92 | green/white/violet |
| 93 | orange/white/violet |
| 94 | brown/white/violet |

## Basic colours with red/black stripes

| | |
|---|---|
| 95 | blue/red/black |
| 96 | yellow/red/black |
| 97 | green/red/black |
| 98 | white/red/black |
| 99 | brown/red/black |

## Basic colours with red/green stripes

| | |
|---|---|
| 100 | yellow/red/green |
| 101 | white/red/green |
| 102 | orange/red/green |

## Table 8-1: international colour codes for extension and compensating cables

| Thermo couple | | IEC 60584-3 | | DIN 43710* | | ANSI MC 96.1 | | BS 4937 | | NF C 42-324 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Material ⊕ ⊖ | | Designation XC | CC | Designation XC | CC | Designation XC | CC | Designation XC | CC | Designation XC | CC |
| T | Cu – CuNi | TX -25 °C up to +100 °C | | | | TX 0 °C up to +100 °C | | TX 0 °C up to +100 °C | | TX -25 °C up to +100 °C | |
| U | Cu – CuNi | | | UX 0 °C up to +200 °C | | | | | | | |
| J | Fe – CuNi | JX -25 °C up to +200 °C | | | | JX 0 °C up to +200 °C | | JX 0 °C up to +200 °C | | JX -25 °C up to +200 °C | |
| L | Fe – CuNi | | | LX 0 °C up to +200 °C | | | | | | | |
| E | NiCr – CuNi | EX -25 °C up to +200 °C | | | | EX 0 °C up to +200 °C | | EX 0 °C up to +200 °C | | EX -25 °C up to +200 °C | |
| K | NiCr – Ni | KX -25 °C up to +200 °C | | KX 0 °C up to +200 °C | | KX 0 °C up to +200 °C | | KX 0 °C up to +200 °C | | KX -25 °C up to +200 °C | |
| | NiCr – Ni | KCA 0 °C up to +150 °C | | KCA 0 °C up to +150 °C | | | | | | WC 0 °C up to +150 °C | |
| | NiCr – Ni | KCB 0 °C up to +100 °C | | | | | | VX 0 °C up to +100 °C | | VC 0 °C up to +100 °C | |
| N | NiCrSi – NiSi | NX -25 °C up to +200 °C | NC 0 °C up to +150 °C | | | | | | | | |
| R S | PtRh13 – Pt PtRh10 – Pt | RCB SCB 0 °C up to +200 °C | | RCB SCB 0 °C up to +200 °C | | SX 0 °C up to +200 °C | | SX 0 °C up to +200 °C | | SC 0 °C up to +200 °C | |
| B | PtRh30 – PtRh6 | | | | | BX 0 °C up to +100 °C | | | | BC 0 °C up to +100 °C | |

The stated temperature specifies the application temperature range for each type.
The application temperature range must be reduced if it is required by the insulation material used for the cable.
*DIN 43710 was withdrawn in April 1994.

XC = extension cables
CC = compensating cables

# Table 8-2: temperature measurement with thermocouples

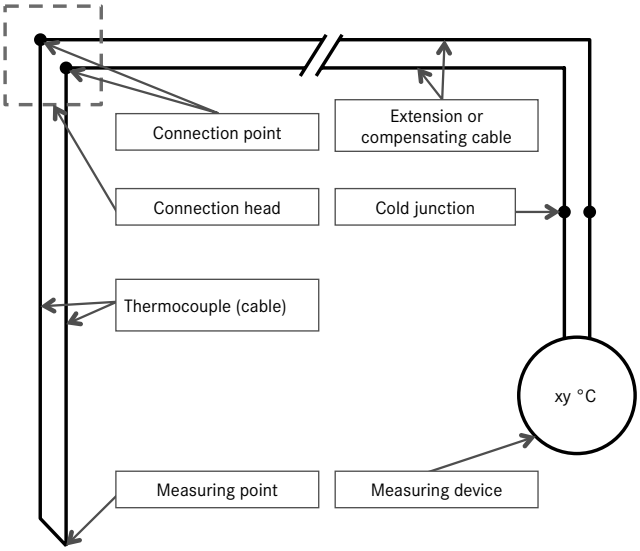
## The measurement principle:

The thermoelectric effect describes a thermal voltage that arises between two different electrical conductors with a temperature difference between both ends.

This effect can be used by thermocouples, which consist of two metals or alloys that produce a specific thermal voltage as a thermocouple.

By means of this thermal voltage, the temperature difference between the contact points, which are usually the measuring point and the cold junction, is determined as being associated with a temperature value for each thermocouple voltage. The cold junction must have a known and constant temperature in order to determine the temperature difference to the measurement point exactly.

For the cabling between the measuring point and connection point, thermocouple cables are typically used. Between the onnection point and cold junction, extension or compensating cables are typically used to transmit the voltage signal.




## Three types of cables:

**Thermocouple cables:**

- Type code of the thermocouple (K, R ...)
- Approved for the temperature range of the thermocouple (Type K → up to +1200 °C)
- Same alloy as thermocouple (NiCr/Ni contains NiCr/Ni)
- Used as thermocouple, between measuring point and connection point or cold junction

**Extension cables (XC):**

- Type code of the thermocouple + “X” (KX, LX ...)
- Approved for the application temperature range (Type KX → up to +200 °C)
- Same alloy as thermocouplee (NiCr/Ni contains NiCr/Ni)
- Generally used as connecting cable between connection point and cold junction

**Compensating cables (CC):**

- Type code of the thermocouple + “C” and sometimes supplemented with a code for different compensating alloys (KCA, RCB/SCB ...)
- Approved for the application temperature range (Type KCA → up to +150 °C)
- Compensating alloys (KCA (NiCr/Ni) contains special Fe/CuNi)
- Generally used as connecting cable between connection point and cold junction

## These alloys are used for the cables:

| Type | Positive conductor | Negative conductor |
|---|---|---|
| TX | Cu | CuNi |
| JX | Fe | CuNi |
| LX | Fe | CuNi |
| EX | NiCr | CuNi |
| K | NiCr | Ni |
| KX | NiCr | Ni |
| KCA | Fe | CuNi |
| NX | NiCrSi | NiSi |
| NC | Cu | CuNi |
| RCB/SCB | Cu | CuNi |

## Criteria for selecting the cable:

**The thermocouple type:**

Each thermocouple has its own specific thermoelectric properties. If different thermocouples are mixed, measurement errors arise.

**The ambient temperature to which the cable is exposed:**

The ambient temperature is the decisive factor for the choice of insulation and jacket material for the cable. The application temperature range must be reduced if this is required by the insulation material used for the cable.

| Insulation and jacket material | Temperature range fixed installed |
|---|---|
| PVC | -25 °C up to +80 °C |
| Silicone | -50 °C up to +180 °C |
| Glass fibre | -50 °C up to +200 °C |
| FEP | -100 °C up to +205 °C |
| E-Glass | -90 °C up to +400 °C |
| Ceramic yarn | up to +1200 °C |

**The ambient temperature at the connection point:**

Each extension and compensating cable is suitable for a specific application temperature range. That means the cable has the same thermoelectric properties as the thermocouple within this application temperature range. You can find the application temperature range in table T8-1.

## Special features of the cables:

- The iron conductor is often copper-coated. This is designed to protect the conductor from corrosion. The iron conductor is magnetic and can easily be identified by this characteristic.
- For the thermocouples R and S, the thermoelectric properties are the same within the application temperature up to +200 °C, therefore only one compensating cable (RCB/SCB) is used for both types.

## VDE 0293-308/HD 308 S2
## Core ID code for colour-coded low-voltage cables

For marking cores in multi- and several-core cables for use in electrical systems and distribution systems.
For supplying permanently secured or portable power supply systems and for portable equipment cables. 3a and 4a: only suitable for specific applications.

| Number of cores | Cables with protective conductor (code J or G) | Cables without protective conductor (code O or X) | Cables with concentric conductor |
|---|---|---|---|
| 2 | – | BU/BN | BU/BN |
| 3 | GNYE/BN/BU | BN/BK/GY | BN/BK/GY |
| 3a | – | BU/BN/BK | BU/BN/BK |
| 4 | GNYE/BN/BK/GY | BU/BN/BK/GY | BU/BN/BK/GY |
| 4a | GNYE/BU/BN/BK | – | – |
| 5 | GNYE/BU/BN/BK/GY | BU/BN/BK/GY/BK | BU/BN/BK/GY/BK |
| 6 and above | GNYE/BK<br>with printed numbers | BK<br>with printed numbers | BK<br>with printed numbers |

## Colour code for power cables as per VDE 0293 (old) – (colour codes are listed in IEC 60757)

For marking cores in multi- and several-core cables for connecting portable power consumers.

| Number of cores | Cables with green/yellow core (currently not yet harmonised) | Cables with green/yellow core (currently not yet harmonised) | Cables with concentric conductor |
|---|---|---|---|
| 2 | – | BU/BN | – |
| 3 | GNYE/BN/BU | BU/BN/BK | – |
| 3 | – | BU/BN/BK | – |
| 4 | GNYE/BK/BU/BN | BU/BN/BK/GY | – |
| 5 | GNYE/BK/BU/BN/BK | BU/BN/BK/GY/BK | – |
| 6 and above | GNYE/further cores in BK with printed numbers, starting from the inside with 1, GNYE in the outer layer | BK<br>with printed numbers | – |

For marking cores in multi- and several-core cables and in multi-core cables for fixed installation.

| Number of cores | Cables with green/yellow core (code -J-) | Cables without green/yellow core (code -O-) | Cables with concentric conductor |
|---|---|---|---|
| 2 | – | BK/BU | BK/BU |
| 3 | GNYE/BK/BU | BN/BU/BK | BK/BU/BN |
| 3 | – | BN/BK/BU | – |
| 4 | GNYE/BK/BU/BN | BK/BN/BU/BK | BK/BU/BN/BK |
| 5 | GNYE/BK/BU/BN/BK | BK/BN/BU/BK/BK | – |
| 6 and above | GNYE/further cores in BK with printed numbers, starting from the inside with 1, GNYE in the outer layer | Cores in BK with printed numbers, starting from the inside with 1 | Cores in BK with printed numbers, starting from the inside with 1 |

## DIN 47100/January 1988 – colour code for UNITRONIC® twisted pair

Each pair has an a-core and a b-core. The marking is repeated for the first time as from 23 pairs, and for the second time as from 45 pairs. The first colour is always the basic colour of the core, and the second colour is printed in rings.

| Pair no. | Colour of a-core | Colour of b-core | Pair no. | Colour of a-core | Colour of b-core |
|---|---|---|---|---|---|
| 1 | white | brown | 13 | white/black | brown/black |
| 2 | green | yellow | 14 | grey/green | yellow/grey |
| 3 | grey | pink | 15 | pink/green | yellow/pink |
| 4 | blue | red | 16 | green/blue | yellow/blue |
| 5 | black | violet | 17 | green/red | yellow/red |
| 6 | grey/pink | red/blue | 18 | green/black | yellow/black |
| 7 | white/green | brown/green | 19 | grey/blue | pink/blue |
| 8 | white/yellow | yellow/brown | 20 | grey/red | pink/red |
| 9 | white/grey | grey/brown | 21 | grey/black | pink/black |
| 10 | white/pink | pink/brown | 22 | blue/black | red/black |
| 11 | white/blue | brown/blue | 23-44 | see 1 – 22 | see 1 – 22 |
| 12 | white/red | brown/red | 45-66 | see 1 – 22 | see 1 – 22 |

## DIN 47100 colour code (but differs from DIN as the colours are not repeated after the 44th core)

Exception: 4-core cable, which has a sequence of white, yellow, brown, green.

| Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour |
|---|---|---|---|---|---|---|---|---|---|
| 1 | white | 14 | brown/green | 27 | grey/green | 40 | pink/red | 53 | white/grey/black |
| 2 | brown | 15 | white/yellow | 28 | yellow/grey | 41 | grey/black | 54 | grey/brown/black |
| 3 | green | 16 | yellow/brown | 29 | pink/green | 42 | pink/black | 55 | white/pink/black |
| 4 | yellow | 17 | white/grey | 30 | yellow/pink | 43 | blue/black | 56 | pink/brown/black |
| 5 | grey | 18 | grey/brown | 31 | green/blue | 44 | red/black | 57 | white/blue/black |
| 6 | pink | 19 | white/pink | 32 | yellow/blue | 45 | white/brown/black | 58 | brown/blue/black |
| 7 | blue | 20 | pink/brown | 33 | green/red | 46 | yellow/green/black | 59 | white/red/black |
| 8 | red | 21 | white/blue | 34 | yellow/red | 47 | grey/pink/black | 60 | brown/red/black |
| 9 | black | 22 | brown/blue | 35 | green/black | 48 | red/blue/black | 61 | black/white |
| 10 | violet | 23 | white/red | 36 | yellow/black | 49 | white/green/black | | |
| 11 | grey/pink | 24 | brown/red | 37 | grey/blue | 50 | brown/green/black | | |
| 12 | red/blue | 25 | white/black | 38 | pink/blue | 51 | white/yellow/black | | |
| 13 | white/green | 26 | brown/black | 39 | grey/red | 52 | yellow/brown/black | | |

## Colour code for UNITRONIC® 300 & 300 S (20 – 16 AWG)

| Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour |
|---|---|---|---|---|---|---|---|---|---|
| 1 | black | 11 | pink | 21 | white/brown | 31 | white/black/grey | 41 | white/green/red |
| 2 | red | 12 | light brown | 22 | white/orange | 32 | white/black/violet | 42 | white/green/green |
| 3 | white | 13 | red/green | 23 | white/grey | 33 | white/black/black | 43 | white/green/blue |
| 4 | green | 14 | red/yellow | 24 | white/violet | 34 | white/red/black | 44 | white/green/brown |
| 5 | orange | 15 | red/black | 25 | white/black/red | 35 | white/red/red | 45 | white/green/violet |
| 6 | blue | 16 | white/black | 26 | white/black/green | 36 | white/red/green | 46 | white/blue/black |
| 7 | brown | 17 | white/red | 27 | white/black/yellow | 37 | white/red/blue | 47 | white/blue/red |
| 8 | yellow | 18 | white/green | 28 | white/black/blue | 38 | white/red/brown | 48 | white/blue/green |
| 9 | violet | 19 | white/yellow | 29 | white/black/brown | 39 | white/red/violet | 49 | white/blue/blue |
| 10 | grey | 20 | white/blue | 30 | white/black/orange | 40 | white/green/black | 50 | white/blue/brown |

## Colour code for UNITRONIC® 300 & 300 S (24 – 22 AWG)

| Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour | Core no. | Colour |
|---|---|---|---|---|---|---|---|---|---|
| 1 | black | 11 | white/black | 21 | white/black/red | 31 | white/brown/green | 41 | white/orange/yellow |
| 2 | brown | 12 | white/brown | 22 | white/black/orange | 32 | white/brown/blue | 42 | white/orange/green |
| 3 | red | 13 | white/red | 23 | white/black/yellow | 33 | white/brown/violet | 43 | white/orange/blue |
| 4 | orange | 14 | white/orange | 24 | white/black/green | 34 | white/brown/grey | 44 | white/orange/violet |
| 5 | yellow | 15 | white/yellow | 25 | white/black/blue | 35 | white/red/orange | 45 | white/orange/grey |
| 6 | green | 16 | white/green | 26 | white/black/violet | 36 | white/red/yellow | 46 | white/yellow/green |
| 7 | blue | 17 | white/blue | 27 | white/black/grey | 37 | white/red/green | 47 | white/yellow/blue |
| 8 | violet | 18 | white/violet | 28 | white/brown/red | 38 | white/red/blue | 48 | white/yellow/violet |
| 9 | grey | 19 | white/grey | 29 | white/brown/orange | 39 | white/red/violet | 49 | white/yellow/grey |
| 10 | white | 20 | white/black/brown | 30 | white/brown/yellow | 40 | white/red/grey | 50 | white/green/blue |

# Core ID code as per VDE colour code for telephone cables

## Colour code for J-Y(ST)Y... LG as per DIN VDE 0815

The colour of the a-core of each first pair in a layer is red (counting pair); for all other pairs the a-core is white. The colour of the b-core is blue, yellow, green, brown, black, repeating continuously as follows:

| Colour of the b-core | Number of pair | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| blue | 1 | 6 | 11 | 16 | 21 | 26 | 31 | 36 | 41 | 46 |
| yellow | 2 | 7 | 12 | 17 | 22 | 27 | 32 | 37 | 42 | 47 |
| green | 3 | 8 | 13 | 18 | 23 | 28 | 33 | 38 | 43 | 48 |
| brown | 4 | 9 | 14 | 19 | 24 | 29 | 34 | 39 | 44 | 49 |
| black | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| blue | 51 | 56 | 61 | 66 | 71 | 76 | 81 | 86 | 91 | 96 |
| yellow | 52 | 57 | 62 | 67 | 72 | 77 | 82 | 87 | 92 | 97 |
| green | 53 | 58 | 63 | 68 | 73 | 78 | 83 | 88 | 93 | 98 |
| brown | 54 | 59 | 64 | 69 | 74 | 79 | 84 | 89 | 94 | 99 |
| black | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 |

Beginning with the outer layer, the pairs are numbered consecutively in the same direction through all layers. The count begins with the counting element (the pair with the red a-core).

Example: J-Y(ST)Y 10 x 2 x 0.8 LG

Outer layer 8 pairs: rd-bu, wh-ye, wh-gn, wh-bn, wh-bk, wh-bu, wh-ye, wh-gn

Inner layer 2 pairs: rd-bn, wh-bk

**Exception:**
The twin-pair installation cable is twisted into a star quad:

Side 1: a-core: red,
b-core: black,

Side 2: a-core: white,
b-core: yellow.

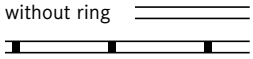
## Colour code for A-2Y(L)2Y... ST III BD and A-2YF(L)2Y... ST III BD as per DIN VDE 0816 and for J-H(ST)H ... BD and J-2Y(ST)Y... ST III BD as per DIN VDE 0815

The cores are marked by black rings. One star quad is:

Side 1:

a-core: without ring

b-core:



Side 2:

a-core:

b-core:



The cores of a star quad for each bundle are identified by the base colours of the insulation sheath, which are repeated in the same sequence in each bundle:

Quad 1: base colour red

Quad 2: base colour green

Quad 3: base colour grey

Quad 4: base colour yellow

Quad 5: base colour white

5 star quads (10 pairs) are stranded into a base bundle. The bundles to be counted are marked by red helices. The other bundles are marked by white helices.

## Colour code for JE-Y(ST)Y... BD and JE-LiYCY... BD as per DIN VDE 0815

The pair cores for each bundle are identified by the base colours of the insulation sheath, which are repeated in the same sequence in each bundle:

Base colour of the pairs

| Pair: | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| a-core: | blue | grey | green | white |
| b-core: | red | yellow | brown | black |

**Exception:**
The twin-pair installation cable is twisted into a star quad:

Side 1: a-core: blue,
b-core: red,

Side 2: a-core: grey,
b-core: yellow.

4 pairs are stranded into a bundle. The bundles are identified by the colours of the rings on the core insulation sheaths and the arrangement of the coloured rings in groups. The ring groups are located at intervals of approx. 60 mm.

