

Main catalogue 2014/15

# THE WORLD OF LAPP

International edition





Dear Business Partners and Customers,

It's that time again: our new main catalogue, "The World of Lapp 2014/2015", is now ready – and we are very pleased to be able to present the whole world of Lapp to you.

The approximately 1,100 pages enable you to quickly and clearly find everything you need to know regarding cable and connection technology. We want to use our innovative product range to help you position your goods on the market competitively and successfully. We are always at your side ready to work in partnership with you, because we know that your success is our success.

This is also something that we want to express with our new slogan "Reliably connecting the world". As a leading supplier of integrated

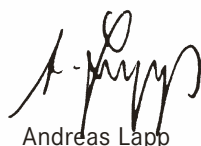
solutions and branded products in the field of cable and connection technology, we think globally and act locally. With our branded products and our advisory teams, we are therefore active everywhere our customers are – wherever they are in the world. Globalisation is continuing to advance and this is reflected in our new main catalogue, which is appearing in 15 languages simultaneously for the first time – more than ever before.

To enable us to supply our branded products and ready-made products even more quickly and effectively, we recently opened a new ultra-modern logistics and service centre near our company headquarters.

Our main catalogue does not just present our product range, it is also a lexicon of connection technology, with a plethora of useful tips and information to assist you with your daily work – whether you need information on certificates, the chemical resistance of plastics, or calculating the price of copper.

Have a browse and discover the world of Lapp.









Warmest regards,

































Andreas Lapp

# Legend for icons

## INDUSTRIES

	Automation
	e-Mobility
	Food & Beverage
	Mechanical and Plant Engineering
	Oil & Gas
	Rail
	Solar Energy
	Wind Energy

## PRODUCT CHARACTERISTICS

	Good chemical resistance		Suitable for outdoor use
	ETIM		Flame-retardant
	Wide clamping range		Halogen-free
	Heat-resistant		Cold-resistant
	Assembly time		Corrosion-resistant
	Oil-resistant		Maximum vibration protection
	Space requirement		Mechanical resistance
	Power chain		Low weight
	Acid-resistant		Optimum strain relief
	Reliability		Robust
	Integrated SKINTOP® cable gland		Temperature-resistant
	Voltage		Torsion-resistant
	Connector with standard housing unit		UV-resistant
	Interference signals		Waterproof
	Variety of approval certifications		Torsion load

**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.

Bem-vindo

**Добро пожаловать**

Witamy

Varmt välkommen

Srdečně vítám

欢迎光临

Hoş geldiniz

**Herzlich willkommen**

Ласкаво просимо

Bienvenue

환영합니다

*Hartelijk welkom*

**Welcome**

Bienvenidos

Bine ați venit

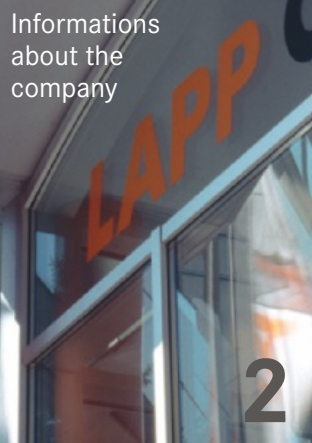
**Benvenuti**

**Welcome**

To contact your local Lapp Group representative please visit [www.lappgroup.com/worldwide](http://www.lappgroup.com/worldwide)

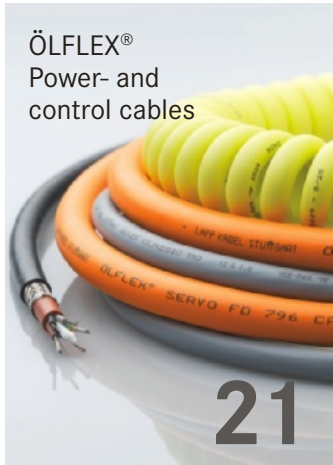
▶ THIS CATALOGUE IS VALID FROM JANUARY 2014.

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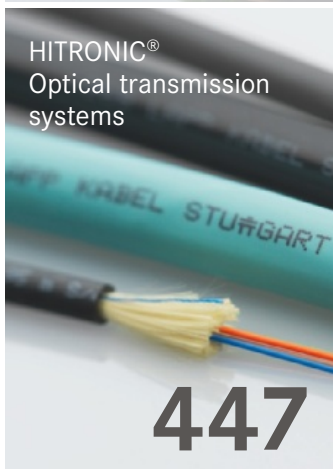
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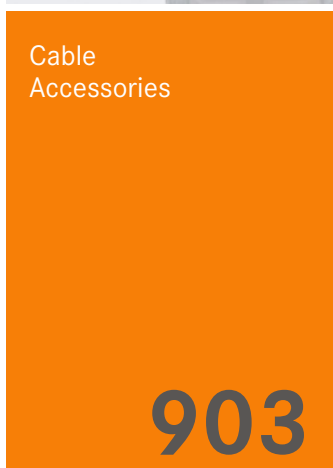
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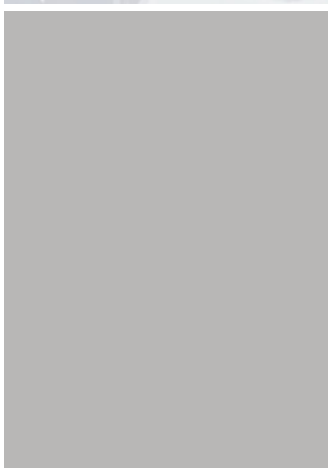
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## Brand quality from Stuttgart



### ÖLFLEX® Power- and control cables

The world's first brand cable is available in the most varied of versions to match maximum requirements.

**Key features:** Oil-resistant, flexible and available to match almost any requirement or environmental condition – also free of halogens.

**Fields of application:** Multipurpose. Special variants are more and more in demand in the area of renewable energies.



### EPIC® Industrial connectors

The brand for strong and reliable connections.

**Key features:** Robust square and circular connectors. Flexible system consisting of housings, inserts, contacts and accessories – for every requirement, the tailor-made solution. Similarly, EPIC® SOLAR plugs for photovoltaics are also part of the extensive product range. **Fields of application:** Mechanical and systems engineering, drive technology, Automation.



### UNITRONIC® Data communication systems

The ideal brand for fast, trend-setting and reliable data transfer. **Key features:** UNITRONIC® are not only data lines, but also bus lines, which together with active sensor/actuator modules or gateways provide a perfect system for automation. **Fields of application:** Measurement, control, regulation, bus or LAN networks.



### SKINTOP® Cable glands

The brand for multipurpose cable entries in line with the following: quickly fastened, centred and hermetically sealed. **Key features:** Large clamping areas, optimum strain reliefs, the most diverse of versions such as SKINTOP® CLICK, COLD or CUBE. **Fields of application:** Everywhere, where cables must be fastened reliably and quickly.



### ETHERLINE® Data communication systems for ETHERNET-Technology

The brands for network solutions, safety systems and firewalls in the industrial networking sector. **Key features:** System solutions consisting hardware, software, consulting, network design and support. **Fields of application:** Factory automation, Renewable Energy, Building technology, Structured cabling.



### SILVYN® Protective cable conduit- and cable carrier systems

The brand for all-round cable protection. **Key features:** The product range includes SILVYN® cable protection hoses for perfect protection against mechanical and chemical loads, along with SILVYN® CHAIN energy supply chains for highly-dynamic applications. **Fields of application:** Everywhere that cables have to be additionally protected or routed.



### HITRONIC® Optical transmission systems

The brand for split-second, fault-free, intercept-free data transport. **Key features:** The HITRONIC® product range includes fibre optic cables in the most varied of versions, along with suitable accessories such as splice boxes, wall distributors or couplings. **Fields of application:** Office and industrial sector, Renewable Energy.



### FLEXIMARK® Marking systems

The brand for permanent, clearly-arranged cable markings. **Key features:** Comprehensive range – from manual labelling solutions onto digital identification. Withstands high chemical, thermal and mechanical loads. **Fields of application:** All cable, single cores, control cabinets.

# Reliably connecting the world

We want to help you become even more productive and successful. This is why we work tirelessly on optimising our processes. We do everything to make sure we always find the best solution for you and also provide you with quick, efficient and effective support.

No matter where you are – we are always by your side. Our plants, sales companies, partners and, above all, our competent teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also

manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 17 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee that Lapp will provide you with the quality that you require and that you demand.

You can always rely on quality from Lapp – wherever you are in the world. This is also embodied by our strong brands.

17 Production plants

41 Sales companies

3.150 Employees

1 Innovation after another

152 Countries

100 Sales partners



[www.lappgroup.com/worldwide](http://www.lappgroup.com/worldwide)

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MUSCAT  
Tel.: +968 2450 3915  
Fax: +968 2450 3920  
firoz@tecsintl.com  
www.tecsintl.com

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Consultores Electrotécnicos, S.A.  
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ycardenas@contecpma.com  
www.contecpanama.com

 **Peru**  
**DIPROSOL PERU SAC**  
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Fax: +51 1 2752776  
www.diprosol.com.pe

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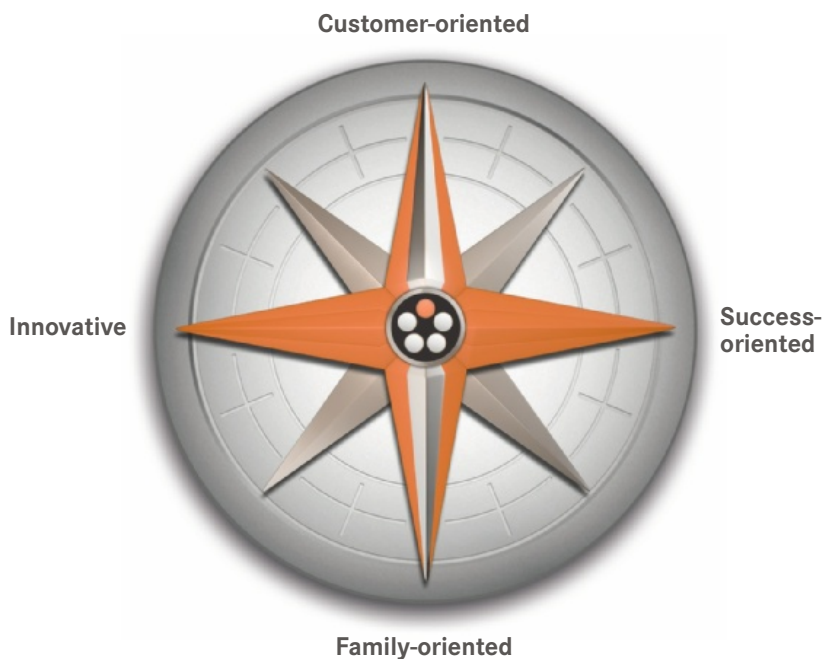
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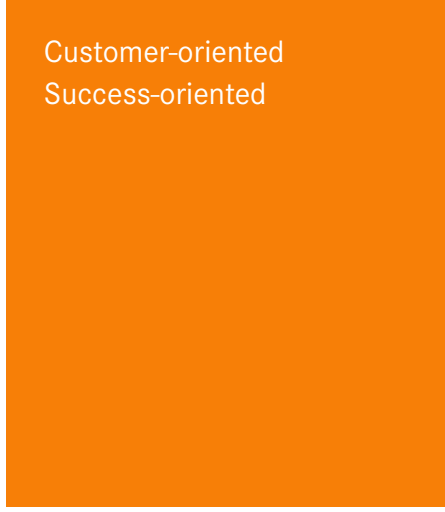
## Our guiding principles



### CUSTOMER-ORIENTED

**We strive to make our customers successful in their markets. We work together reliably with our partners in a spirit of trust.**

- We take each existing and potential customer serious and treat one another with respect
- We guarantee our customers worldwide security of supply through international manufacturing locations and local stocking of Lapp brand-name products
- We are there for our customers all over the world with our competent staff
- We find quick, flexible and simple solutions for our customers
- We provide our customers a competitive price-performance ratio
- We work together with our partners on a long-term basis and grow with them
- We complete our range of skills with strong partners
- We strengthen our global growth with an international network of partners



**SUCCESS-ORIENTED**

**Success orientation is important to us in order to secure our independence and our profitable growth.**

- Our achievement-oriented organisation inspires customers and other stakeholders
- Our organisation is versatile and adapts to new challenges
- Our organisation has transparent structures which are aligned with our processes
- We encourage team-oriented decision making
- We remain conscious of our risks while driving our growth
- We are cost and result conscious
- We orient ourselves to mutually agreed targets and communicate these
- Our decisions are sustainable and long-term oriented

**FAMILY-ORIENTED**

**Long-term orientation, warmth and the familiar atmosphere of our family-owned and operated company stand against coldness and anonymity.**

- Our corporate culture is characterised by treating one another with respect
- We promote personal responsibility and initiative
- We communicate openly and transparently
- We work together toward our goal in a spirit of trust
- We reflect our thoughts and actions constructively
- We secure our future through actively training and developing our staff
- We respect human rights, values and standards in all cultures. We are committed to social responsibility
- The shareholders identify themselves with the company. Lapp remains a family-owned enterprise

**INNOVATIVE**

**For us, innovation means future-oriented solutions for our customers.**

- We continuously develop our products, system solutions and services
- We set standards with our brand-name products in terms of safety, quality and functionality
- We are always striving towards improvements in methods, processes and technologies
- We manufacture our innovative brand-name products in our own, flexible plants
- We pledge ourselves to ensure safety, the well-being of our employees, the protection of our environment and the conservation of resources when manufacturing our products

Close proximity  
to the market



Solar Energy  
Automation  
Wind Energy  
Infrastructure





Mechanical and Plant Engineering  
e-Mobility

Rail  
Food & Beverage



# Lapp Systems GmbH – Your system partner with development expertise

From consultation on system development to production, testing, logistics and after-sales services, Lapp Systems offers you everything from a single source. We are fast, flexible and represented worldwide thanks to our anchoring in the Lapp Group.

#### FACTS AND FIGURES

- Founded in 1983
- 230 employees at 3 production sites
- Certifications: ISO TS 16949, DIN EN ISO 9001:2008

#### OUR CONFIGURATORS

Assemble your personalised spiral or charging cable quickly and conveniently.

[www.lappsystems.de](http://www.lappsystems.de)



# Our services

## SYSTEM ASSEMBLY

Individual cable systems and assemblies for industrial applications.

## POWER CHAINS

Power chain assembly optimally tailored to and manufactured for your application.

## E-MOBILITY

Our strengths: charging cables, high-voltage cabling and cable harnesses.

## SPIRAL CABLES

We offer tailored solutions as a leading manufacturer of spiral and helical cables.

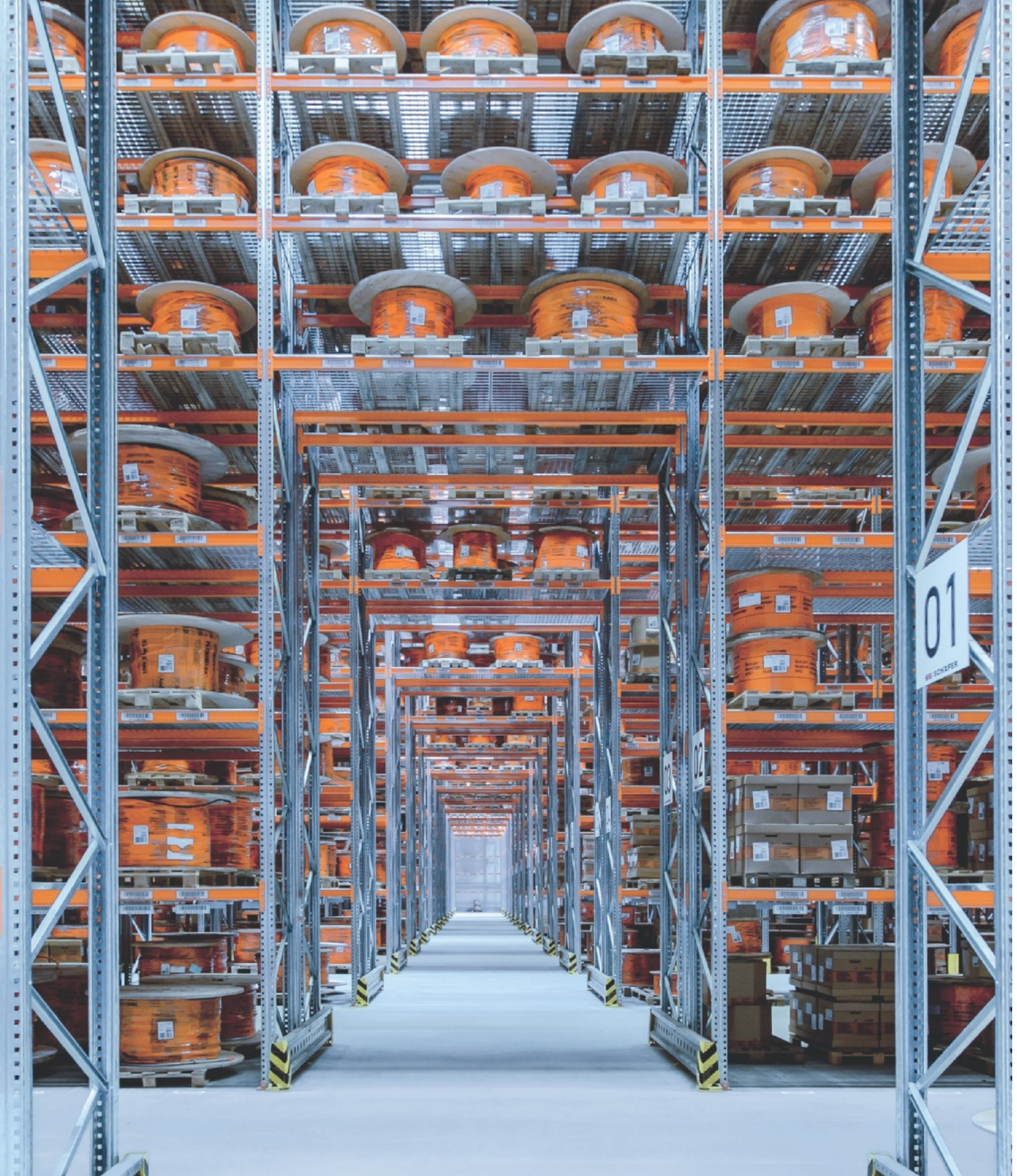
## SERVO CABLES

Assembled servo cable systems, manufactured from high-quality, in-house branded products.

## FIBRE OPTIC CABLES

Special lengths and individual assemblies ready for immediate installation.





## The gateway to the world of tomorrow

With its logistics and services centre in Ludwigsburg, U.I. Lapp GmbH boasts a state-of-the-art and sophisticated logistics system.

### FACTS - FIGURES - DATA

- 30,000 m<sup>2</sup> of fully automatic high-rack facilities
- 300 logistics employees
- 750,000 transport orders per annum
- Over 40,000 articles in our range



# Innovative technology

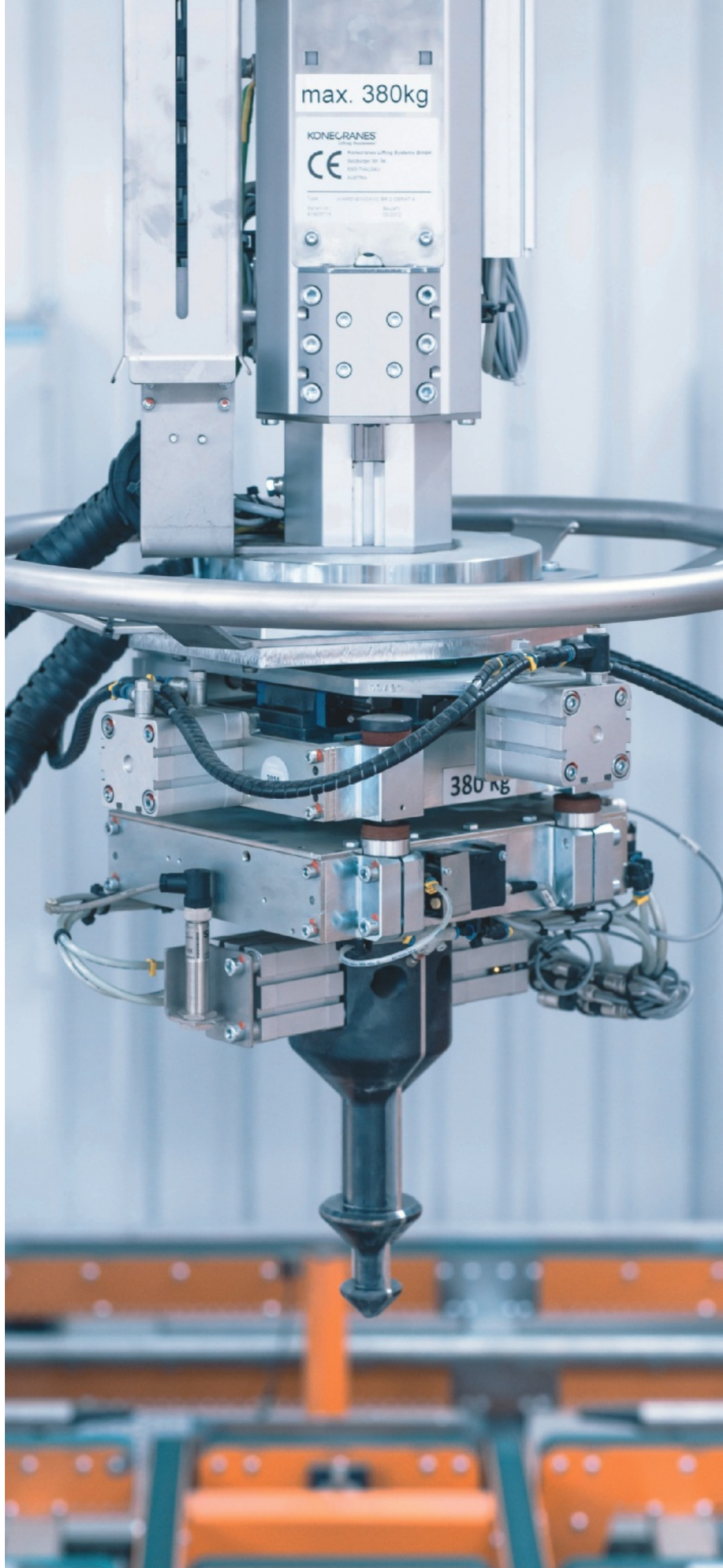
## PATENTED MANDREL GRIPPER

- Efficient and safe handling of cable drums
- No damage to the cable or flange caused by improper transport
- For ergonomic and space-saving operation
- Suitable for all drum types up to 400 kg

## PATENTED SYSTEM PALLET

Our newly-developed system pallet can be used to safely store cylindrical products such as cable drums with flange diameters of 40 to 80 cm and weights of up to 400 kg. Thanks to the special “stepped” design and the centrally-mounted mandrel, the drums are automatically centred when put down.

System pallets which are not required can be stacked thanks to their ingenious space-saving design.





## Our test laboratory

Multimillion bending cycles at maximum speeds and minimum bending radii. This is only one of many tests that a highly-flexible line has to withstand to be accepted into our standard product range.

In addition to load and endurance tests, state-of-the-art analysis methods are employed. For example, we use x-ray methods such as EDX to detect any possible hazardous materials. This ensures that all cables and products from the standard delivery programme are free from substances of high concern in accordance with the REACH regulation and components do not exceed the limit values set out by the RoHS Directive.

# Our quality: tested and certified

## CERTIFICATES AND QUALITY SEALS

Many of our products are certified, just like our companies. Certificates are always awarded by independent bodies. They are both a seal of quality and a certificate of non-objection, representing technical “passports” for international use.

## OUR MOST IMPORTANT CERTIFICATES

[www.lappgroup.com/certificates](http://www.lappgroup.com/certificates)



### PICTOGRAMMES

With the aid of internationally-approved pictogrammes, the directives, standards and conformalities with which our products comply can be easily recognised straight away.

Regional registrations such as for North America or Canada or user-specific registrations such as RoHS, DNV or WEEE are frequent requirements for relevant use of the products.

See appendix T30



# You can reach us anywhere in the world

...or closer to home. To contact your local Lapp Group representative:

PLEASE VISIT

[www.lappgroup.com/worldwide](http://www.lappgroup.com/worldwide)





## e-Services: easy, efficient, effective

Lapp Group Online provides a huge amount of information surrounding the Lapp Group. From A for “anti-kink” to Z for “zinc”.  
[www.lappgroup.com](http://www.lappgroup.com)

### CABLE FINDER

Make short work of searching for cables.  
[www.lappgroup.com/cablefinder](http://www.lappgroup.com/cablefinder)

### CONNECTOR FINDER

Configure your EPIC® square, circular or solar plugs online, with only a few clicks of the mouse.  
[www.lappgroup.com/connectorfinder](http://www.lappgroup.com/connectorfinder)

### CABLE GLAND FINDER

Use the SKINTOP® Finder to help you identify the cable gland you need and the required accessories.  
[www.lappgroup.com/cable-glandfinder](http://www.lappgroup.com/cable-glandfinder)

### CHARGING CABLE CONFIGURATOR

The Charging Cable Configurator enables you to find the cables and connectors you need to create the perfect charging cable in no time.  
[www.lappgroup.com/emobility-cablefinder](http://www.lappgroup.com/emobility-cablefinder)

### CAD PRODUCT CATALOGUE

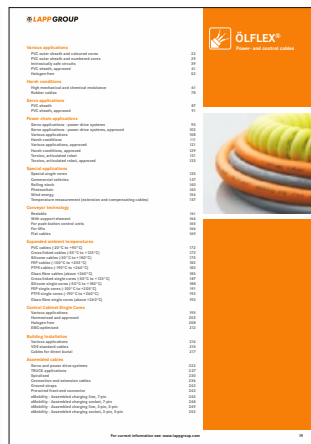
Design time costs money. Our CAD Product Catalogue enables developers and planners to save both.  
[www.lappgroup.com/3d-data](http://www.lappgroup.com/3d-data)

# The new navigation



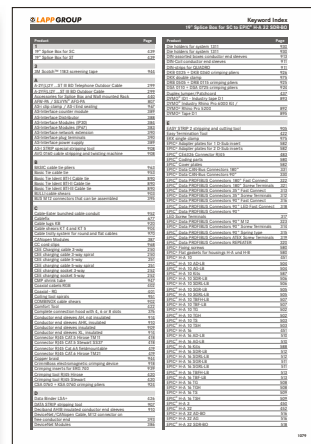
## CONTENT

on the first page, there is the table of contents including a list of the product lines and page reference



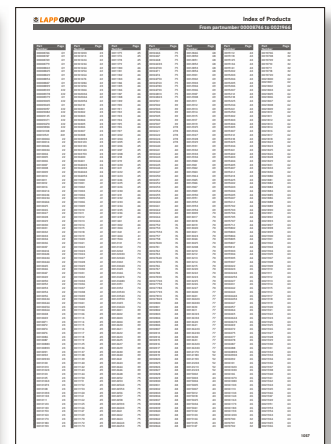
## PRODUCT LINES DIRECTORIES

in front of each product line, you will find a structured directory of the following pages



## KEY WORD INDEX

sorted by group, you will find everything from Adapters to ZT Stainless steel – Character holders



## INDEX OF PRODUCTS

a numerical overview with direct page references leading to the products

## HOW WE HELP YOU

To help you to find, out of 40,000 items, those that are the most suitable for individual use, you will find further advice and information about our products in our appendix.

- In part T0 you can find information about the selection and handling of our products.
- In parts T1 to T30 detailed information is given and the relevant standards are referred to, such as: Assembly and cable laying guidelines, rating tables, colour codes and an overview about chemical resistance.
- The selection tables A1 to A15 provide information about important features and the relevant degree of fulfilment for different product categories, such as: Temperature range, nominal voltage, bending radius, typical industrial applications.

By this we would like to help you to prevent erroneous applications and to ensure intended use.

## LEGEND FOR ABBREVIATIONS

Legend for abbreviations of product names (e.g. ÖLFLEX® CLASSIC 110 CY):

- C: Screened
- Y: Outer sheath made of PVC
- CY: Screened, Outer sheath made of PVC (C = screened; Y = Outer sheath made of PVC)
- S: Steel wire braid
- SY: Steel wire braid, Outer sheath made of PVC (S = steel wire braid; Y = Outer sheath made of PVC)
- P: Outer sheath made of polyurethane (PUR)
- CP: Screened, Outer sheath made of Polyurethan
- H: Halogenfree
- CH: Screened, halogenfree
- FD: Cable for Power Chain
- TP: Twisted Pair

# The new product pages

## RUNNING TITLES

Simple and convenient navigation from the table of contents to the product:

- 1 Product group
- 2 Sub-product group
- 3 Application range

## ICONS

Quick access to information about fields of application and product features

## PRODUCT DESIGNATION

## BENEFITS

Provides a quick and easy guide to the special features and advantages of the products

## APPLICATION RANGE

Provides information regarding the ideal application of Lapp products

## PRODUCT FEATURES

Find the right product in terms of function and safety

## TABLE OF PRODUCTS

Provides you with a quick overview of product data and part numbers

## APPROVALS (NORM REFERENCES)

Clearly demonstrating the applicable guidelines, standards and conformities

## PRODUCT IMAGES

Find the right products using detailed images

## ADDITIONAL INFORMATION

Useful information about the Lapp products

## TECHNICAL DATA

The parameters for all important product features

## DESIGN

Provides information on make-up, processing and the materials used

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPi®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

LAPP GROUP

**1 Power and control cables**

**2 Power chain applications**

**3 Servo applications – power drive systems, approved**

**ÖLFLEX® SERVO FD 796 CP**  
High-end servo cable, screened

**Benefits**

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard – fewer part varieties – cost savings
- Suitable for use with servomotor drives from leading manufacturers
- To substitute 7 ÖLFLEX® SERVO FD product lines: 75SCP/75SCP DESINA/-781CP/785CP/-785CP DESINA/790CP/795CP

**Application range**

- Connecting cable between servo controller and motor
- In power 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

**Product features**

- Dynamic performance in power chains: Acceleration up to 50 m/s<sup>2</sup>. Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL (CSA) VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

**Norm references / Approvals**

- VDE - Reg. - No. 4591
- UL AWM Style 20234
- CSA AWM I/II, A/B 1000 V 80° FT 1
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Design**

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores with or without one pair, or with two control core pairs, in pairs, with screening, twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Power: Black cores with marking U/L1, U/L2, V/L1, V/L2, W/L1, W/L2, J/L and 1 green-yellow core  
Optional designs with one pair of control cores: black; white  
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

**Specific insulation resistance**  
> 20 GΩm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6 / IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter (1.5-16 mm)  
10 x outer diameter (25-50 mm)  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
VDE: power cores and control cores: U/L: 600/1000 V  
UL & CSA: 1000 V

**Test voltage**  
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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO FD 796 CP</b>				
0027950	4 G 1.5	9.1	79.0	140
0027951	4 G 2.5	10.6	125.0	197
0027952	4 G 4	11.9	186.0	268
0027953	4 G 6	14.5	225.0	397
0027954	4 G 10	17.5	449.0	561
0027955	4 G 16	21.4	719.0	955
0027956	4 G 25	25.2	1033.0	1337
0027957	4 G 35	28.4	1450.0	1859
0027958	4 G 50	33.4	2116.0	2648
0027959	4 G 1.5 (2 x 1.5)	11.4	151.0	251
0027960	4 G 2.5 (2 x 1.5)	13.4	186.0	318
0027961	4 G 4 (2 x 1.5)	15.4	235.0	385
0027962	4 G 6 (2 x 1.5)	18.3	329.0	486
0027963	4 G 10 (2 x 1.5)	22.4	516.0	720

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 574



<b>ÖLFLEX® Power and control cables</b>	<b>Page</b>				
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**Various applications**

**PVC outer sheath and coloured cores**

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ÖLFLEX® CLASSIC 100 CY	27
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ÖLFLEX® CLASSIC 100 BK POWER 0,6/1 kV	29

**PVC outer sheath and numbered cores**

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**Intrinsically safe circuits**

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**PVC sheath, approved**

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ÖLFLEX® 150	46
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ÖLFLEX® 191	48
ÖLFLEX® 191 CY	49
ÖLFLEX® CONTROL TM	50
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ÖLFLEX® TRAY II	52
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ÖLFLEX® SF	54

**Halogen-free**

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ÖLFLEX® 120 H		58
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**Harsh conditions**

**High mechanical and chemical resistance**

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**Servo applications**

**PVC sheath**

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**Various applications**

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**Various applications, approved**

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**Harsh conditions**

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**Harsh conditions, approved**

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**Torsion, articulated robot**

ÖLFLEX® ROBOT 900 P	127
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**Torsion, articulated robot, approved**

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**Special applications**

**Special single cores**

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**Photovoltaic**

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**Wind energy**

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**eMobility**

ÖLFLEX CHARGE OG	New	147
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ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