On cables with more than 12 bundles, the 13th bundle and any subsequent bundles have coloured helices. When counting the bundles, start from the innermost layer.

| Bundle | Ring colour | Ring group | Bundle helix |
|---|---|---|---|
| 1 | pink | | - |
| 2 | pink | | - |
| 3 | pink | | - |
| 4 | pink | | - |
| 5 | orange | | - |
| 6 | orange | | - |
| 7 | orange | | - |
| 8 | orange | | - |
| 9 | violet | | - |
| 10 | violet | | - |
| 11 | violet | | - |
| 12 | violet | | - |
| 13 | pink | | blue |
| 14 | pink | | blue |
| 15 | pink | | blue |
| 16 | pink | | blue |
| 17 | orange | | red |
| 18 | orange | | red |
| 19 | orange | | red |
| 20 | orange | | red |

# Conductor resistances and conductor stranding (metric)

**Conductor resistances:** up to 0.38 mm² as per DIN VDE 0812 and DIN VDE 0881 for stranded conductors, from 0.5 mm² as per IEC 60228/DIN EN 60228 (VDE 0295) for conductors made of soft-annealed copper and single and multi-core cables.

| Nominal cross-section in mm² | Conductor resistances at 20 °C for 1 km in Ω (max. value) | | | |
|---|---|---|---|---|
| | made of wires with metal sheath | | made of bare wires | |
| | Class 2 | Class 5 + 6 | Class 2 | Class 5 + 6 |
| 0.08 | | 252.0 | | 243.0 |
| 0.14 | | 148.0 | | 138.0 |
| 0.25 | | 79.9 | | 79.0 |
| 0.34 | | 57.5 | | 57.0 |
| 0.38 | | 52.8 | | 48.5 |
| 0.5 | 36.7 | 40.1 | 36.0 | 39.0 |
| 0.75 | 24.8 | 26.7 | 24.5 | 26.0 |
| 1 | 18.2 | 20.0 | 18.1 | 19.5 |
| 1.5 | 12.2 | 13.7 | 12.1 | 13.3 |
| 2.5 | 7.56 | 8.21 | 7.41 | 7.98 |
| 4 | 4.70 | 5.09 | 4.61 | 4.95 |
| 6 | 3.11 | 3.39 | 3.08 | 3.30 |
| 10 | 1.84 | 1.95 | 1.83 | 1.91 |
| 16 | 1.16 | 1.24 | 1.15 | 1.21 |
| 25 | 0.734 | 0.795 | 0.727 | 0.780 |
| 35 | 0.529 | 0.565 | 0.524 | 0.554 |
| 50 | 0.391 | 0.393 | 0.387 | 0.386 |
| 70 | 0.270 | 0.277 | 0.268 | 0.272 |
| 95 | 0.195 | 0.210 | 0.193 | 0.206 |
| 120 | 0.154 | 0.164 | 0.153 | 0.161 |
| 150 | 0.126 | 0.132 | 0.124 | 0.129 |
| 185 | 0.100 | 0.108 | 0.0991 | 0.106 |
| 240 | 0.0762 | 0.0817 | 0.0754 | 0.0801 |
| 300 | 0.0607 | 0.0654 | 0.0601 | 0.0641 |
| 400 | 0.0475 | | 0.0470 | |
| 500 | 0.0369 | | 0.0366 | |
| 630 | 0.0286 | | 0.0283 | |
| 800 | 0.0224 | | 0.0221 | |
| 1000 | 0.0177 | | 0.0176 | |

IEC 60228:2004 / nominal cross-sectional area: value that identifies a particular size of conductor but is not subject to direct measurement

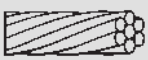
### Conductor stranding (metric)

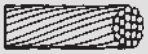
| Cross-section in mm² | Multi-wire conductor Number of wires | Fine-wire conductor Single wire diameter | Extra-fine wire conductor Single wire diameter |
|---|---|---|---|
| 0.14 | | | max. 0.10 mm |
| 0.25 | | max. 0.15 mm | max. 0.10 mm |
| 0.34 | | max. 0.15 mm | max. 0.10 mm |
| 0.38 | | max. 0.16 mm | max. 0.16 mm |
| 0.5 | min. 7 Wire | max. 0.21 mm | max. 0.16 mm |
| 0.75 | min. 7 Wire | max. 0.21 mm | max. 0.16 mm |
| 1.0 | min. 7 Wire | max. 0.21 mm | max. 0.16 mm |
| 1.5 | min. 7 Wire | max. 0.26 mm | max. 0.16 mm |
| 2.5 | min. 7 Wire | max. 0.26 mm | max. 0.16 mm |
| 4 | min. 7 Wire | max. 0.31 mm | max. 0.16 mm |
| 6 | min. 7 Wire | max. 0.31 mm | max. 0.21 mm |
| 10 | min. 7 Wire | max. 0.41 mm | max. 0.21 mm |
| 16 | min. 7 Wire | max. 0.41 mm | max. 0.21 mm |
| 25 | min. 7 Wire | max. 0.41 mm | max. 0.21 mm |
| 35 | min. 7 Wire | max. 0.41 mm | max. 0.21 mm |
| 50 | min. 19 Wire | max. 0.41 mm | max. 0.31 mm |
| 70 | min. 19 Wire | max. 0.51 mm | max. 0.31 mm |
| 95 | min. 19 Wire | max. 0.51 mm | max. 0.31 mm |
| 120 | min. 37 Wire | max. 0.51 mm | max. 0.31 mm |
| 150 | min. 37 Wire | max. 0.51 mm | max. 0.31 mm |
| 185 | min. 37 Wire | max. 0.51 mm | max. 0.41 mm |
| 240 | min. 37 Wire | max. 0.51 mm | max. 0.41 mm |
| 300 | min. 61 Wire | max. 0.51 mm | max. 0.41 mm |
| 400 | min. 61 Wire | max. 0.51 mm | |
| 500 | min. 61 Wire | max. 0.61 mm | |
| 630 | min. 91 Wire | max. 0.61 mm | |

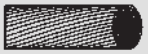
NOTE ON STANDARDS:

**For single-wire conductors ...** **(class 1)**, please see DIN EN 60228 (VDE 0295), table 1
**For multi-wire conductors ...** **(class 2)**, please see DIN EN 60228 (VDE 0295), table 2
**For fine-wire conductors ...** **(class 5)**, please see DIN EN 60228 (VDE 0295), table 3
**For extra-fine wire conductors ...** **(class 6)**, please see DIN EN 60228 (VDE 0295), table 4


single-wire


multi-/several-wire


fine-wire

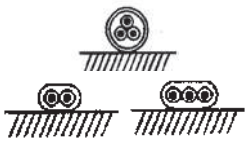
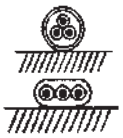

extra-fine wire

## Table 12-1: current rating

For cables with a nominal voltage of up to 1000 V and for heat-resistant cables at an ambient temperature of +30 °C.
You can find general rules and recommended values in DIN VDE 0298 part 2 and part 4.

The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 11 and 15, and based on DIN VDE 0891, 1990-05, part 1.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Cable category | | | | | | |
|---|---|---|---|---|---|---|
| | **A**<br>**Single-core cables**<br>• Rubber insulation<br>• PVC insulation<br>• TPE insulation<br>• Heat-resistant | **B**<br>**Multi-core cables for domestic/handheld equipment**<br>• Rubber insulation<br>• PVC insulation<br>• TPE insulation | | **C**<br>**Multi-core cables excl. domestic/handheld equipment**<br>• Rubber insulation<br>• PVC insulation<br>• TPE insulation<br>• Heat-resistant | **D**<br>**Multi-core rubber-sheathed cables**<br>min. 0.6/1 kV<br>**Single-core**<br>**Special rubber core cables**<br>0.6/1 or 1.8/3 kV | |
| **Installation type** |  |  | |  |  | |
| **Number of cores under load** | **1**[3] | **2** | **3** | **2 or 3** | **3** | **1**[3] |
| **Nominal cross-section in mm²** | **Current rating in A** | **Current rating in A** | | **Current rating in A** | **Current rating in A** | |
| 0.08[1] | 3 | - | - | 2 | - | - |
| 0.14[1] | 4.5 | - | - | 3 | - | - |
| 0.25[1] | 7 | - | - | 4.5 | - | - |
| 0.34[1] | 8 | - | - | 5 | - | - |
| 0.5 | 12[2] | 3 | 3 | 9[2] | - | - |
| 0.75 | 15 | 6 | 6 | 12 | - | - |
| 1.0 | 19 | 10 | 10 | 15 | - | - |
| 1.5 | 24 | 16 | 16 | 18 | 23 | 30 |
| 2.5 | 32 | 25 | 20 | 26 | 30 | 41 |
| 4 | 42 | 32 | 25 | 34 | 41 | 55 |

[1] Current rating values for small conductor cross-sections taken from VDE 0891-1 (0.08 mm² – 0.34 mm²)
[2] Extended range for 0.5 mm² in line with VDE 0298-4, 2003-08, table 11
[3] When bundling single-core, touching or bundled cables, when installed on surfaces, in the open air or on cable conduits, please observe DIN VDE 0298-4, 2013-06, table 10

**IMPORTANT:**
The information portrayed in this table differs from that in DIN VDE 0298-4, 2013-06.
As such, in the event of any uncertainty, the current version of DIN VDE 0298-4 always applies.

Please observe all applicable conversion factors going beyond table 12-1 for:
- differing ambient temperature: table 12-2
- several-core cables up to 10mm² with more than 3 cores under load: table 12-3
- heat-resistant cables for ambient temperatures exceeding 50 °C: table 12-4
- for wound cables: table 12-5
- bundling of single-core or multi-core cables in pipes, ducts, walls or flooring: table 12-6
- bundling of multi-core cables on troughs or conduits: table 12-7
- bundling of single-core cables on troughs or conduits: table 12-8

**Note for low-voltage electrical installations – protection for safety – protection against overcurrent:**

According to HD 60364-4-43: 2010 and DIN VDE 0100-430 (VDE 0100-430): 2010-10 (IEC 60364-4-43: 2008, modified + Corrigendum Oct. 2008)

According to the above-mentioned standard, the requirements for protecting live conductors from the effects of overcurrents must be observed. This standard describes how live conductors are protected by one or more devices for automatically disconnecting the supply in the event of an overload or short-circuit.

**Please also observe all applicable current ratings going beyond table 12-1 for:**
- Flexible cables with cross-linked elastomer insulation for industrial applications: table 12-9
- Welding cable H01N2-D: table 12-10
- Operating current and power loss of copper conductors: table 12-11
- Current rating for cables in the USA: see NEC excerpt in table 13
- Cables for fixed installation in buildings: see DIN VDE 0298 part 4, 2013-06, table 3 and 4
- ESUY earthing cable: see DIN VDE 0105-1
- Cables in machinery: see DIN EN 60204-1/VDE 0113-1

## Table 12-2: conversion factors

For ambient temperatures other than +30 °C. The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 17.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Permissible/recommended operating temperature at the conductor (Details of the maximum value in °C can be found in the field "Technical data, temperature range for fixed or flexible installation" on the relevant product page in the catalogue) | | | | | |
|---|---|---|---|---|---|
| | 60 °C | 70 °C | 80 °C | 85 °C | 90 °C |
| Ambient temperature in °C | Conversion factors to be applied to the current rating values in T12-1 | | | | |
| 30 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 40 | 0.82 | 0.87 | 0.89 | 0.90 | 0.91 |
| 50 | 0.58 | 0.71 | 0.77 | - | 0.82 |
| 60 | - | 0.50 | 0.63 | - | 0.71 |
| 70 | - | - | 0.45 | - | 0.58 |
| 80 | - | - | - | - | 0.41 |

## Table 12-3: conversion factors

For several-core cables with conductor cross-sections up to 10 mm². The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 26.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Number of cores under load | Conversion factor for installation in the open air | Conversion factor for installation underground |
|---|---|---|
| 5 | 0.75 | 0.70 |
| 7 | 0.65 | 0.60 |
| 10 | 0.55 | 0.50 |
| 14 | 0.50 | 0.45 |
| 24 | 0.40 | 0.35 |

## Table 12-4: conversion factors for heat-resistant cables

The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 18.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Permissible/recommended operating temperature at the conductor (Details of the maximum value in °C can be found in the field "Technical data, temperature range for fixed or flexible installation" on the relevant product page in the catalogue) | | | | |
|---|---|---|---|---|
| | 90 °C | 110 °C | 135 °C | 180 °C |
| Ambient temperature in °C | Conversion factors to be applied to the current rating values for heat-resistant cables in T 12-1, column A, C or D. | | | |
| up to 50 | 1.00 | 1.00 | 1.00 | 1.00 |
| 75 | 0.61 | 1.00 | 1.00 | 1.00 |
| 85 | 0.35 | 0.91 | 1.00 | 1.00 |
| 105 | - | 0.41 | 0.87 | 1.00 |
| 130 | - | - | 0.35 | 1.00 |
| 175 | - | - | - | 0.41 |

## Table 12-5: conversion factors for wound cables

The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 27.

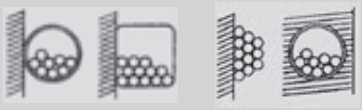
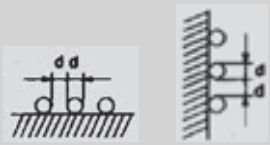
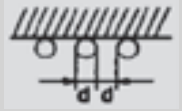
| Number of layers on the coil, drum, reel | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Conversion factor | 0.80 | 0.61 | 0.49 | 0.42 | 0.38 |

A conversion factor of 0.8 applies to spiral winding (in one layer).

## Table 12-6: conversion factors

For bundling on walls, in pipes and ducts, on flooring and under ceilings. The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 21.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

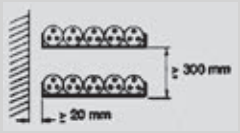
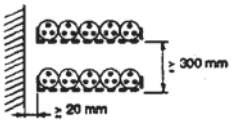
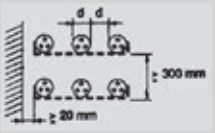
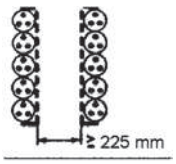
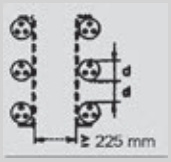
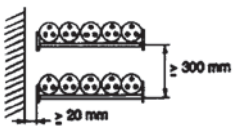
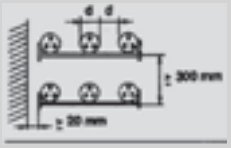
| Configuration for installation | Number of multi-core cables or number of AC or three-phase circuits formed by single-core cables (2 or 3 live conductors) | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 6 | 10 |
| | Conversion factors to be applied to the current rating values in table 12-1 | | | | | |
| Bundled directly on the wall, on the floor, in pipes or ducts for electrical installations.  | 1.00 | 0.80 | 0.70 | 0.65 | 0.57 | 0.48 |
| In a single layer on the wall or floor, touching.  | 1.00 | 0.85 | 0.79 | 0.75 | 0.72 | 0.70 |
| In a single layer on the wall or floor, with a gap equal to outer diameter d.  | 1.00 | 0.94 | 0.90 | 0.90 | 0.90 | 0.90 |
| In a single layer under the ceiling, touching.  | 0.95 | 0.81 | 0.72 | 0.68 | 0.64 | 0.61 |
| In a single layer under the ceiling, with a gap equal to outer diameter d.  | 0.95 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |

○ = Symbol for single-core or multi-core cable
**IMPORTANT:** The conversion factors must be applied in order to determine the current rating for cables of the same type and under the same load, when bundled in the same installation type. In the process, the nominal conductor cross-sections must not vary by more than one cross-section classification.

## Table 12-7: conversion factors

For bundling multi-core cables on troughs and conduits. The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 22.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

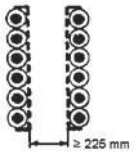
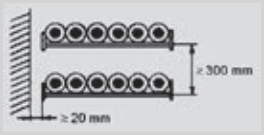
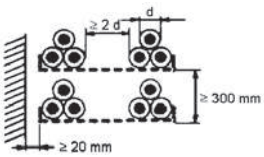
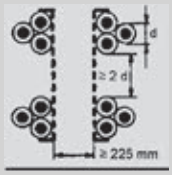
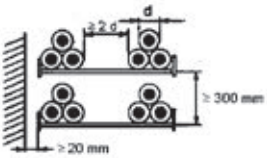
| Configuration for installation | | | Number of troughs or conduits | Number of multi-core cables | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 6 | 9 |
| | | | | Conversion factors | | | | | |
| Non-perforated cable troughs | touching |  | 1 | 0.97 | 0.84 | 0.78 | 0.75 | 0.71 | 0.68 |
| Perforated cable troughs | touching |  | 1 | 1.00 | 0.88 | 0.82 | 0.79 | 0.76 | 0.73 |
| | with gap |  | 1 | 1.00 | 1.00 | 0.98 | 0.95 | 0.91 | – |
| | touching |  | 1 | 1.00 | 0.88 | 0.82 | 0.78 | 0.73 | 0.72 |
| | with gap |  | 1 | 1.00 | 0.91 | 0.89 | 0.88 | 0.87 | – |
| Cable conduits | touching |  | 1 | 1.00 | 0.87 | 0.82 | 0.80 | 0.79 | 0.78 |
| | with gap |  | 1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | – |

**IMPORTANT:** The factors stated in this table apply only to groups of cables installed in a single layer in configurations as specified above. However, they do not apply if the cables are touching and installed over one another, or if the actual gap dimensions between the cable troughs or cable conduits fall short of the specified gaps. If this is the case, reduce the conversion factors (e.g. as per table 12-6).

## Table 12-8: conversion factors

For bundling single-core cables on troughs and conduits. The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 23.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

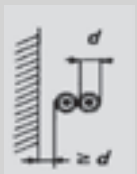
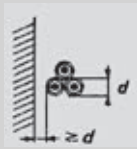
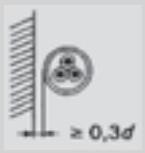
| Configuration for installation | | | Number of troughs or conduits | Number of 3-pin circuits formed by single-core cables | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | To be used as the multiplier for the measurement value of: |
| | | | | Conversion factors | | | |
| Perforated cable troughs | touching |  | 1 | 0.98 | 0.91 | 0.87 | Three cables arranged horizontally and level |
| | touching |  | 1 | 0.96 | 0.86 | – | Three cables arranged vertically and level |
| Cable conduits | touching |  | 1 | 1.00 | 0.97 | 0.96 | Three cables arranged horizontally and level |
| Perforated cable troughs | |  | 1 | 1.00 | 0.98 | 0.96 | Three cables arranged in a horizontal, triangular configuration |
| | |  | 1 | 1.00 | 0.91 | 0.89 | Three cables arranged in a vertical, triangular configuration |
| Cable conduits | |  | 1 | 1.00 | 1.00 | 1.00 | Three cables arranged in a horizontal, triangular configuration |

**IMPORTANT:** The factors stated in this table apply only to groups of single-core cables installed in a single layer in configurations as specified above. However, they do not apply if the cables are touching and installed over one another, or if the actual gap dimensions between the cable troughs or cable conduits fall short of the specified gaps. If this is the case, reduce the conversion factors (e.g. as per table 12-6). If circuits are connected in parallel, each three-conductor bundle of the parallel connection is to be considered as one circuit.

# Table 12-9: current rating of rubber-sheathed cables

Current rating of flexible cables with cross-linked elastomer insulation for industrial applications (H07RN-F and A07RN-F).
The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 13.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Permissible operating temperature at the conductor: 60 °C | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ambient temperature: 30 °C | | | | | | | |
| **Installation type: in the open air** |  |  |  |  |  |  |  |
| **Number of cores under load** | **2** | **3** | **2** | **2** | **3** | **3** | **3** |
| **Nominal cross-section of copper cond. in mm²** | **Rating A** | | | | | | |
| 1 | - | - | 15 | 15.5 | 12.5 | 13 | 13.5 |
| 1.5 | 19 | 16.5 | 18.5 | 19.5 | 15.5 | 16 | 16.5 |
| 2.5 | 26 | 22 | 25 | 26 | 21 | 22 | 23 |
| 4 | 34 | 30 | 34 | 35 | 29 | 30 | 30 |
| 6 | 43 | 38 | 43 | 44 | 36 | 37 | 38 |
| 10 | 60 | 53 | 60 | 62 | 51 | 52 | 54 |
| **Conversion factors for:** | | | | | | | |
| Differing ambient temperature | see table T 12-2 | | | | | | |
| Bundling | - | T 12-8 | | | T 12-7 | | |
| Wound cables | - | - | | | T 12-5 | | |
| Several-core cables | - | | | | T 12-3 | - | |

**Conversion factors** for other ambient temperatures for heat-resistant cables with cross-linked elastomer insulation.
The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 18.1.

| Ambient temperature in °C | Permissible operating temperature: 90 °C<br>Conversion factors to be applied to the current rating values in table 12-9 |
|---|---|
| up to 60 | 1.00 |
| 75 | 0.71 |
| 80 | 0.58 |
| 85 | 0.41 |

## Table 12-10: operating conditions and ratings for welding cables

### H01N2-D and H01N2-E

The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 16.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Permissible operating temperature at the conductor 85 °C | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ambient temperature: 30 °C | | | | | | | |
| **Installation type: in the open air** | | | |  | | | |
| **Number of cores under load** | | | | 1 | | | |
| **Mode of operation** | **Continuous operation** | **Intermittent operation** | | | | | |
| Run time | - | 5 minutes | | | | | |
| Switch-on duration (ED) | 100 % | 85 % | 80 % | 60 % | 35 % | 20 % | 8 % |
| **Nominal cross-section of copper cond. in mm²** | **Rating A** | | | | | | |
| 10 | 96 | 97 | 98 | 102 | 114 | 137 | 198 |
| 16 | 130 | 132 | 134 | 142 | 166 | 204 | 301 |
| 25 | 173 | 179 | 181 | 196 | 234 | 293 | 442 |
| 35 | 216 | 226 | 229 | 250 | 304 | 384 | 584 |
| 50 | 274 | 287 | 293 | 323 | 398 | 508 | 779 |
| **Mode of operation** | **Continuous operation** | **Intermittent operation** | | | | | |
| Run time | - | 10 minutes | | | | | |
| Switch-on duration (ED) | 100 % | 85 % | 80 % | 60 % | 35 % | 20 % | 8 % |
| **Nominal cross-section of copper cond. in mm²** | **Rating A** | | | | | | |
| 10 | 96 | 96 | 96 | 97 | 102 | 113 | 152 |
| 16 | 130 | 131 | 131 | 133 | 144 | 167 | 233 |
| 25 | 173 | 175 | 176 | 182 | 204 | 244 | 351 |
| 35 | 216 | 220 | 222 | 233 | 268 | 324 | 477 |
| 50 | 274 | 281 | 284 | 303 | 356 | 439 | 654 |
| Conversion factors for differing ambient temperature | Table T 12-2 | | | | | | |

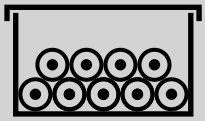
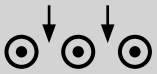
## Table 12-11: operating current and power loss of copper conductors

The figure is taken from of DIN EN 61439-1 (VDE 0660-600-1), 2012-06, Annex H.

The following table provides reference values for operating currents and power losses of conductors inside an assembly of switchgear and control gear under idealised conditions. The computational methods used to create the values are given in order to calculate values for other conditions.

For copyright reasons, only excerpts from DIN EN 61439-1 can be shown at this point.