**Conveyor technology**

**Reelable**

ÖLFLEX® CRANE NSHTÖU 152

ÖLFLEX® CRANE VS (N)SHTÖU 153

ÖLFLEX® CRANE PUR 154

**With support element**

ÖLFLEX® CRANE 155

**For push-button control units**

ÖLFLEX® CRANE 2S 156

**For lifts**

ÖLFLEX® LIFT 157

ÖLFLEX® LIFT T 158

ÖLFLEX® LIFT S 159

**Flat cables**

ÖLFLEX® CRANE F 160

ÖLFLEX® CRANE CF 161

ÖLFLEX® LIFT F 162

**Expanded ambient temperatures**

**PVC cables (-20°C to +90°C)**

ÖLFLEX® HEAT 105 MC 163

**Cross-linked cables (-55°C to +125°C)**

ÖLFLEX® HEAT 145 MC\* 164

ÖLFLEX® HEAT 145 C MC\* 165

**Silicone cables (-50°C to +180°C)**

ÖLFLEX® HEAT 180 SiHF 166

ÖLFLEX® HEAT 180 H05SS-F EWKF 167

ÖLFLEX® HEAT 180 MS 168

ÖLFLEX® HEAT 180 C MS 169

ÖLFLEX® HEAT 180 EWKF 170

ÖLFLEX® HEAT 180 EWKF C 171

ÖLFLEX® HEAT 180 GLS 172

**FEP cables (-100°C to +205°C)**

ÖLFLEX® HEAT 205 MC 173

ÖLFLEX® HEAT 205 PTFE/FEP 173

**PTFE cables (-190°C to +260°C)**

ÖLFLEX® HEAT 260 MC 174

ÖLFLEX® HEAT 260 C MC 175

ÖLFLEX® HEAT 260 GLS 176

**Glass fibre cables (above +260°C)**

ÖLFLEX® HEAT 350 MC 177

ÖLFLEX® HEAT 1565 MC 178

**Cross-linked single cores (-55°C to +125°C)**

ÖLFLEX® HEAT 125 SC 179

**Silicone single cores (-50°C to +180°C)**

ÖLFLEX® HEAT 180 SiF 180

ÖLFLEX® HEAT 180 SiD 181

ÖLFLEX® HEAT 180 SiF/GL 182

ÖLFLEX® HEAT 180 SiZ 182

ÖLFLEX® HEAT 180 FZLSi 182

**FEP single cores (-100°C to +205°C)**

ÖLFLEX® HEAT 205 SC 183

**PTFE single cores (-190°C to +260°C)**

ÖLFLEX® HEAT 260 SC 184

**Glass fibre single cores (above +260°C)**

ÖLFLEX® HEAT 350 SC 185

ÖLFLEX® HEAT 1565 SC 186

**Control Cabinet Single Cores**

**Various applications**

LIY 187

LIY with twin colour helix insulation 188

X05V-K with twin colour helix insulation 189

Lapp Kabel H05V-K 190

H05V-K 191

Lapp Kabel H07V-K 192

H07V-K 193

X07V-K with twin colour helix insulation 194

H05V-K in big one-way cardboard box 195

H07V-K in big one-way cardboard box 196

**Harmonised and approved**

MULTI-STANDARD SC 1 197

MULTI-STANDARD SC 2.1 198

MULTI-STANDARD SC 2.2 201

**Halogen-free**

H05Z-K 90°C 203

H07Z-K 90°C 204

**EMC-optimised**

LIYCY 206

Li2YCY 206

**Building Installation**

**Various applications**

ÖLFLEX® STATIC CY black 207

**VDE standard cables**

NYM-J 209

(N)HXMH 210

**Cables for direct burial**

NYY-J, NYY-O 211

NYCY 213

NYCWY 214

NAYY-J 215

**Assembled cables**

**Servo applications - power drive systems**

Servo harnessing according to SIEMENS® 6FX5002- 216

Servo harnessing according to SIEMENS® 6FX 8002- 217

Servo harnessing according to INDRAMAT® IKG / RKL 218

Servo harnessing according to INDRAMAT® IKS / RKG 219

Servo harnessing according to LENZE® 220

Servo harnessing according to SEW® 221

**Spiralised**

ÖLFLEX® SPIRAL 400 P 222

SPIRAL H07BQ-F BLACK 224

ÖLFLEX® SPIRAL 540 P 225

ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug 226

UNITRONIC® SPIRAL 227

**Connection and extension cables**

ÖLFLEX® PLUG H03VV-F Net Connection Cable\* 228

ÖLFLEX® PLUG H05VV-F Net Connection Cable\* 229

ÖLFLEX® PLUG 540 P Connection Cable 230

ÖLFLEX® PLUG Extension Cable 540 P safety yellow\* 231

ÖLFLEX® PLUG CEE Connection/ Extension Cable without phase shifter\* 232

ÖLFLEX® PLUG CEE Connection/ Extension Cable with phase shifter\* 233

**eMobility - Assembled charging line**

CHARGE M3 —/T2C S 234

CHARGE M3 —/T1C S 234

CHARGE M3 —/T2C C 234

CHARGE M3 —/T1C C 235

CHARGE M3 T2P/— S 235

CHARGE M3 T2P/— C 235

CHARGE M3 T2P/T2C S 236

CHARGE M3 T2P/T2C C 236

CHARGE M3 T2P/T2C H 236

CHARGE M3 T2P/T1C S 237

CHARGE M3 T2P/T1C C 237

CHARGE M3 T2P/T1C H 237

CHARGE M3 T3P/T2C S 238

CHARGE M3 T3P/T2C C 238

CHARGE M3 T3P/T2C H 238

CHARGE M3 T3P/T1C S 239

CHARGE M3 T3P/T1C C 239

CHARGE M3 T3P/T1C H 239

CHARGE M2 TFP/T2C S 240

CHARGE M2 TFP/T1C S 240

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

Various applications

PVC outer sheath and coloured cores



**ÖLFLEX® CLASSIC 100**  
Colour-coded PVC control cable



**Info**

- Up to 1.5 mm<sup>2</sup>: Nominal voltage U<sub>0</sub>/U: 300/500V
- From 2,5mm<sup>2</sup>: Nominal voltage U<sub>0</sub>/U: 450/750V
- Conductor cross-section up to 185 mm<sup>2</sup>

**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)

**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 (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
Up to 1.5 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 2.5 mm<sup>2</sup>: U<sub>0</sub>/U: 450/750 V  
From 2.5 mm<sup>2</sup>, in the case of fixed and protected installations: U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100; U<sub>0</sub>/U: 300/500 V</b>				
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	24.0	63
00101244	5 X 0.5	6.2	24.0	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	48.0	116
0010008	12 G 0.5	8.9	58.0	133
0010009	14 G 0.5	9.5	67.0	151
0010010	16 G 0.5	10.0	76.0	169
0010011	21 G 0.5	11.7	99.0	223
0010012	24 G 0.5	12.4	114.0	254
0010016	40 G 0.5	15.4	192.0	404

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	36.0	79
00101274	5 X 0.75	6.7	36.0	79
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	56.0	123
0010028	9 G 0.75	9.4	63.0	144
0010029	10 G 0.75	9.6	72.0	153
0010030	12 G 0.75	9.9	86.4	176
0010031	15 G 0.75	10.9	108.0	211
0010032	18 G 0.75	11.7	129.6	268
0010033	21 G 0.75	13.0	151.0	293
0010034	25 G 0.75	13.8	180.0	374
0010036	40 G 0.75	17.3	288.0	571



**ÖLFLEX® CLASSIC 100**

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0010037	50 G 0.75	19.2	360.0	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	48.0	94
00102054	5 X 1.0	7.1	48.0	94
00100454	6 G 1.0	8.0	58.0	124
0010046	7 G 1.0	8.0	67.0	131
0010047	8 G 1.0	9.5	77.0	146
0010049	10 G 1.0	10.2	96.0	183
0010050	12 G 1.0	10.5	115.0	215
0010052	16 G 1.0	11.8	154.0	282
0010053	18 G 1.0	12.7	173.0	315
0010054	20 G 1.0	13.4	192.0	350
0010056	25 G 1.0	14.7	240.0	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	72.0	128
00101304	5 X 1.5	8.1	72.0	128
0010068	7 G 1.5	8.9	101.0	166
0010069	8 G 1.5	10.6	115.0	205
0010071	12 G 1.5	12.0	173.0	307
0010072	14 G 1.5	12.7	202.0	349
0010074	18 G 1.5	14.4	259.0	465
0010076	25 G 1.5	16.9	360.0	655
<b>ÖLFLEX® CLASSIC 100; U<sub>c</sub>/U<sub>i</sub>: 450/750 V</b>				
0010086	2 X 2.5	8.9	48.0	128
0010087	3 G 2.5	9.6	72.0	162
00100933	3 X 2.5	9.6	72.0	162
00100883	4 G 2.5	10.7	96.0	203
00100893	5 G 2.5	11.8	120.0	242
0010091	7 G 2.5	13.1	168.0	321

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0010092	8 G 2.5	15.8	192.0	385
0010100	2 X 4	10.4	76.8	187
0010210	3 G 4	11.2	115.2	244
00101013	4 G 4	12.5	154.0	297
00101023	5 G 4	13.7	192.0	355
0010103	7 G 4	15.2	269.0	471
0010105	3 G 6	12.6	173.0	318
00101063	4 G 6	13.8	230.0	394
00101073	5 G 6	15.6	288.0	489
0010108	7 G 6	17.3	403.0	651
0010301	3 G 10	15.9	288.0	516
00101093	4 G 10	17.6	384.0	650
00101103	5 G 10	19.7	480.0	792
0010111	7 G 10	21.7	672.0	1058
0010302	3 G 16	18.3	461.0	728
00101123	4 G 16	20.4	614.0	1087
00101133	5 G 16	22.8	768.0	1118
0010303	3 G 25	23.0	720.0	1388
00101153	4 G 25	25.4	960.0	1582
00101163	5 G 25	28.5	1,200.0	1771
0010304	3 G 35	25.6	1,008.0	1766
00101173	4 G 35	28.5	1,344.0	2106
00101183	5 G 35	31.9	1,680.0	2635
0010305	3 G 50	31.0	1,440.0	2556
00101193	4 G 50	34.5	1,920.0	2943
00103133	5 G 50	38.6	2,400.0	3936
0010306	3 G 70	35.3	2,016.0	3182
00101203	4 G 70	39.4	2,688.0	4092
00103143	5 G 70	44.1	3,360.0	4800
0010307	3 G 95	41.3	2,736.0	4675
00101213	4 G 95	45.8	3,648.0	5290
00103153	5 G 95	51.6	4,560.0	5600
0010308	3 G 120	47.6	3,456.0	5626
00103093	4 G 120	53.1	4,608.0	6994
00103113	4 G 150	57.4	5,760.0	7500
00103123	4 G 185	62.8	7,104.0	8300

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

- **Similar products**
- UNITRONIC® 100 refer to page 244
  - ÖLFLEX® CLASSIC 100 BK POWER 0,6/1 kV refer to page 29
  - ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63

- **Accessories**
- SKINTOP® CLICK refer to page 657
  - TY - FAST® standard cable ties refer to page 957
  - STAR STRIP stripping tool refer to page 910

Various applications

PVC outer sheath and coloured cores



## ÖLFLEX® CLASSIC 100 YELLOW

Yellow outer sheath for special warning purposes



**Info**

- 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
- PVC outer sheath, yellow (RAL 1016)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/U: 450/750 VAC  
In protected and fixed installations:  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100 YELLOW; U<sub>0</sub>/U: 450/750 V</b>				
0010400	3 G 1.5	8.1	43.0	95
00104023	4 G 1.5	8.9	58.0	117
00104033	5 G 1.5	10.0	72.0	144
0010401	3 G 2.5	9.6	72.0	152
00104043	4 G 2.5	10.7	96.0	205
00104053	5 G 2.5	11.8	120.0	225

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 450 P refer to page 75
- ÖLFLEX® 540 P refer to page 77

**Accessories**

- SKINTOP® CLICK refer to page 657
- STAR STRIP stripping tool refer to page 910



**ÖLFLEX® CLASSIC 100 CY**  
Colour-coded and screened PVC control cable



**Info**

- EMC-compliant

**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
- 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 IEC 60227-5 and EN 50525-2-51

**Product make-up**

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

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GΩm x cm

**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 1.0 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 1.5 mm<sup>2</sup>: U<sub>0</sub>/U: 450/750 V  
Fixed, protected installation:  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100 CY; U<sub>0</sub>/U: 300/500 V</b>				
0035001	2 X 0.5	7.0	41.0	75
0035002	3 G 0.5	7.3	46.0	83
00350033	4 G 0.5	7.9	55.0	99
00352013	5 G 0.5	8.4	66.0	112
0035202	7 G 0.5	8.9	80.0	132
0035004	2 X 0.75	7.4	46.0	86
0035005	3 G 0.75	7.9	57.0	100
00350063	4 G 0.75	8.4	64.0	115
00350163	5 G 0.75	8.9	77.0	130
0035203	7 G 0.75	9.7	102.0	161
0035220	2 X 1.0	7.9	56.0	98
0035221	3 G 1.0	8.2	65.0	111
00352223	4 G 1.0	8.7	78.0	130
00352233	5 G 1.0	9.5	89.0	153
0035204	7 G 1.0	10.2	113.0	185
<b>ÖLFLEX® CLASSIC 100 CY; U<sub>0</sub>/U: 450/750 V</b>				
0035000	2 X 1.5	9.9	65.0	132
0035458	3 G 1.5	10.3	79.0	170
00354593	4 G 1.5	11.3	97.0	204
00354603	5 G 1.5	12.6	116.0	246
0035461	7 G 1.5	13.9	149.0	320
0035011	3 G 2.5	11.8	146.0	211
00350173	4 G 2.5	13.5	167.0	310
00350123	5 G 2.5	14.6	200.0	326

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0035289	7 G 2.5	15.9	288.0	444
00350183	4 G 4	15.1	237.0	403
00350133	5 G 4	16.5	328.0	478
00350193	4 G 6	16.6	318.0	521
00350143	5 G 6	18.2	441.0	624
0034953	3 G 10	18.9	414.0	690
00350213	4 G 10	21.1	558.0	843
00352903	5 G 10	23.1	714.0	1004
0034954	3 G 16	21.7	607.0	910
00350223	4 G 16	23.9	804.0	1164
00350153	5 G 16	26.8	1,050.0	1812
0034955	3 G 25	26.6	936.0	1330
00350233	4 G 25	29.4	1,289.0	1903
00350243	5 G 25	32.6	1,446.0	2374
0034956	3 G 35	29.4	1,258.0	1370
00350253	4 G 35	32.4	1,693.0	2489
00350263	5 G 35	36.0	1,975.0	2771
0034952	3 G 50	35.1	1,748.0	2590
00350273	4 G 50	38.8	2,342.0	3362
00350283	4 G 70	43.7	3,035.0	3719
00350293	4 G 95	50.4	4,055.0	5849
00354303	4 G 120	56.8	5,225.0	7509
00354313	4 G 150	62.2	6,300.0	7800
00354323	4 G 185	67.8	7,753.0	9866

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO 9YSLCY-JB refer to page 96
- ÖLFLEX® SERVO 2YSLCY-JB refer to page 94

**Accessories**

- 3M Scotch™ 1183 screening tape refer to page 946
- SKINTOP® MS-M BRUSH refer to page 675

Various applications

PVC outer sheath and coloured cores



# ÖLFLEX® CLASSIC 100 SY

Colour-coded PVC control cable with steel wire braiding



**Info**

- 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
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**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 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 2.5 mm<sup>2</sup>: U<sub>0</sub>/U: 450/750 V  
From 2.5 mm<sup>2</sup>, in the case of fixed and protected installations: U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100 SY; U<sub>0</sub>/U: 300/500 V</b>				
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	36.0	146
0016027	7 G 0.75	10.3	50.0	172
0016031	12 G 0.75	12.9	86.0	260
0016042	2 X 1.0	8.5	19.2	137
0016043	3 G 1.0	8.8	29.0	154
00160443	4 G 1.0	9.5	38.4	180
00160453	5 G 1.0	10.1	48.0	202
0016047	7 G 1.0	11.0	67.0	242
0016057	25 G 1.0	18.1	240.0	653
0016064	2 X 1.5	9.3	29.0	172
0016065	3 G 1.5	9.7	43.0	191
00160663	4 G 1.5	10.2	58.0	217
00160673	5 G 1.5	11.1	72.0	268
0016069	7 G 1.5	11.9	101.0	311
0016072	12 G 1.5	15.4	173.0	499
0016075	18 G 1.5	17.6	259.0	652
0016077	25 G 1.5	20.3	360.0	913
0016078	32 G 1.5	22.1	461.0	1065

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100 SY; U<sub>0</sub>/U: 450/750 V</b>				
0016087	2 X 2.5	12.1	48.0	245
0016088	3 G 2.5	12.6	72.0	278
00160893	4 G 2.5	13.9	96.0	339
00160903	5 G 2.5	15.2	120.0	397
0016092	7 G 2.5	16.3	168.0	470
0016101	2 X 4	13.6	76.8	329
00161023	4 G 4	15.7	154.0	457
00161033	5 G 4	17.1	192.0	545
0016106	3 G 6	15.8	173.0	544
00161073	4 G 6	17.2	230.0	687
00161083	5 G 6	18.8	288.0	798
00161103	4 G 10	21.3	384.0	1009
00161113	5 G 10	23.3	480.0	1197
00161133	4 G 16	24.1	614.0	1384
00161143	5 G 16	26.8	768.0	1740
00161163	4 G 25	29.4	960.0	2021
00161173	5 G 25	32.6	1,200.0	2464
00161183	4 G 35	32.4	1,344.0	2570
00161193	5 G 35	36.0	1,680.0	3185
00161203	4 G 50	38.8	1,920.0	3514

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 110 SY refer to page 37

**Accessories**

- KT cable shears refer to page 908

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

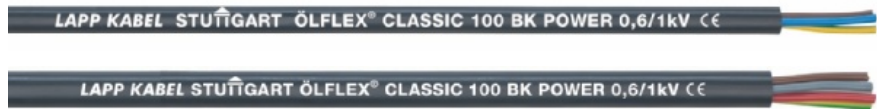




## ÖLFLEX® CLASSIC 100 BK POWER 0,6/1 kV

**Info**

- Good outdoor performance



**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
- Suitable for direct burial

**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 5.0 Class-ID: EC000057  
ETIM 5.0 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
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 100 BK POWER 0,6/1 kV</b>				
1120456	2 X 1.0	8.6	19.2	98
1120457	3 G 1.0	9.0	29.0	112
1120458	4 G 1.0	9.6	38.0	131
1120459	5 G 1.0	10.4	48.0	152
1120462	2 X 1.5	9.6	29.0	123
1120463	3 G 1.5	10.1	43.0	144
1120464	4 G 1.5	10.8	58.0	170
1120465	5 G 1.5	11.7	72.0	199
1120468	2 X 2.5	10.8	48.0	147
1120469	3 G 2.5	11.3	72.0	182
1120470	4 G 2.5	12.2	96.0	225
1120471	5 G 2.5	13.3	120.0	266
1120474	4 G 4	13.8	154.0	324
1120475	4 G 6	15.1	230.0	442
1120476	4 G 10	18.7	384.0	707
1120477	4 G 16	21.3	614.0	1100
1120478	4 G 25	26.2	960.0	1600
1120479	4 G 35	29.1	1,344.0	2400

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 38

**Accessories**

- FLEXIMARK® Stainless steel kit refer to page 872
- SKINTOP® MS-M refer to page 666
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

Various applications

PVC outer sheath and numbered cores



**New**

# ÖLFLEX® SMART 108

Cost-effective VDE-registered PVC control cable



**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**

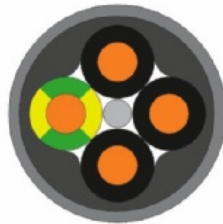
- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil resistance: see data sheet

**Norm references / Approvals**

- VDE reg. no. 8639

**Design**

- Fine-wire strand made of bare copper wires
- PVC insulation, T12
- Two-layer PVC outer sheath, TM2; outside silvergrey



**Info**

- VDE certificate of conformity with factory surveillance
- Only available in standard lengths and standard packagings

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Standard length (m) and standard packaging						Outer diameter in mm	Copper index kg/km	Weight kg/km
		50 m /RG	100 m /RG	200 m /RG	200 m /DR	500 m /DR	1000 m /DR			
<b>ÖLFLEX® SMART 108</b>										
17520099	2X0.5		100	200		500	1000	4.8	9.6	35
10030099	3G0.5		100	200		500	1000	5.1	14.4	42
17530099	3X0.5		100	200		500	1000	5.1	14.4	42
10040099	4G0.5		100	200		500	1000	5.7	19.2	54
17540099	4X0.5		100	200		500	1000	5.7	19.2	54
10050099	5G0.5		100	200		500	1000	6.2	24.0	63
10070099	7G0.5	50	100	200		500	1000	6.7	33.6	81
18020099	2X0.75		100	200		500	1000	5.4	14.4	45
11030099	3G0.75		100	200		500	1000	5.7	21.6	55
18030099	3X0.75		100	200		500	1000	5.7	21.6	55
11040099	4G0.75		100	200		500	1000	6.2	28.8	66
18040099	4X0.75		100	200		500	1000	6.2	28.8	66
11050099	5G0.75	50	100	200		500	1000	6.7	36.0	79
11070099	7G0.75	50	100	200		500	1000	7.3	50.0	101
18520099	2X1		100	200		500	1000	5.7	19.2	53
12030099	3G1		100	200		500	1000	6.0	28.8	65
12040099	4G1	50	100	200		500	1000	6.5	38.4	79
12050099	5G1	50	100	200		500	1000	7.1	48.0	94
12070099	7G1	50	100	200		500	1000	8.0	67.0	126
19020099	2X1.5		100	200		500	1000	6.3	29.0	68
13030099	3G1.5	50	100	200		500	1000	6.7	43.0	84
13040099	4G1.5	50	100	200		500	1000	7.2	58.0	104
13050099	5G1.5	50	100	200		500	1000	8.1	72.0	128
13070099	7G1.5	50	100		200	500	1000	8.9	101.0	166
19520099	2X2.5	50	100	200		500	1000	7.5	48.0	101
14030099	3G2.5	50	100	200		500	1000	8.1	72.0	132
14040099	4G2.5	50	100		200	500	1000	8.9	96.0	163
14050099	5G2.5	50	100		200	500	1000	10.0	120.0	200
14070099	7G2.5	50	100		200	500	1000	11.1	168.0	267

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

**Similar products**

- ÖLFLEX® CLASSIC 110 refer to page 31

**Accessories**

- EPIC® Industrial connectors refer to page 483
- SKINTOP® ST-M refer to page 654



## ÖLFLEX® CLASSIC 110

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



**Info**

- VDE certificate of conformity with factory surveillance
- More than 140 items with up to 100 conductors



**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 power chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm<sup>2</sup> 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 mm<sup>2</sup>: 2 - 65 cores from 4 mm<sup>2</sup>: 2 - 7 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 (RAL 7001)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 power chains: 15 x outer diameter  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 power chains: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Standard lengths, metre							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
<b>ÖLFLEX® CLASSIC 110</b>											
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	24.0	63
1119755	5 X0.5			100	200	300	500	1000	6.2	24.0	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	48.0	116
1119012	12 G0.5		50	100	200	300	500	1000	8.9	58.0	131
1119014	14 G0.5		50	100			500	1000	9.5	67.0	153
1119018	18 G0.5		50	100			500	1000	10.5	86.4	188
1119021	21 G0.5		50	100			500	1000	11.7	101.0	221
1119025	25 G0.5		50	100			500	1000	12.4	120.0	261
1119030	30 G0.5		50	100			500	1000	13.3	144.0	304
1119035	35 G0.5		50	100			500	1000	14.5	168.0	356
1119040	40 G0.5		50	100			500	1000	15.4	192.0	400
1119052	52 G0.5		50	100			500		17.3	250.0	517
1119061	61 G0.5		50	100			500		18.5	293.0	603
1119065	65 G0.5		50	100			500		19.6	312.0	644
1119080	80 G0.5		50	100			500		21.1	384.0	780
1119100	100 G0.5		50	100			500		23.6	480.0	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

Various applications

PVC outer sheath and numbered cores



**ÖLFLEX® CLASSIC 110**

Article number	Number of cores and mm <sup>2</sup> per conductor	Standard lengths, metre							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
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	36.0	79
1119805	5 X0.75		50	100	200	300	500	1000	6.7	36.0	79
1119107	7 G0.75		50	100	200	300	500	1000	7.3	50.0	101
1119807	7 X0.75		50	100	200	300	500	1000	7.3	50.0	101
1119109	9 G0.75		50	100	200	300	500	1000	9.4	65.0	137
1119110	10 G0.75		50	100	200	300	500	1000	9.6	72.0	150
1119112	12 G0.75		50	100	200	300	500	1000	9.9	86.0	171
1119812	12 X0.75		50	100	200	300	500	1000	9.9	86.0	171
1119115	15 G0.75		50	100			500	1000	10.9	108.0	209
1119117	15 X0.75		50	100			500	1000	10.9	108.0	209
1119116	16 G0.75		50	100			500	1000	11.1	115.2	220
1119118	18 G0.75		50	100			500	1000	11.7	130.0	244
1119121	21 G0.75		50	100			500	1000	13.0	151.0	286
1119125	25 G0.75		50	100			500	1000	13.8	180.0	337
1119126	26 G0.75		50	100			500	1000	14.2	187.2	350
1119134	34 G0.75		50	100			500	1000	15.9	245.0	448
1119141	41 G0.75		50	100			500	1000	17.4	296.0	538
1119150	50 G0.75		50	100			500		19.2	360.0	648
1119151	51 G0.75		50	100			500		19.2	367.0	646
1119161	61 G0.75		50	100			500		20.5	439.0	779
1119165	65 G0.75		50	100			500		21.8	468.0	832
1119180	80 G0.75		50	100			500		23.6	576.0	1019
1119200	100 G0.75		50	100			500		26.4	718.0	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	48.0	94
1119855	5 X1.0		50	100	200	300	500	1000	7.1	48.0	94
1119206	6 G1.0		50	100	200	300	500	1000	8.0	58.0	113
1119207	7 G1.0		50	100	200	300	500	1000	8.0	67.0	126
1119857	7 X1.0		50	100	200	300	500	1000	8.0	67.0	126
1119208	8 G1.0		50	100	200	300	500	1000	9.5	77.0	149
1119209	9 G1.0		50	100	200	300	500	1000	10.0	86.0	164
1119210	10 G1.0		50	100	200	300	500	1000	10.2	96.0	180
1119212	12 G1.0		50	100	200	300	500	1000	10.5	115.0	205
1119862	12 X1.0		50	100	200	300	500	1000	10.5	115.0	205
1119214	14 G1.0		50	100			500	1000	11.2	134.0	238
1119216	16 G1.0		50	100			500	1000	11.8	153.6	266
1119218	18 G1.0		50	100			500	1000	12.7	173.0	320
1119868	18 X1.0		50	100			500	1000	12.7	173.0	320
1119220	20 G1.0		50	100			500	1000	13.4	192.0	330
1119870	20 X1.0		50	100			500	1000	13.4	192.0	330
1119225	25 G1.0		50	100			500	1000	14.7	240.0	408
1119226	26 G1.0		50	100			500	1000	15.1	249.0	424
1119234	34 G1.0		50	100			500	1000	17.1	326.0	551
1119236	36 G1.0		50	100			500	1000	17.4	346.0	578
1119241	41 G1.0		50	100			500	1000	18.8	394.0	661
1119250	50 G1.0		50	100			500		20.6	480.0	797
1119256	56 G1.0		50	100			500		21.4	538.0	888
1119261	61 G1.0		50	100			500		22.1	586.0	958
1119265	65 G1.0		50	100			500		23.6	624.0	1033
1119280	80 G1.0		50	100			500		25.3	768.0	1251
1119300	100 G1.0		50	100			500		28.3	960.0	1560
1119902	2 X1.5			100	200	300	500	1000	6.3	29.0	68
1119303	3 G1.5	25	50	100	200	300	500	1000	6.7	43.0	84
1119903	3 X1.5		50	100	200	300	500	1000	6.7	43.0	84
1119304	4 G1.5	25	50	100	200	300	500	1000	7.2	58.0	104
1119904	4 X1.5		50	100	200	300	500	1000	7.2	58.0	104
1119305	5 G1.5	25	50	100	200	300	500	1000	8.1	72.0	128
1119905	5 X1.5		50	100	200	300	500	1000	8.1	72.0	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	101.0	166
1119907	7 X1.5		50	100	200	300	500	1000	8.9	101.0	166
1119308	8 G1.5		50	100			500	1000	10.6	115.0	210
1119313	8 X1.5		50	100			500	1000	10.6	116.0	210
1119309	9 G1.5		50	100			500	1000	11.4	130.0	221
1119310	10 G1.5		50	100			500	1000	11.6	143.0	243
1119311	11 G1.5		50	100			500	1000	11.6	158.0	258
1119312	12 G1.5	25	50	100			500	1000	12.0	173.0	279
1119912	12 X1.5		50	100			500	1000	12.0	173.0	279
1119314	14 G1.5		50	100			500	1000	12.7	202.0	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	259.0	407
1119321	21 G1.5		50	100			500	1000	15.7	302.0	469
1119325	25 G1.5	25	50	100			500	1000	16.9	360.0	560
1119326	26 G1.5		50	100			500	1000	17.3	374.4	582
1119332	32 G1.5		50	100			500	1000	18.7	461.0	704
1119334	34 G1.5		50	100			500	1000	19.4	490.0	746
1119341	41 G1.5		50	100			500	1000	21.3	591.0	895
1119350	50 G1.5		50	100			500		23.5	720.0	1089
1119361	61 G1.5		50	100			500		25.2	878.0	1309



**ÖLFLEX® CLASSIC 110**

Article number	Number of cores and mm <sup>2</sup> per conductor	Standard lengths, metre							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
1119365	65 G1.5		50	100			500		26.7	936.0	1398
1119952	2 X2.5	25	50	100	200	300	500	1000	7.5	48.0	101
1119403	3 G2.5	25	50	100	200	300	500	1000	8.1	72.0	132
1119404	4 G2.5	25	50	100	200	300	500	1000	8.9	96.0	163
1119405	5 G2.5	25	50	100	200	300	500	1000	10.0	120.0	200
1119407	7 G2.5	25	50	100			500	1000	11.1	168.0	267
1119412	12 G2.5	25	50	100			500	1000	14.8	288.0	445
1119414	14 G2.5		50	100			500	1000	15.8	336.0	515
1119418	18 G2.5	25	50	100			500	1000	17.8	432.0	648
1119425	25 G2.5	25	50	100			500	1000	20.8	600.0	890
1119434	34 G2.5		50	100			500	1000	24.4	816.0	1208
1119450	50 G2.5		50	100			500		29.4	1,200.0	1754
1119503	3 G4	25	50	100			500	1000	9.9	115.0	201
1119504	4 G4	25	50	100			500	1000	10.8	154.0	249
1119505	5 G4	25	50	100			500	1000	12.1	192.0	294
1119507	7 G4	25	50	100			500	1000	13.4	269.0	407
1119511	11 G4		50	100			500	1000	17.6	422.0	634
1119512	12 G4		50	100			500	1000	18.1	461.0	660
1119603	3 G6	25	50	100			500	1000	11.7	172.8	289
1119604	4 G6	25	50	100			500	1000	13.0	230.0	365
1119605	5 G6	25	50	100			500	1000	14.5	288.0	447
1119607	7 G6	25	50	100			500	1000	16.0	403.0	600
1119613	3 G10	25	50	100			500	1000	14.6	288.0	466
1119614	4 G10	25	50	100			500	1000	16.2	384.0	590
1119615	5 G10	25	50	100			500	1000	18.1	480.0	722
1119617	7 G10	25	50	100			500	1000	20.0	672.0	968
1119624	4 G16		50	100			500		18.8	614.0	1087
1119625	5 G16		50	100			500		21.2	768.0	1370
1119627	7 G16		50	100			500		23.4	1,075.0	1779
1119634	4 G25		50	100			500		23.5	960.0	1582
1119635	5 G25		50	100			500		26.4	1,200.0	1998
1119636	7 G25		50	100			500		29.1	1,680.0	2825
1119644	4 G35		50	100			500		26.4	1,344.0	2106
1119645	5 G35		50	100			500		29.6	1,680.0	2635

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 191 refer to page 48

**Accessories**

- SKINTOP® CLICK refer to page 657

Various applications

PVC outer sheath and numbered cores



## ÖLFLEX® CLASSIC 110 COLD

Control cable, cold flexible down to -30°C also for outdoor use



**Info**

- VDE certificate of conformity with factory surveillance
- UV and weather-resistant according to ISO 4892-2
- Torsion-resistant and very flexible

**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
- 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**

- VDE reg. no. 8274

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, cold-resistant
- PVC outer sheath, cold-resistant, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 COLD</b>				
1119660	2 X0.75	5.4	14.4	45
1119661	3 X0.75	5.7	21.6	55
1119662	3 G0.75	5.7	21.6	55
1119663	4 X0.75	6.2	28.8	66
1119664	4 G0.75	6.2	28.8	66
1119666	5 G0.75	6.7	36.0	79
1119668	7 G0.75	7.3	50.0	101
1119669	12 G0.75	9.9	86.0	171
1119670	18 G0.75	11.7	130.0	244
1119671	25 G0.75	13.8	180.0	337
1119672	2 X1.0	5.7	19.2	53
1119673	3 X1.0	6.0	28.8	65
1119674	3 G1.0	6.0	28.8	65
1119675	4 X1.0	6.5	38.4	79
1119676	4 G1.0	6.5	38.4	79
1119678	5 G1.0	7.1	48.0	94
1119680	7 G1.0	8.0	67.0	126
1119681	12 G1.0	10.5	115.0	205
1119682	18 G1.0	12.7	173.0	300
1119683	25 G1.0	14.7	240.0	408
1119684	2 X1.5	6.3	29.0	68

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1119685	3 X1.5	6.7	43.0	84
1119686	3 G1.5	6.7	43.0	84
1119687	4 X1.5	7.2	58.0	104
1119688	4 G1.5	7.2	58.0	104
1119690	5 G1.5	8.1	72.0	128
1119691	7 X1.5	8.9	101.0	166
1119692	7 G1.5	8.9	101.0	166
1119693	12 G1.5	12.0	173.0	279
1119694	18 G1.5	14.4	259.0	407
1119695	25 G1.5	16.9	360.0	560
1119696	2 X2.5	7.5	48.0	101
1119698	3 G2.5	8.1	72.0	132
1119700	4 G2.5	8.9	96.0	163
1119702	5 G2.5	10.0	120.0	200
1119704	7 G2.5	11.1	168.0	267
1119710	4 G4	10.8	154.0	249
1119711	5 G4	12.1	192.0	305
1119715	4 G6	13.0	230.0	365
1119716	5 G6	14.5	288.0	447

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 110 H refer to page 56
- ÖLFLEX® ROBUST 210 refer to page 67

**Accessories**

- FLEXIMARK® Stainless steel kit refer to page 872
- SKINTOP® MS-M refer to page 666
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668



**Info**

- For warning purposes and for exempted circuits according to EN 60204-1, e.g. circuits for maintenance or interlocking circuits

**ÖLFLEX® CLASSIC 110 ORANGE**



**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
- PVC outer sheath, orange (RAL 2003)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Orange cores with black numbers
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 ORANGE</b>				
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	50.0	95
0019710	2 X1.5	6.3	29.0	68
0019711	3 G1.5	6.7	43.0	85
0019718	4 G1.5	7.2	58.0	105
0019720	5 G1.5	8.1	72.0	128

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- H07V-K refer to page 193
- Orange-coloured single cores

**Accessories**

- SKINTOP® CLICK refer to page 657

Various applications

PVC outer sheath and numbered cores



# ÖLFLEX® CLASSIC 110 CY

Screened PVC control cable with transparent outer sheath



**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)

**Norm references / Approvals**

- VDE reg. no. 7030

**Product make-up**

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

**Info**

- EMC-compliant
- VDE reg. no. 7030

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 CY</b>				
1135752	2 X0.5	7.0	41.0	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	55.0	99
1135754	4 X0.5	7.9	55.0	99
1135005	5 G0.5	8.4	66.0	112
1135755	5 X0.5	8.4	66.0	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	250.0	378
1135030	30 G0.5	16.1	297.0	429
1135040	40 G0.5	18.2	343.0	542
1135802	2 X0.75	7.4	46.0	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	64.0	115
1135804	4 X0.75	8.4	64.0	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	102.0	161
1135807	7 X0.75	9.7	102.0	161
1135112	12 G0.75	12.3	177.0	247
1135812	12 X0.75	12.3	177.0	247
1135118	18 G0.75	14.5	243.0	356
1135818	18 X0.75	14.5	243.0	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	488.0	728
1135852	2 X1.0	7.9	56.0	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	216.0	390
1135218	18 G1.0	15.5	286.0	418
1135225	25 G1.0	17.5	388.5	544

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1135234	34 G1.0	20.3	505.0	738
1135241	41 G1.0	22.0	578.0	864
1135250	50 G1.0	23.8	688.0	1011
1135902	2 X1.5	8.5	65.0	117
1135303	3 G1.5	8.9	83.0	136
1135903	3 X1.5	8.9	83.0	136
1135304	4 G1.5	9.6	100.0	163
1135904	4 X1.5	9.6	100.0	163
1135305	5 G1.5	10.3	125.0	188
1135905	5 X1.5	10.3	125.0	188
1135307	7 G1.5	11.3	149.0	237
1135907	7 X1.5	11.3	149.0	237
1135312	12 G1.5	14.8	280.0	393
1135318	18 G1.5	17.2	389.0	538
1135325	25 G1.5	20.1	535.0	745
1135334	34 G1.5	22.8	702.0	964
1135341	41 G1.5	24.7	844.6	1123
1135350	50 G1.5	27.1	1,006.0	1372
1135402	2 X2.5	9.9	112.0	165
1135403	3 G2.5	10.3	146.0	192
1135404	4 G2.5	11.3	167.0	233
1135405	5 G2.5	12.6	200.0	283
1135407	7 G2.5	13.9	288.0	371
1135412	12 G2.5	17.6	477.3	585
1135502	2 X4	11.4	120.0	247
1135504	4 G4	13.4	237.0	347
1135505	5 G4	14.7	280.0	413
1135602	2 X6	13.6	180.0	353
1135604	4 G6	15.8	318.0	485
1135605	5 G6	17.3	441.0	702
1135607	7 G6	18.8	530.0	950
1135702	2 X10	16.4	256.0	492
1135615	3 G10	17.4	362.4	507
1135614	4 G10	19.0	558.0	735
1135616	5 G10	21.3	595.0	847
1135617	7 G10	23.2	796.0	1039
1135622	2 X16	18.6	390.0	698
1135624	4 G16	22.2	804.0	1395
1135623	5 G16	24.4	935.0	1440
1135626	4 G25	26.9	1,161.0	1730
1135627	5 G25	30.0	1,400.0	2090
1135625	4 G35	30.2	1,543.0	2210
1135628	5 G35	33.2	1,901.0	2710

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.





**Info**

- Steel wire braiding for extra mechanical protection
- VDE reg. no. 7030



**ÖLFLEX® CLASSIC 110 SY**

Steel-wire braided PVC control cable with transparent outer sheath



**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
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 SY</b>				
1125752	2 X0.5	7.8	10.0	87
1125003	3 G0.5	8.1	15.0	95
1125004	4 G0.5	8.5	19.2	107
1125005	5 G0.5	9.2	24.0	123
1125007	7 G0.5	9.7	33.6	147
1125010	10 G0.5	11.6	48.0	196
1125012	12 G0.5	11.9	58.0	213
1125014	14 G0.5	12.5	67.0	237
1125018	18 G0.5	13.9	86.4	291
1125021	21 G0.5	14.9	101.0	332
1125025	25 G0.5	15.6	120.0	375
1125030	30 G0.5	16.5	144.0	422
1125040	40 G0.5	18.8	192.0	545
1125061	61 G0.5	21.9	293.0	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	36.0	146
1125107	7 G0.75	10.3	50.0	172
1125109	9 G0.75	12.4	65.0	224
1125112	12 G0.75	12.9	86.0	260
1125115	15 G0.75	14.1	108.0	315
1125118	18 G0.75	14.9	130.0	355
1125125	25 G0.75	17.0	180.0	465
1125134	34 G0.75	19.3	245.0	596
1125150	50 G0.75	22.8	360.0	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	48.0	164
1125207	7 G1.0	11.0	67.0	200
1125208	8 G1.0	12.5	77.0	234
1125209	9 G1.0	13.2	86.0	260
1125212	12 G1.0	13.9	115.0	309
1125214	14 G1.0	14.4	134.0	345
1125218	18 G1.0	15.9	173.0	415
1125220	20 G1.0	16.8	192.0	455
1125225	25 G1.0	18.1	240.0	548

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1125234	34 G1.0	20.5	326.0	714
1125241	41 G1.0	22.2	394.0	832
1125250	50 G1.0	24.2	480.0	987
1125265	65 G1.0	27.2	624.0	1250
1125902	2 X1.5	9.3	29.0	128
1125303	3 G1.5	9.7	43.0	151
1125304	4 G1.5	10.2	58.0	173
1125305	5 G1.5	11.1	72.0	202
1125307	7 G1.5	11.9	101.0	248
1125308	8 G1.5	14.0	115.0	301
1125312	12 G1.5	15.4	173.0	396
1125314	14 G1.5	15.9	202.0	438
1125318	18 G1.5	17.6	259.0	538
1125325	25 G1.5	20.3	360.0	713
1125332	32 G1.5	22.1	461.0	876
1125341	41 G1.5	24.9	591.0	1101
1125350	50 G1.5	27.1	720.0	1305
1125403	3 G2.5	11.1	72.0	206
1125404	4 G2.5	12.1	96.0	249
1125405	5 G2.5	13.2	120.0	295
1125407	7 G2.5	14.3	168.0	373
1125412	12 G2.5	18.2	288.0	586
1125418	18 G2.5	21.4	432.0	823
1125425	25 G2.5	24.4	600.0	1093
1125503	3 G4	12.7	115.0	285
1125504	4 G4	14.0	154.0	348
1125505	5 G4	15.1	192.0	410
1125507	7 G4	16.4	269.0	519
1125604	4 G6	16.2	230.0	482
1125605	5 G6	17.7	288.0	579
1125607	7 G6	19.2	403.0	740
1125614	4 G10	19.4	384.0	731
1125615	5 G10	21.5	480.0	889
1125617	7 G10	23.4	672.0	1146
1125624	4 G16	22.4	614.0	1384
1125625	5 G16	24.6	768.0	1740
1125626	4 G25	26.9	960.0	1680
1125630	5 G25	30.0	1,200.0	2050
1125629	4 G35	30.2	1,344.0	2170

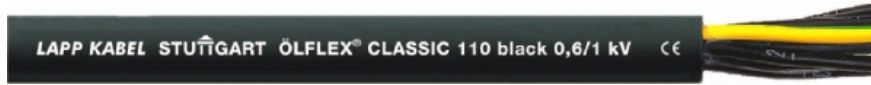
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

Various applications

PVC outer sheath and numbered cores



# ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV



**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 direct burial
- 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)



Info

- Good outdoor performance

**Technical data**



**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Core identification code**  
Black with white numbers acc. to VDE 0293-1



**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 BLACK</b>				
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	29.0	108
1120237	5 G0.75	9.9	36.0	126
1120241	7 G0.75	10.7	51.0	162
1120248	12 G0.75	13.4	86.0	236
1120251	18 G0.75	15.4	130.0	334
1120259	41 G0.75	21.6	296.0	713
1120266	2 X1.0	8.6	19.2	98
1120267	3 G1.0	9.0	29.0	112
1120268	3 X1.0	9.0	29.0	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	48.0	152
1120274	7 G1.0	11.1	67.0	196
1120280	12 G1.0	14.0	116.0	286
1120284	18 G1.0	16.1	173.0	419
1120290	25 G1.0	18.6	240.0	572
1120294	34 G1.0	21.3	326.0	764
1120298	41 G1.0	23.2	394.0	891
1120306	2 X1.5	9.6	29.0	123
1120307	3 G1.5	10.1	43.0	144
1120308	3 X1.5	10.1	43.0	144
1120309	4 G1.5	10.8	58.0	170
1120311	5 G1.5	11.7	72.0	199
1120314	7 G1.5	12.6	101.0	261
1120320	12 G1.5	16.1	173.0	399
1120322	14 G1.5	17.0	202.0	448
1120324	18 G1.5	18.8	259.0	547
1120328	25 G1.5	21.7	360.0	770

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1120330	34 G1.5	24.9	490.0	996
1120333	50 G1.5	29.8	720.0	1427
1120339	2 X2.5	10.8	48.0	147
1120340	3 G2.5	11.3	72.0	182
1120342	4 G2.5	12.2	96.0	225
1120343	4 X2.5	12.2	96.0	225
1120344	5 G2.5	13.3	120.0	266
1120346	7 G2.5	14.4	168.0	354
1120349	12 G2.5	18.7	288.0	540
1120350	14 G2.5	19.8	336.0	542
1120351	18 G2.5	22.0	432.0	788
1120353	25 G2.5	25.8	600.0	1094
1120360	4 G4	13.8	154.0	324
1120361	5 G4	15.1	192.0	385
1120362	7 G4	16.4	269.0	513
1120366	4 G6	15.1	230.0	442
1120367	5 G6	16.8	288.0	526
1120368	7 G6	18.2	403.0	705
1120370	4 G10	18.7	384.0	707
1120371	5 G10	20.7	480.0	881
1120374	4 G16	21.3	614.0	1100
1120375	5 G16	23.6	768.0	1600
1120376	7 G16	26.2	1,075.0	1890
1120378	4 G25	26.2	960.0	1600
1120379	5 G25	29.0	1,200.0	2050
1120382	4 G35	29.1	1,344.0	2400
1120383	5 G35	32.5	1,680.0	2900
1120385	4 G50	35.6	1,920.0	3400
1120387	4 G70	40.7	2,688.0	5050
1120389	4 G95	46.8	3,648.0	6010
1120390	4 G120	53.5	4,608.0	7500

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- ÖLFLEX® CLASSIC 100 BK POWER 0,6/1 kV refer to page 29
- ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668
- KT cable shears refer to page 908



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

LAPP KABEL STUTTGART ÖLFLEX CLASSIC 110CY Black 0,6/1kV CE

**Info**

- Good outdoor performance
- EMC/Screened

### 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)
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for direct burial

### 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 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Conductor stranding**  
Fine wire according to VDE 0295, class 5/IEC 60228 class 5
- Minimum bending radius**  
Static/Occ. moved: 6/20xOD\*
- Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 CY BLACK</b>				
1121232	2 X0.75	10.5	46.0	183
1121233	3 G0.75	10.9	56.0	210
1121235	4 G0.75	11.4	67.0	238
1121236	4 X0.75	11.4	67.0	238
1121237	5 G0.75	12.1	78.0	272
1121241	7 G0.75	12.9	97.0	315
1121247	12 G0.75	15.8	168.0	464
1121251	18 G0.75	18.0	229.0	616
1121254	25 G0.75	20.7	296.0	762
1121266	2 X1.0	10.8	52.0	198
1121267	3 G1.0	11.2	66.0	228
1121268	3 X1.0	11.2	66.0	228
1121269	4 G1.0	11.8	79.0	261
1121270	4 X1.0	11.8	79.0	261
1121271	5 G1.0	12.6	93.0	300
1121274	7 G1.0	13.3	117.0	335
1121280	12 G1.0	16.4	204.0	522
1121284	18 G1.0	18.7	280.0	687
1121290	25 G1.0	21.6	369.0	884
1121306	2 X1.5	11.8	69.0	243
1121307	3 G1.5	12.3	87.0	273
1121308	3 X1.5	12.3	87.0	273
1121309	4 G1.5	13.0	102.0	290
1121310	4 X1.5	13.0	102.0	290
1121311	5 G1.5	13.9	125.0	352
1121314	7 G1.5	15.0	180.0	448

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1121320	12 G1.5	18.7	281.0	690
1121324	18 G1.5	21.8	391.0	938
1121328	25 G1.5	25.1	518.0	1180
1121340	3 G2.5	13.5	123.0	354
1121342	4 G2.5	14.6	168.0	413
1121344	5 G2.5	15.7	204.0	515
1121346	7 G2.5	17.0	265.0	619
1121349	12 G2.5	21.7	421.0	936
1121360	4 G4	16.2	238.0	587
1121361	5 G4	17.7	302.0	689
1121362	7 G4	19.0	396.0	828
1121367	4 G6	17.7	318.0	715
1121368	5 G6	19.2	419.0	862
1121369	7 G6	21.2	559.0	1105
1121372	4 G10	21.7	574.0	875
1121373	5 G10	23.0	612.0	1037
1121377	4 G16	24.3	809.0	1198
1121378	5 G16	26.7	935.0	1500
1121381	4 G25	29.8	1,165.0	1814
1121382	5 G25	31.6	1,400.0	2164
1121385	4 G35	32.7	1,683.0	2893
1121388	4 G50	39.6	2,368.0	4094
1121391	4 G70	44.5	3,261.0	5467
1121394	4 G95	51.0	4,055.0	5849
1121397	4 G120	58.1	5,225.0	7509

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

### Similar products

- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 64

### Accessories

- SKINTOP® MS-M BRUSH refer to page 675

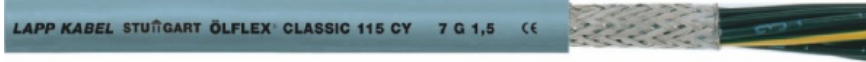
Various applications

PVC outer sheath and numbered cores



# ÖLFLEX® CLASSIC 115 CY

Screened PVC control cable with small outer diameter



**Benefits**

- Space-saving installation due to small cable diameters

**Application range**

- Measurement and control technology
- Office machines and systems for data processing

**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
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (RAL 7001)



Info

- EMC-compliant
- Thin and light, without inner sheath

**Technical data**



**Classification**

ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Core identification code**

Black with white numbers acc. to VDE 0293-1



**Specific insulation resistance**

> 20 GOhm x cm



**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**

U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 115 CY</b>				
1136752	2 X0.5	5.8	36.0	45
1136003	3 G0.5	6.1	43.0	59
1136753	3 X0.5	6.1	43.0	59
1136004	4 G0.5	6.5	49.0	71
1136754	4 X0.5	6.5	49.0	71
1136005	5 G0.5	7.0	57.0	86
1136755	5 X0.5	7.0	57.0	86
1136007	7 G0.5	7.5	69.0	105
1136757	7 X0.5	7.5	69.0	105
1136012	12 G0.5	9.9	104.0	200
1136762	12 X0.5	9.9	104.0	200
1136018	18 G0.5	11.5	141.0	275
1136768	18 X0.5	11.5	141.0	275
1136025	25 G0.5	13.4	211.0	350
1136775	25 X0.5	13.4	211.0	350
1136802	2 X0.75	6.2	43.0	56
1136103	3 G0.75	6.5	52.0	70
1136803	3 X0.75	6.5	52.0	70
1136104	4 G0.75	7.0	61.0	95
1136804	4 X0.75	7.0	61.0	95
1136105	5 G0.75	7.7	72.0	108
1136805	5 X0.75	7.7	72.0	108
1136107	7 G0.75	8.3	89.0	127
1136807	7 X0.75	8.3	89.0	127
1136112	12 G0.75	10.9	138.0	232
1136118	18 G0.75	12.7	211.0	315
1136125	25 G0.75	14.8	280.0	435
1136825	25 X0.75	14.8	280.0	435
1136852	2 X1.0	6.5	51.0	71
1136203	3 G1.0	6.8	62.0	86
1136853	3 X1.0	6.8	62.0	86
1136204	4 G1.0	7.3	74.0	98
1136854	4 X1.0	7.3	74.0	98
1136205	5 G1.0	8.1	88.0	121
1136855	5 X1.0	8.1	88.0	121

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1136207	7 G1.0	8.8	112.0	147
1136857	7 X1.0	8.8	112.0	147
1136212	12 G1.0	11.5	185.0	285
1136218	18 G1.0	13.9	268.0	395
1136225	25 G1.0	15.9	354.0	486
1136902	2 X1.5	7.1	65.0	86
1136303	3 G1.5	7.5	82.0	112
1136903	3 X1.5	7.5	82.0	112
1136304	4 G1.5	8.2	100.0	135
1136904	4 X1.5	8.2	100.0	135
1136305	5 G1.5	8.9	119.0	148
1136905	5 X1.5	8.9	119.0	148
1136307	7 G1.5	9.9	154.0	192
1136907	7 X1.5	9.9	154.0	192
1136312	12 G1.5	13.0	268.0	365
1136318	18 G1.5	15.6	373.0	520
1136325	25 G1.5	17.9	530.0	734
1136334	34 G1.5	20.8	683.0	944
1136403	3 G2.5	8.9	118.0	151
1136404	4 G2.5	9.9	147.0	188
1136405	5 G2.5	11.0	176.0	270
1136407	7 G2.5	11.9	253.0	340
1136412	12 G2.5	16.0	355.0	540
1136418	18 G2.5	19.0	569.0	782
1136425	25 G2.5	22.2	827.0	1358
1136504	4 G4	11.6	248.0	305
1136507	7 G4	14.4	355.0	500
1136604	4 G6	14.2	343.0	440
1136607	7 G6	17.0	505.0	672
1136614	4 G10	17.2	535.0	680
1136615	5 G10	19.5	592.0	824
1136624	4 G16	20.2	800.0	1050
1136625	5 G16	22.6	895.0	1285
1136634	4 G25	25.1	1,075.0	1413
1136635	5 G25	28.0	1,400.0	1976
1136638	4 G35	28.0	1,576.0	2070

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® ROBUST 215 C refer to page 68
- ÖLFLEX® CLASSIC 110 CY refer to page 36

**Accessories**

- 3M Scotch™ 1183 screening tape refer to page 946
- SKINTOP® MS-M BRUSH refer to page 675



LAPP KABEL STUTTGART

ÖLFLEX®

SERVO FD 796 CP

LAPP KABEL STUTTGART

ÖLF

ÖLFLEX CLASSIC 110

12 G 1,5

VDE-Reg. -Nr. 7030

ROHS

ÖLF-Reg. -Nr. 6584

2629 - S/25



## ÖLFLEX® EB

According to DIN EN 60079-14; VDE 0165 part 1



### Benefits

- Space-saving installation due to small cable diameters

### Application range

- Installation of intrinsically safe circuits, where a special cable marking for hazard area type "i"- intrinsic safety is specified

### Product features

- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on EN 50525-2-51
- Electrical characteristics and markings on the wires and cables are according to DIN EN 60079-14 Section 12.2.2 (VDE 0165 Part 1)

### Product make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- PVC outer sheath, sky blue RAL 5015



### Info

- For use within intrinsically safe circuits

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



#### Core identification code

Black with white numbers acc. to VDE 0293-1



#### Mutual capacitance

Core/core approx. 110 nF/km



#### Specific insulation resistance

> 20 GOhm x cm



#### Inductivity

approx. 0.65 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

U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® EB without protective conductor GN/YE</b>				
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
0012448	18 X 1.0	12.7	177.7	331
0012401	2 X 1.5	6.3	29.0	80
0012402	3 X 1.5	6.7	43.0	105
0012403	4 X 1.5	7.2	58.0	125
0012404	5 X 1.5	8.1	72.0	139
<b>ÖLFLEX® EB with protective conductor GN/YE</b>				
0012501	3 G 1.5	6.7	43.0	105
0012502	4 G 1.5	7.2	58.0	125
0012503	5 G 1.5	8.1	72.0	139
0012504	7 G 1.5	8.9	101.0	180
0012505	12 G 1.5	12.0	173.0	339
0012506	18 G 1.5	14.4	259.0	513
0012507	25 G 1.5	16.9	360.0	698

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- UNITRONIC® EB CY (TP) refer to page 252

### Accessories

- FLEXIMARK® Stainless steel kit refer to page 872
- SKINTOP® K-M ATEX plus blue refer to page 665



**Info**

- For use within intrinsically safe circuits
- EMC-compliant

**ÖLFLEX® EB CY**

According to DIN EN 60079-14; VDE 0165 part 1



**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

**Application range**

- Installation of intrinsically safe circuits, where a special cable marking for hazard area type "I"-intrinsic safety is specified
- 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)

**Norm references / Approvals**

- Electrical characteristics and markings on the wires and cables are according to DIN EN 60079-14 Section 12.2.2 (VDE 0165 Part 1)
- Based on EN 50525-2-51

**Product make-up**

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, sky blue RAL 5015

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Mutual capacitance**  
Core/core approx. 135 nF/km  
Core/screen approx. 185 nF/km
- Specific insulation resistance**  
> 20 GOhm x cm
- Inductivity**  
approx. 0.65 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® EB CY screened; without inner sheath</b>				
0012640	2 X 0.75	6.2	43.0	56
0012641	3 X 0.75	6.5	52.0	70
0012642	4 X 0.75	7.0	61.0	95
0012643	5 X 0.75	7.7	72.0	108
0012644	7 X 0.75	8.3	89.0	168
0012645	12 X 0.75	10.9	138.0	216
0012646	18 X 0.75	12.7	211.0	315
0012647	25 X 0.75	14.8	280.0	435
0012650	2 X 1.0	6.5	51.0	84
0012651	3 X 1.0	6.8	62.0	110
0012652	5 X 1.0	8.1	88.0	156
0012653	7 X 1.0	8.8	112.0	192
0012654	12 X 1.0	11.5	185.0	285
0012655	18 X 1.0	13.9	268.0	395
0012656	25 X 1.0	15.9	354.0	656
0012660	2 X 1.5	7.1	65.0	87
0012661	3 X 1.5	7.5	82.0	112
0012662	5 X 1.5	8.9	119.0	148
0012663	7 X 1.5	9.9	154.0	193
0012664	12 X 1.5	13.0	268.0	365
0012666	25 X 1.5	17.9	530.0	734

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® EB CY (TP) refer to page 252

**Accessories**

- 3M Scotch™ 1183 screening tape refer to page 946
- SKINTOP® K-M ATEX plus blue refer to page 665

Various applications

PVC sheath, approved



**ÖLFLEX® 140\***  
H05VV5-F (EN 50525-2-51)



**Info**

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

**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
- PVC outer sheath, high oil-resistance, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 140 H05VV5-F</b>				
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	24.0	87.1
0011002	7 G 0.5	8.3 - 10.4	33.6	118.7
0011003	12 G 0.5	10.4 - 12.9	58.0	198
0011004	18 G 0.5	12.3 - 15.3	86.4	266.9
0011005	25 G 0.5	14.8 - 18.3	120.0	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	36.0	113.3
0011011	7 G 0.75	9.0 - 11.3	50.0	145
0011012	12 G 0.75	11.0 - 13.7	86.0	244.9
0011013	18 G 0.75	13.2 - 16.4	130.0	327.7
0011014	25 G 0.75	15.8 - 19.5	180.0	466.4
0011015	34 G 0.75	18.4 - 22.6	245.0	626.5
0011241	41 G 0.75	20.1 - 24.7	296.0	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	48.0	132.1
0011020	7 G 1.0	9.5 - 11.8	67.0	169.3

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0011021	12 G 1.0	11.8 - 14.6	115.0	285.9
0011022	18 G 1.0	14.0 - 17.2	173.0	405.2
0011023	25 G 1.0	16.8 - 20.7	240.0	569.5
0011024	34 G 1.0	19.6 - 24.0	326.0	741.7
0011341	41 G 1.0	21.4 - 26.2	394.0	886
0011027	3 G 1.5	7.4 - 9.4	43.0	109.8
0011404	4 G 1.5	8.2 - 10.2	58.0	140.7
0011028	5 G 1.5	9.1 - 11.4	72.0	175
0011029	7 G 1.5	11.3 - 14.1	101.0	224.2
0011030	12 G 1.5	13.8 - 17.0	173.0	361.7
0011031	18 G 1.5	16.5 - 20.3	259.0	518.3
0011032	25 G 1.5	19.8 - 24.3	360.0	729.9
0011033	34 G 1.5	23.1 - 28.2	490.0	946.6
0011036	3 G 2.5	9.0 - 11.2	72.0	162.4
0011504	4 G 2.5	10.1 - 12.5	96.0	203.3
0011037	5 G 2.5	11.0 - 13.7	120.0	251.1
0011038	7 G 2.5	13.6 - 16.8	168.0	326
0011039	12 G 2.5	16.8 - 20.6	288.0	553.3
0011045	14 G 2.5	18.3 - 22.7	336.0	611
0011040	18 G 2.5	20.2 - 24.8	432.0	795.2
0011041	25 G 2.5	24.2 - 29.6	600.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® 150 refer to page 46

**Accessories**

- SKINTOP® CLICK refer to page 657





**Info**

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

**ÖLFLEX® 140 CY\***  
H05VVC4V5-K (EN 50525-2-51)



**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 +70°C

- 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
  - PVC inner sheath, grey
  - Tinned-copper braiding
  - PVC outer sheath, high oil-resistance, grey (RAL 7001)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 140 CY H05VVC4V5-K</b>				
0035700	3 G 0.5	8.0 - 10.0	47.0	111.3
0035701	4 G 0.5	8.5 - 10.7	58.0	132.7
0035702	5 G 0.5	9.3 - 11.6	69.0	162.7
0035703	7 G 0.5	10.8 - 13.5	86.0	207.7
0035704	12 G 0.5	13.1 - 16.2	142.0	295
0035710	3 G 0.75	8.3 - 10.4	55.0	129.4
0035711	4 G 0.75	9.1 - 11.3	67.0	163.6
0035712	5 G 0.75	9.7 - 12.1	77.4	188.6
0035713	7 G 0.75	11.5 - 14.3	109.0	246.9
0035714	12 G 0.75	13.8 - 17.1	166.0	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	62.0	144.8
0035721	4 G 1.0	9.4 - 11.7	78.3	180.8
0035722	5 G 1.0	10.3 - 12.8	91.0	209
0035723	7 G 1.0	12.2 - 15.1	118.0	273
0035724	12 G 1.0	14.5 - 17.9	198.0	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	83.0	189.7
0035731	4 G 1.5	10.7 - 13.2	97.8	221.6
0035732	5 G 1.5	11.8 - 14.7	118.0	261.8
0035733	7 G 1.5	14.1 - 17.4	218.0	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	115.0	241.5
0035741	4 G 2.5	12.6 - 15.5	163.0	298.3
0035742	5 G 2.5	13.9 - 17.2	191.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

- Similar products**
- ÖLFLEX® 150 CY refer to page 47

- Accessories**
- KMK Marking labels refer to page 899
  - SKINTOP® MS-SC-M refer to page 674
  - SKINTOP® MS-M BRUSH refer to page 675

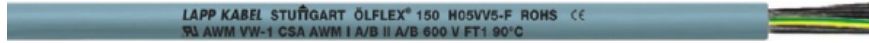
Various applications

PVC sheath, approved



# 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 approvals

**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 Ed. 2012: please see the catalogue appendix table T29

**Norm references / Approvals**

- H05VV5-F (EN 50525-2-51)
- UL AWM Style 21098 or 2587  
CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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
- PVC outer sheath, high oil-resistance, grey (RAL 7001)

**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

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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 U<sub>0</sub>/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: -5°C to +90°C  
Fixed installation:  
HAR: -40°C to +70°C  
UL/CSA: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 150</b>				
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	24.0	87.1
0015007	7 G 0.5	9.0	33.6	118.7
0015012	12 G 0.5	11.1	58.0	198
0015018	18 G 0.5	13.2	86.4	328
0015025	25 G 0.5	16.0	120.0	380.4
0015034	34 G 0.5	18.1	164.0	509
0015041	41 G 0.5	19.7	197.0	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	36.0	113.3
0015107	7 G 0.75	9.9	50.0	145
0015112	12 G 0.75	12.0	86.0	244.9
0015118	18 G 0.75	14.4	130.0	327.7
0015125	25 G 0.75	17.1	180.0	466.4
0015134	34 G 0.75	19.7	245.0	626.5
0015141	41 G 0.75	21.6	296.0	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	48.0	132.1
0015206	6 G 1.0	9.5	57.6	150

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0015207	7 G 1.0	10.4	67.0	169.3
0015212	12 G 1.0	12.8	115.0	285.9
0015218	18 G 1.0	15.1	173.0	405.2
0015225	25 G 1.0	18.0	240.0	569.5
0015234	34 G 1.0	20.9	326.0	741.7
0015241	41 G 1.0	22.8	394.0	886
0015250	50 G 1.0	25.0	480.0	1072.2
0015302	2 X 1.5	7.6	28.8	95
0015303	3 G 1.5	8.3	43.0	109.8
0015304	4 G 1.5	9.0	58.0	145
0015305	5 G 1.5	10.1	72.0	168
0015307	7 G 1.5	12.5	101.0	224.2
0015312	12 G 1.5	15.1	173.0	361.7
0015318	18 G 1.5	18.0	259.0	518.3
0015325	25 G 1.5	21.4	360.0	729.9
0015334	34 G 1.5	25.0	490.0	946.6
0015341	41 G 1.5	27.2	591.0	1136
0015402	2 X 2.5	9.2	48.0	159
0015403	3 G 2.5	9.9	72.0	170
0015404	4 G 2.5	10.8	96.0	210
0015405	5 G 2.5	12.1	120.0	257
0015407	7 G 2.5	14.7	168.0	340
0015412	12 G 2.5	17.9	288.0	580
0015418	18 G 2.5	21.6	432.0	850
0015425	25 G 2.5	25.6	600.0	1166

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- H05VV-F
- ÖLFLEX® 140\* refer to page 44
- ÖLFLEX® 191 refer to page 48

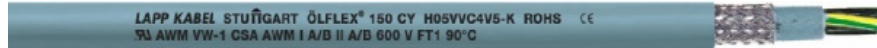
**Accessories**

- SKINTOP® CLICK refer to page 657
- SKINTOP® ST-M refer to page 654



## 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 approvals

**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 Ed. 2012: 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 or 2587  
CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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 U<sub>0</sub>/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: -5°C to +90°C  
Fixed installation:  
HAR: -40°C to +70°C  
UL/CSA: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 150 CY</b>				
0015602	2 X 0.75	8.5	40.0	109
0015603	3 G 0.75	8.9	51.0	125
0015604	4 G 0.75	9.6	70.0	157
0015605	5 G 0.75	10.3	77.0	180
0015607	7 G 0.75	12.3	93.0	226
0015612	12 G 0.75	14.8	155.0	325
0015702	2 X 1.0	8.8	46.4	121
0015703	3 G 1.0	9.4	76.0	145
0015704	4 G 1.0	10.0	80.0	180
0015705	5 G 1.0	11.0	95.0	203
0015707	7 G 1.0	13.0	118.0	273
0015712	12 G 1.0	15.6	195.0	425
0015802	2 X 1.5	10.0	59.2	151
0015803	3 G 1.5	10.5	84.0	159
0015804	4 G 1.5	11.4	94.8	211
0015805	5 G 1.5	12.7	122.0	241
0015807	7 G 1.5	15.1	143.0	306
0015812	12 G 1.5	17.8	254.0	480
0015903	3 G 2.5	11.9	120.0	245
0015904	4 G 2.5	13.2	170.0	295
0015905	5 G 2.5	14.7	205.0	365
0015907	7 G 2.5	17.5	241.0	480