**Operating current and power loss of single copper conductors with a permissible conductor temperature of 70 °C**
(ambient temperature inside of assemblies of switchgears and controlgears: 55 °C)

| Configuration for installation |  Single-core cable, in a conduit, on walls, arranged horizontally. 6 cables (2 three-phase circuits) continously charged | |  Single-core cable, touching, installed in the open air or on a perforated cable trough. 6 cables (2 three-phase circuits) continously charged | | Gap of at least one cable diameter  Single-core cable, installed horizontally in the open air with a specified gap | |
|---|---|---|---|---|---|---|
| Conductor cross section | Conductor resistance at 20 °C, $R_{20}$ [a] | Max. operating current $I_{max}$ [b] | Power loss per core $P_v$ | Max. operating current $I_{max}$ [b] | Power loss per core $P_v$ | Max. operating current $I_{max}$ [b] | Power loss per core $P_v$ |
| mm² | mΩ/m | A | W/m | A | W/m | A | W/m |
| 1.5 | 12.1 | 8 | 0.8 | 9 | 1.3 | 15 | 3.2 |
| 2.5 | 7.41 | 10 | 0.9 | 13 | 1.5 | 21 | 3.7 |
| 4 | 4.61 | 14 | 1.0 | 18 | 1.7 | 28 | 4.2 |
| 6 | 3.08 | 18 | 1.1 | 23 | 2.0 | 36 | 4.7 |
| 10 | 1.83 | 24 | 1.3 | 32 | 2.3 | 50 | 5.4 |

## Table 12-12: rated short circuit current densities for cables with copper and aluminium conductors

The values given in the table below are reference values and, in a simplified form, taken from DIN VDE 0298 part 4, 2013-06, table 28.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be shown at this point.

| Insulation material | Permissible operating temperatur at the conductor | Permissible short circuit temperature $\vartheta_e$ | Conductor temperature at the beginning of the short circuit $\vartheta_a$ in °C | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 180 | 135 | 110 | 90 | 80 | 70 | 60 | 50 | 40 | 30 |
| | | | rated short circuit current density $J_{thr}$ for 1 s | | | | | | | | | |
| | °C | °C | A/mm² | | | | | | | | | |
| **Copper conductor** | | | | | | | | | | | | |
| EPR* | 60 | 250** | | | | | | | 159 | 165 | 170 | 176 |
| PVC: | | | | | | | | | | | | |
| flexible cable up to 300mm² | 70 | 150 | | | | | | 109 | 117 | 124 | 131 | 138 |
| cables for fixed installation: | | | | | | | | | | | | |
| up to 300 mm² | 70 | 160 | | | | | | 115 | 122 | 129 | 136 | 143 |
| above 300 mm² | 70 | 140 | | | | | | 103 | 111 | 118 | 126 | 133 |
| PVC, heat-resistant | 90 | 150 | | | | 93 | 101 | 109 | 117 | 124 | 131 | 138 |
| Silicone rubber | 180 | 350** | 132 | 153 | 164 | 173 | 178 | 182 | 187 | 192 | 196 | 201 |
| Tinned conductor | | 200 | 49 | 91 | 109 | 122 | 128 | 135 | 141 | 147 | 153 | 159 |
| **Aluminium conductor** | | | | | | | | | | | | |
| PVC cable | | | | | | | | | | | | |
| up to 300 mm² | 70 | 160 | | | | | | 76 | 81 | 85 | 90 | 95 |
| above 300 mm² | 70 | 140 | | | | | | 68 | 73 | 78 | 83 | 88 |

* Ethylene propylene rubber (EPR) or Ethylene Propylene Diene rubber (EPDM)
** For tinned conductors the temperature is limited to +200°C, for soft solder connections it is limited to +160°C.

# Current rating of cables in the USA

## Excerpt from NEC table T310.15 (B)(16)

Permissible current rating of insulated copper conductors with a nominal voltage of 0 to 2000 V, 60 °C to 90 °C (140 °F to 194 °F). Not more than three current-carrying conductors in any one cable duct, pipe, hose or in one (multi-core) cable or installed underground (direct routing underground), based on an ambient temperature of 30 °C (86 °F).

## Excerpt from NEC T310.15 (B)(17)

Permissible current rating of single-core cables with copper conductor with a nominal voltage of 0 to 2000 V, installed in free air, based on an ambient temperature of 30 °C.

(NEC edition 2017)

| Conductor cross-section | Rating in A with a permissible continuous temperature at the conductor | | | Conductor cross-section | Rating in A with a permissible continuous temperature at the conductor | | |
|---|---|---|---|---|---|---|---|
| AWG or kcmil (MCM) | 60 °C (140 °F) | 75 °C (167 °F) | 90 °C (194 °F) | AWG or kcmil (MCM) | 60 °C (140 °F) | 75 °C (167 °F) | 90 °C (194 °F) |
| 18 | – | – | 14* | 18 | – | – | 18 |
| 16 | – | – | 18* | 16 | – | – | 24 |
| 14 | 15* | 20* | 25* | 14 | 25* | 30* | 35* |
| 12 | 20* | 25* | 30* | 12 | 30* | 35* | 40* |
| 10 | 30* | 35* | 40* | 10 | 40* | 50* | 55* |
| 8 | 40 | 50 | 55 | 8 | 60 | 70 | 80 |
| 6 | 55 | 65 | 75 | 6 | 80 | 95 | 105 |
| 4 | 70 | 85 | 95 | 4 | 105 | 125 | 140 |
| 3 | 85 | 100 | 115 | 3 | 120 | 145 | 165 |
| 2 | 95 | 115 | 130 | 2 | 140 | 170 | 190 |
| 1 | 110 | 130 | 145 | 1 | 165 | 195 | 220 |
| 1/0 | 125 | 150 | 170 | 1/0 | 195 | 230 | 260 |
| 2/0 | 145 | 175 | 195 | 2/0 | 225 | 265 | 300 |
| 3/0 | 165 | 200 | 225 | 3/0 | 260 | 310 | 350 |
| 4/0 | 195 | 230 | 260 | 4/0 | 300 | 360 | 405 |
| 250 | 215 | 255 | 290 | 250 | 340 | 405 | 455 |
| 300 | 240 | 285 | 320 | 300 | 375 | 445 | 500 |
| 350 | 260 | 310 | 350 | 350 | 420 | 505 | 570 |
| 400 | 280 | 335 | 380 | 400 | 455 | 545 | 615 |
| 500 | 320 | 380 | 430 | 500 | 515 | 620 | 700 |
| 600 | 350 | 420 | 475 | 600 | 575 | 690 | 780 |

| Correction factors for ambient temperatures other than 30 °C | | | | Correction factors for more than 3 current-carrying conductors in any one cable duct, pipe or in a multi-core cable | |
|---|---|---|---|---|---|
| Ambient temperature in °C | 60 °C | 75 °C | 90 °C | Number of current-carrying conductors | Correction factor |
| 21 – 25 | 1.08 | 1.05 | 1.04 | 4 to 6 | 0.80 |
| 26 – 30 | 1.00 | 1.00 | 1.00 | 7 to 9 | 0.70 |
| 31 – 35 | 0.91 | 0.94 | 0.96 | 10 to 20 | 0.50 |
| 36 – 40 | 0.82 | 0.88 | 0.91 | 21 to 30 | 0.45 |
| 41 – 45 | 0.71 | 0.82 | 0.87 | 31 to 40 | 0.40 |
| 46 – 50 | 0.58 | 0.75 | 0.82 | 41 and over | 0.35 |
| 51 – 55 | 0.41 | 0.67 | 0.76 | | |
| 56 – 60 | – | 0.58 | 0.71 | | |
| 61 – 65 | – | 0.47 | 0.65 | | |
| 66 – 70 | – | 0.33 | 0.58 | | |
| 71 – 75 | – | – | 0.50 | | |
| 76 – 80 | – | – | 0.41 | | |
| 81 – 85 | – | – | 0.29 | | |

*For conductor overcurrent protection please refer to NEC 240.4(D)

**NOTE:** Please always refer to the valid edition of the NEC. This also has to be applied for all other cases than the aforementioned ones.
The current rating of cables in industrial machinery and equipment can be found in section 12, NFPA 79 Edition 2015.

# Cables & Construction Products Regulation (CPR)

The Construction Products Regulation 305/2011, which took effect in July 2013, governs the placing on the market and the distribution of construction products, for all EU members. The aim is to increase the safety within buildings by regulating fire characteristics using a uniform classification system.

The Construction Products Regulation states that all cables permanently installed in buildings must have a CE marking and a Declaration of Performance (DoP).

Under the Construction Products Regulation, cables are regulated only according to their fire behaviour. They were divided into seven fire protection classes, where the criteria are flame development and heat propagation. $A_{ca}$ stands for non-flammable and $F_{ca}$ (highly flammable) is the worst class. There are also the additional classifications s, d and a. s evaluates the smoke emission, d the burning droplets and a the acidity of the gases produced by burning cables.

$A_{ca}$ | $B1_{ca}$ | $B2_{ca}$ | $C_{ca}$ | $D_{ca}$ | $E_{ca}$ | $F_{ca}$

## Declaration of Performance (DoP)

If the product is falls under the scope of the Construction Products Regulation, the manufacturer will provide a Declaration of Performance for the product.

LAPP

**LEISTUNGSERKLÄRUNG**
**Gemäß Anhang III der Verordnung (EU) Nr. 305/2011**
*Declaration of Performance*
*According to Annex III of Regulation (EU) no. 305/2011*

Dokument-Nr.
*Document-no.*
**UILCPRDoP17_0014150-1_A**

1. Eindeutiger Kenncode des Produkttyps
*Unique identification code of the product type*
**OELFLEX_CLASSIC_100_H-1**

2. Verwendungszweck
*Usage*
Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten
*Cables for general applications in construction works subject to reaction to fire requirements*

3. Hersteller
*Manufacturer*
**U.I. Lapp GmbH**
**Schulze-Delitzsch-Straße 25**
**D-70565 Stuttgart**

4. System zur Bewertung und Überprüfung der Leistungsbeständigkeit
*System of assessment and verification of constancy of performance*
**System 1+**

5. Diese Leistungserklärung betrifft ein Bauprodukt, das von der harmonisierten Norm **EN 13501-6** erfasst ist
*This Declaration of Performance concerns a construction product which is covered by the harmonized standard **EN 13501-6***

6. Produktzertifizierungsstelle
*product certification body*
**No. 0366**

7. Erklärte Leistung
*Declared Performance*

| Wesentliche Merkmale<br>*Essential characteristics* | Leistung<br>*Performance* | Harmonisierte technische Spezifikation<br>*Harmonized technical standard* |
|---|---|---|
| Brandverhalten<br>*Reaction to fire* | **Cca-s2-d2-a1** | **EN 50575:2014 + A1:2016** |
| Gefährliche Stoffe<br>*Hazardous substances* | **NPD** | |

8. Die Leistung des in Nummer 1 genannten Produkts ist in Übereinstimmung mit der erklärten Leistung in Punkt 7.
*The performance of the referred product in paragraphs 1 is in conformity with the declared performance in Section 7.*

Diese Leistungserklärung ist ausgestellt unter der allgemeinen Verantwortung des unter Punkt 3 genannten Herstellers.
*This declaration of performance is issued under the general responsibilities listed in section 3. Manufacturer.*

Unterzeichnet für und im Namen des Herstellers von:
*Signed for and in name of the manufacturer by:*

Stuttgart, 01/04/2017
U.I.Lapp GmbH
Leiter Kabelentwicklung
*Head of Cable Development*
i.A. Harry Pfeffer

Once a Declaration of Performance has been created, a CE marking must be affixed to the product by the manufacturer. This is done using the label.

## CE marking, label




Example of the label

## www.lappkabel.com/cpr

On our website you will find a collection of FAQs and an overview of products classified according to the Construction Products Regulation together with the appropriate documents to download. There are two ways to find the relevant download:

1. Via the product name in the table
2. Via the **list of LAPP article/order numbers (CPR articles)**

There can be multiple DoPs available for one product. If this is the case, they are bundled in a so-called CPR package. To get the DoP for your particular delivery, please refer to the DoP document number or the unique identification code of the product type, which are both mentioned in the label.

# T15 Technical Tables

LAPP

## Properties of cable insulation and sheathing

Applies only to the base materials. Deviations are possible depending on the use/design. Please refer to the relevant page in the catalogue.

| Usage criteria | Material | | | | | |
|---|---|---|---|---|---|---|
| | Material resistant to org. oils | Polyvinylchloride | Polyethylene | Polyurethane | Polytetrafluoroethylene | Tetrafluoroethylene Hexafluoropropylene copolymer |
| **Parameter** | | | | | | |
| Abbreviations | Special TPE | PVC | PE | PUR | PTFE | FEP |
| Code as per VDE | – | Y | 2Y | 11Y | 5Y | 6Y |
| Operating temperature | -50 +120 | -30 +70 | -50 +70 | -50 +90 | -190 +260 | -100 +200 |
| Dielectric constant | 2.4 | 4.0 | 2.3 | 4.0 – 6.0 | 2.1 | 2.1 |
| Volume resistivity (Ω x cm) | 1015 | 1012 – 1015 | 1017 | 1012 | 1018 | 1018 |
| Tensile strength in N/mm² (MPa) | 5 – 20 | 10 – 25 | 15 – 30 | 15 – 45 | 15 – 40 | 20 – 25 |
| Elongation at break in % | 400 – 600 | 150 – 400 | 400 – 800 | 300 – 600 | 240 – 400 | 250 – 350 |
| Water absorption (20 °C) in % | 1 – 2 | 0.4 | 0.1 | 1.5 | 0.01 | 0.01 |
| Weather resistance | very good | good | good | very good | very good | very good |
| Fuel resistance | good | moderate | moderate | good | very good | very good |
| Oil resistance | Resistance to org. oil: very good | moderate | moderate | good | very good | very good |
| Flammability | flammable | self-ext-inguishing | flammable | self-ext-inguishing* | non-flammable | non-flammable |

| Usage criteria | Material | | | | | |
|---|---|---|---|---|---|---|
| | Ethylene tetrafluoroethylene | Chloroprene rubber | Silicone rubber | Ethylene propylene dien rubber | Thermoplastic elastomer polyolefin based | Thermoplastic elastomer polyester based |
| **Parameter** | | | | | | |
| Abbreviations | ETFE | CR | SI | EPDM | TPE-O | TPE-E |
| Code as per VDE | 7Y | 5G | 2G | 3G | – | 12Y |
| Operating temperature | -100 +150 | -40 +100 | -60 +180 | -30 +120 | -40 +120 | -70 +125 |
| Dielectric constant | 2.6 | 6.0 – 8.0 | 2.8 – 3.2 | 3.2 | 2.7 – 3.6 | 3.7 – 5.1 |
| Volume resistivity (Ω x cm) | $10^{16}$ | $10^{13}$ | $10^{15}$ | $10^{14}$ | 5 x $10^{14}$ | $10^{12}$ |
| Tensile strength in N/mm² (MPa) | 40 – 50 | 10 – 25 | 5 – 10 | 5 – 25 | ≥ 6 | 3 – 25 |
| Elongation at break in % | 100 – 300 | 300 – 450 | 200 – 350 | 200 – 450 | ≥ 400 | 280 – 650 |
| Water absorption (20 °C) in % | 0.01 | 1 | 1.0 | 0.02 | 1.5 | 0.3 – 0.6 |
| Weather resistance | very good | very good | very good | good | moderate | very good |
| Fuel resistance | very good | moderate | low | moderate | moderate | good |
| Oil resistance | very good | good | moderate | moderate | moderate | very good |
| Flammability | non-flammable | self-ext-inguishing | hardly flammable | flammable | flammable | flammable |

* only with additional flame retardant

# Insulation resistance

The insulation of cables and wires is used to electrically isolate the individual conductors. For this reason, as opposed to the conductor, the insulation should have very high electrical resistance (which can also be expressed as a low conductivity).

To achieve this goal, a number of different materials can be used. The mechanical and electrical properties of these materials can differ. The most commonly used materials include mixtures based on PVC, PE or TPE.

## Terminology

A number of different terms are used to describe the insulation resistance. To help differentiate and better understand these terms, they are explained here in brief.

## Volume resistance

Resistance value that results from the measurement of a test specimen when a DC voltage is applied. It results from the test voltage applied to the two electrodes, which are attached to the surfaces of the test specimen (e. g. wire insulation), and the current between these electrodes.

## Volume resistivity (specific contact resistance)

This is a relative value that depends on the properties of the material in terms of electrical insulation. In practice, this value relates to a unit of volume; it is typically specified in Ω x cm. For PVC core insulation a typical value is > 20 GΩ x cm.

## Insulation resistance

The insulation resistance for a cable can be determined from the volume resistivity and the ratio of the core outer diameter to conductor diameter. Typical units of measurement here are MΩ x km or GΩ x km.

In type standards for cables and wires, minimum values for the insulation resistance are usually required. These values are specified for the maximum operating temperature as a function of the nominal cross-section and insulation wall thickness.

Example: For an oil-resistant H05VV5-F control cable, these values are defined in EN 50525-2-51. The minimum value of the insulation resistance of a 3 x 1.5 $mm^2$ cable must be at least 0.010 MΩ x km.

The real-world values are often more than an order of magnitude higher than these values, well above the requirements of the standard.

## Measurement methods

A distinction must be made between lab measurements performed on a core to test the insulation and real-world measurements performed on complete, potentially installed cables and wires.

## Determination of insulation resistance and volume resistivity of the core

Demonstration of compliance with the aforementioned requirements is achieved with measurements according to EN 50395 (VDE 0481-395). For this purpose, a 5-metre sample of the cable is completely stripped and the cores are placed in a water bath for 2 hours. The water bath was previously heated to the maximum operating temperature of the cable (valid for cables with a maximum conductor temperature of up to 90 °C).

Between the conductor and the water bath, 80 - 500 V DC is applied and after 1 minute the insulation resistance is measured at each core. With this value, the insulation resistance of a 1-km length is calculated for each core. Neither of the calculated values may be below the specified minimum value in the type standard. Refer to the above example under “Insulation resistance”.

The volume resistivity can be used for comparisons as it is a material constant and is independent of the insulation wall thickness and the conductor cross-section.

In practical applications these values are used to compare different materials and represent a reproducible measuring method for the manufacturers of cables and wires.

## Measurements on complete cables

The above values cannot be compared with resistance values that are determined using a “dry measurement” on the complete cable or on installed cables. In those cases, the resistance value is determined using the leakage current between two adjacent cores within a cable and the measurement voltage of the meter.

Values determined using this method have a very high variance as they are influenced by numerous factors, such as:

- Conditioning of the cable, in particular moisture absorption by the insulation
- Climatic conditions during the measurements, in particular the cable temperature
- Individual contact conditions of the insulation of both cores
- Conductivity of the materials that have a common surface contact to the insulated cores
- Installation situation of the cable, as locations in which the cable is subject to external pressure, for example due to bending or clamping (cable glands), can lead to a deformation of the insulation. This increases the contact area between the insulated cores, which increases the leakage current and results in a lower insulation resistance value.

The aforementioned effects of temperature and air humidity are significant and vary greatly in practical applications, as the conditions are not standardised. For example, measurements have shown that between 20 °C (common ambient temperature) and 70 °C (maximum cable operating temperature), the insulation resistance can change by a factor of 1:100 to 1:1000. This means that the temperature during the measurement has such a great effect that measured results that were obtained at different temperatures are no longer comparable.

## Conclusion

The cable data provided above can be used to compare different cable types but under no circumstances can it be used for comparisons with measurements of finished cables or electrical systems (such as according to VDE 0100-600 Part 6).

## U.S. dimension units for cables – comparison with metric dimensions

In North American markets, cable cross-sections are usually stated as AWG (American Wire Gauge) sizes or, for large cable cross-sections (above AWG 4/0), using the unit "kcmil". You will find these units in the relevant standards for designing cables by current rating.

Multi-standard cables must comply with both the specifications of the metric system (in which the cross-section in mm² is stated as the nominal size) as well as the requirements of the AWG system. For this reason, both systems are compared below based on the nominal size.

**Please note that exact correspondences between the two systems do not exist** as the specifications of the two systems differ in terms of the cross-section and conductor resistance. The following table can be used to help you when selecting the correct nominal cross-section.

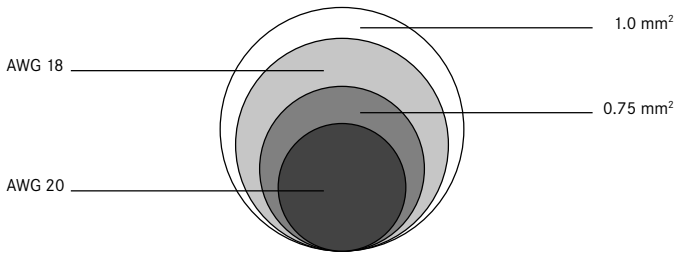
Standards required as part of project planning, such as UL 1581 or IEC 60228 (VDE 0295), must be applied accordingly.