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 140 CY\* refer to page 45
- ÖLFLEX® 191 CY refer to page 49

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-M BRUSH refer to page 675

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

Various applications

PVC sheath, approved



# ÖLFLEX® 191

Oil-resistant multi-standard cable with AWM approval



**Info**

- Conductor cross-section up to 120 mm<sup>2</sup>
- Oil-resistant according to EN 50363-4-1: TM5
- Missing dimensions: See ÖLFLEX® 150

**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 Ed. 2012: 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 or 2587  
CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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
- PVC outer sheath, high oil-resistance, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
HAR U<sub>0</sub>/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:  
HAR: -5°C to +70°C  
UL/CSA: -5°C to +90°C  
Fixed installation:  
HAR: -40°C to +70°C  
UL/CSA: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	48.0	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	240.0	413
0011136	2 X 1.5	6.9	28.8	74
0011137	3 G 1.5	7.3	44.0	91
0011138	4 G 1.5	8.2	58.0	112
0011139	5 G 1.5	9.0	72.0	136
0011140	7 G 1.5	10.0	101.0	179
0011125	9 G 1.5	12.6	129.6	230
0011142	12 G 1.5	13.4	173.0	313
0011143	18 G 1.5	16.1	260.0	444
0011144	25 G 1.5	19.5	360.0	620
0011150	3 G 2.5	8.4	72.0	138
0011151	4 G 2.5	9.1	96.0	182

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0011152	5 G 2.5	10.2	120.0	216
0011153	7 G 2.5	11.3	168.0	286
0011160	3 G 4	9.9	115.2	202
0011161	4 G 4	10.8	154.0	245
0011162	5 G 4	12.1	192.0	310
0011167	7 G 4	13.4	268.8	470
0011165	4 G 6	13.0	231.0	398
0011166	5 G 6	14.5	288.0	479
0011169	4 G 10	16.5	384.0	559
0011170	5 G 10	18.4	480.0	782
0011172	4 G 16	22.1	615.0	904
0011173	5 G 16	24.3	768.0	1171
0011175	4 G 25	25.2	960.0	1299
0011176	5 G 25	28.0	1,200.0	1640
0011178	4 G 35	28.1	1,344.0	2119
0011179	5 G 35	31.5	1,680.0	2606
0011205	4 G 50	35.7	1,920.0	2898
0011206	4 G 70	43.0	2,688.0	4052
0011207	4 G 95	47.2	3,648.0	5430
0011208	4 G 120	54.2	4,608.0	6290

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 150 refer to page 46
- ÖLFLEX® CONTROL TM refer to page 30
- ÖLFLEX® TRAY II refer to page 52

**Accessories**

- SKINTOP® CLICK refer to page 657
- SKINTOP® ST-M refer to page 654
- KT cable shears refer to page 908

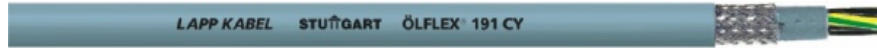


**Info**

- Conductor cross-section up to 120 mm<sup>2</sup>
- Oil-resistant according to EN 50363-4-1: TM5
- Missing dimensions: See ÖLFLEX® 150 CY

**ÖLFLEX® 191 CY**

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



**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 Ed. 2012: 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 or 2587  
CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (RAL 7001)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 U<sub>0</sub>/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:  
HAR: -5°C to +70°C  
UL/CSA: -5°C to +90°C  
Fixed installation:  
HAR: -40°C to +70°C  
UL/CSA: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0011234	7 G 0.75	10.5	85.9	187
0011202	2 X 1.0	8.4	48.0	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
0011191	12 G 1.5	16.1	257.0	464
0011192	18 G 1.5	18.7	382.8	679
0011193	25 G 1.5	23.0	546.2	952
0011194	3 G 2.5	10.8	111.1	221
0011195	4 G 2.5	11.4	140.6	269

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0011196	5 G 2.5	12.9	167.3	325
0011197	7 G 2.5	14.1	240.0	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	13.6	236.7	462
30010545	5 G 4	14.9	277.8	535
30010546	7 G 4	16.2	393.4	735
30010548	4 G 6	15.8	317.1	574
3023130	5 G 6	17.3	413.7	737
30010547	7 G 6	18.8	563.8	950
3023131	4 G 10	19.5	550.4	946
30010639	4 G 16	24.7	819.1	1189
3023132	4 G 25	28.5	1,165.0	1692
30010928	4 G 35	31.7	1,683.0	2700
3026535	4 G 50	39.7	2,342.0	3362
3025946	4 G 70	44.8	3,229.0	4490
3025947	4 G 95	50.0	4,010.0	5540
3026536	4 G 120	61.3	5,012.0	6960

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 150 CY refer to page 47
- ÖLFLEX® CONTROL TM CY refer to page 51
- ÖLFLEX® TRAY II CY refer to page 53

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-M BRUSH refer to page 675
- KT cable shears refer to page 908

Various applications

PVC sheath, approved



**ÖLFLEX® CONTROL TM**



**Info**

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

**Benefits**

- Wide application range due to multiple approvals
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

**Application range**

- Industrial machinery; plant engineering
- Machine tools compliant with UL MTW (Machine Tool Wiring)
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- Class 1, Div. 2 in accordance with NEC "National Electrical Code" Art. 336, 392, 501

**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 Wet Approval 75 °C
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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 T 16 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 UL MTW, TC-ER, WTTC 1000 V, BUS DROP, c(UL) Type TC, CIC FT4, CSA AWM I/II A/B FT4, UL AWM style 20886

**Product make-up**

- Fine-wire strand made of bare copper wires
- Insulation: PVC with nylon sheath (PA skin)
- Outer sheath made of special PVC compound, grey

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 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 1000V  
UL/CSA: 1000 V (AWM)  
VDE U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CONTROL TM</b>				
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	48.0	112
281807	7 G 1.0	9.3	67.0	144
281812	12 G 1.0	12.0	115.0	247
281818	18 G 1.0	14.7	173.0	365
281825	25 G 1.0	16.7	240.0	464
281602	2 X 1.5	7.3	28.8	74
281603	3 G 1.5	8.1	43.0	100
281604	4 G 1.5	8.8	58.0	119
281605	5 G 1.5	9.5	72.0	141
281607	7 G 1.5	10.3	101.0	183
281609	9 G 1.5	11.9	129.6	247
281612	12 G 1.5	14.1	173.0	328
281618	18 G 1.5	16.4	259.0	403
281625	25 G 1.5	18.6	360.0	596
281403	3 G 2.5	8.9	72.0	125
281404	4 G 2.5	9.8	96.0	155
281405	5 G 2.5	10.7	120.0	185
281407	7 G 2.5	11.6	168.0	244
281203	3 G 4	10.6	115.0	165
281204	4 G 4	11.5	154.0	220
281205	5 G 4	12.6	192.0	269
281207	7 G 4	14.6	269.0	482
281004	4 G 6	14.5	231.0	382
281005	5 G 6	15.8	288.0	457
280804	4 G 10	17.7	384.0	615
280805	5 G 10	19.4	480.0	771
280604	4 G 16	22.5	615.0	864

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- ÖLFLEX® TRAY II refer to page 52

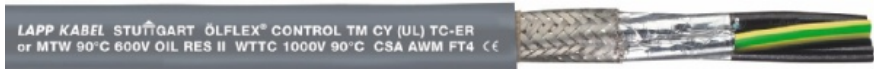
**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® ST-M refer to page 654
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**ÖLFLEX® CONTROL TM CY**



**Info**

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

**Benefits**

- Wide application range due to multiple approvals
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

**Application range**

- Industrial machinery; plant engineering
- Machine tools compliant with UL MTW (Machine Tool Wiring)
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- Class 1, Div. 2 in accordance with NEC "National Electrical Code" Art. 336, 392, 501

**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 Wet Approval 75 °C
- 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**

- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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 UL MTW, TC-ER, WTTC 1000 V, BUS DROP, c(UL) Type TC, CIC FT4, CSA AWM I/II A/B FT4, UL AWM style 20886

**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 sheath made of special PVC compound, grey

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 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: 5/20xOD\*

**Nominal voltage**  
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000V  
UL/CSA: 1000 V (AWM)  
VDE U<sub>0</sub> /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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CONTROL TM CY</b>				
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	330
281818CY	18 G 1.0	15.5	228.2	438
281825CY	25 G 1.0	17.5	326.4	574
281602CY	2 X 1.5	8.3	49.7	115
281603CY	3 G 1.5	8.8	65.0	144
281604CY	4 G 1.5	9.4	81.9	173
281605CY	5 G 1.5	10.2	99.1	189
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
281625CY	25 G 1.5	19.4	453.6	750
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	213.0	327
281204CY	4 G 4	12.3	198.5	315
281205CY	5 G 4	14.2	242.7	388
281207CY	7 G 4	15.3	323.4	499
281004CY	4 G 6	15.3	284.2	552
281005CY	5 G 6	16.7	348.8	613
280804CY	4 G 10	18.5	458.4	857
280604CY	4 G 16	22.9	723.6	1208

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- ÖLFLEX® TRAY II CY refer to page 53

**Accessories**

- SKINTOP® MS-SC-M refer to page 674

Various applications

PVC sheath, approved



## ÖLFLEX® TRAY II

LAPP KABEL STUFGART ÖLFLEX® TRAY II-(B) (UL) TC-ER 16 AWG/5C 90 °C DRY 75 °C WET 600 V SUN RES DIR BUR or MTW E 171371--c(UL) CIC FT4--CSA AWM II A/B 90C 600V FT4 LL74246 CE

**Benefits**

- Wide application range due to multiple approvals
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

**Application range**

- Industrial machinery; plant engineering
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTTC)
- Class 1, Div. 2 in accordance with NEC "National Electrical Code" Art. 336, 392, 501
- Suitable for outdoor use and direct burial

**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 Wet Approval 75 °C
- UV-resistant UL SUN RES
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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 T 16 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.
- Approvals: UL MTW (Machine-tool Wire) [E155920]; UL AWM (Appliance Wiring Material-Component) [E100338]; UL Wet Approval 75°C; UL Type TC (Tray Cable) - ER (Exposed Run) [E171371] or DP-1; UL PLTC (Power Limited Tray Cable); UL ITC (Instrumentation Tray Cable); UL WTTTC (FT4) [E323700]; OIL RES. I, OIL RES. II; UL AWM 2587 & 21098 (Oil); P-07-KA050016-MSHA (ÖLFLEX® TRAY II CY); c(UL) CIC / TC and FT4; CSA-AWM I/II A/B FT4

**Product make-up**

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Outer sheath made of special PVC compound, black

**Info**

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

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 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: 5/15xOD\*

**Nominal voltage**  
UL/CSA: 600 V (TC, MTW, CIC), WTTTC 1000V  
UL/CSA: 1000 V (AWM)  
VDE U<sub>0</sub>/U: 600/1000 V

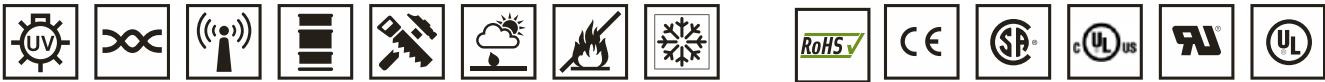
**Protective conductor**  
G = with GN-YE protective conductor  
X = without protective conductor

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

Article number	Number of cores and mm <sup>2</sup> per conductor	AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® Tray II</b>					
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	48.0	115
221807	7 G 1.0		9.5	67.0	149
221809	9 G 1.0		10.9	87.0	167
221812	12 G 1.0		12.1	115.0	255
221818	18 G 1.0		14.9	173.0	365
221825	25 G 1.0		16.9	240.0	479
221603	3 G 1.5		8.3	43.0	103
221604	4 G 1.5		8.9	58.0	124
221605	5 G 1.5		9.7	72.0	146
221607	7 G 1.5		10.5	101.0	189
221608	8 G 1.5		11.3	116.0	203
221609	9 G 1.5		12.1	130.0	255
221612	12 G 1.5		14.4	173.0	328
221618	18 G 1.5		16.6	259.0	431
221625	25 G 1.5		18.8	360.0	592
221641	41 G 1.5		25.0	591.0	931
221650	50 G 1.5		26.6	720.0	1132
221403	3 G 2.5		9.2	72.0	130
221404	4 G 2.5		10.0	96.0	159
221405	5 G 2.5		10.8	120.0	191
221407	7 G 2.5		11.8	168.0	252
221409	9 G 2.5		14.5	216.0	335
221412	12 G 2.5		16.2	288.0	459
221418	18 G 2.5		18.7	432.0	654
221425	25 G 2.5		22.5	600.0	874
221204	4 G 4		11.7	153.0	226
221205	5 G 4		12.8	192.0	279
221207	7 G 4		14.8	269.0	384
221004	4 G 6		14.7	231.0	394
221005	5 G 6		16.0	288.0	472
221007	7 G 6		17.4	405.0	661
220804	4 G 10		17.9	384.0	615
220805	5 G 10		19.6	480.0	771
220604	4 G 16		22.8	615.0	864
220605	5 G 16		24.9	768.0	1080
220404	4 G	4	27.8	960.0	1418
220204	4 G	2	32.3	1,344.0	2077

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

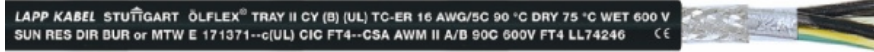




**Info**

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

**ÖLFLEX® TRAY II CY**



**Benefits**

- Wide application range due to multiple approvals
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

**Application range**

- Industrial machinery; plant engineering
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTTC)
- Class 1, Div. 2 in accordance with NEC "National Electrical Code" Art. 336, 392, 501
- Suitable for outdoor use and direct burial

**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 Wet Approval 75 °C
- UV-resistant UL SUN RES
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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.
- Approvals: UL MTW (Machine-tool Wire) [E155920]; UL AWM (Appliance Wiring Material-Component) [E100338]; UL Wet Approval 75°C; UL Type TC (Tray Cable) - ER (Exposed Run) [E171371] or DP-1; UL PLTC (Power Limited Tray Cable); UL ITC (Instrumentation Tray Cable); UL WTTTC (FT4) [E323700]; OIL RES. I, OIL RES. II; UL AWM 2587 & 21098 (Oil); P-07-KA050016-MSHA (ÖLFLEX® TRAY II CY); c(UL) CIC / TC and FT4; CSA-AWM I/II A/B FT4

**Product make-up**

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Aluminum-coated foil
- Tinned-copper braiding
- Outer sheath made of special PVC compound, black

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 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: 5/20xOD\*

**Nominal voltage**  
UL/CSA: 600 V (TC, MTW, CIC), WTTTC 1000V  
UL/CSA: 1000 V (AWM)  
VDE U<sub>0</sub>/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 mm <sup>2</sup> per conductor	AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® Tray II CY</b>					
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		12.5	186.4	315
2212050	5 G 4		14.4	232.6	388
2212070	7 G 4		15.5	310.2	499
2210040	4 G 6		15.5	271.7	552
2210070	7 G 6		18.2	457.4	856
2208040	4 G 10		18.7	438.6	857
2206040	4 G 16		23.3	699.0	1208
2204040	4 G	4	28.6	1,296.8	1982
2202040	4 G	2	33.2	1,899.5	2903

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.  
 \*OD = Outer diameter

**Similar products**

- ÖLFLEX® CONTROL TM CY refer to page 51

**Accessories**

- SKINTOP® MS-SC-M refer to page 674



# ÖLFLEX® SF

## Super-flexible H05VV-F power cable



**Info**

- Super-flexible cable for handheld equipment
- Ozone-resistant according to EN 50396

**Benefits**

- High acceptance in Europe due to Harmonisation

**Application range**

- Very suitable for domestic appliances, electrical power tools, and various handy-man tools
- H05VV-F cable types may not be used in commercial premises, with the exception of offices.
- Not for permanent outdoor use.

**Product features**

- Flame-retardant according IEC 60332-1-2
- Highly flexible at cold temperatures
- Design and geometry in compliance with harmonisation document
- Ozone-resistant according to EN 50396

**Norm references / Approvals**

- H05VV-F acc. to EN 50525-2-11, from 6 cores: based on EN 50525-2-11

**Product make-up**

- Super-fine strands of bare copper wire with an individual wire diameter of 0.07 mm
- PVC core insulation, cold-resistant
- PVC outer sheath, cold-resistant, orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Super-fine wire (diameter of each wire is 0.07 mm)

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

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
3000 V

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

**Temperature range**  
Flexing: -15°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SF</b>				
0027590	2 X 0.75	6.4	14.9	50
0027591	3 G 0.75	7.0	22.3	60
00275923	4 G 0.75	7.7	29.7	73
00275933	5 G 0.75	8.7	37.1	88
0027594	7 G 0.75	10.4	51.5	109
0027600	2 X 1.0	6.8	20.1	74
0027601	3 G 1.0	7.4	30.2	87
00276033	5 G 1.0	9.2	50.8	130
0027701	3 G 1.5	8.7	44.8	116
00277023	4 G 1.5	9.9	61.0	166
00277033	5 G 1.5	11.1	72.0	184

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 500 P refer to page 76
- ÖLFLEX® 550 P\* refer to page 79

**Accessories**

- SKINTOP® ST-M refer to page 654
- STAR STRIP stripping tool refer to page 910



**New**

# ÖLFLEX® CLASSIC 100 H

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

LAPP KABEL STUÏGART ÖLFLEX® CLASSIC 100 H HFFR CE

**Info**

- New improved version!

**Benefits**

- Easy handling and installation due to very flexible cable type

**Application range**

- Public buildings
- Airport, railway station
- 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

**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 50525-2-11

**Product make-up**

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

**Technical data**

- Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
> 20 GOhm 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: 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)
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	72.0	176
0014156	2 X 2.5	9.0	48.0	133
0014157	3 G 2.5	9.7	72.0	167
0014158	4 G 2.5	10.8	96.0	207
0014159	5 G 2.5	11.9	120.0	260
0014162	3 G 4	11.4	115.2	240
0014163	4 G 4	12.7	153.6	303
0014164	5 G 4	13.9	192.0	372
0014166	3 G 6	12.7	172.8	320
0014167	4 G 6	13.9	230.4	400
0014168	5 G 6	15.8	288.0	510
0014170	4 G 10	17.9	384.0	662
0014171	5 G 10	19.9	480.0	826
0014173	4 G 16	20.7	614.4	957
0014174	5 G 16	23.0	768.0	1193
0014176	4 G 25	25.4	960.0	1480
0014177	5 G 25	28.5	1,200.0	1860
0014179	4 G 35	28.8	1,344.0	1985
0014180	5 G 35	32.3	1,680.0	2490
0014182	4 G 50	35.0	1,920.0	2830
0014184	4 G 70	40.0	2,688.0	3890
0014186	4 G 95	46.0	3,648.0	5110
0014188	4 G 120	51.0	4,608.0	6315

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63

**Accessories**

- SKINTOP® ST-HF-M refer to page 660

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX

Various applications

Halogen-free



# ÖLFLEX® CLASSIC 110 H

Halogen-free control cable, oil resistant and very flexible



**Info**

- High flexibility and oil-resistance
- VDE-certified
- UV and weather-resistant according to ISO 4892-2

**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
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2012: 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 60332-3-24 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 60811-404 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 is introduced into the serial manufacturing and step by step into the stock
- Based on EN 50525-2-11
- Based on EN 50525-2-51

**Product make-up**

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

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 H U<sub>0</sub>/U: 300/500 V</b>				
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	24.0	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	36.0	87
10019916	5 X 0.75	6.9	36.0	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	180.0	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	48.0	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	240.0	445

Article number	Number of cores and mm <sup>2</sup> 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	72.0	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	360.0	617
10019927	34 G 1.5	19.8	489.6	821
10019944	2 X 2.5	7.6	48.0	113
10019945	3 G 2.5	8.3	72.0	146
10019946	4 G 2.5	9.0	96.0	180
10019947	5 G 2.5	10.1	120.0	221
10019948	7 G 2.5	11.2	168.0	295
10019949	12 G 2.5	15.1	288.0	491
10019950	4 G 4	10.8	153.6	268
10019951	5 G 4	12.1	192.0	328
10019952	7 G 4	13.4	268.8	438
10019953	4 G 6	13.0	230.4	391
10019954	5 G 6	14.5	288.0	478
10019975	7 G 6	16.0	403.2	638
10019851	4 G 10	16.2	384.0	635
10019852	5 G 10	18.1	480.0	775
10019849	4 G 16	18.8	614.4	930
10019853	5 G 16	21.2	768.0	1147
10019854	4 G 25	23.5	960.0	1442
10019855	5 G 25	26.4	1,200.0	1773
10019856	4 G 35	26.6	1,344.0	1917

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
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 ACCESSORIES  
 APPENDIX

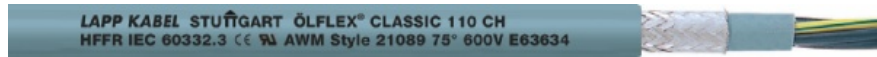


**Info**

- High flexibility and oil-resistance
- VDE-certified
- 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

**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 Ed. 2012: 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 60332-3-24 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 60811-404 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 is introduced into the serial manufacturing and step by step into the stock
- Based on EN 50525-2-11
- Based on EN 50525-2-51

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Halogen-free inner sheath, grey
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm 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: 6 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 110 CH U<sub>0</sub>/U: 300/500 V</b>				
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	48.0	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 mm <sup>2</sup> 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	312.0	611
10035065	41 G 1.0	22.4	508.0	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	223.0	422
10035093	12 G 2.5	17.9	360.5	659
10035094	4 G 4	13.6	207.6	390
10035095	5 G 4	14.9	251.5	463
10035096	7 G 4	16.2	333.9	588
10035097	4 G 6	15.8	294.8	516
10035098	5 G 6	17.3	356.1	616
10035099	7 G 6	18.8	479.3	792
10035380	4 G 10	19.1	461.1	789
10035381	5 G 10	21.4	586.6	998
10035382	4 G 16	22.3	727.6	1154
10035383	5 G 16	24.5	888.7	1389
10035384	4 G 25	27.0	1,123.9	1807
10035386	4 G 35	30.4	1,529.2	2321

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 135 CH refer to page 61
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 64

**Accessories**

- SKINTOP® MS-M BRUSH refer to page 675
- SKINTOP® ST-HF-M refer to page 660



## ÖLFLEX® 120 H

Halogen-free cold-resistant control cable



**Info**

- Flexible at temperatures down to -25 °C
- Other sizes on request

### Application range

- Public buildings
- Airport, railway station
- 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

### Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)  
Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flexible down to -25°C

### Norm references / Approvals

- Based on EN 50525-2-51

### Product make-up

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

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 10 GOhm 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 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 +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 120 H U<sub>0</sub>/U: 300/500 V</b>				
1021902	2 X 1.5	6.3	29.0	63
1021303	3 G 1.5	6.7	43.0	79
1021304	4 G 1.5	7.2	58.0	98
1021305	5 G 1.5	8.1	72.0	120
1021307	7 G 1.5	8.9	101.0	158
1021312	12 G 1.5	12.0	173.0	265
1021318	18 G 1.5	14.4	259.0	388
1021325	25 G 1.5	16.9	360.0	535
1021403	3 G 2.5	8.1	72.0	124
1021404	4 G 2.5	8.9	96.0	154
1021405	5 G 2.5	10.0	120.0	189
1021407	7 G 2.5	11.1	168.0	254
1021412	12 G 2.5	14.8	288.0	425
1021504	4 G 4	10.8	154.0	236
1021604	4 G 6	13.0	230.0	350

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC 110 H refer to page 56
- ÖLFLEX® CLASSIC 130 H refer to page 60
- ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63

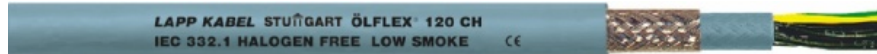
### Accessories

- SKINTOP® ST-HF-M refer to page 660



## ÖLFLEX® 120 CH

Screened halogen-free control cable, cold-resistant



**Info**

- Flexible at temperatures down to -25 °C
- EMC-compliant
- Other sizes on request

### Application range

- Public buildings
- Airport, railway station
- 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)

### Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)  
Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flexible down to -25°C
- 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
- Core insulation: Halogen-free
- Halogen-free inner sheath, grey
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound, grey (RAL 7001)

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 10 GOhm x cm
- 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**  
U<sub>0</sub>/U: 300/500 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 +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 120 CH U<sub>0</sub>/U: 300/500 V</b>				
1022902	2 X 1.5	8.5	65.0	113
1022303	3 G 1.5	8.9	83.0	131
1022304	4 G 1.5	9.6	100.0	158
1022305	5 G 1.5	10.3	125.0	182
1022307	7 G 1.5	11.3	196.0	230
1022312	12 G 1.5	14.8	280.0	383
1022318	18 G 1.5	17.2	389.0	525
1022325	25 G 1.5	20.1	535.0	727
1022403	3 G 2.5	10.3	146.0	186
1022404	4 G 2.5	11.3	167.0	226
1022405	5 G 2.5	12.6	200.0	275
1022407	7 G 2.5	13.9	288.0	361
1022504	4 G 4	13.4	237.0	337
1022604	4 G 6	15.8	318.0	474

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 57
- ÖLFLEX® CLASSIC 135 CH refer to page 61
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 64

### Accessories

- SKINTOP® CLICK refer to page 657
- SKINTOP® MS-SC-M refer to page 674



## ÖLFLEX® CLASSIC 130 H

Halogen-free control cable with improved fire characteristics



**Info**

- VDE-certified
- 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
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2012: 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 60332-3-24 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 21089 is introduced into the serial manufacturing and step by step into the stock
- 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
- Outer sheath made of special halogen-free compound, grey (RAL 7001)

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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: -15°C to +70°C (UL: +75°C)  
Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 130 H</b>				
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	24.0	65
1123006	5 X 0.5	6.3	24.0	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	48.0	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	120.0	260
1123021	30 G 0.5	13.6	144.0	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	36.0	83
1123038	5 X 0.75	6.9	36.0	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	72.0	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	180.0	352
1123056	34 G 0.75	16.3	244.8	466
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	48.0	100

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123072	5 X 1.0	7.3	48.0	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	96.0	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	240.0	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	72.0	135
1123112	5 X 1.5	8.3	72.0	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	144.0	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	360.0	596
1123130	34 G 1.5	19.8	489.6	786
1123139	2 X 2.5	7.6	48.0	110
1123140	3 G 2.5	8.3	72.0	137
1123142	4 G 2.5	9.0	96.0	174
1123144	5 G 2.5	10.1	120.0	217
1123146	7 G 2.5	11.2	168.0	283
1123149	12 G 2.5	15.1	288.0	467
1123151	18 G 2.5	18.0	432.0	696
1123153	25 G 2.5	21.1	600.0	969
1123159	3 G 4	9.8	115.2	213
1123160	4 G 4	10.8	153.6	267
1123161	5 G 4	12.1	192.0	331

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Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123162	7 G 4	13.4	268.8	432
1123166	3 G 6	11.7	172.8	303
1123167	4 G 6	13.0	230.4	388
1123168	5 G 6	14.5	288.0	480
1123169	7 G 6	16.0	403.2	626
1123172	4 G 10	16.2	384.0	601

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123173	5 G 10	18.1	480.0	735
1123177	4 G 16	18.8	614.4	917
1123178	5 G 16	21.2	768.0	1148
1123181	4 G 25	23.5	960.0	1418
1123182	5 G 25	26.4	1,200.0	1769
1123185	4 G 35	26.6	1,344.0	1905

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

- Similar products**
- ÖLFLEX® CLASSIC 130 H BK 0,6/1kV refer to page 63

- Accessories**
- SKINTOP® ST-HF-M refer to page 660



**Info**

- VDE-certified
- For use within public buildings and industrial plants
- EMC-compliant

**■ Benefits**

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

**■ 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 Ed. 2012: 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 60332-3-24 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 21089 is introduced into the serial manufacturing and step by step into the stock
- 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
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound, grey (RAL 7001)

**■ Technical data**

**Classification**  
 ETIM 5.0 Class-ID: EC000104  
 ETIM 5.0 Class-Description: Control cable

**Core identification code**  
 Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
 > 10 MOhm x 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**  
 U<sub>c</sub>/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: -15°C to +70°C (UL: +75°C)  
 Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 135 CH</b>				
1123200	2 X 0.5	5.9	36.0	51
1123201	3 G 0.5	6.2	43.0	61
1123202	3 X 0.5	6.2	43.0	61
1123203	4 G 0.5	6.6	49.0	72
1123204	4 X 0.5	6.6	49.0	72

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123205	5 G 0.5	7.1	57.0	85
1123206	5 X 0.5	7.1	57.0	85
1123208	7 G 0.5	7.7	69.0	103
1123209	7 X 0.5	7.7	69.0	103
1123213	12 G 0.5	10.1	104.0	165
1123217	18 G 0.5	11.8	141.0	236

Various applications

Halogen-free

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123220	25 G 0.5	13.7	224.0	324
1123232	2 X 0.75	6.3	43.0	60
1123233	3 G 0.75	6.6	52.0	77
1123234	3 X 0.75	6.6	52.0	77
1123235	4 G 0.75	7.1	61.0	87
1123236	4 X 0.75	7.1	61.0	87
1123237	5 G 0.75	7.9	72.0	106
1123238	5 X 0.75	7.9	72.0	106
1123241	7 G 0.75	8.5	89.0	129
1123242	7 X 0.75	8.5	89.0	129
1123247	12 G 0.75	11.1	138.0	211
1123248	12 X 0.75	11.1	138.0	211
1123251	18 G 0.75	13.0	211.0	307
1123254	25 G 0.75	15.1	280.0	413
1123266	2 X 1.0	6.6	51.0	79
1123267	3 G 1.0	6.9	62.0	88
1123268	3 X 1.0	6.9	62.0	88
1123269	4 G 1.0	7.4	74.0	106
1123270	4 X 1.0	7.4	74.0	106
1123271	5 G 1.0	8.3	88.0	124
1123272	5 X 1.0	8.3	88.0	124
1123274	7 G 1.0	8.9	112.0	155
1123275	7 X 1.0	8.9	112.0	155
1123280	12 G 1.0	11.7	185.0	250
1123281	12 X 1.0	11.7	185.0	250
1123284	18 G 1.0	14.1	268.0	368
1123290	25 G 1.0	16.2	354.0	493
1123291	25 X 1.0	16.2	354.0	493
1123306	2 X 1.5	7.2	65.0	91
1123307	3 G 1.5	7.6	82.0	112
1123308	3 X 1.5	7.6	82.0	112

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123309	4 G 1.5	8.4	100.0	141
1123310	4 X 1.5	8.4	100.0	141
1123311	5 G 1.5	9.1	119.0	161
1123312	5 X 1.5	9.1	119.0	161
1123314	7 G 1.5	10.0	154.0	206
1123315	7 X 1.5	10.0	154.0	206
1123320	12 G 1.5	13.4	268.0	355
1123324	18 G 1.5	15.8	373.0	517
1123328	25 G 1.5	18.2	530.0	705
1123339	2 X 2.5	8.6	96.0	128
1123340	3 G 2.5	9.1	118.0	157
1123342	4 G 2.5	10.0	147.0	201
1123344	5 G 2.5	11.1	176.0	248
1123346	7 G 2.5	12.0	253.0	313
1123349	12 G 2.5	16.3	385.0	524
1123359	3 G 4	10.6	178.0	231
1123360	4 G 4	11.8	248.0	291
1123361	5 G 4	13.3	269.0	361
1123362	7 G 4	14.6	371.0	468
1123366	3 G 6	12.7	240.0	318
1123367	4 G 6	14.2	343.0	437
1123368	5 G 6	15.5	441.0	510
1123369	7 G 6	17.0	510.0	662
1123372	4 G 10	17.2	535.0	685
1123373	5 G 10	19.5	592.0	824
1123374	7 G 10	21.4	820.0	1067
1123377	4 G 16	20.2	736.0	1036
1123378	5 G 16	22.6	895.0	1285
1123381	4 G 25	25.1	1,129.0	1663
1123382	5 G 25	28.0	1,400.0	1976
1123385	4 G 35	28.2	1,546.0	2052

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

■ Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 57
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 64

■ Accessories

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® ST-HF-M refer to page 660

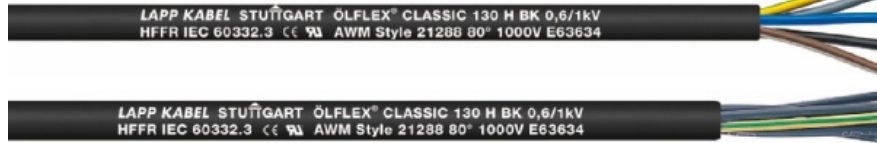


## ÖLFLEX® CLASSIC 130 H BK 0,6/1kV

VDE-tested characteristics

**Info**

- Outdoors
- Public buildings



**Benefits**

- 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
- For outdoor applications
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2012: 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 60332-3-24 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 single core style 10559 is introduced into the serial manufacturing and step by step into the stock
- UL AWM jacket style 21288 is introduced into the serial manufacturing and step by step into the stock

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free compound, black (RAL 9005)

**Technical data**

- 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
- Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter
- Nominal voltage**  
U<sub>c</sub>/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: -15°C to +70°C  
Fixed installation: -40°C to +80°C  
UL: +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - coloured cores</b>				
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	48.0	167
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - numbered cores</b>				
1123414	7 G 1.0	11.1	67.2	206
1123415	12 G 1.0	14.0	115.2	314
1123416	18 G 1.0	16.1	172.8	428
1123417	25 G 1.0	18.6	240.0	569
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - coloured cores</b>				
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	72.0	221
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - numbered cores</b>				
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	360.0	799
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - coloured cores</b>				
1123426	2 X 2.5	10.8	48.0	184

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1123427	3 G 2.5	11.3	72.0	219
1123428	4 G 2.5	12.2	96.0	262
1123429	5 G 2.5	13.3	120.0	307
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - numbered cores</b>				
1123430	7 G 2.5	14.4	168.0	390
1123431	12 G 2.5	18.7	288.0	624
1123432	18 G 2.5	22.0	432.0	879
1123433	25 G 2.5	25.8	600.0	1212
<b>ÖLFLEX® CLASSIC 130 H 0,6/1 kV - coloured cores</b>				
1123434	3 G 4	12.6	115.2	290
1123435	4 G 4	13.7	153.6	351
1123436	5 G 4	14.9	192.0	416
1123437	3 G 6	13.9	172.8	377
1123438	4 G 6	15.1	230.4	463
1123439	5 G 6	16.8	288.0	559
1123440	4 G 10	18.7	384.0	757
1123441	5 G 10	20.7	480.0	915
1123442	4 G 16	21.3	614.4	1070
1123443	5 G 16	23.6	768.0	1296
1123444	4 G 25	26.2	960.0	1631

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 110 H refer to page 56
- ÖLFLEX® CLASSIC 130 H refer to page 60

**Accessories**

- SKINTOP® ST-HF-M refer to page 660



# ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV

VDE-tested characteristics



### 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
- For outdoor applications
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2012: 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 60332-3-24 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 single core style 10559 is introduced into the serial manufacturing and step by step into the stock
- UL AWM jacket style 21288 is introduced into the serial manufacturing and step by step into the stock

### 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 compound, black (RAL 9005)

**Info**

- Outdoors
- Public buildings
- EMC/Screened

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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: -15°C to +70°C  
Fixed installation: -40°C to +80°C  
UL: +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - coloured cores</b>				
1123460	2 X 1.0	9.4	39.5	120
1123461	3 G 1.0	9.8	51.0	140
1123462	4 G 1.0	10.4	62.8	165
1123463	5 G 1.0	11.2	76.0	191
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - numbered cores</b>				
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
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - coloured cores</b>				
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
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - numbered cores</b>				
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
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - coloured cores</b>				
1123476	2 X 2.5	11.6	79.4	197

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - numbered cores</b>				
1123480	7 G 2.5	15.4	225.0	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
<b>ÖLFLEX® CLASSIC 135 CH 0.6/1 kV - coloured cores</b>				
1123484	3 G 4	13.4	167.7	327
1123485	4 G 4	14.7	211.9	399
1123486	5 G 4	15.9	250.3	471
1123487	3 G 6	14.9	232.1	414
1123488	4 G 6	16.1	298.5	519
1123489	5 G 6	17.8	356.1	607
1123490	4 G 10	20.1	490.6	837
1123491	5 G 10	21.9	586.6	995
1123492	4 G 16	22.5	735.1	1157
1123493	5 G 16	25.0	888.7	1407
1123494	4 G 25	27.8	1,126.6	1683

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 57
- ÖLFLEX® CLASSIC 135 CH refer to page 61

### Accessories

- SKINTOP® MS-M BRUSH refer to page 675

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**ÖLFLEX® PETRO C HFFR**

Chemically and mechanically robust cables for harsh environmental conditions - 0.6/1 kV

**Info**

- Oil and mud-resistant according to IEC 61892-4, Annex D
- Highly flame retardant
- UL/cUL approved 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 increase the protection against damage to persons and property in the event of a fire
- The copper braiding serves as an electromagnetic screen and can also be used as armouring (Braid Armour)
- Can be used in many applications from different industries, as it has remarkable 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

**Product features**

- Oil-resistant acc. to NEK TS 606:2009
- Oil and mud-resistant according to IEC 61892-4, Annex D
- Fire behaviour:
  - Halogen-free (VDE 0472-815)
  - Flame-retardant (IEC 60332-1-2)
  - No flame propagation (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 10587
  - 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 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power 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 mm<sup>2</sup>

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

**Nominal voltage**  
IEC U<sub>0</sub>/U: 600/1000 V  
Up to 1.0mm<sup>2</sup> 300/500 V

**Test voltage**  
4000 V

**Temperature range**  
Occasional flexing: -40°C to +90°C  
According to UL/AWM: -40°C to +80°C  
Fixed installation: -50°C to +90°C  
according to UL/AWM: -50°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® PETRO C HFFR black - single core</b>				
0023249	1 X 70	19.3	737.0	948
0023250	1 X 95	21.6	1,002.0	1155
0023251	1 X 120	24.5	1,254.0	1463
0023248	1 X 150	26.1	1,553.0	1767
0023233	1 X 185	28.4	1,912.0	2349
0023234	1 X 240	32.6	2,475.0	2869
0023279	1 X 300	34.7	3,075.0	3817
<b>ÖLFLEX® PETRO C HFFR black - multi-core</b>				
0023275	3 G 0.5	10.1	36.0	140
0023274	2 X 1.0	10.5	41.0	149
0023252	2 X 1.5	11.5	57.0	183
0023253	3 G 1.5	12.0	72.0	212
0023254	4 G 1.5	12.8	90.0	249
0023255	5 G 1.5	14.0	115.0	307
0023256	7 G 1.5	15.9	151.0	401
0023239	12 G 1.5	18.8	238.0	573
0023257	18 G 1.5	22.3	350.0	846
0023240	25 G 1.5	26.6	490.0	1183
0023278	3 G 2.5	13.5	105.0	276
0023242	4 G 2.5	14.6	147.0	347
0023244	5 G 2.5	15.7	171.0	401
0023245	7 G 2.5	18.3	233.0	547
0023258	12 G 2.5	22.3	378.0	840

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0023260	4 G 4	16.2	212.0	457
0023266	5 G 4	17.6	250.0	540
0023261	4 G 6	17.7	288.0	558
0023268	5 G 6	19.9	367.0	710
0023280	4 G 10	22.3	474.0	882
0023272	5 G 10	24.3	582.0	1069
0023281	4 G 16	24.9	716.0	1208
0023269	5 G 16	27.6	881.0	1483
0023267	4 G 25	30.2	1,096.0	1785
0023270	5 G 25	33.4	1,371.0	2206
0023262	4 G 35	33.6	1,515.0	2314
0023282	5 G 35	37.1	1,875.0	2847
0023246	4 G 50	39.3	2,140.0	3264
0023271	5 G 50	43.4	2,620.0	4002
<b>ÖLFLEX® PETRO C HFFR blue - multi-core</b>				
0023276	3 G 0.5	10.1	36.0	140
0023273	2 X 1.0	10.5	41.0	147
0023263	2 X 1.5	11.5	57.0	183
0023283	3 G 1.5	12.0	72.0	212
0023237	4 G 1.5	12.8	90.0	249
0023284	5 G 1.5	14.0	115.0	307
0023238	7 G 1.5	15.9	151.0	401
0023264	12 G 1.5	18.8	238.0	573
0023265	25 G 1.5	26.6	490.0	1183

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Harsh conditions**

High mechanical and chemical resistance



# ÖLFLEX® ROBUST 200

Proven all-weather connection cables - resistant against a variety of chemical media



**Info**

- Excellent 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 both indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent steam cleaning

**Norm references / Approvals**

- Based on EN 50525-2-21

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

**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**

- Halogen-free materials
- 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
- Colour-coded up to 5 cores

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® ROBUST 200</b>				
0021800	2 X 1.0	8.0	19.2	65
0021801	3 G 1.0	8.4	29.0	79
0021802	4 G 1.0	9.2	38.4	96
0021803	5 G 1.0	10.0	48.0	113
0021805	2 X 1.5	8.6	29.0	78
0021806	3 G 1.5	9.1	43.0	97
0021807	4 G 1.5	9.9	58.0	122
0021808	5 G 1.5	10.8	72.0	146
0021809	7 G 1.5	13.5	101.0	208
0021810	2 X 2.5	9.8	48.0	114
0021811	3 G 2.5	10.4	72.0	144
0021812	4 G 2.5	11.5	96.0	181
0021813	5 G 2.5	13.1	120.0	222

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0021814	7 G 2.5	15.9	168.0	312
0021816	3 G 4	12.4	115.2	215
0021817	4 G 4	14.0	154.0	273
0021818	5 G 4	15.8	192.0	333
0021822	4 G 6	15.7	230.0	378
0021823	5 G 6	17.2	288.0	463
0021825	4 G 10	19.4	384.0	570
0021826	5 G 10	21.4	480.0	770
0021828	4 G 16	22.4	614.0	885
0021829	5 G 16	24.6	768.0	1100
0021831	4 G 25	27.0	960.0	1365
0021833	4 G 35	29.7	1,344.0	1773
0021836	4 G 50	36.2	1,920.0	3454

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® ROBUST 210 refer to page 67
- ÖLFLEX® ROBUST 215 C refer to page 68

**Accessories**

- FLEXIMARK® Stainless steel kit refer to page 872
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST-HF-M refer to page 660
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## ÖLFLEX® ROBUST 210

Proven all-weather control cables – resistant to a wide range of chemical media

**Info**

- Excellent 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 both indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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

- Halogen-free materials
- 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
- Number-coded cores

### Norm references / Approvals

- Based on VDE 0250 / 0285

### Product make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® ROBUST 210</b>				
0021880	2 X 0.5	4.9	10.0	27
0021881	3 G 0.5	5.2	15.0	33
0021882	3 X 0.5	5.2	15.0	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	24.0	49
0021886	5 X 0.5	6.3	24.0	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	48.0	92
0021891	12 G 0.5	9.1	58.0	106
0021892	18 G 0.5	10.8	86.4	151
0021893	25 G 0.5	12.7	120.0	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	36.0	66
0021903	5 X 0.75	6.9	36.0	66
0021904	7 G 0.75	7.5	50.0	85
0021905	7 X 0.75	7.5	50.0	85
0021907	12 G 0.75	10.1	86.0	144
0021908	18 G 0.75	12.0	130.0	208
0021909	25 G 0.75	14.1	180.0	288
0021910	34 G 0.75	16.3	245.0	386
0021911	41 G 0.75	17.8	296.0	464
0021912	50 G 0.75	19.6	360.0	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	48.0	78
0021919	5 X 1.0	7.3	48.0	78
0021920	7 G 1.0	8.1	67.0	107
0021921	10 G 1.0	10.4	96.0	154

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0021922	12 G 1.0	10.7	115.0	178
0021923	18 G 1.0	12.9	173.0	262
0021924	25 G 1.0	15.0	240.0	357
0021925	34 G 1.0	17.5	326.0	484
0021926	41 G 1.0	19.2	394.0	582
0021927	50 G 1.0	21.0	480.0	703
0021928	2 X 1.5	6.4	29.0	56
0021929	3 G 1.5	6.8	43.0	72
0021930	3 X 1.5	6.8	43.0	72
0021931	4 G 1.5	7.4	58.0	91
0021932	4 X 1.5	7.4	58.0	91
0021933	5 G 1.5	8.3	72.0	108
0021934	5 X 1.5	8.3	72.0	108
0021936	7 G 1.5	9.0	101.0	149
0021937	7 X 1.5	9.0	101.0	149
0021938	10 G 1.5	11.8	143.0	215
0021940	12 G 1.5	12.2	173.0	234
0021941	18 G 1.5	14.6	259.0	369
0021942	25 G 1.5	17.2	360.0	510
0021943	34 G 1.5	19.8	490.0	683
0021945	50 G 1.5	24.0	720.0	999
0021946	2 X 2.5	7.6	48.0	86
0021947	3 G 2.5	8.3	72.0	115
0021949	4 G 2.5	9.0	96.0	131
0021951	5 G 2.5	10.1	120.0	178
0021953	7 G 2.5	11.2	168.0	241
0021954	12 G 2.5	15.1	288.0	405
0021963	3 G 4	10.1	115.0	180
0021964	4 G 4	11.1	157.0	228
0021965	5 G 4	12.4	192.0	280
0021966	7 G 4	13.6	269.0	377
0021967	4 G 6	13.3	230.0	332
0021968	5 G 6	14.8	288.0	407
0021969	4 G 10	16.5	384.0	541
0021970	5 G 10	18.4	480.0	620
0021971	4 G 16	18.8	614.0	806
0021972	4 G 25	23.5	960.0	1218
0021973	4 G 35	26.4	1,344.0	1658

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

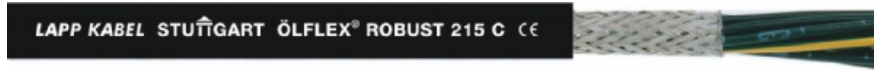
**Harsh conditions**

High mechanical and chemical resistance



**ÖLFLEX® ROBUST 215 C**

Proven all-weather control cables - screened and resistant to a wide range of chemical media



**Info**

- Excellent 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 both indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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**

- Halogen-free materials
- 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
- Number-coded cores

**Norm references / Approvals**

- Based on VDE 0250 / 0285

**Product make-up**

- Fine-wire strand made of bare copper wires
- 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 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® ROBUST 215 C</b>				
0022700	2 X 0.5	5.9	36.0	42
0022701	3 G 0.5	6.2	43.0	52
0022702	3 X 0.5	6.2	43.0	52
0022703	4 G 0.5	6.6	49.0	59
0022704	4 X 0.5	6.6	49.0	59
0022705	5 G 0.5	7.1	57.0	68
0022706	5 X 0.5	7.1	57.0	68
0022708	7 G 0.5	7.7	69.0	85
0022709	7 X 0.5	7.7	69.0	85
0022711	12 G 0.5	10.1	104.0	136
0022712	18 G 0.5	11.8	141.0	189
0022713	25 G 0.5	13.7	211.0	265
0022717	2 X 0.75	6.3	43.0	50
0022718	3 G 0.75	6.6	52.0	60
0022719	3 X 0.75	6.6	52.0	60
0022720	4 G 0.75	7.1	61.0	72
0022721	4 X 0.75	7.1	61.0	72
0022722	5 G 0.75	7.9	72.0	88
0022723	5 X 0.75	7.9	72.0	88
0022724	7 G 0.75	8.5	89.0	110
0022725	7 X 0.75	8.5	89.0	110
0022727	12 G 0.75	11.1	138.0	177
0022728	18 G 0.75	13.0	211.0	247
0022729	25 G 0.75	15.1	280.0	347
0022730	34 G 0.75	17.5	380.0	460
0022733	2 X 1.0	6.6	51.0	60
0022734	3 G 1.0	6.9	62.0	70
0022735	3 X 1.0	6.9	62.0	70
0022736	4 G 1.0	7.4	74.0	85

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0022737	4 X 1.0	7.4	74.0	85
0022738	5 G 1.0	8.3	88.0	103
0022739	5 X 1.0	8.3	88.0	103
0022740	7 G 1.0	8.9	112.0	131
0022742	12 G 1.0	11.7	185.0	213
0022743	18 G 1.0	14.1	268.0	321
0022744	25 G 1.0	16.2	354.0	425
0022748	2 X 1.5	7.2	65.0	71
0022749	3 G 1.5	7.6	82.0	90
0022750	3 X 1.5	7.6	82.0	90
0022751	4 G 1.5	8.4	100.0	114
0022752	4 X 1.5	8.4	100.0	114
0022753	5 G 1.5	9.1	119.0	136
0022754	5 X 1.5	9.1	119.0	136
0022756	7 G 1.5	10.0	154.0	177
0022757	7 X 1.5	10.0	154.0	177
0022760	12 G 1.5	13.4	268.0	290
0022761	18 G 1.5	15.8	373.0	435
0022762	25 G 1.5	18.2	530.0	579
0022763	34 G 1.5	21.2	683.0	797
0022767	3 G 2.5	9.1	118.0	134
0022768	4 G 2.5	10.0	147.0	169
0022769	5 G 2.5	11.1	176.0	207
0022770	7 G 2.5	12.0	253.0	270
0022774	4 G 4	11.9	190.0	258
0022776	4 G 6	14.5	290.0	392
0022777	4 G 10	17.5	458.0	602
0022778	4 G 16	20.2	736.6	928
0022771	4 G 25	25.1	1,126.7	1411
0022780	4 G 35	28.0	1,540.0	1883

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) 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 are not to scale and do not represent detailed images of the respective products.





**ÖLFLEX® CLASSIC 400 P**

**Abrasion-resistant control cables with PUR sheath for increased application requirements**

**Info**

- High mechanical strength
- Good oil resistance



**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
- Also available as DESINA® compliant power cable with black outer sheath colour

**Application range**

- Machine tools
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Outdoor use is possible within the indicated operating temperature range
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress

**Product features**

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

**Norm references / Approvals**

- Based on VDE 0285

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: special PVC
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)
- DESINA®-compliant: black (RAL 9005)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 400 P - sheath colour: grey</b>				
1312802	2 X 0.5	4.8	10.0	32
1312003	3 G 0.5	5.1	15.0	43
1312803	3 X 0.5	5.1	15.0	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	24.0	59
1312805	5 X 0.5	6.2	24.0	59
1312007	7 G 0.5	6.7	34.0	73
1312807	7 X 0.5	6.7	34.0	73
1312010	10 G 0.5	8.6	48.0	109
1312012	12 G 0.5	8.9	57.6	125
1312018	18 G 0.5	10.5	87.0	180
1312025	25 G 0.5	12.4	120.0	250
1312034	34 G 0.5	14.3	164.0	333
1312041	41 G 0.5	15.7	197.0	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	36.0	74
1312855	5 X 0.75	6.7	36.0	74
1312107	7 G 0.75	7.3	50.0	97
1312857	7 X 0.75	7.3	50.0	97
1312110	10 G 0.75	9.6	72.0	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	180.0	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	48.0	89
1312905	5 X 1.0	7.1	48.0	89
1312207	7 G 1.0	8.0	67.0	116
1312210	10 G 1.0	10.2	96.0	171
1312212	12 G 1.0	10.5	115.0	197
1312218	18 G 1.0	12.7	173.0	289

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1312225	25 G 1.0	14.7	240.0	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	29.0	63
1312303	3 G 1.5	6.7	43.0	79
1312953	3 X 1.5	6.7	43.0	79
1312304	4 G 1.5	7.2	58.0	98
1312954	4 X 1.5	7.2	58.0	98
1312305	5 G 1.5	8.1	72.0	121
1312955	5 X 1.5	8.1	72.0	121
1312307	7 G 1.5	8.9	101.0	159
1312957	7 X 1.5	8.9	101.0	159
1312312	12 G 1.5	12.0	173.0	268
1312318	18 G 1.5	13.4	259.5	392
1312325	25 G 1.5	16.9	360.0	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	72.0	132
1312404	4 G 2.5	8.9	96.0	163
1312405	5 G 2.5	10.0	120.0	186
1312407	7 G 2.5	11.1	168.0	267
1312412	12 G 2.5	14.8	288.0	445
1312504	4 G 4	10.8	154.0	237
1312505	5 G 4	12.1	192.0	291
1312507	7 G 4	13.4	269.0	391
1312604	4 G 6	13.0	230.4	327
1312605	5 G 6	14.5	288.0	424
1312607	7 G 6	16.0	403.0	580
1312614	4 G 10	16.2	384.0	567
1312615	5 G 10	18.1	480.0	695
1312617	7 G 10	20.0	672.0	937
1312624	4 G 16	18.8	614.4	1064
<b>ÖLFLEX® CLASSIC 400 P DESINA - sheath colour: black</b>				
1312970	4 G 1.5	7.2	58.0	98
1312981	7 G 1.5	8.8	101.0	159
1312983	11 G 1.5	11.6	158.0	228
1312973	4 G 2.5	8.9	96.0	163
1312974	4 G 4	10.8	154.0	237
1312975	4 G 6	13.0	230.4	350
1312976	4 G 10	16.2	384.0	567
1312978	4 G 25	23.5	960.0	1582

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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® is a registered trademark of the German Machine Tool Builders' Association  
Photographs are not to scale and do not represent detailed images of the respective products.

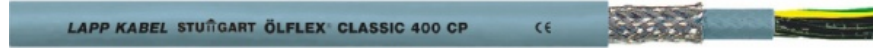
**Harsh conditions**

High mechanical and chemical resistance



# ÖLFLEX® CLASSIC 400 CP

Screened and abrasion-resistant control cables with PUR sheath for increased application requirements



**Info**

- High mechanical strength
- Good oil resistance
- EMC compliant copper screening

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**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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**

- 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**

- Machine tools
- 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
- Outdoor use is possible within the indicated operating temperature range

**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

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: special PVC
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 400 CP</b>				
1313852	2 X 0.75	7.4	45.0	85
1313103	3 G 0.75	7.9	52.0	99
1313853	3 X 0.75	7.9	52.0	99
1313104	4 G 0.75	8.4	77.0	114
1313854	4 X 0.75	8.4	77.0	114
1313105	5 G 0.75	8.9	84.0	130
1313855	5 X 0.75	8.9	84.0	130
1313107	7 G 0.75	9.7	92.0	161
1313857	7 X 0.75	9.7	92.0	161
1313112	12 G 0.75	12.3	138.0	245
1313118	18 G 0.75	14.5	219.0	354
1313125	25 G 0.75	16.6	277.0	463
1313134	34 G 0.75	18.9	420.0	598
1313141	41 G 0.75	20.6	500.0	725
1313902	2 X 1.0	7.9	50.0	97
1313203	3 G 1.0	8.2	77.0	111
1313903	3 X 1.0	8.2	77.0	111
1313204	4 G 1.0	8.7	87.0	129
1313904	4 X 1.0	8.7	87.0	129
1313205	5 G 1.0	9.5	90.0	152
1313207	7 G 1.0	10.2	110.0	184
1313212	12 G 1.0	13.3	194.0	306
1313218	18 G 1.0	15.5	267.0	417
1313225	25 G 1.0	17.5	379.0	541
1313234	34 G 1.0	20.3	516.0	735

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1313241	41 G 1.0	22.0	610.0	860
1313952	2 X 1.5	8.5	77.0	116
1313303	3 G 1.5	8.9	85.0	135
1313953	3 X 1.5	8.9	85.0	135
1313304	4 G 1.5	9.6	100.0	162
1313954	4 X 1.5	9.6	100.0	162
1313305	5 G 1.5	10.3	120.0	187
1313955	5 X 1.5	10.3	120.0	187
1313307	7 G 1.5	11.3	152.0	236
1313957	7 X 1.5	11.3	152.0	236
1313312	12 G 1.5	14.8	267.0	392
1313318	18 G 1.5	17.2	400.0	536
1313325	25 G 1.5	20.1	572.0	742
1313334	34 G 1.5	21.9	754.0	960
1313341	41 G 1.5	24.7	874.0	1118
1313403	3 G 2.5	10.3	121.0	191
1313404	4 G 2.5	11.3	163.0	232
1313405	5 G 2.5	12.6	199.0	282
1313407	7 G 2.5	13.9	261.0	370
1313412	12 G 2.5	17.2	470.0	580
1313504	4 G 4	13.4	238.0	345
1313505	5 G 4	14.7	279.0	412
1313604	4 G 6	15.8	318.0	483
1313605	5 G 6	17.3	370.0	576
1313614	4 G 10	19.0	558.0	733
1313624	4 G 16	22.2	804.0	1340

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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® is a registered trademark of the German Machine Tool Builders' Association  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 415 CP refer to page 71
- ÖLFLEX® 440 CP refer to page 73
- ÖLFLEX® CLASSIC 415 CP
- ÖLFLEX® 440 CP

**Accessories**

- Conductor end sleeves refer to page 913
- SKINTOP® MS-SC-M refer to page 674



## ÖLFLEX® CLASSIC 415 CP

Abrasion-resistant, screened PUR control cables with reduced outer diameters



**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**

- Machine tools
- 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
- Outdoor use is possible within the indicated operating temperature range

**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 strand made of bare copper wires
- Core insulation: special PVC
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CLASSIC 415 CP</b>				
1314000	2 X 0.5	5.8	36.0	45
1314001	3 G 0.5	6.1	43.0	59
1314002	3 X 0.5	6.1	43.0	59
1314003	4 G 0.5	6.5	49.0	83
1314004	4 X 0.5	6.5	49.0	83
1314005	5 G 0.5	7.0	57.0	96
1314006	5 X 0.5	7.0	57.0	96
1314007	7 G 0.5	7.5	69.0	136
1314008	7 X 0.5	7.5	69.0	136
1314010	12 X 0.5	9.9	104.0	200
1314011	12 X 0.5	9.9	104.0	200
1314012	18 G 0.5	11.5	141.0	275
1314013	18 X 0.5	11.5	141.0	275
1314014	25 G 0.5	13.4	211.0	350
1314015	25 X 0.5	13.4	211.0	350
1314017	2 X 0.75	6.2	43.0	56
1314018	3 G 0.75	6.5	52.0	70
1314019	3 X 0.75	6.5	52.0	70
1314020	4 G 0.75	7.0	61.0	95
1314021	4 X 0.75	7.0	61.0	95
1314022	5 G 0.75	7.7	72.0	130
1314023	5 X 0.75	7.7	72.0	130
1314024	7 G 0.75	8.3	89.0	168
1314025	7 X 0.75	8.3	89.0	168
1314026	12 G 0.75	10.9	138.0	232
1314027	18 G 0.75	12.7	211.0	315
1314028	25 G 0.75	14.8	280.0	435
1314029	25 X 0.75	14.8	280.0	435
1314032	2 X 1.0	6.5	51.0	84
1314033	3 G 1.0	6.8	62.0	110
1314034	3 X 1.0	6.8	62.0	110
1314035	4 G 1.0	7.3	74.0	130
1314036	4 X 1.0	7.3	74.0	130
1314037	5 G 1.0	8.1	88.0	156

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1314038	5 X 1.0	8.1	88.0	156
1314039	7 G 1.0	8.8	112.0	192
1314040	7 X 1.0	8.8	112.0	192
1314041	12 G 1.0	11.5	185.0	285
1314042	18 G 1.0	13.9	268.0	395
1314043	25 G 1.0	15.9	354.0	656
1314046	2 X 1.5	7.1	65.0	97
1314047	3 G 1.5	7.5	82.0	125
1314048	3 X 1.5	7.5	82.0	125
1314049	4 G 1.5	8.2	100.0	165
1314050	4 X 1.5	8.2	100.0	165
1314051	5 G 1.5	8.9	119.0	193
1314052	5 X 1.5	8.9	119.0	193
1314053	7 G 1.5	9.9	154.0	245
1314054	7 X 1.5	9.9	154.0	245
1314055	12 G 1.5	13.0	268.0	365
1314056	18 G 1.5	15.6	373.0	553
1314057	25 G 1.5	17.9	530.0	734
1314058	34 G 1.5	20.8	683.0	944
1314061	3 G 2.5	8.9	118.0	188
1314062	4 G 2.5	9.9	147.0	236
1314063	5 G 2.5	11.0	176.0	270
1314064	7 G 2.5	11.9	253.0	340
1314065	12 G 2.5	16.0	355.0	589
1314066	18 G 2.5	19.0	569.0	978
1314067	25 G 2.5	22.2	827.0	1358
1314068	4 G 4	11.6	248.0	305
1314070	7 G 4	14.4	355.0	500
1314071	4 G 6	14.2	343.0	440
1314073	7 G 6	17.0	505.0	672
1314074	4 G 10	17.2	535.0	710
1314075	4 G 16	20.2	800.0	1050
1314076	4 G 25	25.1	1,075.0	1570
1314077	4 G 35	28.0	1,576.0	2070

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® ROBUST 215 C refer to page 68
- ÖLFLEX® CLASSIC 400 CP refer to page 70

**Accessories**

- Conductor end sleeves refer to page 913
- SKINTOP® MS-SC-M refer to page 674

**Harsh conditions**

High mechanical and chemical resistance



**ÖLFLEX® 440 P**

Abrasion-resistant PUR control cables, flexible at cold temperatures – halogen-free and flame-retardant



**Info**

- Suitable for all weather conditions
- Flexible at low temperatures
- 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

**Product make-up**

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 440 P</b>				
0012800	2 X 0.5	5.9	10.0	39
0012801	3 G 0.5	6.2	14.0	46
0012802	4 G 0.5	6.9	19.0	53
0012803	5 G 0.5	7.4	24.0	65
0012804	7 G 0.5	9.1	34.0	92
0012805	12 G 0.5	11.3	58.0	149
0012806	18 G 0.5	13.2	86.0	207
0012807	25 G 0.5	15.0	120.0	274
0012813	2 X 0.75	6.4	14.0	48
0012814	3 G 0.75	6.8	22.0	53
0012815	4 G 0.75	7.4	29.0	67
0012816	5 G 0.75	8.6	36.0	81
0012817	7 G 0.75	10.0	50.0	119
0012818	12 G 0.75	12.4	86.0	193
0012819	18 G 0.75	14.4	130.0	269
0012820	25 G 0.75	17.2	180.0	378
0012825	2 X 1.0	6.8	19.0	57
0012826	3 G 1.0	7.2	29.0	61
0012827	4 G 1.0	8.2	38.0	82
0012828	5 G 1.0	9.0	48.0	107

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0012829	7 G 1.0	11.1	67.0	138
0012830	12 G 1.0	13.2	115.0	215
0012831	18 G 1.0	15.4	173.0	328
0012832	25 G 1.0	19.0	240.0	479
0012833	34 G 1.0	21.8	326.0	616
0012834	41 G 1.0	23.4	394.0	727
0012837	2 X 1.5	7.4	29.0	73
0012838	3 G 1.5	8.3	43.0	96
0012839	4 G 1.5	9.0	58.0	105
0012840	5 G 1.5	9.8	72.0	133
0012841	7 G 1.5	12.2	101.0	175
0012842	12 G 1.5	14.5	173.0	309
0012843	18 G 1.5	17.6	259.0	458
0012844	25 G 1.5	20.7	360.0	635
0012846	41 G 1.5	26.3	590.0	1003
0012850	3 G 2.5	9.7	72.0	142
0012851	4 G 2.5	11.0	96.0	184
0012852	5 G 2.5	12.1	120.0	220
0012853	7 G 2.5	14.2	168.0	294
0012854	12 G 2.5	17.8	288.0	489

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® ROBUST 210 refer to page 67
- ÖLFLEX® CLASSIC 400 P refer to page 69
- ÖLFLEX® 491 P refer to page 74

**Accessories**

- Conductor end sleeves refer to page 913
- SKINTOP® ST-M refer to page 654

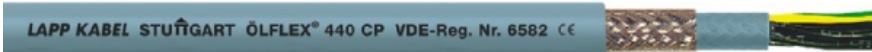


**ÖLFLEX® 440 CP**

**Abrasion-resistant PUR control cables, flexible at cold temperatures – screened, halogen-free and flame-retardant**

**Info**

- Suitable for all weather conditions
- VDE-tested and registered
- 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
- Wide temperature range for applications in harsh climatic environments
- 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)
- Resistant to hydrolysis and microbes
- Flexible at low temperatures

**Norm references / Approvals**

- VDE reg. no. 6582

**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: silver grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm 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: 6 x cable diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 440 CP</b>				
0012901	3 G 0.5	8.3	44.0	100
0012902	4 G 0.5	8.8	52.0	120
0012903	5 G 0.5	9.7	61.0	139
0012904	7 G 0.5	11.2	75.0	175
0012906	12 G 0.5	13.7	131.0	276
0012907	18 G 0.5	15.7	168.0	376
0012908	25 G 0.5	18.5	212.0	485
0012911	2 X 0.75	8.4	45.0	104
0012912	3 G 0.75	8.7	52.0	119
0012913	4 G 0.75	9.5	67.0	126
0012914	5 G 0.75	10.2	75.0	165
0012915	7 G 0.75	11.9	96.0	210
0012917	12 G 0.75	14.5	160.0	331
0012919	25 G 0.75	20.3	283.0	596
0012925	2 X 1.0	8.7	49.0	117
0012926	3 G 1.0	9.3	60.0	132
0012927	4 G 1.0	9.9	78.0	163
0012928	5 G 1.0	10.8	88.0	187

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0012929	7 G 1.0	12.8	115.0	255
0012931	12 G 1.0	15.4	201.0	419
0012932	18 G 1.0	17.7	267.0	546
0012933	25 G 1.0	21.5	351.0	738
0012934	34 G 1.0	23.8	498.0	972
0012940	2 X 1.5	9.5	68.0	122
0012941	3 G 1.5	9.9	83.0	140
0012942	4 G 1.5	10.8	102.0	170
0012943	5 G 1.5	11.6	119.0	200
0012944	7 G 1.5	14.2	186.0	290
0012945	12 G 1.5	16.8	264.0	423
0012946	18 G 1.5	20.0	379.0	616
0012947	25 G 1.5	23.5	534.0	804
0012949	41 G 1.5	28.9	803.0	1360
0012950	3 G 2.5	11.4	121.0	194
0012951	4 G 2.5	12.6	145.0	307
0012952	5 G 2.5	14.0	205.0	413
0012953	7 G 2.5	16.4	259.0	533
0012954	12 G 2.5	21.0	407.0	795