Please note that when selecting appropriate connecting elements such as conductor end sleeves, the **actual** conductor cross-section is decisive. This is stated on the relevant product page.

| Column 1a | Column 1b | Column 2 | Column 3 | Column 4 | Column 5a | Column 5b |
|---|---|---|---|---|---|---|
| North American cross-section required | | Geometric conversion | Metric nominal cross-section that meets the electrical requirements | Metric nominal cross-section required | North American size that meets the electrical requirements | |
| AWG | kcmil | mm² | mm² | mm² | AWG | kcmil |
| | **750** | 380.03 | **400** | 400 | | 800 |
| | **500** | 253.35 | **300** | 300 | | 750 |
| | 450 | 228.02 | **240** | 240 | | 500 |
| | **400** | 202.68 | | | | 450 |
| | 350 | 177.35 | **185** | 185 | | 400 |
| | **300** | 152.01 | | | | 350 |
| | **250** | 126.68 | **150** | 150 | | 300 |
| **4/0** | | 107.22 | **120** | 120 | | 250 |
| **3/0** | | 85.01 | **95** | 95 | 4/0 | |
| **2/0** | | 67.43 | **70** | 70 | 3/0 | |
| **1/0** | | 53.49 | | | 2/0 | |
| **1** | | 42.41 | **50** | 50 | 1/0 | |
| **2** | | 33.62 | **35** | 35 | 1 | |
| 3 | | 26.67 | | | 2 | |
| **4** | | 21.15 | **25** | 25 | 3 | |
| 5 | | 16.77 | | | 4 | |
| **6** | | 13.30 | **16** | 16 | 5 | |
| 7 | | 10.55 | | | 6 | |
| **8** | | 8.37 | **10** | 10 | 7 | |

| Column 1a | Column 1b | Column 2 | Column 3 | Column 4 | Column 5a | Column 5b |
|---|---|---|---|---|---|---|
| North American cross-section required | | Geometric conversion | Metric nominal cross-section that meets the electrical requirements | Metric nominal cross-section required | North American size that meets the electrical requirements | |
| AWG | kcmil | mm² | mm² | mm² | AWG | kcmil |
| 9 | | 6.63 | | | 8 | |
| **10** | | 5.26 | **6** | 6 | 9 | |
| 11 | | 4.17 | | | 10 | |
| **12** | | 3.31 | **4** | 4 | 11 | |
| 13 | | 2.62 | | | 12 | |
| **14** | | 2.08 | **2.5** | 2.5 | 13 | |
| 15 | | 1.65 | | | 14 | |
| **16** | | 1.31 | **1.5** | 1.5 | 15 | |
| 17 | | 1.04 | | | 16 | |
| **18** | | 0.82 | **1** | 1 | 17 | |
| 19 | | 0.65 | **0.75** | 0.75 | 18 | |
| **20** | | 0.52 | | | 19 | |
| 21 | | 0.41 | **0.5** | 0.5 | 20 | |
| **22** | | 0.33 | **0.34** | 0.34 | 21 | |
| 23 | | 0.26 | | | 22 | |
| **24** | | 0.20 | **0.25** | 0.25 | 23 | |
| 25 | | 0.16 | | | 24 | |
| **26** | | 0.13 | **0.14** | 0.14 | 25 | |
| | | | | | | |

**Principle of cross-section figures**




**Example 1:**

**The electro-technical project planning requirements as per North-American standards stipulate that you require a cable of AWG 20.**

The relevant product page in the catalogue does not list any cables with this AWG size. A size of AWG 20 is listed in the above table in column 1a. Column 3 lists the metric nominal cross-section that, as a minimum, meets the electrical requirements of size AWG 20. Thus, you will require a cable with a nominal cross-section of 0.75 mm².

**Example 2:**

**The electro-technical project planning requirements as per European standards stipulate that you require a cable of 0.75 mm².**

The product page in the catalogue lists only AWG figures or large metric cross-sections. Nominal cross-section 0.75 mm² is listed in the above table in column 4. Column 5a lists the AWG size that, at a minimum, meets the electrical requirements of a nominal cross-section of 0.75 mm². Thus, you will require a cable with size AWG 18.

# General dimensions*:

The base units are as follows:
In the British gravitational system:

**Length (ft) – force (lbf = Lb) – time (s)**

In the British absolute system:

**Length (ft) – mass (lb) – time (s)**

## 1. Measures of length

| | | |
|---|---|---|
| 1 mil | = | 0.0254 mm |
| 1 inch (in;“) | = | 25.4 mm |
| 1 foot (ft;‘) | = | 0.305 m |
| 1 yard (yd) | = | 0.914 m |
| 1 chain (ch) | = | 20.1 m |
| 1 statue mile | = | 1.61 km |
| 1 nautical mile | = | 1.835 km |
| 1 statute mile | = | 1760 yards |

## 2. Measures of volume

| | | |
|---|---|---|
| 1 cubic inch | = | 16.39 $cm^3$ |
| 1 cubic foot | = | 0.0283 $m^3$ |
| 1 cubic yard | = | 0.765 $mm^3$ |
| 1 U.S. liquid gallon | = | 3.79 l |
| 1 pint | = | 0.473 l |
| 1 quart | = | 0.946 l |
| 1 Brit. gallon | = | 4.53 l |
| 1 barrel | = | 119.2 l |

## 3. Measures of area

| | | |
|---|---|---|
| 1 circ. mil (CM) | = | 0.507 · $10^{-3}$ $mm^2$ |
| 1 kcmil (MCM) | = | 0.5067 $mm^2$ |
| 1 square inch (sq. in.) | = | 645.16 $mm^2$ |
| 1 square foot (sg.ft.) | = | 0.0929 $m^2$ |
| 1 square yard | = | 0.836 $m^2$ |
| 1 acre | = | 0.00405 $km^2$ |
| 1 square mile | = | 2.59 $km^2$ |
| 1 $m^2$ | = | 10.764 sq. ft. |

## 4. Units of mass

British gravitation system:

| | | |
|---|---|---|
| 1 slug | = | 1 lbs · $s^2$/ft |

British absolute system:

| | | |
|---|---|---|
| 1 pound | = | 1 lb |

1 slug = 32.174 lb, with 32.174 ft/$s^2$
as the standard value of gravitational acceleration

| | | | | |
|---|---|---|---|---|
| 1 grain | = | 64.80 mg | | |
| 1 dram | = | 1.770 g | | |
| 1 ounce (oz) | = | 16 drams | = | 28.35 g |
| 1 pound (lb) | = | 16 oz | = | 453.59 g |
| 1 stone | = | 14 lbs | = | 6.35 kg |
| 1 U.S. ton (short ton) | = | 0.907 t | | |
| 1 Brit. ton (long ton) | = | 0.016 t | | |

## 5. Units of force

British gravitational system:

| | | |
|---|---|---|
| pound-force 1 lbf | = | 1 Lb |

British absolute system:

| | | |
|---|---|---|
| poundal 1 pdl | = | 1 lb · ft/$s^2$ |

1 lbf = 32.174 pdl – 9.80665 lb · m/$s^2$

## 6. Conversion to metric units

| | | |
|---|---|---|
| 1 pound-force (lbf) | = | 0.454 kp |
| 1 Brit. ton-force | = | 1016 kp |
| 1 poundal (pdl) | = | 0.1383 N |
| 1 lbf | = | 4.445 N |

## 7. Electrical units per unit of length

| | | |
|---|---|---|
| 1µf per mile | = | 0.62 µF/km |
| 1 megohm per mile | = | 1.61 MΩ · km |
| 1 megohm per 1000 ft | = | 3.28 Ω · km |
| 1 ohm per 1000 yd | = | 1.0936 Ω/km |

## 8. Weights per unit of length

| | | |
|---|---|---|
| 1 lb per foot | = | 1.488 kg/m |
| 1 lb per yard | = | 0.469 kg/m |
| 1 lb per mile | = | 0.282 kg/m |

## 9. Density

| | | |
|---|---|---|
| 1 lb/$ft^3$ | = | 16.02 kg/$m^3$ |

## 10. Specific weight

| | | |
|---|---|---|
| 1 lbf/$ft^3$ | = | 16.02 kp/$m^3$ |

## 11. Copper wire weight per mile

| lb/mile | = | Ø mm |
|---|---|---|
| 5 | = | 0.404 |
| 6.5 | = | 0.51 |
| 7.5 | = | 0.55 |
| 10 | = | 0.64 |
| 20 | = | 0.90 |
| 40 | = | 1.27 |

## 12. Units of energy

| | | |
|---|---|---|
| 1 horsepower | = | 0.746 kW (H. P.) |
| 1 Brit. therm. unit | = | 0.252 kcal |

Insulation wall thickness is often expressed in n/64 inches with n/64 inch equalling approx. 0.4 mm.

## 13. Further dimensions for wire weights and electrical field strengths:

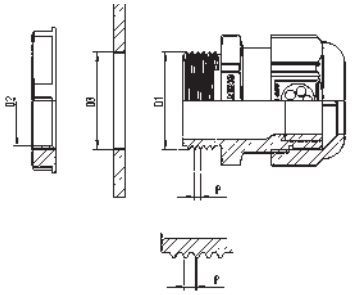
| | | |
|---|---|---|
| lbf pr. MFeet | = | 1.488 kg/km |
| lbf pr. Mile | = | 0.282 kg/km |
| 40 V/mil | = | 1.6 kV/mm |
| 80 V/mil | = | 3.2 kV/mm |
| 100 V/mil | = | 4.0 kV/mm |
| 250 V/mil | = | 10.0 kV/mm |

* Most of these units are no longer in use and are provided purely for information purposes.

# Thread and hole dimensions – technical data for installation

## Metric thread to EN 60423 (for screw connections to IEC 62444)

| Nominal size | Ø D1 | P | Ø D2 | Hole Ø D3 |
|---|---|---|---|---|
| M6 x 1 | 6 | 1 | 5.2 | 6.0 + 0.2 |
| M8 x 1 | 8 | 1 | 7.1 | 8.0 + 0.2 |
| M10 x 1 | 10 | 1 | 9.1 | 10.0 + 0.2 |
| M12 x 1.5 | 12 | 1.5 | 10.6 | 12.0 + 0.2 |
| M16 x 1.5 | 16 | 1.5 | 14.6 | 16.0 + 0.2 |
| M20 x 1.5 | 20 | 1.5 | 18.6 | 20.0 + 0.2 |
| M25 x 1.5 | 25 | 1.5 | 23.6 | 25.0 + 0.2 |
| M32 x 1.5 | 32 | 1.5 | 30.6 | 32.0 + 0.3 |
| M40 x 1.5 | 40 | 1.5 | 38.6 | 40.0 + 0.3 |
| M50 x 1.5 | 50 | 1.5 | 48.6 | 50.0 + 0.4 |
| M63 x 1.5 | 63 | 1.5 | 61.6 | 63.0 + 0.4 |
| M75 x 1.5 | 75 | 1.5 | 73.6 | 75.0 + 0.5 |
| M90 x 2 | 90 | 2 | 88.8 | 90.0 + 0.5 |
| M110 x 2 | 110 | 2 | 108.8 | 110.0 + 0.5 |



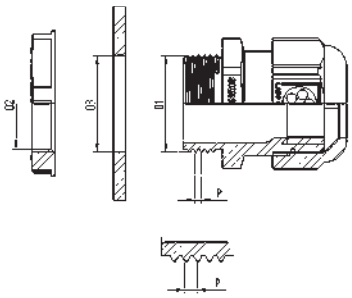

D1 = External Ø
D2 = Core Ø of internal thread
D3 = Hole Ø
P = Pitch

## Metric thread to DIN 13 part 6 and 7 (for screw connections to DIN 89 280)

| Nominal size | Ø D1 | P | Ø D2 | Hole Ø D3 |
|---|---|---|---|---|
| M18 x 1.5 | 18 | 1.5 | 16.4 | 18.3 – 0.2 |
| M24 x 1.5 | 24 | 1.5 | 22.4 | 24.3 – 0.2 |
| M30 x 2 | 30 | 2 | 27.8 | 30.3 – 0.2 |
| M36 x 2 | 36 | 2 | 33.8 | 36.3 – 0.2 |
| M45 x 2 | 45 | 2 | 42.8 | 45.4 – 0.3 |
| M56 x 2 | 56 | 2 | 53.8 | 56.4 – 0.3 |
| M72 x 2 | 72 | 2 | 69.8 | 72.5 – 0.4 |
| M80 x 2 | 80 | 2 | 77.8 | 80.5 – 0.4 |
| M105 x 2 | 105 | 2 | 102.8 | 105.5 – 0.4 |

## PG thread to DIN 40430

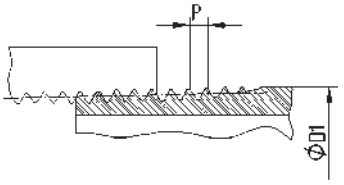
| Nominal size | Ø D1 | P | Ø D2 | Hole Ø D3 |
|---|---|---|---|---|
| PG 7 | 12.5 | 1.27 | 11.3 | 12.8 – 0.2 |
| PG 9 | 15.2 | 1.41 | 13.9 | 15.5 – 0.2 |
| PG 11 | 18.6 | 1.41 | 17.3 | 18.9 – 0.2 |
| PG 13.5 | 20.4 | 1.41 | 19.1 | 20.7 – 0.2 |
| PG 16 | 22.5 | 1.41 | 21.2 | 22.8 – 0.2 |
| PG 21 | 28.3 | 1.588 | 26.8 | 28.6 – 0.2 |
| PG 29 | 37.0 | 1.588 | 35.5 | 37.4 – 0.3 |
| PG 36 | 47.0 | 1.588 | 45.5 | 47.4 – 0.3 |
| PG 42 | 54.0 | 1.588 | 52.5 | 54.4 – 0.3 |
| PG 48 | 59.3 | 1.588 | 57.8 | 59.7 – 0.3 |




D1 = External Ø
D2 = Core Ø of internal thread
D3 = Hole Ø
P = Pitch

## NPT thread to ANSI B1.20.2

| Nominal size | Ø D1 | P | Hole Ø D3 |
|---|---|---|---|
| NPT 1/4" | 13.7 | 1.41 | 14.1 – 0.2 |
| NPT 3/8" | 17.1 | 1.41 | 17.4 – 0.2 |
| NPT 1/2" | 21.3 | 1.81 | 21.6 – 0.2 |
| NPT 3/4" | 26.7 | 1.81 | 27.0 – 0.2 |
| NPT 1" | 33.4 | 2.21 | 33.7 – 0.2 |
| NPT 1 1/4" | 42.2 | 2.21 | 42.5 – 0.2 |
| NPT 1 1/2" | 48.3 | 2.21 | 48.7 – 0.2 |
| NPT 2" | 60.3 | 2.21 | 60.7 – 0.2 |




D1 = External Ø
D3 = Hole Ø
P = Pitch

## Tightening torques* for SKINTOP® metric cable glands

Table of recommended tightening torques (domed cap nut, connection thread) for metric SKINTOP® glands to achieve ingress protection and category A strain relief according to IEC 62444. For more information regarding the protection rating, see the product page.

| Nominal size | Tightening torque in Nm | |
|---|---|---|
| | Plastic | Metal |
| M6 x 1 | - | 1.5 |
| M8 x 1 | - | 3 |
| M10 x 1 | - | 6 |
| M12 x 1.5 | 1.5 | 8 |
| M16 x 1.5 | 3.0 | 10 |
| M20 x 1.5 | 6.0 | 12 |
| M25 x 1.5 | 8.0 | 12 |
| M32 x 1.5 | 10.0 | 18 |
| M40 x 1.5 | 13.0 | 18 |
| M50 x 1.5 | 15.0 | 20 |
| M63 x 1.5 | 16.0 | 20 |
| M63 x 1.5 plus | - | 25 |
| M75 x 1.5 | - | 30 |
| M90 x 2 | - | 70 |
| M110 x 2 | - | 90 |

*NOTE: The values in the table above constitute the tightening torques for fittings and the maximum tightening torques for domed cap nuts under normal climatic conditions.
Note that lower torques must be used with different cable insulation materials; otherwise, the cable insulation may be damaged.
For ATEX screw connections, see the corresponding operating instructions for the respective tightening torques (operating instructions can be found in the delivery bag).

## Tightening torques* for SKINTOP® PG cable glands

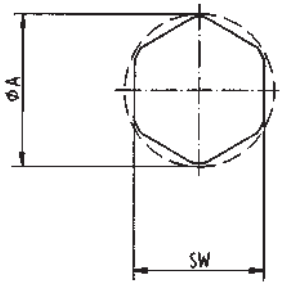
| Nominal size | Tightening torques for fittings in Nm | | Tightening torques for domed cap nuts in Nm | |
|---|---|---|---|---|
| | Plastic | Metal | Plastic | Metal |
| PG 7 | 3.0 | 6.25 | 1.7 | 6.25 |
| PG 9 | 4.0 | 6.25 | 2.5 | 6.25 |
| PG 11 | 4.0 | 6.25 | 2.5 | 6.25 |
| PG 13.5 | 4.0 | 6.25 | 2.5 | 6.25 |
| PG 16 | 6.0 | 7.5 | 3.3 | 7.5 |
| PG 21 | 8.0 | 10.0 | 5.0 | 10.0 |
| PG 29 | 13.0 | 10.0 | 5.0 | 10.0 |
| PG 36 | 13.0 | 10.0 | 5.0 | 10.0 |
| PG 42 | 13.0 | 10.0 | 5.0 | 10.0 |
| PG 48 | 13.0 | 10.0 | 5.0 | 10.0 |

*NOTE: The values in the table above constitute the tightening torques for fittings and the maximum tightening torques for domed cap nuts under normal climatic conditions.
Note that lower torques must be used with different cable insulation materials; otherwise, the cable insulation may be damaged.
For ATEX screw connections, see the corresponding operating instructions for the respective tightening torques (operating instructions can be found in the delivery bag).

## Installation dimensions and wrench sizes for cable glands

Diameter A indicates the installation space required for the relevant hexagon. This diameter corresponds to the width of the hexagon across corners plus an installation tolerance.

| SW | Ø A | SW | Ø A | SW | Ø A |
|---|---|---|---|---|---|
| 9 | 10.4 | 27 | 30.6 | 50 | 58.3 |
| 11 | 12.5 | 28 | 31.8 | 53 | 60.0 |
| 13 | 14.9 | 29 | 32.5 | 54 | 61.0 |
| 14 | 16.0 | 30 | 34.0 | 55 | 62.0 |
| 15 | 17.1 | 32 | 36.2 | 57 | 64.4 |
| 16 | 18.2 | 33 | 37.2 | 60 | 67.5 |
| 17 | 19.4 | 36 | 40.5 | 64 | 72.3 |
| 18 | 20.4 | 37 | 41.5 | 65 | 73.1 |
| 19 | 22.0 | 39 | 44.0 | 66 | 74.5 |
| 20 | 22.7 | 40 | 45.2 | 67 | 74.5 |
| 21 | 23.9 | 41 | 46.1 | 75 | 83.9 |
| 22 | 25.0 | 42 | 47.0 | 95 | 105.0 |
| 24 | 27.3 | 45 | 51.2 | 115 | 127.0 |
| 25 | 28.3 | 46 | 52.5 | 135 | 150.0 |
| 26 | 29.5 | 47 | 52.5 | | |

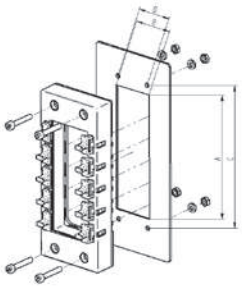


# Installation dimensions for multi-cable entry systems

The mounting measurements of the SKINTOP® multi-cable entry systems relate to the 16- and 24-pin cut-out for industrial connectors.

## Installation dimensions for SKINTOP® CUBE FRAME

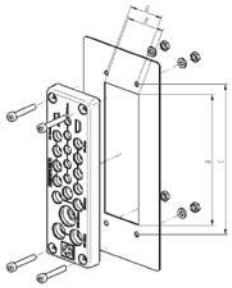
| Product name | A | B | C | D |
|---|---|---|---|---|
| SKINTOP® CUBE FRAME 16 | 86 | 36 | 103 | 32 |
| SKINTOP® CUBE FRAME 24 | 113 | 36 | 130 | 32 |



SKINTOP® CUBE FRAME can be assembled with the SKINTOP® CUBE modules for use with harnessed cables. For non-harnessed cables, the SKINTOP® CUBE MULTI plate can be inserted into the frame (applies only to frame size 24).

## Installation dimensions for SKINTOP® MULTI/SKINTOP® MULTI VENT

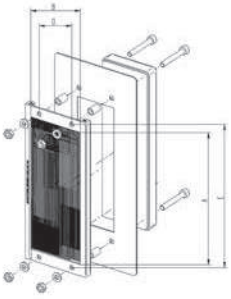
| Product name | A | B | C | D |
|---|---|---|---|---|
| SKINTOP® MULTI/SKINTOP® MULTI VENT | 113 | 36 | 130 | 32 |



SKINTOP® MULTI offers various versions with different entry designs for non-harnessed cables, hoses and conduits.

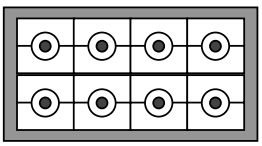
## Installation dimensions for SKINTOP® BRUSH ADD-ON 24

| Product name | A | B | C | D |
|---|---|---|---|---|
| SKINTOP® BRUSH ADD-ON 24 | 120 | 47 | 130 | 32 |

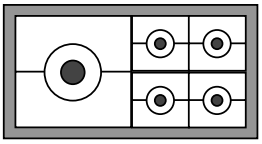


## Possible module combinations for SKINTOP® CUBE

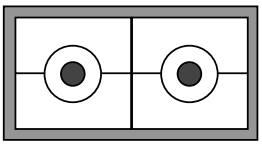
SKINTOP® CUBE FRAME 16



8 x (20 x 20) modules

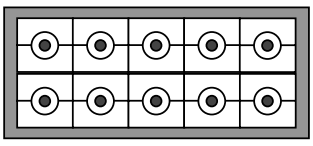


4 x (20 x 20)
1 x (40 x 40)
modules

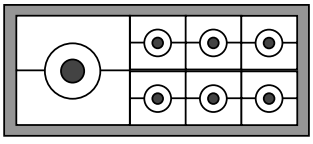


2 x (40 x 40) modules

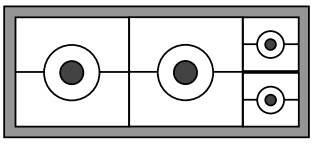
SKINTOP® CUBE FRAME 24



10 x (20 x 20) modules



6 x (20 x 20)
1 x (40 x 40)
modules



2 x (20 x 20)
2 x (40 x 40)
modules

Photographs are not to scale and are not true representations of the products in question.

# Definition of protection ratings to DIN EN 60529 (VDE 0470-1: 2014-09)

The protection ratings are indicated by a code that is always made up of the same two identification letters, IP, and the code numbers indicating the degree of protection.

## Degrees of protection against solid foreign bodies

| First code number | Short description | Definition |
|---|---|---|
| 0 | Not protected | |
| 1 | Protected against solid foreign bodies 50 mm diameter and above | The object probe, sphere of 50mm diameter, shall not fully penetrate. |
| 2 | Protected against solid foreign bodies 12.5 mm diameter and above | The object probe, sphere of 12.5 mm diameter, shall not fully penetrate. |
| 3 | Protected against solid foreign bodies 2.5 mm diameter and above | The object probe, sphere of 2.5 mm diameter, shall not penetrate at all. |
| 4 | Protected against solid foreign bodies 1.0 mm diameter and above | The object probe, sphere of 1.0 mm diameter, shall not penetrate at all. |
| 5 | Protected against dust | Intrusion of dust is not completely prevented but dust shall not penetrate in a quantity that would interfere with the satisfactory operation of the device or impair safety. |
| 6 | Dust-tight | No penetration of dust. |

## Degrees of protection against water

| Second code number | Short description | Definition |
|---|---|---|
| 0 | Not protected | |
| 1 | Protected against drops of water | Vertically falling drops shall have no harmful effects. |
| 2 | Protected against drops of water if the housing is tilted by up to 15°. | Vertically falling drops shall have no harmful effects if the housing is tilted by up to 15° on either side of the vertical. |
| 3 | Protected against spraying water | Water sprayed at an angle of up to 60° on either side of the vertical shall have no harmful effects. |
| 4 | Protected against splashing water | Water splashed against the housing from any direction shall have no harmful effects. |
| 5 | Protected against jets of water | Water projected in jets against the housing from any direction shall have no harmful effects. |
| 6 | Protected against powerful jets of water | Water projected in powerful jets against the housing from any direction shall have no harmful effects. |
| 7 | Protected against the effects of temporary immersion in water | Water must not penetrate in quantities causing harmful effects when the housing is temporarily immersed in water under standardised pressure and time conditions. |
| 8 | Protected against the effects of permanent immersion in water | Water must not penetrate in quantities causing harmful effects when the housing is continually immersed in water under conditions that must be agreed upon between the manufacturer and the user. However, the conditions must be more difficult than for number 7. |
| 9 | Protected against high-pressure and steam-jet cleaning (with high temperatures) | Water projected against the housing from any direction under very high pressure shall have no harmful effects |

**NOTE:** Starting from September 2014 the description of degree of protection IP 69K has changed to IP 69. All test fundamentals remain the same according to DIN EN 60529 (VDE 0470-1 : 2014-09) - Degrees of protection provided by enclosures (IP Code).

**FOR EXAMPLE:** Identification letters IP **65**

**Second code number:** Protection against liquids.

**First code number:** Protection against contact with and penetration of foreign bodies.

## Table 23-1: substitution of PG/metric

At the turn of the Millennium, the old, familiar PG thread was replaced by the metric thread. On 31 December 1999, the DIN 46320 standard for PG thread connections was withdrawn.

It was replaced by the European Standard IEC 62444 for metric threads – meaning that as from the year 2000, only cable glands with metric connection threads have to be used.

The changeover affects not only cable glands, but also all housing systems and appliances into which cables must be inserted.

Sizes PG 7 to PG 48 were replaced by metric sizes M 12 to M 63. Additional sizes have been adopted into the European Standard, covering a range M 6 to M 110.

The ZVEI (Zentralverband Elektrotechnik und Elektroindustrie e. V. – the German Federation of Electrotechnical and Electrical Industries) draws attention to the fact that the European safety standard IEC 62444 must be applied as from March 2001 at the latest; furthermore, the present test standard VDE 0619 for glands with PG thread will be withdrawn in March 2001.

IEC 62444 is a safety standard, and no longer a construction standard with the purpose of defining dimensions, like DIN 46319 or DIN 46320.

This means that the functions required by a cable gland can be realised without restrictions applied by prescribed forms, such as:

- strain relief
- degree of protection
- impact strength
- temperature range

With our cable glands SKINTOP® and SKINDICHT®, we have transposed the requirements of IEC 62444. Our metric SKINTOP® glands combine all the features of the proven SKINTOP® series: easy, fast, permanent installation, optimal strain relief, protection against vibration, variable clamping range and sealing according to protection rating IP 68.

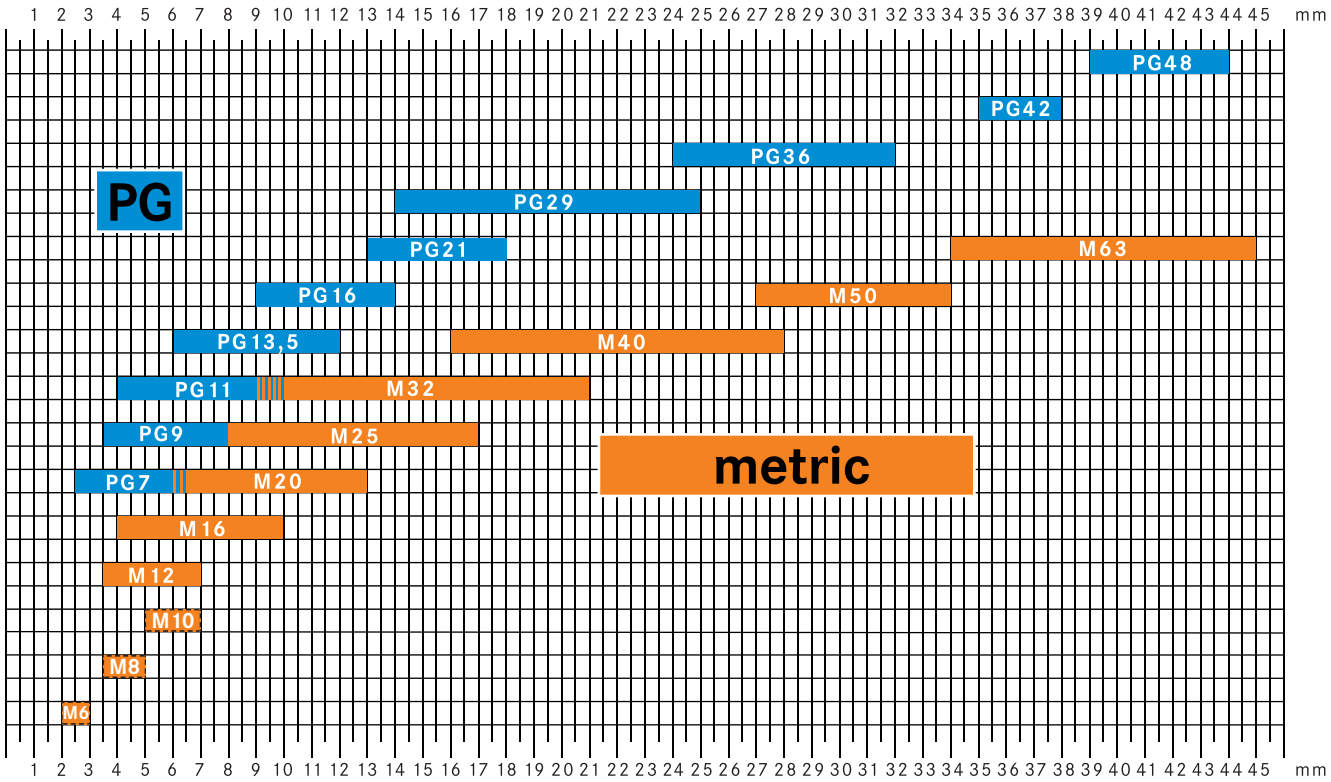
Naturally, we can also supply you with the corresponding supplementary components, such as:

- SKINTOP® GMP-GL-M counter nuts
- SKINDICHT® SM-M counter nuts
- SKINTOP® SD-M dust seal
- SKINTOP® DV-M sealing plugs
- plugs made of metal or plastic material;
- O-rings
- adapters

and many more.

### Table of clamping ranges: PG/metric

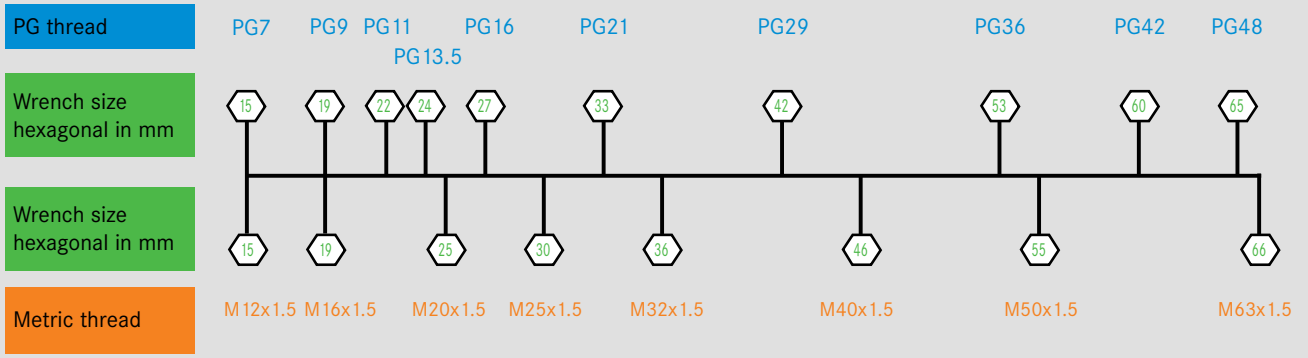
**SKINTOP® ST** and **SKINTOP® ST-M** and **SKINDICHT® MINI**



## Table 23-1: substitution of PG/metric

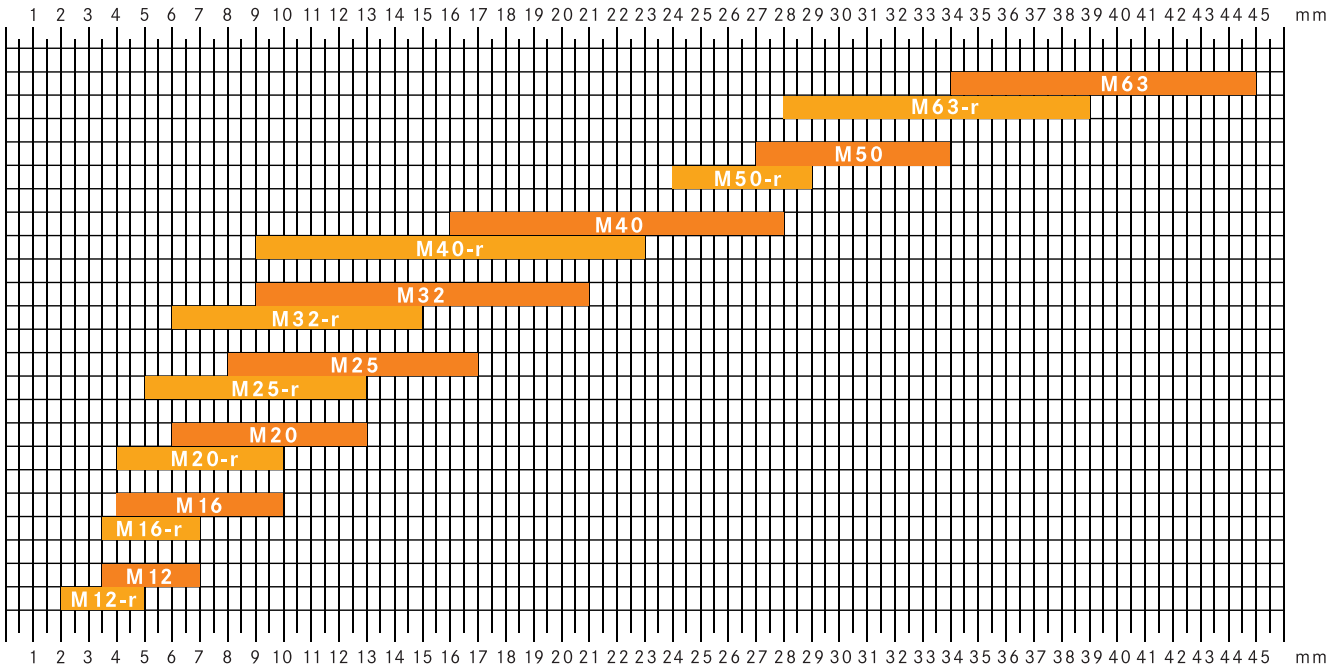
### Comparison and classification of cable glands wrench size: PG/metric

**SKINTOP® ST** and **SKINTOP® ST-M**




### Clamping ranges for SKINTOP® metric

**SKINTOP® ST M** and **SKINTOP® STR-M**



# Table 23-2: EMC-optimised screening for use of cable glands

## Optimised screening

In industrial environments, motors, controls and automatic welding machines can seriously impair electromagnetic compatibility (EMC). Particular problems are caused in industrial installations by long cable runs for power supply or data transmission between individual components; appropriate preventive measures are therefore essential.

Due to the antenna radiation effect of such cables, radio interference can be picked up and the useful signal (for example, temperature sensor or shaft encoder) blanketed. This results in functional disturbances of the connected equipment – from undetected false readings to the breakdown of an entire production line. Conversely, cables can function as transmitters causing radio interference. Installation of electronic components in an earthed switch cabinet and the simultaneous use of screened cables have proven to be effective countermeasures. In practice, however, the location of the cable duct frequently constitutes a weak point in the switch cabinet. Insufficient contact between the cable screening and the metal housing often destroys the desired screening effect.

It is here that the SKINTOP® and SKINDICHT® cable glands from LAPP prove their worth. The newly developed SKINTOP® MS-SC-M and SKINTOP® MS-M BRUSH in particular are distinguished by their excellent EMC characteristics in addition to ease of handling. This enables the use of various different cable designs within a large diameter range.

## Screening concepts

With the interference phenomena typically found in an industrial environment, we must distinguish principally between cable-linked and field-linked interference. Field-linked interference emissions – which, for example, are radiated directly from a circuit board or, conversely, exercise an effect upon it - can be effectively checked by installing electrical or electronic assemblies in closed metal housings such as switch cabinets. If the housing does not have any particularly large apertures, a Faraday shield is produced which affords efficient protection against electromagnetic interference. In practice, this type of screening is generally extremely expensive and is hardly practicable in the case of moving machine components. An alternative solution is provided by cables with screening braid. In this case, the quality of the screening effect depends to a great extent on the texture and thickness of the braiding. In addition, optimum attachment of the cable screening to the housing must be ensured by suitable mechanical elements in order to prevent penetration of the interference conducted on the cable screening. Of decisive importance is the derivation resistance, i.e. the resistance which a guide wave “sees” upon the cable screening when it meets the point of intersection of the cable/housing.

## Practical requirements

Thus, in terms of EMC, we have a series of practical requirements for optimum contact:

- The connection between the cable screening and the housing potential must be of low impedance. To ensure this, the contact surfaces must be as large as possible. Under ideal conditions the cable screening, together with the housing wall, constitute a closed connection and form a continuation of the housing, without permitting any openings to be formed.
- The connection must be of low induction. This means that the cable screening must be led to the housing wall via the shortest possible path and with the widest possible cross-section. Ideally, a type of contact should be chosen which completely surrounds the internal conductor. The procedure frequently practised – namely first leading the cable into the housing and placing the screening somewhere inside the housing, whereby the screen braiding is often extended by means of a thin cable strand – makes effective screening almost impossible.
- For use in practice, simple handling and installation are desirable. An electrician must be able to carry out installation without difficulty.

## SKINTOP® and SKINDICHT®

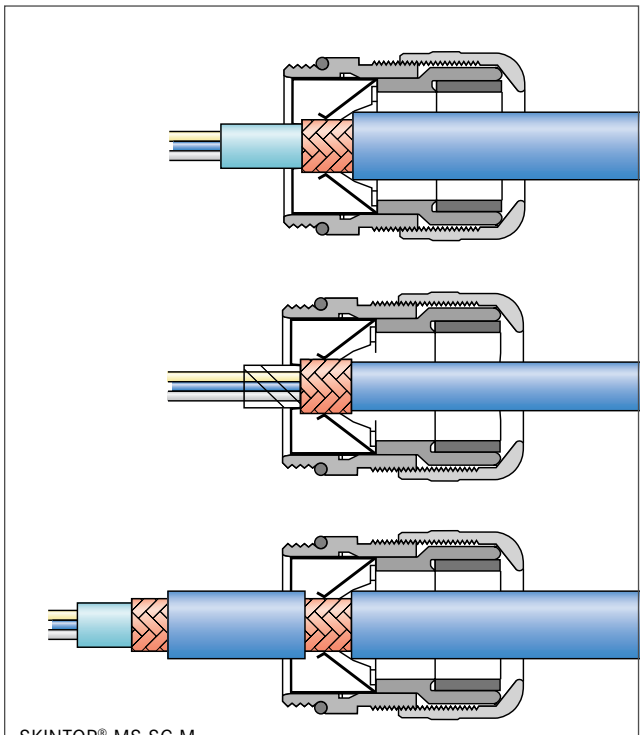
The cable glands SKINTOP® and SKINDICHT® guarantee, in addition to perfect mechanical contact, the necessary low impedance and low induction connection. These glands, which are simple to install, are available in different versions and sizes. With SKINDICHT® SHVE-M, the cable screen is pressed between an earthing sleeve and a conical seal, thus permitting 360° contact over a wide area. In the case of SKINTOP® MS-SC-M, the contact is produced by means of cylindrically arranged contact springs. The SKINTOP® MS-M BRUSH offers a 360° contact with an EMC BRUSH. Only the cable sheathing in the area of the contact springs must be removed, and it is not necessary to open the screen braiding.

For the sake of clarity, this article focuses on the cable gland SKINTOP® MS-SC-M. In a number of tests, excellent screening properties were demonstrated. Since the appropriate standard for cable glands does not define a particular set-up for the test equipment, two possible measuring methods and their evaluation are described below:

## Derivation impedance, derivation attenuation

As a characteristic quantity for evaluating the quality of a cable connection to the wall of the housing (reference potential), the derivation resistance RA is documented via the frequency. This indicates to what extent charges on the cable screening can be derived against the potential of the housing. To determine the screen attenuation factor of a cable, the derivation attenuation is calculated: the potential at the derivation resistance is related to the maximum available potential in a 50 W reference system. The derivation attenuation is obtained as follows:

aA (in dB) = 20 log (2RA/(2RA + 50 W)).



SKINTOP® MS-SC-M

# Table 23-2: EMC-optimised screening for use of cable glands

| | Triaxial Method | Measurement of the derivation impedance |
|---|---|---|
| Application | Pairs of connectors and screened cables | Cable glands |
| Measurement | Screen attenuation mass from which the interaction impedance is calculated | Derivation impedance is determined directly |
| Reference to later application | Description of the screening efficiency: how effectively is the re-radiation of irradiation suppressed by field-linked interference | Description of how effectively interference on the screening can be derived to an earthing mass (e.g. wall of switch cabinet) |

## Triaxial Method

In the Triaxial Method, the measurement is carried out in accordance with the German Defence Equipment Standard VG 95373 Pt 40 or 41.

These set-ups, using a coaxial structure in a graduated tube (hence the term triaxial), are designed for a male/female socket pair, or employ a piece of cable of defined length for the purpose of qualifying a cable. The values of the screen attenuation mass aS and the coupling impedance ZK are determined in order to evaluate the screening effect of the connectors depending on their material characteristics and their construction, according to the formula:

aS = 20 log (50 W/ZK).

A precondition for measurement according to these standards is a solid sheathing on the supply cable used (generally by means of a tube). However, this results in screen attenuation values of almost 100 dB; for practical applications on a switch cabinet wall, depending on the conditions, these can only be achieved with difficulty or not at all.

## Comparison of both methods

In order to provide, by means of the measured values, a description of the practical use of the a/m products, the measurement method of the derivation impedance and conversion into screen attenuation have been used.

## Measurement results

Measurements were taken on glands of type SKINTOP® MS-SC-M in various sizes with screened cables ÖLFLEX® CLASSIC CY in diameters of 6–22 mm, using both methods, in order to test and compare the validity of the results for cable glands obtained by each method.

Measuring the derivation impedance: in order to determine the derivation impedance, the cable glands were, in each case, connected to a piece of cable of approx. 10 cm length. At frequencies up to 10 MHz, all glands reveal a derivation impedance of <1W. This results in attenuation values of 30–50 dB (assuming a 50 W reference system). The amplitudes of high-frequency spurious components which are located in this freqency range are thus reduced at minimum by a factor of 30, at most by a factor of 300. Only at frequencies above 3–4 MHz does the achievable attenuation sink to values <40 dB (factor 100). At higher frequencies (100 MHz), derivation impedance values in the range of 5–10 W are obtained. The measurement values confirm the assumed favourable EMC characteristics. Even up to high frequencies, low derivation impedance – or high derivation attenuation values - can be obtained. Thus, together with effective cable screening, optimum protection against cable-conducted interference signals can be achieved.

## Triaxial measurement

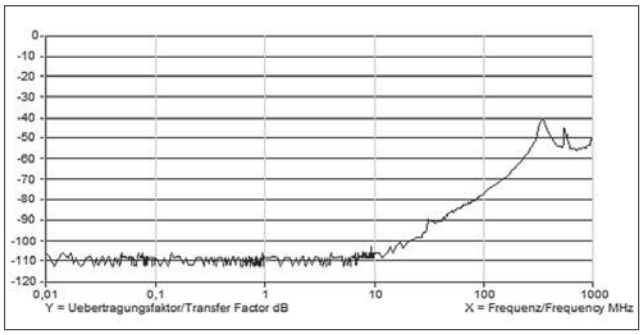
Measurements were performed as described above, in accordance with the German Defence Equipment Standard VG 95373, Procedure KS 01 B. The DC resistance of the glands equals 1 mW; this produces screening attenuation values which, depending on the size and type of the gland, can amount to >100 dB.

## Comparison of results

The results reveal a clear difference between derivation attenuation and the screening attenuation in a system with identical components of cable/gland. The curve for derivation attenuation is shifted upwards by approx. 40 dB almost parallel to the screening attenuation curve, i.e. shifted to lower attenuation values. Nevertheless, these values are more meaningful with regard to cable-conducted interference, because in reality, attenuation values of between 80 and 100 dB can hardly be achieved.