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 400 CP refer to page 70

**Accessories**

- Conductor end sleeves refer to page 913
- SKINTOP® MS-SC-M refer to page 674

**Harsh conditions**

High mechanical and chemical resistance



# ÖLFLEX® 491 P

Abrasion-resistant PUR control cables – approved for North America



**Info**

- For the North American market
- High mechanical strength
- Good oil resistance

**Benefits**

- Certified for the USA and Canada for export-oriented appliance and apparatus manufacturers
- 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
- Metric flexible conductor design
- Also available as DESINA® compliant power cable with black outer sheath colour

**Application range**

- Appliance and apparatus construction
- Plant engineering
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Outdoor use is possible within the indicated operating temperature range

**Product features**

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Resistant to hydrolysis and microbes

**Norm references / Approvals**

- In accordance with UL AWM Style 20234
- CUL AWM II A/B FT1
- Multi-standard cables have conductor strands with nominal sizes in mm<sup>2</sup> 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
- Core insulation: special PVC
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)
- DESINA®-compliant: black (RAL 9005)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
HAR U<sub>0</sub>/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**  
Flexible use: -5°C to 80°C  
Fixed installation: -40°C to 80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 491 P - sheath colour: black</b>				
0013009	3 G 1.0	7.7	27.0	73
0013017	3 G 1.5	8.3	44.0	100
0013018	4 G 1.5	9.0	58.0	123
0013019	5 G 1.5	9.8	72.0	150
0013020	7 G 1.5	10.7	101.0	197
0013021	12 G 1.5	13.8	173.4	344
0013023	25 G 1.5	20.0	360.0	682
0013024	3 G 2.5	9.2	72.0	152
0013025	4 G 2.5	9.9	96.0	200
<b>ÖLFLEX® 491 P - sheath colour: grey</b>				
0013208	2 X 1.0	7.3	19.2	62
0013210	4 G 1.0	8.2	35.0	89
0013212	7 G 1.0	9.7	61.0	138
0013213	12 G 1.0	12.5	105.0	232
0013214	18 G 1.0	14.8	157.0	340
0013215	25 G 1.0	17.8	218.0	454
0013223	3 G 1.5	8.3	44.0	100
0013220	4 G 1.5	9.0	57.6	123
0013222	7 G 1.5	10.7	101.0	197
0013225	12 G 1.5	13.8	173.0	344
0013226	18 G 1.5	16.6	260.0	488
0013227	25 G 1.5	20.0	360.0	682

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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® is a registered trademark of the German Machine Tool Builders' Association  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC 400 P refer to page 69

**Accessories**

- Marking systems refer to page 862
- SKINTOP® Standard refer to page 654

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## ÖLFLEX® 450 P

Abrasion-resistant cable for handheld equipment with integrated 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
- Outdoor use is possible within the indicated operating temperature range

### 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 strand made of bare copper wires
- Core insulation: Based on PVC
- Cores twisted together
- Inner sheath: PVC - colour red
- Outer sheath: PUR - colour yellow

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 450 P</b>				
0012101	2 X 1.0	8.0	19.2	82
0012102	3 G 1.0	8.4	29.0	89
0012202	3 G 1.5	9.3	43.0	120
00122033	4 G 1.5	10.1	58.0	160
00122043	5 G 1.5	10.9	72.0	179
0012302	3 G 2.5	10.8	72.0	186
00123043	5 G 2.5	13.6	120.0	283

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® 540 P refer to page 77
- ÖLFLEX® 550 P\* refer to page 79

### Accessories

- SKINTOP® BS-M refer to page 661
- SKINTOP® ST-M refer to page 654

**Harsh conditions**

High mechanical and chemical resistance



# ÖLFLEX® 500 P

Extra-flexible, abrasion 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

**Product make-up**

- Extra-fine wire strand made of bare copper
- Core insulation: see data sheet
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
see data sheet

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 500 P</b>				
0012345	2 X 1.0	7.2	19.5	64
0012346	3 G 1.0	7.6	29.0	77
00123473	4 G 1.0	8.5	38.4	96
00123483	5 G 1.0	9.2	48.0	120
0012351	2 X 1.5	8.0	29.0	81
0012352	3 G 1.5	8.7	43.0	105.3
00123543	4 G 1.5	9.6	58.0	135
00123533	5 G 1.5	10.8	72.0	158.9
0012365	3 G 2.5	10.9	72.0	173.2
00123553	4 G 2.5	11.9	96.0	204
00123663	5 G 2.5	13.2	120.0	254

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® 540 P refer to page 77
- ÖLFLEX® 550 P\* refer to page 79

**Accessories**

- Marking systems refer to page 862
- Conductor end sleeves refer to page 913
- SKINTOP® CLICK refer to page 657
- SKINTOP® ST-M refer to page 654

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





**ÖLFLEX® 540 P**

VDE-registered, cold-flexible TPE/PUR connection cables for particularly harsh conditions

**Info**

- The proven building site cable
- Voltage class from 1.5 mm<sup>2</sup> 450/750 V
- VDE-tested and registered

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

**Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9 (7-cored version number-coded)

**Specific insulation resistance**  
> 20 GOhm x cm

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

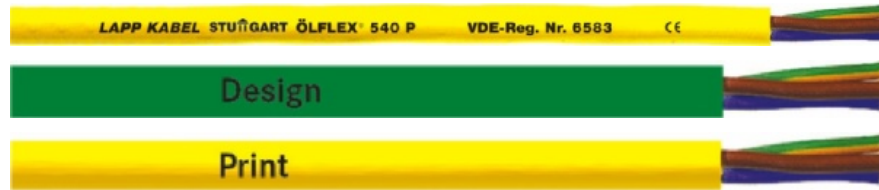
**Minimum bending radius**  
Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
Up to 1.0 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 1.5 mm<sup>2</sup>: U<sub>0</sub>/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



**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 mm<sup>2</sup>
- VDE reg. no. 6584 from 1.5 mm<sup>2</sup>

**Product make-up**

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted together
- Outer sheath: PUR – colour yellow
- Other sheath colours are available upon request

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 540 P U<sub>0</sub>/U: 300/500 V</b>				
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	36.0	98
0012456	7 G 0.75	9.9	51.0	126
0012457	2 X 1.0	6.7	19.2	53
0012458	3 G 1.0	7.1	29.0	72
00124593	4 G 1.0	7.7	38.4	96
00124603	5 G 1.0	8.6	48.0	117
0012461	7 G 1.0	10.4	68.0	147
<b>ÖLFLEX® 540 P U<sub>0</sub>/U: 450/750 V</b>				
0012462	2 X 1.5	8.3	29.0	82
0012463	3 G 1.5	8.8	43.0	108
00124643	4 G 1.5	9.8	58.0	147
00124653	5 G 1.5	10.7	72.0	164
0012466	7 G 1.5	13.4	101.0	267
0012467	2 X 2.5	9.7	48.0	142
0012468	3 G 2.5	10.3	72.0	161
00124693	4 G 2.5	11.4	96.0	220
00124703	5 G 2.5	12.7	120.0	245
0012471	7 G 2.5	15.8	168.0	321
0012474	3 G 4	12.3	115.2	262
00124753	4 G 4	13.6	154.0	284
00124763	5 G 4	15.2	192.0	355
00124783	4 G 6	15.4	230.0	440
00124793	5 G 6	17.1	288.0	530
00124813	4 G 10	20.1	384.0	615
00124823	5 G 10	22.3	480.0	735

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® ROBUST 200 refer to page 66
- ÖLFLEX® 550 P\* refer to page 79

**Accessories**

- SKINTOP® BS-M refer to page 661
- SKINTOP® MS-M refer to page 666
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

**Harsh conditions**

High mechanical and chemical resistance



**ÖLFLEX® 540 CP**

VDE-registered, screened and cold-flexible TPE/PUR connection cables for particularly harsh conditions



**Info**

- The proven building site cable
- Voltage class from 1.5 mm<sup>2</sup> 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
- Copper braiding screens the cable against electromagnetic interference

**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 mm<sup>2</sup>
- VDE reg. no. 6584 from 1.5 mm<sup>2</sup>

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

**Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9  
(7-cored version number-coded)

**Specific insulation resistance**  
> 20 GOhm x cm

**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 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 1.5 mm<sup>2</sup>: U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® 540 CP U<sub>0</sub>/U: 300/500 V</b>				
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	75.0	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
<b>ÖLFLEX® 540 CP U<sub>0</sub>/U: 450/750 V</b>				
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	119.0	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	17.0	240.1	476
00127783	4 G 6	18.4	355.5	634
00127793	5 G 6	20.5	452.9	770
00127813	4 G 10	22.3	577.8	993
00127823	5 G 10	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® 440 CP refer to page 73
- ÖLFLEX® SERVO FD 785 CP

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SKINDICHT® SM-PE-M refer to page 704



**ÖLFLEX® 550 P\***

PUR power cords with 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 strand made of bare copper wires
- Core insulation: rubber compound
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

**Technical data**

- Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
> 10 GOhm x cm
- 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: U<sub>0</sub>/U: 300/500 V  
From 1.5 mm²: U<sub>0</sub>/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)
<b>ÖLFLEX® 550 P U<sub>0</sub>/U: 300/500 V</b>				
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	36.0	98
0013610	2 X 1.0	6.1 - 8.0	19.2	60
0013611	3 G 1.0	6.5 - 8.5	29.0	74
00136123	4 G 1.0	7.1 - 9.3	38.4	92
00136133	5 G 1.0	8.0 - 10.3	48.0	114
<b>ÖLFLEX® 550 P U<sub>0</sub>/U: 450/750 V</b>				
0013620	2 X 1.5	7.6 - 9.8	29.0	87
0013621	3 G 1.5	8.0 - 10.4	43.0	108
00136223	4 G 1.5	9.0 - 11.6	58.0	137
00136233	5 G 1.5	9.8 - 12.7	72.0	165
0013630	2 X 2.5	9.0 - 11.6	48.0	90
0013631	3 G 2.5	9.6 - 12.4	72.0	161
00136323	4 G 2.5	10.7 - 13.8	96.0	206
00136333	5 G 2.5	11.9 - 16.3	120.0	254

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® ROBUST 200 refer to page 66
- H05RN-F refer to page 81
- H07RN-F refer to page 82
- ÖLFLEX® 500 P refer to page 76
- ÖLFLEX® 540 P refer to page 77

**Accessories**

- Cutting tools for various applications refer to page 907
- Stripping tools refer to page 909
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST-M refer to page 654
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

Harsh conditions

Rubber cables



## 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 HD 516
- For lightweight workshop tools that are subject to light loads
- According to HD 516/VDE 0298-300: dry and damp rooms; only temporary use outdoors; not for industrial/commercial 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 certified acc. 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 5.0 Class-ID: EC001578  
ETIM 5.0 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 xOD\* (HD 516)
- Nominal voltage**  
U<sub>0</sub>/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  
HD 516/VDE 0298-300
- Temperature range**  
Flexible use: -25°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600203	2 X 0.75	5.7 - 7.4	14.4	61
1600207	3 G 0.75	6.2 - 8.1	21.6	75
1600204	2 X 1.0	6.1 - 8.0	19.2	73
1600208	3 G 1.0	6.5 - 8.5	28.8	86
16002113	4 G 1.0	7.1 - 9.3	38.4	105
1600205	2 X 1.5	7.6 - 9.8	28.8	115
1600200	3 G 1.5	8.0 - 10.4	43.2	135
16002013	4 G 1.5	9.0 - 11.6	57.6	165
16002023	5 G 1.5	9.8 - 12.7	72.0	190
1600206	2 X 2.5	9.0 - 11.6	48.0	160
1600209	3 G 2.5	9.6 - 12.4	72.0	190
16002123	4 G 2.5	10.7 - 13.8	96.0	235
16002133	5 G 2.5	11.9 - 15.3	120.0	285

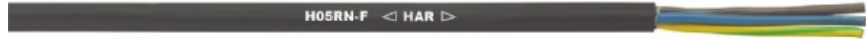
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.  
 \*OD = Outer diameter

ÖLFLEX®  
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 ACCESSORIES  
 APPENDIX



## 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 HD 516/VDE 0298-300: for supplying devices in households, kitchens or offices under light mechanical stress; handheld inspection lamps
- According to HD 516/VDE 0298-300: 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 certified acc. 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

	<b>Classification</b> ETIM 5.0 Class-ID: EC001578 ETIM 5.0 Class-Description: Flexible cable
	<b>Core identification code</b> Coloured according to HD 308
	<b>Conductor stranding</b> Fine wire according to VDE 0295 Class 5 / IEC 60228 Class 5
	<b>Minimum bending radius</b> 4 to 8 xOD* (HD 516)
	<b>Nominal voltage</b> U <sub>0</sub> /U: 300/500 V
	<b>Test voltage</b> 2000 V
	<b>Protective conductor</b> G = with GN-YE protective conductor X = without protective conductor
	<b>Current rating</b> According to IEC 60364-5-52 / VDE 0298-4 HD 516/VDE 0298-300
	<b>Temperature range</b> Flexible use: -25 °C to +60 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600250	2 X 0.75	5.7 - 7.4	14.4	80
1600252	3 G 0.75	6.2 - 8.1	21.6	95
16002583	4 G 0.75	6.8 - 8.8	28.8	105
1600251	2 X 1.0	6.1 - 8.0	19.2	95
1600253	3 G 1.0	6.5 - 8.5	28.8	115

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

\*OD = Outer diameter

### Similar products

- H07ZZ-F refer to page 85

**Harsh conditions**

Rubber cables



**H07RN-F**

Heavy standard construction



**Benefits**

- For mechanically more demanding applications
- 1000 V AC @ 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 VDE 0100 Part 520

**Application range**

- Handheld and power supply devices according to HD 516
- Medium, mechanical stress (H07RN-F)/ industrial, agricultural use
- Dry or damp rooms as well as outdoors (taking into account all normative power characteristics) according to HD 516/VDE 0298-300

**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 5.0 Class-ID: EC001578  
ETIM 5.0 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 xOD\* (HD 516)

**Nominal voltage**  
U<sub>0</sub>/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  
HD 516/VDE 0298-300

**Temperature range**  
-25°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600096	1 X 1.5	5.7 - 7.1	14.4	59
1600099	1 X 2.5	6.3 - 7.9	24.0	72
1600097	1 X 4	7.2 - 9.0	38.4	99
1600098	1 X 6	7.9 - 9.8	57.6	130
1600194	1 X 10	9.5 - 11.9	96.0	230
1600195	1 X 16	10.8 - 13.4	153.6	320
1600196	1 X 25	12.7 - 15.8	240.0	450
1600193	1 X 35	14.3 - 17.9	336.0	605
1600197	1 X 50	16.5 - 20.6	480.0	825
1600189	1 X 70	18.6 - 23.3	672.0	1090
1600190	1 X 95	20.8 - 26.0	912.0	1405
1600198	1 X 120	22.8 - 28.6	1,152.0	1745
1600191	1 X 150	25.2 - 31.4	1,440.0	1887
1600175	1 X 185	27.6 - 34.4	1,776.0	2274
1600177	1 X 240	30.6 - 38.3	2,304.0	2955
30015435	1 X 300	33.5 - 41.9	2,880.0	3479
1600117	3 G 1.0	8.3 - 10.7	28.8	130
1600199	2 X 1.5	8.5 - 11.0	28.8	135
1600103	3 G 1.5	9.2 - 11.9	43.2	165
16001233	4 G 1.5	10.2 - 13.1	57.6	200
16001043	5 G 1.5	11.2 - 14.4	72.0	240
1600151	7 G 1.5	14.0 - 17.5	100.8	385
1600148	12 G 1.5	17.6 - 22.4	172.8	516
1600259	19 G 1.5	20.7 - 26.3	273.6	800
1600166	24 G 1.5	24.3 - 30.7	345.6	882
1600263	25 G 1.5	25.1 - 25.9	360.0	920
1600187	2 X 2.5	10.2 - 13.1	48.0	195
1600118	3 G 2.5	10.9 - 14.0	72.0	235
16001053	4 G 2.5	12.1 - 15.5	96.0	294
16001293	5 G 2.5	13.3 - 17.0	120.0	294
1600152	7 G 2.5	16.5 - 20.0	168.0	520

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600154	12 G 2.5	20.6 - 26.2	288.0	810
1600156	19 G 2.5	25.5 - 31.0	456.0	1200
1600157	24 G 2.5	28.8 - 36.4	576.0	1650
1600186	2 X 4	11.8 - 15.1	76.8	270
1600119	3 G 4	12.7 - 16.2	115.2	320
16001063	4 G 4	14.0 - 17.9	153.6	395
16001303	5 G 4	15.6 - 19.9	192.0	485
1600161	7 G 4	21.0 - 21.8	268.8	681
1600120	3 G 6	14.1 - 18.0	172.8	360
16001073	4 G 6	15.7 - 20.0	230.4	475
16001313	5 G 6	17.5 - 22.2	288.0	760
1600121	3 G 10	19.1 - 24.2	288.0	880
16001083	4 G 10	20.9 - 26.5	384.0	1060
16001093	5 G 10	22.9 - 29.1	480.0	1300
1600122	3 G 16	21.8 - 27.6	460.8	1090
16001103	4 G 16	23.8 - 30.1	614.4	1345
16001113	5 G 16	26.4 - 33.3	768.0	1680
16001123	4 G 25	28.9 - 36.6	960.0	1995
16001133	5 G 25	32.0 - 40.4	1,200.0	2470
1600124	3 G 35	29.3 - 37.1	1,008.0	1910
16001143	4 G 35	32.5 - 41.1	1,344.0	2645
16001363	5 G 35	37.0 - 45.0	1,680.0	2810
16001153	4 G 50	37.7 - 47.5	1,920.0	3635
1600126	5 G 50	40.0 - 50.8	2,400.0	4050
16001163	4 G 70	42.7 - 54.0	2,688.0	4830
16001283	4 G 95	48.4 - 61.0	3,648.0	6320
16001323	4 G 120	53.0 - 66.0	4,608.0	6830
16000883	4 G 150	58.0 - 73.0	5,760.0	8320
1600141	4 G 185	64.0 - 80.0	7,104.0	9800
1600183	4 G 240	72.0 - 91.0	9,216.0	12800

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- H07RN-F, enhanced version refer to page 83
- H07ZZ-F refer to page 85
- H07RN8-F refer to page 90

**Accessories**

- SKINTOP® CLICK System refer to page 657
- EASY STRIP stripping and cutting tool refer to page 909
- PEW 8.87 crimping pliers refer to page 921
- KS 20 cable shears refer to page 908

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SILVYN® SKINTOP® FLEXIMARK® ACCESSORIES APPENDIX



**New**

## H07RN-F, enhanced version

Heavy standard construction; Halogen-free; AD8-submersible; Conductor temperature, flexible: -40°C to +90°C



**Info**

- Medium mechanical stress
- Flexible: -40°C to +90°C
- AD8 submersion, Halogen-free, Ozone-resistant

H07RN-F <HAR>

**Benefits**

- For mechanically more demanding applications
- 1000 V AC @ 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 VDE 0100 Part 520
- More water-resistant than H07RN-F
- Conductor temperature range more suitable for outdoor installation and wider than H07RN-F, H07ZZ-F, H07BN4-F and NSSHÖU

**Application range**

- Handheld and power supply devices according to HD 516
- Medium, mechanical stress (H07RN-F)/ industrial, agricultural use
- Submersion acc. AD8 standard
- Outdoors acc. HD 516
- For buildings or industrial plants with a high density of people or valuable assets

**Product features**

- Halogen-free and flame-retardant according to IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- UV-resistant (black outer sheath) + Ozone-resistant acc. EN 60811
- Good resistance to abrasion, atmospheric agents, grease and mineral oils
- AD8 submersibility

**Norm references / Approvals**

- <HAR> H07RN-F cable type approval according to EN 50525-2-21
- Beyond that, no further cable type approvals

**Product make-up**

- Conductor made of bare, finely stranded copper strands acc. conductor class 5 in line with IEC 60228
- Core insulation of special rubber
- Outer sheath: special rubber compound

**Technical data**

- 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**  
 Moved: 6 x Outer diameter  
 Fixed installation: 4 x Outer diameter
- Nominal voltage**  
 $U_0/U$ : 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  
 HD 516/VDE 0298-300
- Temperature range**  
 Moved: -40°C to +90°C  
 Fixed installation: -50°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4533019	2 X 1.0	10.0	19.2	100
4533027	3 G 1.0	10.7	28.8	140
4533028	3 X 1.0	10.7	28.8	140
4533061	4 G 1.0	11.9	38.4	160
4533062	4 X 1.0	11.9	38.4	160
4533091	5 G 1.0	13.1	48.0	200
4533092	5 X 1.0	13.1	48.0	200
4533000	1 X 1.5	7.1	14.4	55
4533020	2 X 1.5	11.0	28.8	125
4533029	3 G 1.5	11.9	43.2	172
4533030	3 X 1.5	11.9	43.2	172
4533063	4 G 1.5	13.1	57.6	200
4533064	4 X 1.5	13.1	57.6	200
4533093	5 G 1.5	14.4	72.0	250
4533094	5 X 1.5	14.4	72.0	250
4533111	7 G 1.5	15.7	100.8	430
4533112	7 X 1.5	15.7	100.8	430
4533113	12 G 1.5	18.9	172.8	620
4533114	12 X 1.5	18.9	172.8	620
4533001	1 X 2.5	7.9	24.0	72
4533021	2 X 2.5	13.1	48.0	173
4533031	3 G 2.5	14.0	72.0	225
4533032	3 X 2.5	14.0	72.0	225
4533065	4 G 2.5	15.5	96.0	285
4533066	4 X 2.5	15.5	96.0	285
4533095	5 G 2.5	17.0	120.0	345
4533096	5 X 2.5	17.0	120.0	345
4533115	12 G 2.5	21.8	288.0	850
4533116	12 X 2.5	21.8	288.0	850
4533002	1 X 4	9.0	38.4	98
4533022	2 X 4	15.1	76.8	239
4533033	3 G 4	16.2	115.2	325
4533034	3 X 4	16.2	115.2	325
4533067	4 G 4	17.9	153.6	395
4533068	4 X 4	17.9	153.6	395
4533097	5 G 4	19.9	192.0	485

## Harsh conditions

## Rubber cables

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4533098	5 X 4	19.9	192.0	485
4533003	1 X 6	9.8	57.6	127
4533023	2 X 6	16.8	115.2	330
4533035	3 G 6	18.0	172.8	415
4533036	3 X 6	18.0	172.8	415
4533069	4 G 6	20.0	230.4	535
4533070	4 X 6	20.0	230.4	535
4533099	5 G 6	22.2	288.0	648
4533100	5 X 6	22.2	288.0	648
4533004	1 X 10	11.9	96.0	192
4533024	2 X 10	22.6	192.0	590
4533037	3 G 10	24.2	288.0	712
4533038	3 X 10	24.2	288.0	712
4533071	4 G 10	26.5	384.0	920
4533072	4 X 10	26.5	384.0	920
4533005	1 X 16	13.4	153.6	262
4533039	3 G 16	27.6	460.8	990
4533040	3 X 16	27.6	460.8	990
4533073	4 G 16	30.1	614.4	1290
4533074	4 X 16	30.1	614.4	1290
4533006	1 X 25	15.8	240.0	375
4533041	3 G 25	33.0	720.0	1395
4533042	3 X 25	33.0	720.0	1395
4533075	4 G 25	36.6	960.0	1930
4533076	4 X 25	36.6	960.0	1930
4533101	5 G 25	32.7	1,200.0	2500
4533102	5 X 25	32.7	1,200.0	2500
4533007	1 X 35	17.9	336.0	493
4533043	3 G 35	37.1	1,008.0	1815
4533044	3 X 35	37.1	1,008.0	1815
4533077	4 G 35	41.1	1,344.0	2470
4533078	4 X 35	41.1	1,344.0	2470
4533103	5 G 35	36.4	1,680.0	3250
4533104	5 X 35	36.4	1,680.0	3250
4533008	1 X 50	20.6	480.0	675
4533045	3 G 50	42.9	1,440.0	2470
4533046	3 X 50	42.9	1,440.0	2470
4533079	4 G 50	47.5	1,920.0	3320
4533080	4 X 50	47.5	1,920.0	3320
4533105	5 G 50	42.2	2,400.0	4408
4533106	5 X 50	42.2	2,400.0	4408
4533009	1 X 70	23.3	672.0	914
4533081	4 G 70	54.0	2,688.0	4420
4533082	4 X 70	54.0	2,688.0	4420
4533107	5 G 70	48.1	3,360.0	5863
4533108	5 X 70	48.1	3,360.0	5863
4533010	1 X 95	26.0	912.0	1200
4533083	4 G 95	61.0	3,648.0	5750
4533084	4 X 95	61.0	3,648.0	5750
4533109	5 G 95	54.5	4,560.0	7537
4533110	5 X 95	54.5	4,560.0	7537
4533011	1 X 120	28.6	1,152.0	1481
4533085	4 G 120	66.0	4,608.0	6990
4533086	4 X 120	66.0	4,608.0	6990
4533012	1 X 150	31.4	1,440.0	1833
4533087	4 G 150	73.0	5,760.0	8650
4533088	4 X 150	73.0	5,760.0	8650
4533013	1 X 185	34.4	1,776.0	2190
4533089	4 G 185	80.0	7,104.0	9785
4533090	4 X 185	80.0	7,104.0	9785
4533014	1 X 240	38.3	2,304.0	2780
4533015	1 X 300	38.7	2,880.0	3310
4533016	1 X 400	40.0	3,840.0	4320
4533017	1 X 500	43.0	4,800.0	5342

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

#### ■ Accessories

- V 1311 pressing pliers, hydraulic refer to page 934
- STAR STRIP stripping tool refer to page 910
- KT cable shears refer to page 908





**H07ZZ-F**

**Machines, devices; halogen-free: events, locations with a high density of people and valuable assets**

**Info**

- Public buildings

**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
- Dry or damp rooms, as well as outdoors acc. to HD 516/VDE 0298-300
- 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 certification acc. EN 50525-3-21

**Product make-up**

- Strands of bare copper wires
- Core insulation: Halogen-free rubber compound
- Outer sheath: rubber compound, halogen-free

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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 xOD\* (HD 516)

**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  
HD 516/VDE 0298-300

**Temperature range**  
Static/Moved: -40°C/-5°C ...to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600810	3 G 1.5	9.2 - 11.9	43.2	125
1600811	4 G 1.5	10.2 - 13.1	57.6	155
1600812	5 G 1.5	11.2 - 14.4	72.0	190
1600815	14 G 1.5	18.8 - 21.3	201.6	570
1600816	18 G 1.5	20.7 - 26.3	259.2	750
1600820	3 G 2.5	10.9 - 14.0	72.0	185
1600821	4 G 2.5	12.1 - 15.5	96.0	235
1600822	5 G 2.5	13.3 - 17.0	120.0	290
1600823	7 G 2.5	18.2 - 20.7	168.0	520
1600825	14 G 2.5	22.2 - 25.0	336.0	860
1600836	4 G 4	14.0 - 17.9	153.6	325
1600837	5 G 4	15.6 - 19.9	192.0	410
1600841	4 G 6	15.7 - 20.0	230.4	440
1600842	5 G 6	17.5 - 22.2	288.0	550
1600844	4 G 10	20.9 - 26.5	384.0	770
1600845	5 G 10	22.9 - 29.1	480.0	950
1600847	4 G 16	23.8 - 30.1	614.4	1070
1600849	4 G 25	28.9 - 36.6	960.0	1570
1600851	4 G 35	32.5 - 41.1	1,344.0	2040
1600852	4 G 50	37.7 - 47.5	1,920.0	2810

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- H07RN-F refer to page 82

**Accessories**

- SKINTOP® CLICK System refer to page 657
- EASY STRIP stripping and cutting tool refer to page 909
- PEW 8.87 crimping pliers refer to page 921
- KS 20 cable shears refer to page 908

**Harsh conditions**

Rubber cables



## 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**

- Application standard for H01N2-D: HD 516/VDE 0298-300
- For transmitting high currents from the electric welding device to the welding tool
- Use the welding cable only under consideration of HD 516/VDE 0298-300
- Can be used in dry or damp rooms

**Product features**

- Flame-retardant according IEC 60332-1-2
- Maximum recommended ambient temperature during storage according to HD 516/VDE 0298-300: +40 °C

**Norm references / Approvals**

- <HAR> H01N2-D cable type certification acc. EN 50525-2-81
- Has replaced the previous VDE type NSLFFÖU

**Product make-up**

- Bare copper wire according to HAR
- Stranding approximately corresponds to class 6 up to 95 mm<sup>2</sup>, and from 120 mm<sup>2</sup> 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 5.0 Class-ID: EC000824  
 ETIM 5.0 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**  
 U<sub>0</sub>/U: 100/100 V

**Test voltage**  
 1000 V

**Current rating**  
 According to VDE 0298 Part 4, table 16 HD 516/VDE 0298-300

**Temperature range**  
 Flexible use: -25 °C to +85 °C  
 HD 516/VDE 0298-300

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2310026	10	7.7 - 9.7	96.0	171
2210700	16	8.8 - 11.0	153.6	198
2210701	25	10.1 - 12.7	240.0	305
2210702	35	11.4 - 14.2	336.0	415
2210703	50	13.2 - 16.5	480.0	555
2210704	70	15.3 - 19.2	672.0	765
2210705	95	17.1 - 21.4	912.0	1010
2210706	120	19.2 - 24.0	1,152.0	1262
2210707	150	21.2 - 26.4	1,440.0	1610
2210708	240	25.0 - 29.5	2,304.0	2520

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- KS 20 cable shears refer to page 908

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 ACCESSORIES  
 APPENDIX



**Info**

- Mining
- Outdoors
- Oil-resistant

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 1 GOhm x cm

**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**  
U<sub>0</sub>/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

**NSSHÖU**  
Mechanically robust rubber cable for mining and surface mining



- Benefits**
  - For use at very high mechanical stress
  - Single-core design suitable for robust connection cables for welding equipment
- Norm references / Approvals**
  - <VDE> NSSHÖU cable type certification acc. 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
- 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 according IEC 60332-1-2
  - Oil-resistant according to EN 60811-404
  - High notch resistance
  - Abrasion-resistant
  - Not antistatic

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>NSSHÖU-O</b>				
1600500	1 X 16	10.9	153.6	260
1600501	1 X 25	13.3	240.0	390
1600502	1 X 35	14.4	336.0	500
1600503	1 X 50	16.7	480.0	680
1600504	1 X 70	18.9	672.0	900
1600505	1 X 95	21.0	912.0	1150
1600506	1 X 120	23.3	1,152.0	1440
1600507	1 X 150	25.2	1,440.0	1750
1600508	1 X 185	28.4	1,776.0	2180
1600509	1 X 240	31.4	2,304.0	2790
<b>NSSHÖU-J</b>				
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	72.0	280
1600517	3 G 2.5	13.2	72.0	260
16005253	4 G 2.5	15.4	96.0	360
16005343	5 G 2.5	16.5	120.0	420
1600541	7 G 2.5	20.0	168.0	600
1600544	12 G 2.5	26.0	288.0	860
16005263	4 G 4	16.9	153.6	470
16005353	5 G 4	18.2	192.0	550
16005273	4 G 6	18.3	230.4	580
16005363	5 G 6	20.6	288.0	740
16005283	4 G 10	22.3	384.0	950
16005373	5 G 10	24.1	480.0	1100
16005293	4 G 16	26.1	614.0	1400
16005383	5 G 16	28.3	768.0	1720
16005303	4 G 25	31.2	960.0	2000
16005313	4 G 35	34.1	1,344.0	2700
16005323	4 G 50	41.0	1,920.0	3700

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

- Similar products**
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 153
  - ÖLFLEX® CRANE PUR refer to page 154

- Accessories**
- STAR STRIP stripping tool refer to page 910
  - KT cable shears refer to page 908

Harsh conditions

Rubber cables



## 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 U<sub>0</sub>/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, switching stations (short-circuit-proof up to 1000 V), power distributors (short-circuit-proof up to 1000 V)
- 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 U<sub>0</sub>/U 0.6/1 kVac and 3.6/6 kVac available on request

**Norm references / Approvals**

- <VDE> certification according to the VDE cable type NSGAFÖU 1,8/3 kV acc. 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
- No outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 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**  
U<sub>0</sub>/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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600300	1.5	7.0	14.4	60
1600301	2.5	7.5	24.0	70
1600302	4	9.0	38.4	90
1600303	6	9.5	57.6	120
1600304	10	11.0	96.0	180
1600305	16	13.0	153.6	250
1600306	25	15.0	240.0	390
1600307	35	16.5	336.0	470
1600308	50	18.0	480.0	625
1600309	70	20.5	672.0	880
1600310	95	24.0	912.0	1190
1600311	120	26.0	1,152.0	1430
1600312	150	28.0	1,440.0	1750
1600313	185	31.0	1,776.0	2160
1600314	240	34.5	2,304.0	2640
3026826	300	38.0	2,880.0	3545

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- V 1311 pressing pliers, hydraulic refer to page 934
- KS 20 cable shears refer to page 908