## Conclusion

The different measurement methods give different values for the attenuation rate and, through these values, different characteristics are expressed. On the one hand, the value “screening attenuation” expresses how effectively the re-radiation or the irradiation is suppressed by field-linked interference (Triaxial Method); the value “derivation attenuation”, on the other hand, expresses how effectively interference on the screening can be derived to an earthing mass (measurement of derivation impedance). This means that attenuation values cannot simply be compared without reservation. It can, however, be assumed that values for “derivation attenuation” are more meaningful for glands, because the results of the Triaxial Method (screen attenuation) are dependent on the screening of the supply cable used.




Source: Authors Dr.-Ing. U. Bochtler, Dipl.-Ing. M. Jacobsen, Botronic – Bochtler Electronic GmbH, Stuttgart

## Chemical resistance of plastics

| Reagent | Concentration | at +°C % | Polyamide PA 6 | Polyamide PA 6.6 | Polyamide PA 12 | Thermoplastic polyurethane PU | Polypropylene PP | Polyethylene HD-PE | Polyethylene LD-PE | Polystyrene PS | Nitrile butadiene rubber NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Exhaust gases containing carbon dioxide | all | 60 | | | | | | ⛒ | ⛒ | | |
| Exhaust gases, containing $SO_2$ | low | 60 | | | | | | ⛒ | ⛒ | | |
| Acetaldehyde | 40 % | 20 | ✖ | ✖ | ⛒ | | ⛒ | | | | 20 °C ⛒ |
| Acetone | 100 % | 20 | ⛒ | ⛒ | ⛒ | ✖ | ⛒ | ✖ | ✖ | | ✖ |
| Acrylic acid | 100 % | > 30 | ✖ | ✖ | ✖ | | | | | | ✖ |
| Alums, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |
| Allyl alcohol | 96 % | 20 | ✖ | ✖ | ⛒ | ⛒ | ⛒ | ⛒ | 20 % ⛒ | | |
| Aluminium chloride, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |
| Aluminium sulphate, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |
| Formic acid, aqueous | 10 % | 20 | ✖ | ✖ | ⛒ | | ⛒ | ⛒ | | ⛒ | |
| Ammonia, aqueous | saturated | 20 | 20 % ⛒ | 20 % ⛒ | 20 % ⛒ | | ⛒ | ⛒ | ⛒ | 25 % ⛒ | |
| Ammonium chloride, aqueous | saturated | 60 | | | | 3 % ✖ | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ |
| Ammonium nitrate, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |
| Ammonium sulphate, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | | ✖ |
| Aniline, pure | 100 % | 20 | ✖ | ✖ | ✖ | | ⛒ | ⛒ | ⛒ | ✖ | |
| Aniline hydrochloride, aqueous | saturated | | | | | | ⛒ | ✖ | ✖ | | |
| Benzaldehyde, aqueous | saturated | 20 | pure ✖ | pure ✖ | pure ✖ | | ⛒ | | | ✖ | ✖ |
| Benzine | 100 % | 20 | ⛒ | ⛒ | ⛒ | | ✖ | ⛒ | ✖ | ✖ | ⛒ |
| Benzoic acid, aqueous | all | 40 | 20 % ✖ | 20 % ✖ | | | ⛒ | ⛒ | ⛒ | ⛒ | ✖ |
| Benzole | 100 % | 20 | ⛒ | ⛒ | ⛒ | | ✖ | ✖ | ✖ | ✖ | ✖ |
| Bleaching liquor | 12.5 Cl | 20 | ✖ | ✖ | ✖ | 3 % ✖ | ⛒ | ⛒ | ⛒ | ⛒ | ✖ |
| Drilling oil | all | 20 | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | ✖ | ✖ |
| Chrome alum, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ |
| Cyclohexanol | – | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Diesel fuel | | 85 | ⛒ | ⛒ | ⛒ | 20 °C ⛒ | 20 °C ⛒ | 20 °C ⛒ | 20 °C ⛒ | | |
| Ferric chloride, aqueous, neutral | 10 % | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Glacial acetic acid | 100 % | 20 | | | | | ⛒ | ⛒ | ⛒ | | ✖ |
| Acetic acid | 10 % | 20 | ✖ | ✖ | ⛒ | 3 % ✖ | ⛒ | ⛒ | ⛒ | ✖ | |
| Ethyl alcohol, aqueous | 10 % | 20 | 40 vol % ⛒ | 40 vol % ⛒ | 40 vol % ⛒ | | | ⛒ | | ⛒ | |
| Ethylene chloride | 100 % | 20 | | | | | ✖ | ✖ | ✖ | | ✖ |
| Ethylene oxide | 100 % | 20 | | | | | ✖ | | | | |
| Ethyl ether | 100 % | 20 | | | | | ✖ | | | | ✖ |
| Potassium ferrocyanide, aqueous | saturated | 60 | | | | | ⛒ | ⛒ | ⛒ | | |
| Fluorine | 50 % | 40 | pure ✖ | pure ✖ | pure ✖ | ✖ | ✖ | ✖ | | | |
| Formaldehyde, aqueous | diluted | 40 | pure ⛒ | pure ⛒ | pure ✖ | | 40 % ⛒ | 40 % ⛒ | 40 % ⛒ | 30 % ⛒ | 20 °C ✖ |
| Glucose, aqueous | all | 50 | | | | | ⛒ | ⛒ | ⛒ | | |
| Urea, aqueous | to 10 % | 40 | 20 % ⛒ | 20 % ⛒ | 20 % ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | |
| Flame-retardant hydraulic fluid | | 80 | ⛒ | ⛒ | ⛒ | | | | | | |
| Hydraulic oils H and HL (DIN 51524) | | 100 | ⛒ | ⛒ | ⛒ | | | | | | |
| Hydroxylamine sulphate, aqueous | to 12 % | 30 | | | | | ⛒ | | | | |
| Caustic potash, aqueous | 50 % | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | |
| Potassium bromide, aqueous | all | 20 | 10 % ⛒ | 10 % ⛒ | 10 % ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | |
| Potassium chloride, aqueous | 10 % | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Potassium dichromate, aqueous | 40 % | 20 | 5 % ✖ | 5 % ✖ | 5 % ✖ | | ⛒ | ⛒ | ⛒ | | ⛒ |
| Potassium nitrate, aqueous | all | 20 | 10 % ⛒ | 10 % ⛒ | 10 % ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Potassium permanganate, aqueous | saturated | 20 | | | | | ⛒ | | | ⛒ | |
| Hydrosilicofluoric acid, aqueous | to 30% | 20 | ✖ | ✖ | | | ⛒ | ⛒ | ⛒ | | |

⛒ Highly resistant
✖ Limited resistance
✖ Not resistant

The information is given to the best of our knowledge and experience, however, it must be regarded as being for guidance purposes only. In many cases, a final judgement can only be made by performing tests under actual working conditions.

| Reagent | Concentration | at +°C % | Polyamide PA 6 | Polyamide PA 6.6 | Polyamide PA 12 | Thermoplastic polyurethane PU | Polypropylene PP | Polyethylene HD-PE | Polyethylene LD-PE | Polystyrene PS | Nitrile butadiene rubber NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide, dry | 100 % | 60 | | | | | ⛒ | ⛒ | ⛒ | 50 °C ⛒ | 20 °C ⛒ |
| Carbonic acid | 100 % | 60 | ⛒ | ⛒ | ⛒ | | | | | | 20 °C ⛒ |
| Cresylic acid, aqueous | to 90 % | 20 | pure ✖ | pure ✖ | | | ⛒ | ⛒ | ✖ | ✖ | ✖ |
| Coolant DIN 53521 | | 120 | ✖ | ✖ | | | | | | | |
| Copper chloride, aqueous | saturated | 20 | | | | | ⛒ | ⛒ | ⛒ | | ⛒ |
| Copper sulphate, aqueous | saturated | 60 | | | | | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ |
| Magnesium carbonate, aqueous | saturated | 100 | | | | | ⛒ | | | 50 °C ⛒ | |
| Magnesium chloride, aqueous | saturated | 20 | 10 % ⛒ | 10 % ⛒ | 10 % ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Methyl alcohol | 100 % | 20 | ⛒ | ⛒ | ⛒ | | 40 °C ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Methylene chloride | 100 % | 20 | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | | |
| Lactic acid, aqueous | to 90 % | 20 | 10 % ⛒ | 10 % ⛒ | 10 % ⛒ | 3 % ✖ | ⛒ | ⛒ | ⛒ | 80 % ⛒ | ⛒ |
| Mineral oil | | | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ | 20 °C ⛒ | 20 °C ⛒ | | |
| Sodium chlorate, aqueous | saturated | 20 | 10 % ✖ | 10 % ✖ | 10 % ✖ | | ⛒ | ⛒ | ⛒ | | |
| Sodium hydroxide, aqueous | 10 % | 20 | ⛒ | ⛒ | ⛒ | 3 % ✖ | ⛒ | ⛒ | ⛒ | ⛒ | |
| Nickel chloride, aqueous | saturated | 20 | 10 % ✖ | 10 % ✖ | 10 % ✖ | | ⛒ | | | ⛒ | ⛒ |
| Nickel sulphate, aqueous | saturated | 20 | 10 % ✖ | 10 % ✖ | 10 % ✖ | | ⛒ | ⛒ | ⛒ | | ⛒ |
| Nitroglycerin | diluted | 20 | | | | | | ✖ | ✖ | | |
| Oil and grease | | 20 | ⛒ | ⛒ | ⛒ | | ✖ | | | | |
| Oleic acid | – | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ✖ |
| Oxalic acid | all | 20 | 10 % ✖ | 10 % ✖ | 10 % ✖ | 3 % ✖ | ⛒ | ⛒ | ⛒ | ⛒ | ✖ |
| Ozone | pure | | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | | |
| Petroleum | 100 % | 80 | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ | 20 °C ⛒ | 20 °C ✖ | ✖ | |
| Phosgene, gaseous | 100 % | 20 | | | | | ✖ | ✖ | ✖ | | |
| Phosphoric acid, aqueous | diluted | 20 | 10 % ✖ | 10 % ✖ | 10 % ✖ | 3 % ✖ | ⛒ | ⛒ | ⛒ | 86 % ⛒ | ✖ |
| Phosphorus pentoxide | 100 % | 20 | | | | | ⛒ | | | | |
| Mercury | pure | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ⛒ | ⛒ | ⛒ | ⛒ |
| Nitric acid, aqueous | 50 % | 20 | ✖ | ✖ | ✖ | 3 % ✖ | ✖ | ✖ | ✖ | 30 % ⛒ | ✖ |
| Hydrochloric acid, aqueous | 30 % | 20 | 20 % ✖ | 20 % ✖ | 20 % ✖ | 3 % ✖ | ⛒ | ⛒ | ⛒ | 15 % ⛒ | ✖ |
| Lubricating grease, ester oil base | | 110 | ✖ | ✖ | | | | | | | |
| Polyphenyl ester base | | 110 | ⛒ | ⛒ | ⛒ | | | | | | |
| Lubricating grease, silicone oil base | | 110 | ⛒ | ⛒ | ⛒ | | | | | | |
| Carbon disulphide | 100 % | 20 | ⛒ | ⛒ | ⛒ | | ⛒ | ✖ | ✖ | ✖ | ✖ |
| Sodium sulphide, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | | |
| Sulphuric acid, aqueous | 10 % | 20 | ✖ | ✖ | ✖ | 3 % ✖ | 50 % ⛒ | 50 % ⛒ | 50 % ⛒ | ⛒ | ✖ |
| Sea water | | 40 | ⛒ | ⛒ | ⛒ | 20 °C ⛒ | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |
| Soap solution, aqueous | all | 20 | diluted ⛒ | diluted ⛒ | diluted ⛒ | ⛒ | ⛒ | ⛒ | | ⛒ | |
| Carbon tetrachloride | 100 % | 20 | ⛒ | ⛒ | ⛒ | | ✖ | ✖ | ✖ | ✖ | |
| Toluene | 100 % | 20 | ⛒ | ⛒ | ⛒ | ✖ | | ✖ | ✖ | ✖ | ✖ |
| Trichloroethylene | 100 % | 20 | ✖ | ✖ | ✖ | | ✖ | ✖ | ✖ | | |
| Vinyl acetate | 100 % | 20 | | | | | ⛒ | | | | |
| Hydrogen | 100 % | 60 | 20 °C ⛒ | 20 °C ⛒ | 20 °C ⛒ | | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ |
| Xylene | 100 % | 20 | ⛒ | ⛒ | ⛒ | | ✖ | ✖ | ✖ | ✖ | ✖ |
| Zinc chloride, aqueous | diluted | 60 | 10 % ✖ | 10 % ✖ | | | ⛒ | ⛒ | ⛒ | 50 °C ⛒ | 20 °C ⛒ |
| Zinc sulphate, aqueous | diluted | 60 | | | | | ⛒ | ⛒ | ⛒ | | 20 °C ⛒ |
| Zinc chloride, aqueous | diluted | 40 | | | | | ⛒ | ⛒ | ⛒ | ✖ | 20 °C ⛒ |
| Citric acid | to 10 % | 40 | 20 °C ⛒ | 20 °C ⛒ | 20 °C ⛒ | 3 % ✖ | ⛒ | ⛒ | ⛒ | ⛒ | 20 °C ⛒ |

⛒ Highly resistant
✖ Limited resistance
✖ Not resistant

The information is given to the best of our knowledge and experience, however, it must be regarded as being for guidance purposes only. In many cases, a final judgement can only be made by performing tests under actual working conditions.

## LAPP trademarks registered in multiple countries

| | |
|---|---|
| LAPP® | SKINTOP® |
| ÖLFLEX® | SKINMATIC® |
| HITRONIC® | UNITRONIC® |
| EPIC® | SILVYN® |
| FLEXIMARK® | ETHERLINE® |
| SKINDICHT® | |

## Registered trademarks of other companies

| | | | |
|---|---|---|---|
| Temflex™ 1500 | (3M) | Novell | (Novell) |
| Scotch™ 1183 | (3M) | Arcnet | (Datapoint) |
| NEOPRENE® | (DuPont de Nemours) | Apple | (Apple) |
| TEFLON® | (DuPont de Nemours) | Macintosh | (Apple) |
| KEVLAR® | (DuPont de Nemours) | HP | (Hewlett Packard) |
| TERMI-POINT® | The Whitaker Corporation | SIMATIC® | (SIEMENS®) |
| INTERBUS® | (Phoenix Contact) | SHIELD-KON® | (ABB) |
| VariNET® | (Pepperl + Fuchs) | TY-FAST™ | (ABB) |
| DEC® | (Digital Equipment Corporation) | TY-GUN™ | (ABB) |
| LAT® | (Digital Equipment Corporation) | TY-RAP® | (ABB) |
| Thinwire® (net) | (Digital Equipment Corporation) | TWIST TAIL™ | (ABB) |
| IBM | (International Business Machines) | CIBES® | (Swedish Cable Trolleys AB) |
| PS/2 | (International Business Machines) | SafetyBUS p | (Pilz) |
| Netview | (International Business Machines) | QUICKON® | (PhoenixContact) |
| AS/400 | (International Business Machines) | INDRAMAT® | (Bosch Rexroth) |
| DYMO® | (Newell Rubbermaid) | Ecofast | (SIEMENS®) |
| VITON® | (DuPont Dow Elastomers) | DESINA | VDW (Verein Deutscher Werkzeugmaschinenfabriken – German Machine Tool Builders Association) |
| OS/2 | (IBM) | EtherCAT® | (EtherCAT Organisation) |
| DeviceNET™ | (Open Device Net Vendor Association, ODVA) | EtherNet/IP® | (Open Device Net Vendor Association, ODVA) |
| Microsoft® | (Microsoft) | CANopen | (CAN in Automation) |
| Microsoft® Windows | (Microsoft) | TRASP® | (3M) |
| SCO® | (Santa Cruz Operation) | KNIPEX® | (KNIPEX) |
| Perbunan® | (Bayer AG) | X-Cut® | (KNIPEX) |
| PROFINET® | (PI, PROFINET International) | Alligator® | (KNIPEX) |
| PROFIBUS® | (PI, PROFIBUS International) | Super Knips® | (KNIPEX) |
| Netware | (Novell) | | |

# Fire load values of cables

## Inclusion in the calculation of fire loads on and in buildings

Current regulations and standards governing the assessment and restriction of consequential fire risks vary from country to country. In Germany, the valid state building regulations stipulate the inclusion of specific thresholds with regard to the accumulation of combustible parts of the building installation – which also includes cables – directly connected to the building.

Flexible cables are not intended for fixed installation in buildings. However, the approximate fire load of such cables can be calculated as follows:

- look up the "Approx. weight in kg/km" in the ordering table on the relevant product page of the catalogue and
- subtract the copper content (see column "Copper index in kg/km" in the catalogue) from this value. This results in the mass of the combustible insulation and sheathing material for the relevant article in kg/km,
- divide this value by a factor of 1000 to obtain the combustible mass in kg/m,
- multiply this value by the material-specific calorimetric value (in kWh/m or MJ/m) of the cable or wire as per table below.

**RESULT:** Average fire load value of this cable in kWh/m or MJ/m:

| Material type | Fire load value in kWh/kg Average | Fire load value in MJ/kg Average |
|---|---|---|
| PVC | 5.8 | 21 |
| PE | 12.2 | 44 |
| PS | 11.5 | 42 |
| PA | 8.1 | 26 |
| PP | 12.8 | 46 |
| PUR | 6.4 | 23 |
| TPE-E | 6.3 | 23 |
| TPE-O | 7.1 | 26 |
| NR | 6.4 | 23 |
| SIR | 5.0 | 18 |
| EPR | 6.4 | 23 |
| EVA | 5.9 | 21 |
| CR | 4.6 | 17 |
| CSM | 5.9 | 21 |
| PVDF | 4.2 | 15 |
| ETFE | 3.9 | 14 |
| FEP | 1.4 | 5 |
| PFA | 1.4 | 5 |
| PTFE | 1.4 | 5 |
| HFFR | 4.8 | 17 |
| HFFR cross-linked | 4.2 | 15 |

**NOTE:** The above calculation can only be used for cables of which the combustible content is made up entirely of the same material type and which contain no additional metals other than the copper content. Specific fire load values for the following products are available in tabular format on request: ÖLFLEX® CLASSIC 100 H, ÖLFLEX® CLASSIC 110 H, ÖLFLEX® CLASSIC110 CH, ÖLFLEX® CLASSIC 130 H, ÖLFLEX® CLASSIC 135 CH. Conversions: 1 kWh/m = approx. 3.6 MJ/m; 1 MJ/m = approx. 0.277 kWh/m.

# Materials of cables and wires exposed to electromagnetic radiation

## Types of radiation and their effects

Electromagnetic radiation is a familiar term in many different areas. It can occur naturally (e.g. solar or natural radioactivity) and can also be produced artificially (e.g. X-ray units, lights or mobile communications). It can be divided up into different types or components – the decisive factor here is the wavelength, or alternatively the frequency, of the radiation. The electromagnetic spectrum is divided up into the following categories, listed here in descending wavelength order, or ascending frequency order:

- alternating currents (e.g. very low-frequency broadcasting)
- radio waves (e.g. radio broadcasting)
- microwaves (e.g. microwave ovens, mobile communications, radar)
- infrared radiation (thermal radiation, e.g. thermography, remote control)
- visible light (component of radiation from artificial sources of light and from the sun)
- ultraviolet radiation (UV radiation – component of sunlight, technical applications)
- X-radiation (e.g. image processing within medical technology or material testing)
- gamma radiation (e.g. nuclear energy, technical applications)

Due to the impact they have, gamma rays, x-rays and very short wavelength UV rays are also summarised under “ionising radiation”. This term refers to radiation that carries enough energy to free electrons from atoms or molecules (ionisation).

With organic compounds, such as plastics used for cables and wires, the fundamental factor to consider is the impact of UV radiation and ionising radiation. They have the highest amount of energy and therefore have the greatest impact on the materials out of all the types of electromagnetic radiation.
This influence is used in plastic processing to give materials certain properties – for example, using the appropriate radiation conditions to set certain adhesives, coatings, insulation materials and sheath materials of cables and wires, which only in this way achieve the required strength and durability. This is known as “cross-linking” or, to be more precise, “electron beam cross-linking” because there are also other cross-linking processes (e.g. chemical).
When it comes to the practical use of cables and wires, however, UV radiation and ionising radiation tend to have undesired effects. Colours can fade and plastics can become dull or brittle. Ultimately, if the plastic becomes brittle or cracks start to form, the cables will no longer be fit for use.

## Use of cables and wires exposed to UV radiation

UV radiation is a component of solar radiation and therefore primarily affects exposed outdoor applications. Here, the components which are able to penetrate the ozone layer have an impact: UVA radiation and a proportion of UVB radiation. UVC is filtered by the ozone layer and therefore does not reach the earth’s surface.
While UV radiation also occurs indoors, it is considerably less intense than it is outdoors because glass panes, depending on their design, can filter out a considerable proportion. Furthermore, shading is often installed and artificial sources of light usually only emit a small amount of UV radiation.

Since different products are subjected to remarkably different conditions at their respective sites of application, for example regarding the duration and angle of irradiation, as well as shading and other influencing factors such as ambient temperature, humidity and air quality, it is not possible to make any universal statements about the durability and service life of products (see also technical appendix T0, 7. Service life).

Testing methods complying with UV resistance-related standards (e.g. ISO 4892-2) enable a general evaluation of products that are to be exposed to UV radiation when in use and make it possible to compare different materials and end products.

The plastics used for cables and wires differ in their sensitivity to the impact of UV rays; using appropriate stabilisers, colour pigments or soot can considerably reduce this sensitivity by absorbing the UV radiation and converting it into less critical thermal radiation. This prevents UV rays from penetrating into the molecular chains of the sheath material, splitting them up into highly reactive radicals which attack the molecular chain structure of the plastic and, in the process, trigger accelerated ageing.

Cables and wires with black sheaths are generally better protected than those with other colours because black surfaces are considerably better at absorbing UV radiation.
This knowledge has also been applied in standards, thus cables with black sheaths are suitable for outdoor use in accordance with EN 50525-1 and VDE 0285-525-1.

Some plastics demonstrate a good level of resistance even without a black colouring, these are:

- cross-linked polyethylene (XLPE)
- elastomers (e.g. CR or Si)
- thermoplastic elastomers (TPE-E, TPE-O, TPE-U, e.g. PUR)
- fluoropolymers (e.g. PTFE or FEP)

However, these plastics also differ in terms of resistance depending on the colour because the aforementioned effect of black sheaths always improves resistance.

With polyurethane cables which are not black (e.g. orange or yellow cables), it is important to note that, despite fading considerably with time, they will continue displaying a good level of flexibility and strength because the base material is able to withstand the UV radiation, just not the colour pigments.
This means that despite the visible damage caused by UV radiation or weather conditions, these types can be technically still fully functional.

## Use of cables and wires exposed to ionising radiation

Ionising radiation normally only occurs in defined applications and when it is supposed to, meaning that materials with the appropriate resistance can be specially adapted to the prevalent conditions of the application in advance.
Cables are therefore normally only tested for radiation resistance if their intended usage includes exposure to ionising radiation. This means that for all other cables, indications can only be made for the radiation resistance of typically used materials. While these indications are not representative of the resistance of the whole cable, the values can still act as a rough guide and make it possible to compare the cables with one another.

The radiation resistance of materials is defined using the Radiation Index (RI) in IEC 60544-4 and refers to the point at which the elongation at break is reduced to ≥ 50 % of the original value.

# Materials of cables and wires exposed to electromagnetic radiation

The table below lists the typical maximum dose of the individual materials in grays (and rad) of a gamma radiation source at which the elongation at break of the test specimen still remains above 50 % of its unaged value.

Conversions:

1 Gy = 100 rad; 1Gy = 1J/kg

The resistance of cables, wires and other products for connection technology against ionising radiation plays a particularly crucial role in nuclear plants. In addition to the suitability of the products themselves, all the processes also need to meet the special requirements of such application areas.

This is why U.I. Lapp GmbH proved itself as a qualified supplier of cables, wires, cable glands and cable-related accessories to nuclear plants by passing system-related and product-related quality assurance testing – see "Zertifikat KTA 1401" (Acknowledgement of quality assurance in accordance with regulation KTA 1401). The certificate is available in German at: www.lapp.com

## Resistance of plastics to ionising radiation

| Material type | Radiation dose in Gy approx. | Radiation dose in rad approx |
|---|---|---|
| PVC | $8 \times 10^5$ | $8 \times 10^7$ |
| PE LD | $1 \times 10^5$ | $1 \times 10^7$ |
| PE HD | $7 \times 10^4$ | $7 \times 10^6$ |
| VPE (XLPE) | $1 \times 10^5$ | $1 \times 10^7$ |
| PA | $1 \times 10^5$ | $1 \times 10^7$ |
| PP | $1 \times 10^3$ | $1 \times 10^5$ |
| PETP | $1 \times 10^5$ | $1 \times 10^7$ |
| PUR | $5 \times 10^5$ | $5 \times 10^7$ |
| TPE-E | $1 \times 10^5$ | $1 \times 10^7$ |
| TPE-O | $1 \times 10^5$ | $1 \times 10^7$ |
| NR | $8 \times 10^5$ | $8 \times 10^7$ |
| SIR | $2 \times 10^5$ | $2 \times 10^7$ |
| EPR | $1 \times 10^6$ | $1 \times 10^8$ |
| EVA | $1 \times 10^5$ | $1 \times 10^7$ |
| CR | $2 \times 10^5$ | $2 \times 10^7$ |
| ETFE | $1 \times 10^5$ | $1 \times 10^7$ |
| FEP | $3 \times 10^3$ | $3 \times 10^5$ |
| PFA | $1 \times 10^3$ | $1 \times 10^5$ |
| PTFE | $1 \times 10^3$ | $1 \times 10^5$ |

# Table 29-1: UL mark on cable and wire and its significance with regard to intended usage

## "(UL)" listing being a method of type certification for cable and wire

The intended use of cable and wire with a listing as per the UL or CSA standard mainly comprises wiring inside, or on buildings, as well as for special applications. Such cable or wire shall be used in line with valid installation standards. In order for stakeholders to identify listings by UL, the abbreviation "UL" is put in brackets on the surface of cable and wire: "(UL)". With respect to package labels, "UL" can appear in brackets or within a closed circle. That being said, cable and wire can have multiple listings, or may also be AWM-certified, too.

## "RU" recognition mark by UL for AWM-certified cable and wire

UL-recognized Appliance Wiring Material component (AWM) is a certification for cable and wire for all-encompassing factory wiring in AWM applications. AWM is subdivided into Styles. The Style of the outmost design layer is crucial to the scope of intended AWM use types if cable or wire is installed as AWM. However, so-called multi-rated Styles specify multiple ratings of certain properties, simultaneously. The manufacturer's data sheet for the cable or wire with multi-rated Style details the actual AWM rating. Depending on the Style, cable and wire is operated as AWM inside chain tracks within closed control panels or on or inside industrial machinery. Often times, though it's not guaranteed, local on-site inspectors (AHJ/ CEO/ Special Police) allow to choose pure AWM for the interior of an access-limited zone on the load end of branch circuits (IP/ Industrial Platform) in the USA, on the basis of Section 12.9.2 of the NFPA 79, where the overall system approval method is "Field Labeling" or "Field Inspection". Upfront however, some NRTL's use to offer additional, (OEM...) factory-based Field Labeling pre-evaluations, before the actual Field Labeling. UL's certification mark for AWM is "RU" with "R" being mirror-inverted. Regardless, marking the given AWM certification on the component hardware is not mandatory as per UL 758. AWM cable or wire may have more than just one Style for the outmost design layer, and be permitted to be listed by an NRTL (Nationally Recognised Testing Laboratory) per UL or CSA type standard in parallel.

## Example U.S. standards on installation, panels, devices, machinery, appliances, etc.

- National Electrical Code (NEC) of the USA = NFPA 70 on building (structure) etc., regularly requires certain listings, instead of AWM, for instance cable or wire listings as per NEC Article 392, such as TC-ER 600 V, PLTC-ER (etc.) for unprotected laying on open trays as well as between trays and other units up to 6 ft or 1.8 m in exposed runs (-ER) for each exposed installation section where access is granted to qualified personnel only (Art. 336). The NEC is a very complex code which covers a large number of different installation scenarios inside or even outside of buildings, for example Electric Mobility, Cranes/ Hoists, Elevators, Flexible laying in Heavy Industry, Building Infrastructure incl. Floor Level Changement or Plenum-internal laying, Hazardous Zone installation (Classes, Divisions, Zones), Sprinkler, Marinas, Service Entrance, Grounding/ Bonding, Underfloor wiring, and the list goes on. But it avoids the particular stipulation of recognized cable/ wire type AWM.
- NFPA 79: Industrial machinery decoupled from the building structure, industrial chain track, or occasionally for industrial platform (IP) internal parts decoupled from the building structure upon on-site AHJ's/CEO's (Authority Having Jurisdiction/Code Enforcement Officer), or upstream NRTL's (partly offering field inspection pre-evaluation on the factory end) sole decision in the context of field labeling assessment. One out of the three provisions of section 12.9.2 must be met to get permission for the use of pure AWM cable within the site-individual, technical scope of validity of NFPA 79, and most times the second provision no. (2) on complete documentation of the AWM in the machine (...) documentation is made use of by machine OEM's. Further important definitions, for instance regarding: Universal marking of short-circuit current ratings, conductor sizing for motor connection as per Chapter 12, core identification as per Chapter 13, kill switches, separators, etc.
- UL 508A: Industrial control panels
- UL 6141/UL 6142: Wind turbines
- Additional U.S. standards: UL 73 on motor-operated appliances, UL 2011 on factory automation equipment, UL 2200 on stationary engine generator assemblies, ANSI Z 535.4 on product safety signs and labels, UL 508C on safety power conversion equipment, UL 489 on molded case circuit breakers and enclosures, UL 1004 on electric motors, UL 248 on fuses, UL 775 on graphics arts equipment, NFPA 130 on trains, UL 1740 on industrial robots, UL 1077 on supplementary protectors in electrical equipment, UL RP 5770 on repeated flexing applications.

Fundamentally, the operation site may be subject to supplementary, local standardisation or rules. Not only in such cases, but rather also in general, the overall approval process for an industry project or prior to new appliance market launch may profit from the OEM-initiated, early involvement of a certifier/NRTL for the purpose of selecting the appropriate components and associated installation methods, time-wise and in terms of total costs for engineering, installation and transport & tariffs. In North America, the selected chosen cable, cord, and wire shall meet the requirements according to national and local standards for installations, devices, appliances, etc. More often than not, a certain component type certification by a third party is indispensable.

## Canada

Canada has its own standards, such as the CEC (Canadian Electrical Code). Various NRTL's other than UL and CSA are notified for the UL and/ or CSA standardised component type certification of companies under the NRTL's own certification and testing mark, and that to individual degree, when it comes down to the NRTL individual number or scope of approvable component types covered by the notification. If CSA issues certification according to the UL standard for use in the U.S., the CSA mark will be seamlessly followed by the lower-case suffix "us". Vice versa, the lower-case prefix "c" is seamlessly added ahead of UL's mark in cases where UL issues certifications according to the CSA standard for use in Canada. Furthermore, a cable or wire might be simultaneously certified by more than just one NRTL, or might bring additional certification to European standards by an accordingly notified certifier to the table.

## Ampacity and conductor sizing

North American standards and codes on installation, panels, devices, machinery, appliances, etc. deal with the AWG/kcmil scale of nominal conductor cross-sections. As far as cable and wire products in Europe are concerned though, these mostly incorporate metric IEC conductors, as explained on proper technical data sheets. Except for a few possible cases, the next-higher nominal, metric IEC conductor cross-sections (VDE 0812, IEC 60228/VDE 0295, etc.) directly exceeding the sized AWG/ kcmil cross-sections calculated on the basis of North-American installation standards will have to be chosen regularly if cable, cord, and wire with a metric IEC conductor and with required type approval per UL/CSA type standard is supposed to be operated according to a North American standard or code on installation, appliance, panel etc., and on the basis of an application-specific, North American component type certification. This is how the AWG/kcmil sized conductor ampacity must be ensured, from a technical standpoint, despite the contained IEC conductor. As a consequence, cable and wire certified to the UL or CSA standard, but incorporating a metric IEC conductor, normatively and technically only fulfils the next-smaller, nominal AWG/kcmil conductor cross-section, regularly, apart from a few possible exceptions. For further information on transcoding between conductor scales, please have a look at technical appendix T16.

## Table 29-2: overview of corresponding products in this catalogue – type “Listed”

| LAPP cable type with UL listing | Listed type | Voltage in V | Temperature in °C | Compound | Compliant with NFPA 79, Edition 2018 |
|---|---|---|---|---|---|
| ÖLFLEX WIRE MS 2.1 | MTW | 600 | 90 | PVC | ✔ |
| ÖLFLEX WIRE MS 2.2 | MTW | 600 | 90 | PVC | ✔ |
| ÖLFLEX® CONTROL TM, TM CY | MTW, TC-ER, WTTC, SUNRES, Subm.Pump | 600, 1000 | 90 | Thermopl. Polymer | ✔ |
| ÖLFLEX® TRAY II, TRAY II CY | MTW, TC-ER, WTTC, SUNRES, Subm.Pump | 600, 1000 | 90 | Thermopl. Polymer | ✔ |
| ÖLFLEX® POWER MULTI | TC-ER, STOOW, SUNRES | 600 | 90, 105 | Thermopl. Polymer | ✔ |
| ÖLFLEX® SERVO 7TCE, FD 7TCE | TC-ER, Flexible Motor Supply | 600, 1000 | 90 | Thermopl. Elastomer | ✔ |
| ÖLFLEX® VFD 2XL, 2XL with Signal | TC-ER, Flexible Motor Supply | 600, 1000, 2000 | 90 | Thermopl. Elastomer | ✔ |
| ÖLFLEX® CHAIN TM, TM CY | MTW, TC-ER, WTTC | 600, 1000 | 90 | Special compound | ✔ |
| UNITRONIC® 300, 300 S, 300 STP | CMG, PLTC, Open Wiring, Oil Res 1 | 300 | 105 | PVC | ✔ |
| UNITRONIC® BUS IBS A | CMX | 250 | 70 | PVC | ✔ |
| UNITRONIC® BUS IBS P COMBI | CMX | 250 | 75 | PUR | ✔ |
| UNITRONIC® BUS IBS FD P | CMX | 250 | 70 | PUR | ✔ |
| UNITRONIC® BUS IBS FD P COMBI | CMX | 450 | 70 | PUR | ✔ |
| UNITRONIC® BUS IBS Yv | CMX | 250 | 75 | PVC | ✔ |
| UNITRONIC® BUS IBS Yv COMBI | CMX | 250 | 75 | PVC | ✔ |
| UNITRONIC® BUS LD | CMX | 250 | 70 | PVC | ✔ |
| UNITRONIC® BUS LD FD P | CMX | 250 | 75 | PUR | ✔ |
| UNITRONIC® BUS PB A | CMX | 250 | 75 | PVC | ✔ |
| UNITRONIC® BUS PB FC | CMG | 100 | 60 | PVC | ✔ |
| UNITRONIC® BUS PB 7-W FC | CMX | 250 | 75 | PVC | ✔ |
| UNITRONIC® BUS PB H FC | CMX | 100 | 75 | FRNC | ✔ |
| UNITRONIC® BUS PB P FC | CMX | 100 | 75 | PUR | ✔ |
| UNITRONIC® BUS PB FD P A | CMX | 250 | 70 | PUR | ✔ |
| UNITRONIC® BUS PB TORSION | CMX | 300 | 75 | PUR | ✔ |
| UNITRONIC® BUS PB FESTOON | CMG | 600 | 75 | PVC | ✔ |
| UNITRONIC® BUS PB FRNC FC | CM | 250 | 60 | PUR | ✔ |
| UNITRONIC® BUS PB FD FRNC FC | CM | 250 | 60 | PUR | ✔ |
| UNITRONIC® BUS PB TRAY | CMG/PLTC-ER | 600 | 75 | PVC | |
| UNITRONIC® BUS PA (BU) | CMX | 100 | 75 | PVC | ✔ |
| UNITRONIC® BUS PA (BK) | CMX | 100 | 75 | PVC | ✔ |
| UNITRONIC® BUS PA FC | CMG | 100 | 75 | PVC | ✔ |
| UNITRONIC® BUS FF 3 (YE) | CMG/PLTC | 300 | 105 | PVC | ✔ |
| UNITRONIC® BUS FF 3 ARM | CMG/PLTC | 300 | 105 | PVC | ✔ |
| UNITRONIC® BUS FF 2 | CMG | 300 | 105 | PVC | ✔ |
| UNITRONIC® BUS CC | CM/PLTC | 300 | 75 | PVC | ✔ |
| UNITRONIC® BUS CAN | CMX | 250 | 75 | PVC | ✔ |
| UNITRONIC® BUS CAN FD P | CMX | 250 | 70 | PUR | ✔ |
| UNITRONIC® BUS CAN TRAY | CMG/PLTC-ER | 600 | 75 | PVC | |
| UNITRONIC® BUS ASI (PVC) | CMG | 300 | 80 | PVC | ✔ |
| UNITRONIC® BUS SAFETY | CMX | 250 | 75 | Compound | ✔ |
| UNITRONIC® BUS DN THICK FRNC | CMG | 300 | 80 | FPE FRNC | ✔ |
| UNITRONIC® BUS DN THIN FRNC | CMG | 300 | 80 | FPE FRNC | ✔ |
| UNITRONIC® BUS DN THICK Y | CMG | 300 | 80 | PVC | ✔ |
| UNITRONIC® BUS DN THIN Y | CMG | 300 | 80 | PVC | ✔ |
| UNITRONIC® BUS DN THICK FD P | CMX | 300 | 80 | PUR | ✔ |
| UNITRONIC® BUS DN THIN FD Y | CMG | 300 | 80 | PVC | ✔ |
| UNITRONIC® BUS DN THICK FD Y | CMG | 300 | 80 | PVC | ✔ |
| UNITRONIC® BUS DN THIN FD P | CMX | 300 | 80 | PUR | ✔ |
| ETHERLINE® PN Cat.5e Y | CMX | 300 | 75 | PVC | ✔ |
| ETHERLINE® Y FC Cat.5 | CMG/PLTC | 600 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.5e YY | CMG | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.5 Y Flex FC | CMG/PLTC | 600 | 75 | PVC | ✔ |
| ETHERLINE® FD P FC Cat.5e | CMX | 300 | 75 | PUR | ✔ |
| ETHERLINE® PN Cat.5e FRNC FLEX FC | CMG/PLTC | 300 | 75 | FRNC | ✔ |
| ETHERLINE® Y FLEX Cat.5e | CMG | 300 | 75 | PVC | ✔ |
| ETHERLINE® Y EC FLEX Cat.5e | CMX | 300 | 75 | PVC | ✔ |
| ETHERLINE® P EC FLEX Cat.5e | CMX | 300 | 75 | PUR | ✔ |
| ETHERLINE® P EC FD Cat.5e | CMG | 300 | 75 | PUR | ✔ |
| ETHERLINE® FESTOON PN Cat.5e | CMG | 600 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.$6_A$ Y FLEX | CM | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.$6_A$ FRNC FLEX | CM | 300 | 75 | FRNC | ✔ |
| ETHERLINE® PN Cat.$6_A$ FD Y | CM | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.$6_A$ FD P | CMX | 300 | 75 | PUR | ✔ |
| ETHERLINE® PN Cat.$6_A$ TORSION Y | CM | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.$6_A$ TORSION P | CMX | 300 | 75 | PUR | ✔ |
| ETHERLINE® PN Cat.7 Y A | CMG | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.7 Y FLEX A | CMG | 300 | 75 | PVC | ✔ |
| ETHERLINE® PN Cat.7 FRNC FLEX A | CM | 300 | 75 | FRNC | ✔ |
| ETHERLINE® FD P Cat.6 | CMX | 300 | 75 | PUR | ✔ |
| ETHERLINE® TRAY ER PN Y FC | CMG/PLTC-ER | 600 | 75 | PVC | ✔ |
| ETHERLINE® MARINE FRNC FC | CMG/PLTC | 600 | 75 | FRNC | ✔ |
| ETHERLINE® TORSION Cat.7 | CMX | 300 | 75 | PUR | ✔ |
| HITRONIC® PCF Duplex PN B PVC-PVC A | OFNG | | 75 | PVC | ✔ |

The table shows the available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