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## 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 U<sub>0</sub>/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, switching stations (short-circuit-proof up to 1000 V), power distributors (short-circuit-proof up to 1000 V)
- 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 classes U<sub>0</sub>/U 0.6/1 kVAc and 3.6/6 kVAc available on request

**Norm references / Approvals**

- <VDE> certification according to the VDE cable type NSHXAFÖ 1,8/3 kV acc. VDE 0250-606

**Product make-up**

- Fine copper wire strands
- Core insulation: halogen-free rubber compound type 3GI3, according to DIN VDE 0207-20
- Outer sheath: halogen-free HM3 polymer compound according to DIN VDE 0250-606
- No outer sheath

**Technical data**

**Classification**  
 ETIM 5.0 Class-ID: EC000993  
 ETIM 5.0 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**  
 U<sub>0</sub>/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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
3022673	1.5	7.0	14.4	60
3022674	2.5	7.5	24.0	70
3022675	4	9.0	38.4	90
3022676	6	9.5	57.6	120
3022677	10	11.0	96.0	180
3022678	16	13.0	153.6	250
3022679	25	15.0	240.0	390
3022680	35	16.5	336.0	470
3022681	50	18.0	480.0	625
3022682	70	20.5	672.0	880
3022683	95	24.0	912.0	1190
3022684	120	26.0	1,152.0	1430
3022685	150	28.0	1,440.0	1750
3022686	185	31.0	1,776.0	2160
3022687	240	34.5	2,304.0	2718
3022688	300	38.0	2,880.0	3470

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- V 1311 pressing pliers, hydraulic refer to page 934
- KS 20 cable shears refer to page 908

**Harsh conditions**

Rubber cables



## H07RN8-F

Submersible pump cable; Formerly: “ÖLFLEX® AQUA RN8”



**Info**

- Submersible pump cable
- Flexible
- Oil-resistant

**Benefits**

- Submersion, considering application standards, e.g., HD 516
- Depth: Down to 10 m
- According to HD 516/VDE 0298-300, 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**

- Dry or damp rooms, as well as outdoors and in industrial water acc. HD 516 and EN 50525-2-21
- For connecting mobile, electrical equipment in industrial water
- For use with submersible pumps

**Product features**

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Flexible

**Norm references / Approvals**

- <HAR> cable type certified acc. EN 50525-2-21

**Product make-up**

- Strands of bare copper wires
- Core insulation: rubber compound type EI 4
- Outer sheath: rubber compound, type EM2

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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 xOD\* (HD 516)

**Nominal voltage**  
U<sub>0</sub>/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  
HD 516/VDE 0298-300

**Temperature range**  
Conductor:Fix/Moved:-40/-25°C to +60°C  
Max. water temperature: +40°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600600	1 X 4	7.2 - 9.0	38.4	100
1600601	1 X 6	7.9 - 9.8	57.6	120
1600602	1 X 10	9.5 - 11.9	96.0	200
1600604	1 X 25	12.7 - 15.8	240.0	400
1600606	3 G 1.5	9.2 - 11.9	43.2	170
1600609	4 G 1.5	10.2 - 13.1	57.6	205
1600620	7 G 1.5	14.0 - 17.5	100.8	385
1600607	3 G 2.5	10.9 - 14.0	72.0	210
1600610	4 G 2.5	12.1 - 15.5	96.0	260
1600621	7 G 2.5	16.5 - 20.0	168.0	520
1600611	4 G 4	14.0 - 17.9	153.6	356
1600612	4 G 6	15.7 - 20.0	230.4	475
1600613	4 G 10	20.9 - 26.5	384.0	837
1600614	4 G 16	23.8 - 30.1	614.4	1220
1600615	4 G 25	28.9 - 36.6	960.0	1770
1600616	4 G 35	32.5 - 41.1	1,344.0	2304

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.  
\*OD = Outer diameter

**Similar products**

- H07RN-F refer to page 82

**Accessories**

- SKINTOP® CLICK System refer to page 657
- EASY STRIP stripping and cutting tool refer to page 909
- PEW 8.87 crimping pliers refer to page 921
- KS 20 cable shears refer to page 908



**ÖLFLEX® SERVO 700**  
Servo cable

LAPP KABEL STUÏGART ÖLFLEX® SERVO 700 CE

**Info**

- Servo drives
- Power, brake, temperature

**Benefits**

- One common cable for multiple circuits

**Application range**

- Connecting cable between Frequency converter and motor
- Connecting cable between servo controller and motor
- Plant engineering

**Product features**

- Fixed installation
- Occasional flexing
- In dry, damp or wet interiors with normal mechanical stress conditions
- Only for outdoor use within the indicated operating temperature range, with UV-protection
- Flame-retardant according to IEC 60332.1.2

**Norm references / Approvals**

- Core based on VDE 0812/0250/0285
- Outer sheath based on VDE 0245/0285

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Control pairs 0.34 mm<sup>2</sup>, colour-coded, from 0.5 mm<sup>2</sup> black with consecutive imprinted numbering
- Control pair with laminated aluminium film and tinned-copper wire screening
- The model with one control pair does not have laminated aluminium foil (FDF).
- PVC outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Supply cores: black with white numbers 1-3 according to VDE 0293-1 and GN/YE protective conductor; 0036 001: coloured according to VDE 0293-1  
Control cores: black with white numbers 5-8 (numbering increases in line with cross-section); 0.34 mm<sup>2</sup> pairs: WH/BR/GN/YE

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
Supply cores: 600/1000 V  
Control core pairs: 250 V/AC

**Test voltage**  
Supply cores: C/C; C/S: 4000 V; 2000V  
Control cores: C/C: 1500 V, C/S: 750 V

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

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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 700</b>				
0036140	4 G 0,75 + 2 x (2 x 0,34)	9.5	91.9	120
0036145	4 G 1,5 + 2 x (2 x 0,75)	12.1	100.6	185
0036150	4 G 2,5 + (2 x 2 x 0,75)	13.9	142.1	327
0036151	4 G 4 + (2 x 0,75 + 2 x 1,0)	15.8	217.8	423
0036152	4 G 6 + (2 x 0,75 + 2 x 1,0)	16.7	294.6	544
0036154	4 G 16 + (2 x 2 x 1,0)	23.5	668.8	1168
0036025	4 G 1,5 + (2 x 0,75)	11.7	98.0	149
0036001	5 G 1,5 + (2 x 0,75)	12.7	110.0	160
0036015	7 G 1,5 + (2 x 0,75)	12.4	144.8	210
0036026	4 G 2,5 + (2 x 0,75)	13.1	138.6	227
0036020	7 G 2,5 + (2 x 0,75)	15.2	215.7	334

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- EPIC® CIRCON LS1 refer to page 627
- SKINTOP® ST-M refer to page 654

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

Servo applications

PVC sheath



# ÖLFLEX® SERVO 700 CY

Servo cable, screened



**Info**

- Servo drives
- EMC-compliant

**Benefits**

- One common cable for multiple circuits
- Total screening reduces interferences from nearby cables

**Application range**

- Connecting cable between Frequency converter and motor
- Connecting cable between servo controller and motor

**Product features**

- Fixed installation
- Occasional flexing
- In dry, damp or wet interiors
- Only for outdoor use within the indicated operating temperature range, with UV-protection
- Flame-retardant according to IEC 60332.1.2

**Norm references / Approvals**

- Core based on VDE 0812/0250/0285
- Outer sheath based on VDE 0245/0285

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Control pairs 0.34 mm<sup>2</sup>, colour-coded, from 0.5 mm<sup>2</sup> black with consecutive imprinted numbering
- Control pair with laminated aluminium film and tinned-copper wire screening
- The model with one control pair does not have laminated aluminium foil (FDF).
- Tinned-copper braiding
- PVC outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Supply cores: black with white numbers 1-3 according to VDE 0293-1 and GN/YE protective conductor  
Control cores: black with white numbers 5-8 (numbering increases in line with cross-section); 0.34 mm<sup>2</sup> pairs: WH/BR/GN/YE

**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**  
Supply cores: 600/1000 V  
Control core pairs: 250 V/AC

**Test voltage**  
Supply cores: C/C; C/S: 4000 V; 2000V  
Control cores: C/C: 1500 V, C/S: 750 V

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

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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 700 CY</b>				
0036156	4 G 0,75+2 x (2 x 0,34)	10.5	111.1	165
0036157	4 G 1,5+2 x (2 x 0,75)	12.7	147.5	245
0036158	4 G 2,5+(2 x 2 x 0,75)	14.9	226.1	385
0036159	4 G 4 + (2 x 0,75 + 2 x 1,0)	16.6	303.6	482
0036161	4 G 6 + (2 x 0,75 + 2 x 1,0)	17.7	379.4	609
0036162	4 G 10 + (2 x 0,75 + 2 x 1,0)	21.6	591.7	828
0036163	4 G 16 + (2 x 2 x 1,0)	24.5	861.3	1150
0036164	4 G 25 + (2 x 2 x 1,5)	30.1	1,261.8	1671

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- SERVO cables in acc. to INDRAMAT® Standard INK refer to page 104

**Accessories**

- EPIC® CIRCON LS1 refer to page 627
- EPIC® CIRCON LS1 Contacts, tools, accessories refer to page 631

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX





**ÖLFLEX® SERVO 720 CY**  
Resolver/encoder cable, screened

LAPP KABEL STUÏGART ÖLFLEX® SERVO 720 CY

**Info**

- Fits encoders from various manufacturers
- EMC-compliant

**Benefits**

- Thin, lightweight, reliable functionality
- Total screening reduces interferences from nearby cables

**Application range**

- Analogue and incremental encoders in servo drives
- Servo drives and servo assemblies
- Measurement, control and electrical applications

**Product features**

- Easy to install
- Fixed installation
- Occasional flexing
- In dry, damp or wet interiors
- Flame-retardant according to IEC 60332.1.2

**Norm references / Approvals**

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285
- This product is designed for appropriate use in a voltage range < 50 V AC or 75 V DC. Therefore, the EEC (Low Voltage Directive) does not apply

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: Based on PVC
- Refer to "Technical Data" for the colour-codes
- Core and pairs are twisted together
- Tinned copper screen braiding (\*with drain wire)
- PVC outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
0036 170 pairs: rd/bk, bn/gn, gy/pk, bl/vt; single cores: wt, bn  
0036 175 cores 0.14: wt, bn, gn, ye, gy, pk, bl, rd, bk, vt; cores 0.5: wt, bn  
0036 177 cores 0.14: wt, bn, gn, ye, gy, pk, bl, rd, bk, vt; cores 0.5: wt, bn, bl, bk  
0036 178 cores 0.5: wh, bn, gn, ye; cores 0.14 DIN 47100 from grey  
0036 181 pairs 0.14: rd/bk, bn/gn, ye/vt, gy/pk; single core 0.5: wh, bl, wtgn, bngn  
0036 168 pairs: 0.14 gn/ye, rd/bl, gy/pk; single core 0.5: wt, bn

**Peak operating voltage**  
(not for power applications): 350 V Uss  
Nominal voltage: 48 V AC

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>

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

**Test voltage**  
C/C - C/S 2000 - 1000 V

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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 720 CY</b>				
0036170	4 x 2 x 0,25 + 2 x 1,0 *	8,9	70,8	128
0036175	10 x 0,14 + 2 x 0,5	7,9	39,3	88
0036177	10 x 0,14 + 4 x 0,5	8,0	51,1	94
0036178	15 x 0,14 + 4 x 0,5	8,7	59,7	125
0036181	4 x 2 x 0,14 + 4 x 0,5	8,1	48,8	95
0036168	3 x (2 x 0,14) + 2 x (0,5)	8,5	67,0	129

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 798 CP refer to page 102
- Special Encoder and resolver cables refer to page 106

**Accessories**

- EPIC® CIRCON M23 Housings refer to page 614
- EPIC® CIRCON M23 Inserts refer to page 618
- EPIC® CIRCON M23 Contacts, tools, accessories refer to page 624

Servo applications

PVC sheath



# ÖLFLEX® SERVO 2YSLCY-JB

EMC-optimised motor cable, low-capacitance, double screened



**Benefits**

- Allows EN 61800-3-compliant, EMC-compliant installation of power drive systems
- For very large power drive systems

**Application range**

- Connecting cable between frequency converter and motor
- Paper industry
- Chemical industry
- Heavy industry

**Product features**

- Low capacitance design allows a longer cable connection between the frequency converter and the motor
- In dry, damp or wet interiors
- The 2YSLCYK black version can also be used outdoors under direct exposure to UV rays. Buried in the ground is also possible.
- Flame-retardant according to IEC 60332.1.2

**Norm references / Approvals**

- Based on VDE 0207 / 0250 / 0295

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PE
- Cores twisted concentrically (in protective conductors divided into three, this is between the gussets)
- Aluminium foil wrapped over the cores
- Screening: wrapped with braided tinned-copper wires
- 4-core design: transparent PVC outer sheath
- 3+3 core version: black PVC outer sheath, for outdoor use and direct burial

**Info**

- EMC-optimised
- 3+3 symmetry reduces common-mode interference effects

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
Colours according to HD 308 S2 VDE 0293-308

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 0.6/1kV

**Test voltage**  
4000 V

**Protective conductor**  
This is distributed evenly in the gussets in protective conductors that are divided into three

**Temperature range**  
Flexing: -5°C to +70°C;  
Black model: -15°C to +70°C  
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 2YSLCY-JB</b>				
0036425	4 G 1.5	11.4	95.0	230
0036426	4 G 2.5	12.4	150.0	300
0036427	4 G 4	15.6	235.0	485
0036428	4 G 6	17.0	320.0	630
0036429	4 G 10	19.6	533.0	860
0036430	4 G 16	22.1	789.0	1290
0036431	4 G 25	26.3	1,236.0	1860
0036432	4 G 35	29.5	1,662.0	2610
0036433	4 G 50	35.8	2,345.0	2950
0036434	4 G 70	40.3	3,196.0	3950
0036435	4 G 95	46.5	4,316.0	5300
0036436	4 G 120	53.2	5,435.0	6600
0036437	4 G 150	57.3	6,394.0	7043
0036438	4 G 185	62.3	7,639.0	8384
0036439	3 X 1.5 + 3 G 0.25	11.4	88.0	140
0036440	3 X 2.5 + 3 G 0.5	12.2	144.0	220
0036441	3 X 4 + 3 G 0.75	14.4	224.0	323
0036442	3 X 6 + 3 G 1.0	15.7	276.0	420
0036443	3 X 10 + 3 G 1.5	18.0	491.0	615
0036444	3 X 16 + 3 G 2.5	20.2	723.0	819
0036445	3 X 25 + 3 G 4	23.8	1,136.0	1325
0036446	3 X 35 + 3 G 6	26.9	1,535.0	1718
0036447	3 X 50 + 3 G 10	32.6	2,156.0	2399
0036448	3 X 70 + 3 G 10	36.4	2,871.0	3056
0036449	3 X 95 + 3 G 16	42.0	3,953.0	4162
0036450	3 X 120 + 3 G 16	47.8	4,836.0	5074
0036451	3 X 150 + 3 G 25	51.6	5,412.0	6128
0036479	3 X 185 + 3 G 35	56.5	7,041.0	7500
0036453	3 X 240 + 3 G 50	65.1	8,986.0	9770

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® SERVO 9YSLCY-JB refer to page 96

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-M BRUSH refer to page 675



**Info**

- Servo drives
- EMC-compliant

**ÖLFLEX® SERVO 709 CY**  
Servo cable, approved



**Benefits**

- One common cable for multiple circuits
- Multi-standard = fewer part varieties = cost savings

**Application range**

- Connecting cable between Frequency converter and motor
- Connecting cable between servo controller and motor
- Plant engineering
- Machine tools
- Printing machines

**Product features**

- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Fixed installation
- Occasional flexing

**Norm references / Approvals**

- USA UL AWM Style 20886 VW1; Canada cRU AWM II A/B FT1
- Based on VDE 0245, 250, 281
- UL File Nr. E63634

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Control pair with laminated aluminium film and tinned-copper wire screening
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Supply cores: black with white numbers 1-3 according to VDE 0293-1 and GN/YE protective conductor  
Control cores: black with white numbers 5-8 (numbering increases in line with cross-section); 0.34 mm<sup>2</sup> pairs: WH/BR/GN/YE

**Specific insulation resistance**  
> 20 GOhm 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: 6 x outer diameter

**Nominal voltage**  
IEC: power cores: 600/1000 V  
Control cores: 300/500 V  
UL: power cores: U: 1000 V  
Control core pairs: U: 1000 V

**Test voltage**  
Power cores: C/C & C/S 4000 V  
Control cores: C/C: 4000 V; C/S: 3000 V

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

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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 709 CY</b>				
0038010	4 G 1,5	9,9	90,0	173
0038011	4 G 2,5	11,8	134,0	250
0038012	4 G 4	13,8	217,0	368
0038013	4 G 6	15,3	296,0	478
0038014	4 G 10	19,5	491,0	781
0038015	4 G 16	23,4	742,0	1198
0038016	4 G 25	27,5	1,114,0	1730
0038017	4 G 35	30,9	1,522,0	2284
0038018	4 G 50	38,5	2,194,0	3393
0038019	4 G 0,75 + 2 x (2 x 0,34)	12,4	96,0	225
0038020	4 G 1,0 + 2 x (2 x 0,75)	13,6	149,0	296
0038021	4 G 1,5 + 2 x (2 x 0,75)	14,8	169,0	343
0038022	4 G 2,5 + 2 x (2 x 1,0)	16,3	238,0	420
0038023	4 G 4 + (2 x 1,0 + 2 x 1,5)	16,7	317,0	537
0038024	4 G 6 + (2 x 1,0 + 2 x 1,5)	19,2	426,0	704
0038025	4 G 10 + (2 x 1,0 + 2 x 1,5)	22,5	599,0	965
0038026	4 G 16 + (2 x 1,0 + 2 x 1,5)	25,5	873,0	1380
0038027	4 G 25 + (2 x 2 x 1,5)	30,6	1,265,0	1954
0038028	4 G 35 + (2 x 2 x 1,5)	33,4	1,659,0	2564
0038029	4 G 50 + (2 x 2 x 2,5)	41,0	2,349,0	3785

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- SERVO cables in acc. to INDRAMAT® Standard INK refer to page 104

**Accessories**

- EPIC® CIRCON LS1 refer to page 627
- SKINTOP® MS-M BRUSH refer to page 675

Servo applications

PVC sheath, approved



# ÖLFLEX® SERVO 9YSLCY-JB

EMC-optimised motor cable, low-capacitance, double-screened, approved



**Info**

- EMC-optimised
- 3+3 symmetry reduces common-mode interference effects

**Benefits**

- Allows EN 61800-3-compliant, EMC-compliant installation of power drive systems
- For very large power drive systems
- EN/VDE 90 °C PP insulation

**Application range**

- Connecting cable between frequency converter and motor
- Paper industry
- Chemical industry
- Heavy industry

**Product features**

- Low capacitance design allows a longer cable connection between the frequency converter and the motor
- In dry, damp or wet interiors
- 9YSLCY black design: also for outdoor applications, as well as buried underground, but not for USA or Canada
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

**Norm references / Approvals**

- UL reg. for the USA: AWM Style 2570 or 20886, 1 kV 80° VW-1
- UL reg. for CAN. AWM I/II A/B 1 kV 80° FT 1
- EU: based on VDE 0276, 0250, 0207
- UL File Nr. E63634

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: polypropylene (PP)
- Cores twisted concentrically (in protective conductors divided into three, this is between the gussets)
- Aluminium foil wrapped over the cores
- Screening: wrapped with braided tinned-copper wires
- 4-core design: transparent PVC outer sheath
- 3+3 core version: black PVC outer sheath, for outdoor use and direct burial

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
Colours according to HD 308 S2  
VDE 0293-308

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
IEC U<sub>0</sub>/U: 600/1000 V  
UL & CSA: 1000 V

**Test voltage**  
4000 V

**Protective conductor**  
This is distributed evenly in the gussets in protective conductors that are divided into three

**Temperature range**  
Flexing UL/CSA: -5 °C to +80 °C;  
IEC: transparent model: -5 °C to +70 °C;  
black model: -5 °C to +90 °C  
Fixed installation:  
UL/CSA: -40°C to +80°C;  
IEC: transparent model: -40°C to +80°C;  
black model: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO 9YSLCY-JB</b>				
0037000	4 G 1,5	10,5	87,0	230
0037001	4 G 2,5	11,8	133,0	300
0037002	4 G 4	13,3	213,0	485
0037003	4 G 6	14,9	298,0	630
0037004	4 G 10	17,7	460,0	860
0037005	4 G 16	21,5	707,0	1290
0037006	4 G 25	26,3	1,100,0	1860
0037007	4 G 35	29,7	1,542,0	2610
0037008	4 G 50	34,1	2,206,0	2950
0037009	4 G 70	40,9	3,002,0	3950
0037010	4 G 95	45,4	4,004,0	5300
0037011	4 G 120	49,8	5,108,0	6600
0037012	4 G 150	56,1	6,225,0	7043
0037013	4 G 185	61,4	7,568,0	8384
0037014	4 G 240	67,9	9,940,0	12150
0037015	3 X 1,5 + 3 G 0,25	11,4	88,0	140
0037016	3 X 2,5 + 3 G 0,5	12,9	130,0	220
0037017	3 X 4 + 3 G 0,75	13,6	224,0	323
0037018	3 X 6 + 3 G 1,0	15,2	276,0	420
0037019	3 X 10 + 3 G 1,5	17,4	511,0	615
0037020	3 X 16 + 3 G 2,5	20,0	751,0	819
0037021	3 X 25 + 3 G 4	24,3	1,204,0	1325
0037022	3 X 35 + 3 G 6	27,5	1,535,0	1718
0037023	3 X 50 + 3 G 10	31,1	2,156,0	2399
0037024	3 X 70 + 3 G 10	37,1	2,980,0	3056
0037025	3 X 95 + 3 G 16	40,0	3,953,0	4162
0037026	3 X 120 + 3 G 16	42,6	4,836,0	5074
0037027	3 X 150 + 3 G 25	50,0	5,412,0	6128
0037028	3 X 185 + 3 G 35	55,6	7,077,0	7820

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
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 ACCESSORIES  
 APPENDIX



## SERVO cables in acc. to SIEMENS® Standard 6FX 5008- Motor and resolver/encoder cables

**Info**

- Servo drives
- EMC-compliant



**Benefits**

- New motor & servomotor cables up to 6 mm<sup>2</sup>: low capacitance characteristics due to PP insulation
- Multi-standard = fewer part varieties = cost savings

**Application range**

- Servo applications - power drive systems
- Plant engineering
- Machine tool manufacture
- Printing machines

**Product features**

- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

**Norm references / Approvals**

- Power cable: VDE-registered UL/CSA AWM Style 2570
- Signal cables: UL/CSA AWM style 2502
- UL File Nr. E63634

**Product make-up**

- Design according to SIEMENS® standard 6FX 5008
- Core insulation: up to 6 mm<sup>2</sup> = PP; 10 mm<sup>2</sup> and larger = PVC
- Core and pairs are twisted together
- Tinned-copper braiding
- Outer sheath made of special PVC compound
- Signal cables: green (RAL 6018)
- Motor and servomotor cables: orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

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

**Minimum bending radius**  
For fixed installation: 5 x outer diameter  
For flexible use: 15 x outer diameter

**Nominal voltage**  
Signal cables:  
- 30 V AC/DC (UL/CSA)  
- 30 V AC (IEC)  
Power cable:  
- Power cores:  
1000 V (UL/CSA)  
600/1000 V (IEC)  
- Control cores:  
1000 V (UL/CSA)  
30 V AC (IEC)

**Test voltage**  
Power cable:  
Power cores: 4000 V eff.  
Control cores: 2000 V eff.  
Signal cables: 500 V rms

**Temperature range**  
Fixed installation: -20°C to +80°C  
Flexing: from -0°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Reference article no.	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Signal cables</b>					
0025724	4 x 2 x 0,38 + 4 x 0,5	6FX5008-1BD21	9.0	76.4	120
0025725	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5	6FX5008-1BD41	8.9	63.0	100
0025726	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5 + 4 x 0,23	6FX5008-1BD51	9.5	69.0	139
<b>Motor cables</b>					
00257001	4 G1.5	6FX5008-1BB11 LC	8.0	88.0	131
00257011	4 G2.5	6FX5008-1BB21 LC	9.6	132.0	219
00257021	4 G4	6FX5008-1BB31 LC	11.0	195.0	312
00257031	4 G6	6FX5008-1BB41 LC	13.1	280.0	380
0025704	4 G10	6FX5008-1BB51	19.3	445.0	620
0025705	4 G16	6FX5008-1BB61	23.3	715.0	1060
0025706	4 G25	6FX5008-1BB25	26.9	1,110.0	1640
0025707	4 G35	6FX5008-1BB35	30.3	1,540.0	2310
0025708	4 G50	6FX5008-1BB50	36.5	2,160.0	3240
<b>Servo cables</b>					
00257151	4 G 1,5 + (2 x 1,5)	6FX5008-1BA11 LC	10.4	150.0	248
00257161	4 G 2,5 + (2 x 1,5)	6FX5008-1BA21 LC	12.0	194.0	310
00257171	4 G 4 + (2 x 1,5)	6FX5008-1BA31 LC	13.6	272.0	445
00257181	4 G 6 + (2 x 1,5)	6FX5008-1BA41 LC	15.6	351.0	554
0025719	4 G 10 + (2 x 1,5)	6FX5008-1BA51	21.0	536.0	806

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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).  
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.  
Article numbers refer to genuine Lapp products.  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 796 CP refer to page 101
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 103

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674

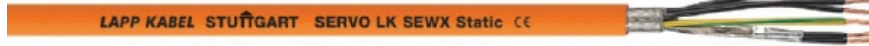
**Servo applications**

PVC sheath, approved



**SERVO Cables in acc. to SEW® Standard**

Servo cable, approved



**Info**

- Servo drives
- EMC-compliant

**Benefits**

- Multi-standard = fewer part varieties = cost savings

**Application range**

- Specially designed to connect SEW servo-motors
- Connecting cable between servo controller and motor
- Plant engineering
- Machine tools
- Printing machines

**Product features**

- For fixed installation or applications with occasional movements
- Oil-resistant
- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/CSA FT 1

**Norm references / Approvals**

- UL-AWM-Style 2570
- Based on VDE 0250 / 0285
- UL File Nr. E63634

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: TPE
- Control core triplet with laminated aluminium film and a layer of tinned-copper wires
- Cores twisted in short lay lengths
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

**Technical data**

**Core identification code**  
Power: black cores with U, VV, WWW printing and 1 core gnye  
Control cores: black cores with numbers 1, 2 and 3

**Specific insulation resistance**  
> 20 GOhm 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: 4 x outer diameter

**Nominal voltage**  
Power cores: IEC 750 V, UL 600 V  
Control cores: 1 mm<sup>2</sup> and 1.5 mm:  
IEC 350 V, UL 600 V

**Test voltage**  
2000 V

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

**Temperature range**  
Flexing: -10°C to +80°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Servo cables</b>				
0038060	4 G 1,5 + (3 x 1,0)	11.8	151.0	300
0038061	4 G 2,5 + (3 x 1,0)	13.4	212.9	370
0038062	4 G 4 + (3 x 1,0)	15.0	281.8	476
0038063	4 G 6 + (3 x 1,5)	17.0	392.8	625
0038064	4 G 10 + (3 x 1,5)	20.0	625.1	1024

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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).  
SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-M BRUSH refer to page 675

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ACCESSORIES  
APPENDIX



## ÖLFLEX® SERVO FD 781 CY

Servo cable, screened

**Info**

- Core Line for ordinary duty in power chain applications
- EMC-compliant



### Benefits

- Well-priced
- Well-proven and reliable

### Application range

- Connecting cable between Frequency converter and motor
- 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

- Low capacitance design allows a longer cable connection between the frequency converter and the motor
- Oil-resistant
- Flame-retardant according to IEC 60332.1.2
- Low-adhesive surface
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

### Norm references / Approvals

- Based on VDE 0250 / 0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 0.6/1.0 kV

**Test voltage**  
4000 V

**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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO FD 781 CY</b>				
0036320	4 G 1.5	9.8	89.0	157
0036321	4 G 2.5	11.9	133.8	233
0036322	4 G 4	13.5	210.9	335
0036324	4 G 10	19.7	488.2	747
0036325	4 G 16	23.9	744.8	1109
0036327	4 G 35	33.3	1,565.4	2264
0036328	4 G 50	38.3	2,174.9	3090

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 101
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 103

### Accessories

- Rectangular connectors refer to page 488
- EPIC® CIRCON LS1 refer to page 627
- SKINTOP® EMC/Earthing refer to page 674

**Power chain applications**

Servo applications - power drive systems, approved



**New**

# ÖLFLEX® SERVO FD 796 P

High-end servo cable

LAPP KABEL STUTTGART ÖLFLEX® SERVO FD 796 P CE



Info

- Extended Line for heavy duty in power chain applications
- Unshielded version of ÖLFLEX® SERVO FD 796 CP with control pair(s)

**Benefits**

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- To substitute 3 ÖLFLEX® SERVO FD product lines: -750P/-755P/-795P (with control pair)

**Application range**

- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- In power 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**

- Dynamic performance in power chains: Acceleration up to 50 m/s<sup>2</sup>. Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

**Norm references / Approvals**

- VDE - reg - no. 8591 (from 4G1,5) UL AWM Style 20234 CSA AWM I/II, A/B 1000 V 80° FT 1
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- Minimum bending radius for flexible use: After consulting, in particular cases, usage at bending factor smaller 7,5 x outer diameter is possible.
- UL File Nr. E63634

**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 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Core identification code**

Power: black cores with marking U/L1/C/L+; V/L2; W/L3/D /L- and 1 green-yellow core  
Designs with one pair of control cores: black; white two pairs of control cores: black with white numbers: 5, 6, 7, 8  
0,34mm<sup>2</sup>: WH/BN/GN/YE



**Specific insulation resistance**

> 20 GOhm x cm



**Conductor stranding**

Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6



**Minimum bending radius**

For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter



**Nominal voltage**

IEC U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO FD 796 P</b>				
0025319	4 G 1,5 + (2 x 1,5)	11.7	99.0	217
0025320	4 G 2,5 + (2 x 1,5)	13.1	134.0	270
0025321	4 G 4 + (2 x 1,5)	14.2	195.0	333
0025322	4 G 6 + (2 x 1,5)	16.0	272.0	403
0025323	4 G 10 + (2 x 1,5)	18.4	425.0	581
0025324	4 G 16 + (2 x 1,5)	22.1	656.0	887
0025326	4 G 0,75 + 2 x (2 x 0,34)	10.9	54.0	143
0025327	4 G 1,5 + 2 x (2 x 0,75)	12.3	103.0	209
0025328	4 G 2,5 + 2 x (2 x 1,0)	14.3	152.0	306
0025312	4 G 4 + 2 x (2 x 1,0)	15.4	218.0	381
0025329	4 G 4 + (2 x 1,0) + (2 x 1,5)	15.6	231.0	388
0025330	4 G 6 + (2 x 1,0) + (2 x 1,5)	17.1	308.0	460

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 796 CP refer to page 101

**Accessories**

- Protective cable conduit systems and cable carrier systems refer to page 770
- Circular connectors refer to page 608





**Info**

- Extended Line for heavy duty in power chain applications
- EMC-compliant

**ÖLFLEX® SERVO FD 796 CP**  
High-end servo cable, screened



**Benefits**

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- Suitable for use with servomotor drives from leading manufacturers
- To substitute 7 ÖLFLEX® SERVO FD product lines:  
755CP/-755CP DESINA/-781CP/-785CP/-785CP DESINA/-790CP/-795CP

**Application range**

- Connecting cable between servo controller and motor
- In power 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

**Product features**

- Dynamic performance in power chains: Acceleration up to 50 m/s<sup>2</sup>. Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

**Norm references / Approvals**

- VDE - Reg. - No. 8591  
UL AWM Style 20234  
CSA AWM I/II, A/B 1000 V 80° FT 1
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**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 with or without one pair, or with two control core pairs, in pairs, with screening, twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Power: black cores with marking U/L1/C/L+; V/L2; W/L3/D /L- and 1 green-yellow core  
Optional designs with one pair of control cores: black; white  
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter (1.5-16 mm<sup>2</sup>)  
10 x outer diameter (25-50 mm<sup>2</sup>)  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
VDE: power cores and control cores: U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO FD 796 CP</b>				
0027950	4 G 1,5	9.1	79.0	140
0027951	4 G 2,5	10.6	129.0	197
0027952	4 G 4	11.9	186.0	268
0027953	4 G 6	14.5	296.0	397
0027954	4 G 10	17.5	449.0	591
0027955	4 G 16	21.6	716.0	955
0027956	4 G 25	25.2	1,073.0	1337
0027957	4 G 35	28.6	1,480.0	1769
0027958	4 G 50	33.4	2,115.0	2468
0027959	4 G 1,5 + (2 x 1,5)	11.6	135.0	261
0027960	4 G 2,5 + (2 x 1,5)	13.4	188.0	318
0027961	4 G 4 + (2 x 1,5)	14.8	235.0	385
0027962	4 G 6 + (2 x 1,5)	16.8	329.0	486
0027963	4 G 10 + (2 x 1,5)	19.4	515.0	701