## Table 29-3: overview of corresponding products in this catalogue – type AWM

| LAPP cable type with AWM style | Style number | Voltage in V | Temperature in °C | Compound | Compliant with NFPA 79, Edition 2018 |
|---|---|---|---|---|---|
| ÖLFLEX WIRE MS 2.1 | 1015 | 600 | 105 | PVC | ✔ |
| ÖLFLEX WIRE MS 2.2 | 10269 | 1000 | 105 | PVC | ✔ |
| ÖLFLEX WIRE MS 1 | 1007, 1569 | 300 | 105 | PVC | ✔ |
| ÖLFLEX® CLASSIC 110 H | 21089 | 600 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® CLASSIC 110 CH | 21089 | 600 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® CLASSIC 130 H | 21217 | 600 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® CLASSIC 135 CH | 21217 | 600 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® CLASSIC 130 H BK | 21156 | 1000 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® CLASSIC 135 CH BK | 21156 | 1000 | 75 | Special compound, halogen-free | ✔ |
| ÖLFLEX® 150 | 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® 150 CY | 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® 191 | 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® 191 CY | 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® CONTROL TM, TM CY | 20886 | 1000 | 105 | Thermopl. Polymer | ✔ |
| ÖLFLEX® TRAY II, TRAY II CY | 20886 | 1000 | 105 | Thermopl. Polymer | ✔ |
| ÖLFLEX® 409 P/409 CP | 20234 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® CHAIN TM, TM CY | 20886 | 1000 | 105 | Special compound | ✔ |
| ÖLFLEX® CHAIN 809 | 20886 | 1000 | 80 | PVC | ✔ |
| ÖLFLEX® CHAIN 809 CY | 20886 | 1000 | 80 | PVC | ✔ |
| ÖLFLEX® CHAIN PN | 20886 | 1000 | 90 | PVC | ✔ |
| ÖLFLEX® FD 891 | 2587, 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® FD 891 CY | 2587, 21098 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® CHAIN 819 P, CP | 21576 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® FD 855 P, CP | 21576 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® FD 891 P | 20234 | 600 | 80 | PUR | ✔ |
| ÖLFLEX® CHAIN 896 P | 20234 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® CHAIN 809 SC, SC CY | 10107 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® FD 90 | 10107 | 600 | 90 | PVC | ✔ |
| ÖLFLEX® FD 90 CY | 10107 | 600 | 90 | PVC, DESINA-compliant | ✔ |
| ÖLFLEX® CHAIN 90 P, CP | 11624 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® TORSION FRNC | 21288 | 1000 | 80 | Special compound, halogen-free | ✔ |
| ÖLFLEX® HEAT 180 MS | 4476, 3529 | 600 | 150 | Silicone compound | ✔ |
| ÖLFLEX® HEAT 180 C MS | 4476, 3529 | 600 | 150 | Silicone compound | ✔ |
| ÖLFLEX® HEAT 180 SiF A | 3644 | 1000 | 150 | Silicone | ✔ |
| ÖLFLEX® PETRO C HFFR | 10587, 20234 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® ROBOT 998 P/998 DP | 20724 | 300 | 80 | PUR | ✔ |
| ÖLFLEX® ROBOT 991 P/991 DP | 20940 | 600 | 80 | PUR | ✔ |
| ÖLFLEX® ROBOT F1 | 20940 | Up to 1.5 mm²: 600<br>From 2.5 mm²: 1000 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO 719 | 2570 | 1000 | 80 | PVC | ✔ |
| ÖLFLEX® SERVO 719 CY | 2570 | 1000 | 80 | PVC | ✔ |
| ÖLFLEX® SERVO 728 CY | 2464 | 300 | 80 | PVC | ✔ |
| ÖLFLEX® SERVO 9YSLCY-JB | 2570, 20886 | 1000 | 80 | PVC | ✔ |
| ÖLFLEX® SERVO 7DSL | 2570 | 1000/300 | 80 | PVC | ✔ |
| ÖLFLEX® SERVO FD 796 P | 20234 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO FD 796 CP | 20234 | 1000 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO FD 798 CP | 20236 | 30 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO FD 7DSL | 21223 | 1000/300 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO FD 7OCS | 21223, 20233 | 1000/300 | 80 | PUR | ✔ |
| ÖLFLEX® SERVO 3D 7DSL | 21223 | 600 | 80 | PUR | ✔ |
| SERVO cables acc. to INDRAMAT® standard INK | Power cables: 20234<br>Signalling cables: 20236 | Power cables: 600/1000<br>Signalling cables: 300 | 80 | PUR | ✔ |
| SERVO cables acc. to LENZE® standard | Resolver + encoder cable: 2464, 21165<br>Motor cable: 2570, 20940 | Resolver + encoder cable: 300<br>Motor cable: 600 | 80 | PUR | ✔ |
| SERVO cables acc. to SIEMENS® standard FX 8PLUS | Power cables: 21223<br>Signalling cables: 20236 | Power cables: 1000<br>Signalling cables: 30 | 80 | PUR | ✔ |
| UNITRONIC® 300, 300 S, 300 STP | 2464 | 300 | 80 | PVC | ✔ |
| UNITRONIC® LiYCY A | 2464 | 300 | 80 | Special PVC | ✔ |
| UNITRONIC® LiYCY(TP) A | 2464 | 300 | 80 | Special PVC | ✔ |
| UNITRONIC® LiYY A | 2464 | 300 | 80 | Special PVC | ✔ |
| UNITRONIC® FD Li2YCY (TP) A BE/BA | 2570 | 1000 | 80 | PVC | ✔ |
| UNITRONIC® FD P plus | 21576 | 1000 | 80 | PUR | ✔ |
| UNITRONIC® FD CP plus | 21576 | 1000 | 80 | PUR | ✔ |
| UNITRONIC® FD CP (TP) plus | 21576 | 1000 | 80 | PUR | ✔ |
| UNITRONIC® BUS CC FD P FRNC | 20233 | 300 | 80 | PUR | ✔ |
| UNITRONIC® BUS ASI (TPE) | 2103 | 300 | 105 | TPE | ✔ |
| UNITRONIC® BUS ASI FD FRNC | 20549 | 300 | 80 | PUR | ✔ |
| UNITRONIC® SENSOR FD | 20549 | 300 | 80 | PUR | ✔ |
| UNITRONIC® SENSOR master cable | 21198 | 300 | 80 | PUR | ✔ |
| ETHERLINE® Cat.5 FRNC HYBRID | 21282 | 150 | 80 | FRNC | ✔ |
| ETHERLINE® FESTOON PN Cat.5e | 21694 | 600 | 60 | PVC | ✔ |
| ETHERLINE® PN Cat.5 Y FLEX FC | 21694 | 600 | 60 | PVC | ✔ |
| ETHERLINE® TORSION Cat.5 | 21161 | 300 | 80 | PUR | ✔ |
| ETHERLINE® FD P Cat.5e | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® P Cat.5e | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® P Cat.5e Flex | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® FD BK Cat.5 | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® FD P Cat.$6_A$ | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® TORSION P Cat.$6_A$ | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® TORSION P Cat.7 | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® TRAY ER PN Y | 20201 | 600 | 60 | PVC | ✔ |
| ETHERLINE® Y FC Cat.5 | 21694 | 600 | 60 | PVC | ✔ |
| ETHERLINE® Cat.7 FLEX | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® PN Cat.7 Y A | 21695 | 600 | 80 | PVC | ✔ |
| ETHERLINE® PN Cat.7 FRNC A | 21286 | 300 | 80 | Special compound, halogen-free | ✔ |
| ETHERLINE® PN Cat.7 P A | 21576 | 1000 | 80 | PUR | ✔ |
| ETHERLINE® PN Cat.7 Y FLEX A | 21695 | 600 | 80 | PVC | ✔ |

The table shows the available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products. The use is mentioned in the UL Style pages.

## Our products – contained substances and legislation

The use of hazardous substances in products is subject to ever-stricter international laws and restrictions.

Applies to the editorial deadline:
The products in the catalogue meet the following legal requirements (among others):

- **REACH – Regulation No 1907/2006/EC**
- **RoHS – Directive 2011/65/EU**
- **Regulation No. 1005/2009/EC on substances that deplete the ozone layer**

### REACH:

Regulation No. 1907/2006/EC represents the EU's standard system concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). The purpose of the regulation is to ensure a high level of protection for human health and the environment.

LAPP sells products within the meaning of REACH. The following requirements of the REACH regulation are therefore particularly significant:

1. Duty to provide information, to be fulfilled by the manufacturers and importers of products containing a material on the "candidate list" at a concentration in excess of 0.1% of the mass of the product
2. Observance of substances requiring authorisation in accordance with REACH Annex XIV
3. Observance of the manufacturing, marketing and use restrictions specified in REACH Annex XVII.

LAPP has assigned great importance to the subject of safety and the environment from a very early stage. Our aim is to implement the REACH regulation by keeping our products free from substances of very high concern (SVHC) or to replace such substances with non-hazardous materials.

We therefore keep a very close eye on the Candidate List, in which the European Chemicals Agency lists these dangerous substances, continuously evaluate our products and implement any necessary measures. We observe all registration requirements for materials in accordance with REACH Annex XIV as well as the manufacturing, marketing and use restrictions specified in REACH Annex XVII.

### RoHS:

RoHS II (Directive 2011/65/EU) has extended the previous scope and introduced the new category 11 that covers all "other EEE not covered by any of the [previous] categories". The European Directive 2015/863/EU has added four additional substances to RoHS Annex II which came into force on 19 of July 2019. However, the new substances have already known from the REACH candidate list.

Hence, as at the editorial deadline, the following applies:

All products in the main catalogue of the Lapp Group are in compliance with the substance restrictions and corresponding threshold values of RoHS II (Directive 2011/65/EU) and its amendment 2015/863/EU, except for the Annex III exemptions of this Directive. LAPP certifies the "RoHS conformity" of EEE covered by the Directive with a product-specific CE declaration of conformity and by applying of the CE mark.

## WEEE Directive 2012/19/EU

The WEEE Directive governs the disposal and recycling of electrical and electronic goods. From our product range, some products do fall within the category of electrical and electronic tools and equipment as well as passive devices in different categories. Further information is available on the individual product page or from your direct sales contact persons.

The article/registration numbers are subject to change as a result of any modifications to the scope of the WEEE Directive following the printing of this catalogue.

### As a general rule:

All information is provided to the best of our knowledge and belief. The information given represents the current state of the art. This is supported by continuous random testing of our products.

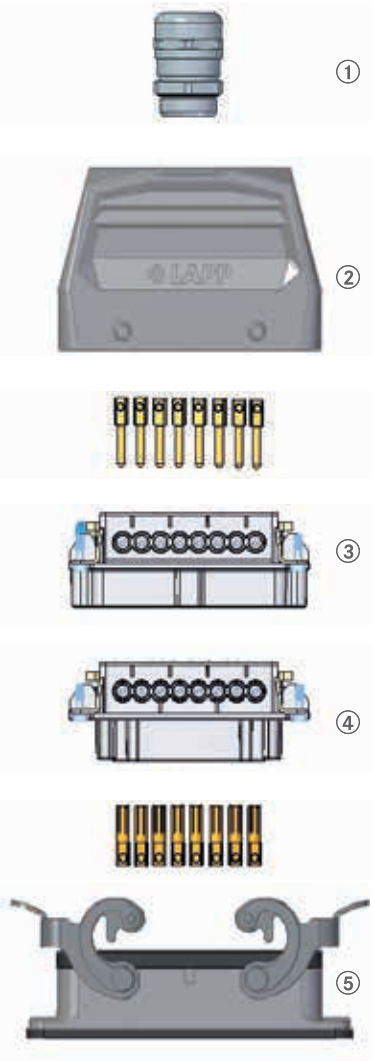
Given the vast number of our products, complete verification without exception is not possible. Therefore, the specifications above do not constitute a generally applicable guarantee in a legal or warranty sense.

For more information, we recommend you visit our website www.lapp.com/rohs-reach. Please get in contact with our expert sales contact persons for specific substance information or declarations.

## Directive 2006/66/EC on batteries and accumulators as well as waste batteries and accumulators

This Directive and the resulting national laws (e.g. the German Batteries Act – BattG) stipulate obligations for the registration and return of batteries. Some of the products listed in this catalogue contain batteries which can be recycled at the designated collection points for waste batteries. Further information is available on the individual product page or from your direct sales contact persons.

## Table 31-1: EPIC® rectangular connectors




**1. Cable gland:**
The cable gland provides a seal between the cable and the connector housing. It may also be used to provide additional functions like strain relief and braid continuity for EMC protection.

**2. Upper housing:**
Hood

**3. Male insert:**
Types of contact termination
- Screw
- Crimp*
- Cage clamp
- Push-In

**4. Female insert:**
Types of contact termination
- Screw
- Crimp*
- Cage clamp
- Push-In

**5. Lower housing:**
- Panel mounting (cable entry though cut-out in panel)
- Surface mounting (cable entry through a gland into the side of the connector base)
- Cable connector hood, cable-to-cable connection

* contacts must be ordered separately

### Wide range of applications with EPIC® rectangular connectors:

- Number of pins from 1 up to 216
- Currents up to 220 A
- Voltage up to 1,000 V
- Modular system with inserts for power supply, signal and data transmission, fibre optics, coax connection and compressed air
- Termination technologies: Screw, crimp, cage clamp, solder, Push-In
- Housings for cable connection and the assembly on devices
- **Degree of protection** (depends on the type of housing and the cable gland. Therefore, we recommend the use of a brass gland with integrated sealing ring, for example SKINTOP® MS-M.)
- **EMC protection** (for applications with EMC requirements, we recommend the EPIC® ULTRA in combination with the SKINTOP® BRUSH.)

**TIP:** Only use tools recommended and approved by LAPP. This ensures the safe and long-term operation of the connector. An assurance about the technical characteristics as well as the validity of the certificates can only be given if all components are used exclusively by LAPP.

**WARNING:** EPIC® industrial connectors must not be connected or disconnected under load.

## Table 31-2: EPIC® housings and inserts

**Hood (fig. 1):**
It may have a top or angle (side) entry of different PG sizes to accommodate a wide range of cable diameters. The hood can be mated with either a surface or panel mounting base, or a cable coupler hood (for cable-to-cable connection).




**Panel mount base (fig. 2):**
It is wired from below through a hole cut in a panel. The panel base is attached to the surface of a control panel for the connection of control or power cables.

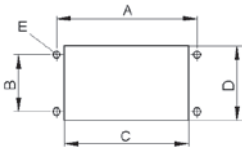



**Surface mount base (fig. 3):**
The surface base is a complete enclosure, only offering cable entry through a cable gland mounted either on one or both sides of the base.




**Cable coupler (fig. 4):**
The cable connector hood mates with a top entry hood to offer cable-to-cable connection. This is frequently used to extend cables.




| Panel cut-out for panel mount base (mm) | | | | | |
|---|---|---|---|---|---|
| Panel mount base | A | B | C | D | E |
| H-A 3 | 30 | – | 23.8 | 23.8 | 3.4 |
| H-A 10 | 70 | 17.5 | 57 | 24 | 3.5 |
| H-A 16 | 86 | 17.5 | 73 | 24 | 3.5 |
| H-A 32 | 92 | 42 | 73 | 48 | 4.4 |
| H-A 48 | 110 | 65 | 85.5 | 71 | 5.5 |
| H-B 6 | 70 | 32 | 48 | 35 | 4.4 |
| H-B 10 | 83 | 32 | 60 | 35 | 4.5 |
| H-B 16 | 103 | 32 | 82 | 35 | 4.4 |
| H-B 24 | 130 | 32 | 108 | 35 | 4.4 |
| H-B 32 | 110 | 65 | 86 | 71 | 5.5 |
| H-B 48 | 148 | 70 | 117 | 81 | 6.4 |

| Screw connection technology (as DIN EN 60999) | | | | |
|---|---|---|---|---|
| Screw thread | M3 | M4 | M5 | M6 |
| Starting torque Nm | 0.5 | 1.2 | 2.0 | 2.5 |
| Clamping screw: H-A, H-BE, H-BVE | ● | | | |
| Clamping screw: H-BS | | ● | | |
| Grounding screw: H-A, H-BE, H-BVE | | ● | | |
| Grounding screw: H-BS | | | ● | |
| Clamping screw: Module High-Current | | | | ● |
| Fixing screw: Inserts and Module frames | ● | | | |

All EPIC® connectors refer to IEC 61984.

# Table 31-2: EPIC® – definitions and instructions for use

## General information

Connectors must not be connected or disconnected under load. The temperature range for connectors can be found in the catalogue data. The degree of contamination is stated in the technical data of the connector. The rated voltage and rated current are based on a power system with DC or AC (rms) at a frequency of 50 or 60 Hz at 0 ... 2000 m above sea level, and are stated in the technical data of the connector. For other applications, the additional loads (e.g. electrical, chemical, climatic, biological, mechanical or radioactive) can mean for the connector, or request mateability with competitive products the user is responsible for the review and approval.

## Connectors

Connectors are devices that must not be connected or disconnected under load.

**Application Note:** This distinguishes these kind of connectors from plug devices that may be connected or disconnected under load. When connecting or disconnecting a connector under load, sparks and at short-term high temperatures that can cause damage to the contact surface and finally a total failure of the connector.

## Types of connection

For EPIC® industrial connectors, different connection types of wire to the electrical contact are available. There is the classic screw, crimping, soldering and the spring-loaded terminals and Push-In.

**Application Note:** Each of these connection types has advantages and disadvantages. Screw is the simplest and a very common option. Crimping gives with the appropriate crimping tool, crimping provides 100% reliable results, but it requires special tools. Spring-loaded terminals also allow quick and easy connection and are vibration-resistant. Soldering requires little space and is often used with small connector systems. Push-In is ideal for solid conductors and cores with wire end sleeves.

## Rated voltage

The rated voltage is the voltage according to which the connectors are designed and is related to the relevant operating characteristics.

**Application Note:** The rated voltage is defined depending on the environmental pollution degree for which the connector it is developed and tested. If the same connector tested for pollution degree 1, the rated voltage given in the catalogue is significantly higher than when tested for pollution degree 2. EPIC® connectors are generally designed for pollution degree 3 and therefore have high safety reserves, even if the plug is damp inside or is dirty.

## Rated current

A current value assigned by the manufacturer, which the connector or PSD can carry continuously (without interruption) and simultaneously through all its contacts wired with the largest conductor preferably at an ambient temperature of 40°C without the upper temperature being exceeded. The rated current is specified for the largest conductor cross-section.

## Rated impulse withstand voltage

The test voltage is the maximum voltage at which a connector will not be subjected to flashover under the set conditions.

**Application Note:** At this specified voltage, there will be no spark damage to the connector.

## EMC (electromagnetic compatibility)

The capacity of an electrical installation to function satisfactorily in its electromagnetic environment without an unacceptable influence to the environment which also includes other installations (DIN/VDE 0870, Section 1).

**Application Note:** For good EMC shielding, there is a diagram that describes the behaviour for different frequencies. This serves as an evaluation criterion to compare different components. In the industrial sector, the interfering frequencies are in the lower frequency range, typically less than 100 kHz. In this frequency range, it depends primarily on a low impedance, high cross-section, 360° shielding. When evaluating the different EMC concepts, such qualitative parameters can be recognised easily. The EPIC® ULTRA housing impresses with highly sophisticated sealing and contact technology. The innovative design allows safe EMC contact and allows the current on the cable screen to flow to the ground. The 360° shield connection is implemented via the cable gland SKINTOP® BRUSH.

## Coding

Coding is a system by which it is possible to prevent confusion between adjacent connectors which have the same configuration. This is useful if two or more connectors of the same type are mounted on the same unit.

**Application Note:** In this way, plugging errors and incorrect wiring are prevented. When coding the rectangular connector with guide pin and guide bushing, the plug insert is also centred. An uncentred connection is prevented, resulting in an increased service life for the contacts. The right coding element exists for every EPIC® connector.

# Table 31-3: EPIC® – definitions and instructions for use

## Contact

Coating the base material with a precious metal is necessary to guarantee a long-lasting and good connection. The contacts are normally plated using galvanic processes. To achieve a long-lasting plating, there are some requirements that apply for the contact and the plating material.

LAPP mainly uses silver (Ag) and gold (Au) for surface coating.

- Silver has the highest electrical conductivity of all metals and is the most cost-effective precious metal. By sulphur or sulphur-containing substances in the ambient air rapidly forms a brownish to black oxide layer of silver sulphide ($Ag_2S$). This layer, however, can break during mating or is broken at high currents, so that the required electrical conductivity is maintained. Passivation of the silver surface reduces the formation of the oxide layer and reduces the plug and pulling forces.
- Gold is the most stable precious metal. The oxide and sulphide formation can be neglected. Gold contacts are characterised by low insertion and extraction forces. They are mainly used in the transmission of signals with low current and voltage values. Due to the high-precision manufacturing of contacts and the selection of the contact materials, the service life of the EPIC® connector is very high.

## Mating cycles

Mating cycles are mechanical operations of connectors performed by insertion and removal.

**Application Note:** The maximum number of mating cycles results from the increase in the resistance of the connection after X instances of insertion and removal. This must not be more than a 50% increase in-or exceed 5mOhm. Another soft factor is the condition of the contacts or the locking elements. There should be no harmful abrasion inside the connector. EPIC® has extremely high internal standards for the soft factors. This internal review can vary widely depending on the manufacturer.

## Temperature range

The temperature range is determined by the upper and lower limit temperature. These temperatures are the highest and lowest allowable temperatures at which a connector must still be operated.

**Application Note:** The upper limit temperature includes the heating of contacts and the ambient temperature. It is always measured at the hottest point. These are either the transition of the crimp area or the contacts in general. The temperature of the protective housing is usually much lower than the hottest point of contact.

The lower limit temperature is the lowest permissible temperature at which a connector may be operated. In particular, the sealing materials become stiff at low temperatures and lose elasticity. If the connector is mated or unmated in this temperature range, separated or assembled, it may cause damage to the seals. At static use depending on the connector system and application can be used at a lower temperature range. Due to the materials used and the design of the housing, the temperature range of the EPIC® connectors is very wide.

## Degree of pollution

Numerical value which indicates the anticipated pollution in the micro-environment.

Pollution degree 3 is typical for industrial environments, whilst pollution degree 2 is typical for households.

## Pollution degree 1:

No pollution or only dry, non-conductive pollution occurs. This pollution has no impact.

**Example for environment:** Open, unprotected insulation in air-conditioned or clean, dry rooms.

## Pollution degree 2:

Only non-conductive pollution occurs. Occasionally, however, it may be anticipated that transient conductivity will occur due to condensation.

**Example for environment:** Open, unprotected insulation in residential, commercial or business premises (fine mechanical engineering workshops, laboratories, test areas, rooms used for medical purposes).

## Pollution degree 3:

Conductive pollution occurs, or dry, non-conductive pollution which becomes conductive because condensation should be anticipated.

**Example for environment:** Open, unprotected insulation in rooms of industrial, commercial and agricultural companies, unheated storage rooms, boilerhouses and workshops.

## Pollution degree 4:

The pollution generates persistent conductivity caused by conductive dust, rain or snow.

## Pre-mating contact

If the design of the circuit requires that, for safety reasons, e.g. for neutral conductors, one or several contacts of a connector have to make contact first upon mating, or have to be separated last upon unmating, then connectors with switch (extended) contacts are used.

## Safety note:

In the case of EPIC® inserts such as H-BE or H-BS, the protective conductor connection can be changed. When connecting the protective conductor, the low-resistance connection to the protective conductor of the counter piece must not be interrupted. Terminal screw changes must be performed on both sides to ensure that the protective function is maintained.

Otherwise, the relevant specifications apply in accordance with:
DIN EN 50110-1 (VDE 0105-1) – Operation of electrical installations.

It is up to the user to assess whether, in specific areas of application not covered by us, the components listed in this catalogue comply with regulations other than those specified here. We reserve the right to make constructional and design modifications due to quality improvements, enhancements or manufacturing requirements. The information in this catalogue serves to specify the components and does not guarantee properties.

An assurance about of the technical properties can only be provided if all components are supplied by LAPP. Otherwise, any testing and approval is the responsibility of the operator.

**Certificates:**

VDE, certificate number 40016270, 40011894, 40013251, 40019264
UL, file number: E75770, E249137, E192484
CSA files: E75770, E249137, E192484
TÜV

## For further information about this appendix, see:

Table T22: Definition of protection according to EN 60529 and DIN 40050

Table T23-1: PG/Metric: Connection thread of EPIC® housing



# Info

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**The following applies for the use of our products**

The conformity of our products to the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

The safety of our products is closely associated with how they are used. Knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are mandatory. There are particular risks if installed improperly. This applies to all our products/items:

**Processing must only be done by an authorised electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!**

**Safety**

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information on the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation guidelines, are contained in the tables in the appendix to this catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

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