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027964	4 G 16 + (2 x 1,5)	23.1	757.0	1048
0027965	4 G 25 + (2 x 1,5)	26.6	1,147.0	1532
0027966	4 G 35 + (2 x 1,5)	30.9	1,538.0	2097
0027967	4 G 50 + (2 x 1,5)	34.0	2,181.0	2721
0027969	4 G 1,5 + 2 x (2 x 0,75)	12.2	159.0	313
0027970	4 G 2,5 + 2 x (2 x 1,0)	14.6	207.0	395
0027980	4 G 4 + 2 x (2 x 1,0)	16.1	274.0	466
0027971	4 G 4 + (2 x 1,0) + (2 x 1,5)	16.3	344.0	485
0027972	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.1	436.0	588
0027973	4 G 10 + (2 x 1,0) + (2 x 1,5)	21.8	610.0	819
0027974	4 G 16 + 2 x (2 x 1,5)	25.5	801.0	1135
0027975	4 G 25 + 2 x (2 x 1,5)	28.8	1,187.0	1559
0027976	4 G 35 + 2 x (2 x 1,5)	30.9	1,588.0	2093
0027977	4 G 50 + 2 x (2 x 2,5)	36.3	2,557.0	2920

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674

**Power chain applications**

Servo applications - power drive systems, approved



**New**

**ÖLFLEX® SERVO FD 798 CP**  
High-end resolver/encoder cable, screened

LAPP KABEL STUÏTGART ÖLFLEX® SERVO FD 798 CP

**Benefits**

- Thin, optimised for weight and volume
- Also suitable for mobile outdoor use
- Suitable for use with encoders & resolvers from leading manufacturers
- To substitute 4 ÖLFLEX® SERVO FD product lines: -760CP/-760CP DESINA®/-770CP/ -770CP DESINA®

**Application range**

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and speed generators
- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Dynamic performance in power chains: Acceleration up to 50 m/s<sup>2</sup>. Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

**Norm references / Approvals**

- UL AWM Style 20236
- CSA AWM IA/B; IIA/B FT 1
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**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)



**Info**

- Extended Line for heavy duty in power chain applications
- EMC-compliant

**Technical data**



**Classification**

ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Core identification code**

Details see datasheet ÖLFLEX® SERVO FD 798 CP



**Specific insulation resistance**

> 20 GOhm x cm



**Conductor stranding**

Fine wire or extra-fine wire



**Minimum bending radius**

Flexible use: 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SERVO FD 798 CP</b>				
0036910	4x2x0,34+4x0,5	8.9	79.0	125
0036911	3x(2x0,14)+2x(0,5)	8.9	70.0	120
0036912	3x(2x0,14)+4x0,14+2x0,5	8.8	68.0	110
0036913	3x(2x0,14)+4x0,14+2x0,5+4x0,22	9.4	80.0	130
0036914	9x0,5	8.8	71.0	110
0036915	4x2x0,25+2x1,0	8.8	63.0	109
0036916	6x2x0,25+2x0,5	10.3	67.0	121
0036917	10x0,14+2x0,5	7.7	41.0	82
0036918	10x0,14+4x0,5	8.1	54.0	98
0036920	4x2x0,14+4x0,5	8.2	51.0	95
0036921	4x2x0,25	7.6	38.0	75
0036923	8x2x0,18	7.8	51.0	85
0036924	4x2x0,18	6.4	30.0	52
0036926	12x0,22	6.9	44.0	73
0036927	4x2x0,25+2x0,5	8.5	62.0	98
0036928	2x2x0,14+2x(2x0,14)+4x0,5+(4x0,14)	9.1	79.0	135
0036929	2x(2x0,25)+2x0,5	8.7	46.0	98
0036930	2x2x0,25+2x0,5	7.3	38.0	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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® is a registered trademark of the German Machine Tool Builders' Association  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- Circular connectors refer to page 608
- SILVYN® CHAIN cable protection and guiding systems



## SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS

Motor and resolver/encoder cables

**Info**

- Extended Line for heavy duty in power chain applications
- EMC-compliant



**Benefits**

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings

**Application range**

- Connecting cable between servo controller and encoder/resolver
- 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
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Abrasion and cut-resistant, halogen-free, oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT 1
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

**Norm references / Approvals**

- Power cable:
  - VDE-registered
  - UL AWM Style 21223
  - CSA AWM I/II, A/B 1000 V 80° FT 1
- Sensor leads: UL/CSA AWM Style 20236
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

- Extra-fine strand made of copper wires:
  - > Signal cables: tinned
  - > Power cables: bare
- Core insulation: polypropylene (PP)
- Tinned-copper braiding
- PUR outer sheath
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)

**Technical data**

- Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**  
Power cable:  
Fixed: 4 x D  
Dynamic:  
1.5 mm<sup>2</sup> - 16 mm<sup>2</sup>: 7.5 x D  
25 mm<sup>2</sup> - 50 mm<sup>2</sup>: 10 x D  
Signal cable:  
Fixed: 4 x D  
Dynamic: 8 x D
- Nominal voltage**  
Signal cables: 30 V AC/DC  
Power cable:  
- Power cores:  
600/1000 V (IEC)  
1000 V (UL/CSA)  
- Control cores:  
24 V AC/DC (IEC)  
1000 V (UL/CSA)
- Test voltage**  
Power cable: 4 KV  
Signal cables: 500 V
- Temperature range**  
Flexing: -20°C to +60°C  
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Reference article no.	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Feedback / signal cables</b>					
00277101	8 x 2 x 0,18	6FX8008-1BD11	7,8	54,0	85
00277111	4 x 2 x 0,38 + 4 x 0,5	6FX8008-1BD21	8,9	77,0	120
00277121	3 x (2 x 0,14) + 2 x (0,5)	6FX8008-1BD31	8,9	69,0	113
00277131	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5	6FX8008-1BD41	8,8	66,0	101
00277141	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5 + 4 x 0,22	6FX8008-1BD51	9,4	86,0	139
00277151	4 x 2 x 0,18	6FX8008-1BD61	6,4	34,2	53
00277161	2 x 2 x 0,18	6FX8008-1BD71	5,0	23,1	36
00277171	12 x 0,22	6FX8008-1BD81	6,9	48,0	76
00277992	2 x 2 x 0,15 + 1 x 2 x 0,38	6FX8008-2DC00	7,2	39,0	67
<b>Motor cables</b>					
0027784	4 G 1,5	6FX8008-1BB11-Plus	9,1	90,0	150
0027785	4 G 2,5	6FX8008-1BB21-Plus	10,6	132,0	220
0027786	4 G 4	6FX8008-1BB31-Plus	11,9	204,0	300
0027787	4 G 6	6FX8008-1BB41-Plus	14,5	315,0	450
0027788	4 G 10	6FX8008-1BB51-Plus	17,5	488,0	660
0027789	4 G 16	6FX8008-1BB61-Plus	21,6	769,0	1010
<b>Servo cables</b>					
0027790	4 G 1,5 + (2 x 1,5)	6FX8008-1BA11-Plus	11,6	146,0	230
0027791	4 G 2,5 + (2 x 1,5)	6FX8008-1BA21-Plus	13,4	187,0	300
0027792	4 G 4 + (2 x 1,5)	6FX8008-1BA31-Plus	14,8	258,0	380
0027793	4 G 6 + (2 x 1,5)	6FX8008-1BA41-Plus	16,8	365,0	530
0027794	4 G 10 + (2 x 1,5)	6FX8008-1BA51-Plus	19,4	560,0	765
0027795	4 G 16 + (2 x 1,5)	6FX8008-1BA61-Plus	23,1	816,0	1090
0027796	4 G 25 + (2 x 1,5)	6FX8008-1BA25-Plus	26,6	1,166,0	1530
0027797	4 G 35 + (2 x 1,5)	6FX8008-1BA35-Plus	30,9	1,554,0	2040
0027798	4 G 50 + (2 x 1,5)	6FX8008-1BA50-Plus	34,0	2,188,0	2760

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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).

Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only

Cables for power chain use should only be handled on drums prior to installation.

Article numbers refer to genuine Lapp products.

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

**Similar products**

- ÖLFLEX® SERVO FD 796 CP refer to page 101

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674

**Power chain applications**

Servo applications - power drive systems, approved



**SERVO cables in acc. to INDRAMAT® Standard INK**

Motor and resolver/encoder cables



**Info**

- Servo drives
- EMC-compliant

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Also suitable for mobile outdoor use

**Application range**

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and motor
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Abrasion and cut-resistant
- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Halogen-free
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

**Norm references / Approvals**

- Power cable: UL style 20234
- Signal cables: UL Style 20236
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

- In accordance with INDRAMAT® standard INK (also suitable for pre-assembled versions, IKS and IKG)
- Core insulation: TPE
- Refer to data sheet (available upon request) for more details
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

**Technical data**

- Conductor stranding**  
Extra-fine wire according to IEC 60228 class 6
- Minimum bending radius**  
Power cable:  
Fixed installation: 4 x outer diameter  
For flexible use: 7.5 x outer diameter  
Signal cables:  
Fixed installation: 5 x outer diameter  
For flexible use: 10 x D
- Nominal voltage**  
Power cable:  
- Power cores: 600/1000 V (IEC) 1000 V (UL/CSA)  
- Control cores: 250 V AC (IEC) 1000 V (UL/CSA)  
Signalling cables: 300/300 V (IEC), 300 V (UL/CSA)
- Test voltage**  
Control cores/signal cores: 500 V rms  
Signal cables: 500 V rms
- Temperature range**  
Fixed installation: -50°C to +80°C  
Flexing: -30°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Reference article no.	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Feedback / encoder / resolver cables</b>					
7072400	4 x 2 x 0,25 + 2 x 1,0	INK-0209	8.8	74.0	120
7072401	4 x 2 x 0,25 + 2 x 0,5	INK-0448	8.5	70.0	100
7072402	9 x 0,5	INK-0208	8.8	75.0	126
7072414	4 x 1,0 + 4 x 2 x 0,14 + 4 x 0,14	INK-0532	9.7	81.0	140
7072415	2 x (2 x 0,25) + 2 x 0,5	INK-0234	8.7	46.0	90
7072416	2 x 2 x 0,25 + 2 x 0,5	INK-0750	7.6	35.0	92
<b>Servo cables</b>					
7072417	4 G 0,75 + 2 x 0,5	INK-0670	10.0	73.0	132
7072403	4 G 1,0 + 2 x (2 x 0,75)	INK-0653	11.5	170.0	226
7072404	4 G 1,5 + 2 x (2 x 0,75)	INK-0650	12.2	189.0	268
7072405	4 G 2,5 + 2 x (2 x 1,0)	INK-0602	15.1	212.0	320
7072406	4 G 4 + (2 x 1,0) + (2 x 1,5)	INK-0603	16.0	306.0	470
7072407	4 G 6 + (2 x 1,0) + (2 x 1,5)	INK-0604	18.8	366.0	600
7072408	4 G 10 + (2 x 1,0) + (2 x 1,5)	INK-0605	22.0	565.0	850
7072409	4 G 16 + 2 x (2 x 1,5)	INK-0606	25.2	838.0	1020
7072410	4 G 25 + 2 x (2 x 1,5)	INK-0607	28.0	1,231.0	1420

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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).  
 Indramat part designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only.  
 Cables for power chain use should only be handled on drums prior to installation.  
 Article numbers refer to genuine Lapp products.  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 796 CP refer to page 101

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674



## SERVO cables in acc. to LENZE® Standard

Motor and resolver/encoder cables



**Info**

- Servo drives
- EMC-compliant

### Benefits

- Motor cables with low-capacitance
- Multi-standard = fewer part varieties = cost savings

### Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and motor
- Plant engineering
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

### Norm references / Approvals

- Resolver and encoder cable: UL AWM Style 2464 for fixed installation versions, Style 21165 for highly flexible applications.
- Motor cable: UL AWM Style 2570 for fixed installation version; Style 20940 for high flexibility use.
- Designed for power chain use: for travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

### Product make-up

- Design according to LENZE® standard:
- Designs for fixed installation: PVC outer sheath, flame-retardant in accordance with IEC 332.1, UL/CSA-approved PP core insulation.
- Designs for highly flexible use: oil-resistant PUR sheath in accordance with VDE472-803 Part B, flame-retardant in accordance with IEC 60332.1-2, TPE core insulation.
- Refer to data sheet (available upon request) for more details
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)

### Technical data

**Core identification code**  
Encoder cables  
- 7072508 (fixed installation) bk/ye+bk/gn+bk/rd+bk/bl + bk/wt  
- 7072517 (flexible installation) gn/ye+bl/rd+gy/pk+bk/vi + bn/wt  
Resolver cables:  
- 7072507 (fixed installation) black/yellow + black/green + black/red + black/white  
- 7072516 (flexible application) green/yellow + blue/red + grey/pink + brown/white

**Minimum bending radius**  
Flexible use: 10 x outer diameter  
Fixed installation: 7.5 x cable diameter

**Nominal voltage**  
Resolver and encoder cable: 30 V (VDE), 300 V (UL/CSA)  
Motor cable:  
- Power cores: 0.6/1000 V (VDE), 600 V (UL/CSA).

**Test voltage**  
Resolver and encoder cable: 1.5 kV  
Motor cable:  
- Power cores: 4 kV  
- Control cores: 2 kV

**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)
<b>Motor cables for fixed installation</b>				
7072500	4 G 1,0 + (2 x 0,5)	10.0	81.0	128
7072501	4 G 1,5 + (2 x 0,5)	11.2	106.0	173
7072502	4 G 2,5 + (2 x 0,5)	12.3	153.0	244
<b>Resolver/encoder cable, screened</b>				
7072507	3 x (2 x 0,14) + 1 x (2 x 0,5)	9.3	43.0	91
7072508	4 x (2 x 0,14) + 1 x (2 x 1,0)	11.0	65.0	136
<b>Motor cables for power chain application</b>				
7072509	4 G 1,0 + (2 x 0,5)	10.0	81.0	151

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
7072510	4 G 1,5 + (2 x 0,5)	11.5	106.0	192
7072511	4 G 2,5 + (2 x 0,5)	13.2	153.0	271
7072512	4 G 4 + (2 x 1,0)	14.6	235.0	373
7072513	4 G 6 + (2 x 1,0)	16.8	316.0	477
7072514	4 G 10 + (2 x 1,0)	20.1	513.0	710
7072515	4 G 16 + (2 x 1,0)	23.8	710.0	1015
<b>Resolver &amp; encoder cable for power chain applications</b>				
7072516	3 x (2 x 0,14) + 1 x (2 x 0,5)	10.0	44.0	107
7072517	4 x (2 x 0,14) + 1 x (2 x 1,0)	11.5	65.0	145

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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).

Lenze® part designations (EWLM\_, EWLR\_, EWLE\_, EWLL\_, EYL und EYP) are registered trademarks of Lenze® AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Cables for power chain use should only be handled on drums prior to installation.

Article numbers refer to genuine Lapp products.

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

### Accessories

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674

**Power chain applications**

Servo applications - power drive systems, approved



## Special Encoder and resolver cables

Compatible with various drive systems



**Info**

- Compatible with the encoder manufacturers listed below

**Benefits**

- Well-proven and reliable
- Multi-standard = fewer part varieties = cost savings

**Application range**

- Highly flexible encoder and resolver cables that are designed for use in power chains
- Servo drives and servo assemblies
- Plant engineering
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Abrasion and cut-resistant
- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

**Norm references / Approvals**

- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

- Refer to data sheet (available upon request) for more details
- PUR outer sheath
- Outer sheath colour: see part table

**Technical data**

**Classification**  
 ETIM 5.0 Class-ID: EC000104  
 ETIM 5.0 Class-Description: Control cable

**General**  
 More technical information of the above-mentioned servo cables are available upon request.

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Colour	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for Heidenhain</b>					
70388718	4 x 2 x 0,14 + 4 x 0,5	8.5	black	48.0	92
70388719	3 x (2 x 0,14) + 2 x (0,5)	8.3	black	64.0	100
70388720	3 x (2 x 0,14) + 2 x (1,0)	9.1	black	64.0	115
70388721	4 x 2 x 0,14 + 4 x 0,5 + (4 x 0,14)	8.3	black	56.0	102
<b>Suitable for ELAU</b>					
70388722	3 x 2 x 0,25 + 2 x 0,5	8.4	green	44.0	95
<b>Suitable for KEB</b>					
70388724	3 x (2 x 0,14) + 2 x (0,5)	8.1	orange	64.0	100
<b>Suitable for Berger Lahr</b>					
70388726	5 x 2 x 0,25 + 2 x 0,5	9.5	green	56.0	120
<b>Suitable for B &amp; R</b>					
70388727	3 x 2 x 24AWG	6.5	green	28.0	60
70388728	5 x 2 x 0,14 + 2 x 0,5	7.8	green	40.0	80
<b>Suitable for FANUC</b>					
70388730	5 x 0,5 + 2 x 2 x 0,18	7.6	green	94.0	169
70388731	2 x 0,5 + 4 x 2 x 0,22	7.6	green	72.0	120
70388732	3 x 2 x 0,18 + 6 x 0,5	8.7	green	105.0	189
70388733	3 x 2 x 0,18 + 6 x 1,0	8.7	green	140.0	252
70388734	5 x 2 x 0,18 + 6 x 0,5	8.7	green	114.0	205
70388735	10 x 2 x 24 AWG	9.0	green	60.0	121

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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).  
 The drive systems (Heidenhain, Elau, KEB, Controles Techniques, Berger Lahr, B & R, Fanuc) are registered trademarks that are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.  
 Cables for power chain use should only be handled on drums prior to installation.  
 Article numbers refer to genuine Lapp products.  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 798 CP refer to page 102
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 103
- SERVO cables in acc. to INDRAMAT® Standard INK refer to page 104

**Accessories**

- Circular connectors refer to page 608
- SKINTOP® EMC/Earthing refer to page 674
- SILVYN® CHAIN cable protection and guiding systems



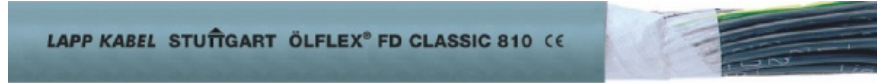
**Info**

- Core Line for ordinary duty in power chain applications

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 +70°C

**ÖLFLEX® CLASSIC FD 810**  
PVC-insulated, numbered, PVC sheath



**Benefits**

- Well-proven and reliable
- Cost-effective solution

**Application range**

- In power 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
- Plant engineering

**Product features**

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- In damp or wet interiors
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.
- Only for outdoor use within the indicated operating temperature range, with UV-protection

**Norm references / Approvals**

- Core based on VDE 0245/0285
- Outer sheath based on VDE 0245/0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026100	2 X 0.5	5.3	10.0	40
0026101	3 G 0.5	5.7	15.0	48
0026102	4 G 0.5	6.3	19.2	58
0026103	5 G 0.5	6.8	24.0	67
0026104	7 G 0.5	8.0	34.0	88
0026105	12 G 0.5	9.5	58.0	136
0026106	18 G 0.5	11.4	86.4	195
0026107	25 G 0.5	13.7	120.0	274
0026108	30 G 0.5	14.3	144.0	312
0026109	34 G 0.5	15.6	164.0	359
0026110	50 G 0.5	18.5	240.0	515
0026119	2 X 0.75	5.7	15.0	49
0026120	3 G 0.75	6.2	22.0	60
0026121	4 G 0.75	6.8	29.0	73
0026122	5 G 0.75	7.4	37.0	86
0026123	7 G 0.75	8.9	51.0	117
0026124	12 G 0.75	10.6	87.0	181
0026125	16 G 0.75	12.0	116.0	234
0026126	18 G 0.75	12.7	130.0	259
0026127	25 G 0.75	15.2	181.0	363
0026130	2 X 1.0	6.1	19.0	58
0026131	3 G 1.0	6.6	29.0	72
0026132	4 G 1.0	7.3	39.0	88
0026133	5 G 1.0	8.0	48.0	104
0026134	7 G 1.0	9.6	67.0	142
0026135	12 G 1.0	11.4	115.0	221
0026136	14 G 1.0	12.3	134.4	258
0026137	16 G 1.0	13.0	153.0	287
0026138	18 G 1.0	13.9	173.0	324
0026139	25 G 1.0	16.4	240.0	445
0026140	26 G 1.0	16.4	249.6	459
0026141	34 G 1.0	18.9	326.4	595

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026142	41 G 1.0	20.6	394.0	712
0026143	50 G 1.0	22.3	480.0	854
0026144	65 G 1.0	25.4	624.0	1097
0026149	2 X 1.5	6.8	29.0	74
0026150	3 G 1.5	7.4	43.2	93
0026151	4 G 1.5	8.1	58.0	114
0026152	5 G 1.5	9.1	72.0	139
0026153	7 G 1.5	10.9	101.0	189
0026154	12 G 1.5	12.9	173.0	295
0026156	18 G 1.5	15.6	259.0	429
0026157	25 G 1.5	18.6	360.0	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	23.0	613.0	936
0026161	42 G 1.5	23.0	629.0	954
0026162	50 G 1.5	25.0	720.0	1134
0026170	3 G 2.5	9.0	72.0	145
0026171	4 G 2.5	10.0	96.0	179
0026172	5 G 2.5	11.2	120.0	218
0026173	7 G 2.5	13.6	168.0	303
0026174	12 G 2.5	16.0	288.0	473
0026175	14 G 2.5	17.2	336.0	548
0026180	3 G 4	10.6	120.0	214
0026181	4 G 4	11.7	160.0	266
0026182	5 G 4	13.1	200.0	325
0026183	4 G 6	13.9	223.0	396
0026184	5 G 6	15.5	288.0	484
0026185	4 G 10	17.6	384.0	644
0026186	5 G 10	19.6	480.0	785
0026187	4 G 16	21.0	615.0	922
0026188	5 G 16	23.6	768.0	1133

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- ÖLFLEX® FD 891 refer to page 114

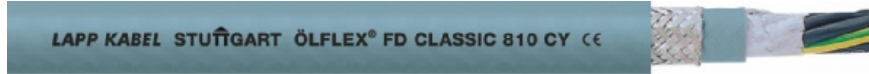
**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® CLASSIC FD 810 CY

Screened, PVC-insulated, numbered, PVC inner and outer sheath



**Info**

- Core Line for ordinary duty in power chain applications
- EMC-compliant

### Benefits

- Well-proven and reliable
- Cost-effective solution

### Application range

- In power 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
- Plant engineering

### Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- In damp or wet interiors
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.
- Only for outdoor use within the indicated operating temperature range, with UV-protection

### Norm references / Approvals

- Core based on VDE 0245/0285
- Outer sheath based on VDE 0245/0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026200	2 X 0.5	6.9	33.0	74
0026201	3 G 0.5	7.3	39.0	84
0026202	4 G 0.5	7.9	46.0	98
0026203	5 G 0.5	8.4	54.0	110
0026204	7 G 0.5	9.8	70.0	143
0026205	12 G 0.5	11.3	100.0	201
0026206	18 G 0.5	13.4	153.0	287
0026207	25 G 0.5	15.9	202.0	394
0026208	30 G 0.5	16.5	228.0	432
0026219	2 X 0.75	7.3	39.0	85
0026220	3 G 0.75	7.8	48.0	99
0026221	4 G 0.75	8.4	59.0	116
0026222	5 G 0.75	9.0	69.0	133
0026223	7 G 0.75	10.7	90.0	178
0026224	12 G 0.75	12.4	129.0	253
0026226	18 G 0.75	14.9	205.0	368
0026227	25 G 0.75	17.4	271.0	496
0026229	30 G 0.75	18.0	320.0	549
0026230	2 X 1.0	7.7	46.0	97
0026231	3 G 1.0	8.2	57.0	114
0026232	4 G 1.0	8.9	70.0	134
0026233	5 G 1.0	9.8	81.0	159
0026234	7 G 1.0	11.4	110.0	207
0026235	12 G 1.0	13.4	182.0	314
0026238	18 G 1.0	16.1	254.0	443

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026239	25 G 1.0	18.8	365.0	612
0026240	26 G 1.0	18.8	374.0	625
0026241	34 G 1.0	21.5	463.0	787
0026242	41 G 1.0	23.2	542.0	918
0026243	50 G 1.0	25.3	640.0	1120
0026249	2 X 1.5	8.4	58.0	117
0026250	3 G 1.5	9.0	75.0	139
0026251	4 G 1.5	9.9	91.0	169
0026252	5 G 1.5	10.9	112.0	201
0026253	7 G 1.5	12.7	145.0	262
0026254	12 G 1.5	15.1	247.0	404
0026255	16 G 1.5	16.8	314.0	503
0026256	18 G 1.5	17.8	348.0	560
0026257	25 G 1.5	21.2	498.0	793
0026259	34 G 1.5	23.9	700.0	1005
0026270	3 G 2.5	10.8	119.0	207
0026271	4 G 2.5	11.8	161.0	247
0026272	5 G 2.5	13.2	194.0	307
0026273	7 G 2.5	15.8	262.0	418
0026281	4 G 4	13.7	238.0	360
0026282	5 G 4	15.3	280.0	436
0026283	4 G 6	16.1	318.0	514
0026285	4 G 10	20.2	521.0	824
0026287	4 G 16	23.6	780.0	1207

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® FD 891 CY refer to page 115

### Accessories

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX





**ÖLFLEX® FD 90 CY**

Screened single core, PVC-insulated, PVC sheath, approved

LAPP KABEL STUÏGART ÖLFLEX® FD 90 CY DESINA® CE



**Info**

- Core Line for ordinary duty in power chain applications
- EMC-compliant

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Easy to install
- For various applications

**Application range**

- In power 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 shielded servo drive cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

**Product features**

- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT 1
- High oil-resistance
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.
- UL File Nr. E63634

**Norm references / Approvals**

- UL-AWM-Style 10107, cRU AWM II A/B FT 1 ≥ 150mm<sup>2</sup>
- CSA AWM IA/B IIA/B FT 1 ≤ 120mm<sup>2</sup>
- Based on VDE 0250 / 0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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
- Non-woven wrapping
- PVC outer sheath, orange (RAL 2003)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
Black, other colours are available upon request

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 3 x outer diameter

**Nominal voltage**  
IEC: 600/1000 V  
UL & CSA: 600 V

**Test voltage**  
4000 V

**Protective conductor**  
X = without protective conductor

**Temperature range**  
Flexing: -5°C to +90°C  
Fixed installation: -40°C to +90°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	1,028.1	1382
0026665	120	24.5	1,282.4	1752
0026667	150	26.2	1,410.4	1924
0026669	185	29.2	1,935.0	2611
0026671	240	32.9	2,526.0	3372
0026673	300	34.8	3,128.8	4105

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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® is a registered trademark of the German Machine Tool Builders' Association

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

**Accessories**

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems

**Power chain applications**

Various applications, approved



**New**

**ÖLFLEX® CHAIN 809 SC**

PVC-insulated, PVC sheath, single core, approved



Info

- Basic Line for light & ordinary duty in power chain applications

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Easy to install
- Multifunctional application possibilities
- Also suitable for mobile outdoor use

**Application range**

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- This cable can substitute multi-core shielded servo drive cables where space requirements or minimum bending radii cause problems
- Specially designed for power circuits of servomotors driven by frequency converters
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

**Product features**

- Low-adhesive surface
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Designed for 1...2 million bending/unbending cycles in the power chain

**Norm references / Approvals**

- cRU AWM II A/B FT1 UL-AWM-Style 10107
- Based on VDE 0250 / 0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

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

**Technical data**

- Core identification code**  
Black or green-yellow, other colours available on request
- Specific insulation resistance**  
> 20 GOhm x cm
- 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: 10 x outer diameter  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
IEC: 600 / 1000 V  
UL & CSA: 600 V
- Test voltage**  
4000 V
- Protective conductor**  
G = with PE conductor  
X = without PE jacket
- 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 (mm <sup>2</sup> )	Outer diameter (mm)	Core colour	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CHAIN 809 SC</b>					
1062900	6.0	7.4	green-yellow	57.6	101
1062901	6.0	7.4	black	57.6	101
1062902	10.0	9.0	green-yellow	96.0	158
1062903	10.0	9.0	black	96.0	158
1062904	16.0	9.9	green-yellow	153.6	217
1062905	16.0	9.9	black	153.6	217
1062906	25.0	11.3	green-yellow	240.0	307
1062907	25.0	11.3	black	240.0	307
1062908	35.0	13.1	green-yellow	336.0	427
1062909	35.0	13.1	black	336.0	427
1062910	50.0	15.9	green-yellow	480.0	611
1062911	50.0	15.9	black	480.0	611
1062912	70.0	17.6	green-yellow	672.0	778
1062913	70.0	17.6	black	672.0	778
1062914	95.0	19.8	green-yellow	912.0	1015
1062915	95.0	19.8	black	912.0	1015
1062916	120.0	23.0	green-yellow	1,152.0	1296
1062917	120.0	23.0	black	1,152.0	1296
1062918	150.0	24.8	green-yellow	1,440.0	1597
1062919	150.0	24.8	black	1,440.0	1597

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® FD 90 refer to page 110

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



**ÖLFLEX® FD 90**

PVC-insulated, PVC sheath, single core, approved



**Info**

- Core Line for ordinary duty in power chain applications
- Well-proven and reliable

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Easy to install
- Multifunctional application possibilities
- Also suitable for mobile outdoor use

**Application range**

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- This cable can substitute multi-core shielded servo drive cables where space requirements or minimum bending radii cause problems
- Specially designed for power circuits of servomotors driven by frequency converters
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

**Product features**

- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT 1
- High oil-resistance
- Designed for 2 up to 8 million bending/un-bending cycles in power chain applications.
- UL File Nr. E63634

**Norm references / Approvals**

- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm<sup>2</sup>
- CSA AWM IA/B IIA/B FT 1 ≤ 120mm<sup>2</sup>
- Based on VDE 0250 / 0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 9005)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
Black or green-yellow, other colours available on request

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
Flexing: 7.5 x outer diameter  
Fixed installation: 3 x outer diameter

**Nominal voltage**  
IEC: 600/1000 V  
UL & CSA: 600 V

**Test voltage**  
4000 V

**Protective conductor**  
G = with PE conductor  
X = without PE jacket

**Temperature range**  
Flexing: -5°C to +90°C  
Fixed installation: -40°C to +90°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Core colour	Copper index (kg/km)	Weight (kg/km)
0026600	10.0	9.0	green-yellow	96.0	176
0026601	10.0	9.0	black	96.0	176
0026603	16.0	10.5	green-yellow	153.6	240
0026604	16.0	10.5	black	153.6	240
0026607	25.0	11.8	green-yellow	240.0	361
0026608	25.0	11.8	black	240.0	361
0026610	35.0	14.2	green-yellow	336.0	482
0026611	35.0	14.2	black	336.0	482
0026613	50.0	16.2	green-yellow	480.0	660
0026614	50.0	16.2	black	480.0	660
0026616	70.0	18.3	green-yellow	672.0	898
0026617	70.0	18.3	black	672.0	898
0026619	95.0	19.8	green-yellow	912.0	1179
0026620	95.0	19.8	black	912.0	1179
0026622	120.0	23.4	green-yellow	1,152.0	1521
0026623	120.0	23.4	black	1,152.0	1521
0026625	150.0	25.1	green-yellow	1,440.0	1739
0026626	150.0	25.1	black	1,440.0	1739
0026628	185.0	28.1	green-yellow	1,776.0	2305
0026629	185.0	28.1	black	1,776.0	2305
0026634	240.0	31.6	green-yellow	2,304.0	2944
0026635	240.0	31.6	black	2,304.0	2944
0026640	300.0	33.5	green-yellow	2,880.0	3545
0026641	300.0	33.5	black	2,880.0	3545

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems

**Power chain applications**

Various applications, approved



**ÖLFLEX® CHAIN 809**

PVC-insulated, numbered, PVC sheath, approved



**Info**

- Basic Line for light & ordinary duty in power chain applications

**Benefits**

- Good combination of quality and price
- Compact design

**Application range**

- In power chains or moving machine parts
- In dry, damp or wet interiors
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Only for outdoor use within the indicated operating temperature range, with UV-protection

**Product features**

- Low-adhesive surface
- Designed for 1...2 million bending/unbending cycles in the power chain
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- cUL AWM II A/B FT1
- UL-AWM-Style 20886
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- PVC outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
For flexible applications:  
Chains in self supporting non-gliding arrangements: 10 x outside diameter  
Chains in gliding arrangements: 12 x outside diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
VDE: U<sub>0</sub>/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: VDE 0 °C to +70 °C  
UL 0 °C to +80 °C  
Fixed installation: VDE -40°C to +70°C;  
UL -40°C to +80°C;

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026700	2 X 0.5	5.2	10.0	40
1026701	3 G 0.5	5.5	15.0	48
1026702	4 G 0.5	6.0	20.0	58
1026703	5 G 0.5	6.5	24.0	67
1026704	7 G 0.5	7.7	34.0	88
1026705	12 G 0.5	9.2	58.0	136
1026706	18 G 0.5	11.0	87.0	195
1026707	25 G 0.5	13.3	120.0	274
1026708	2 X 0.75	5.6	15.0	49
1026709	3 G 0.75	6.0	22.0	60
1026710	4 G 0.75	6.5	29.0	73
1026711	5 G 0.75	7.1	37.0	86
1026712	7 G 0.75	8.5	51.0	117
1026713	12 G 0.75	10.3	87.0	181
1026714	18 G 0.75	12.2	130.0	259
1026715	25 G 0.75	14.8	181.0	363
1026716	2 X 1.0	5.9	19.0	58
1026717	3 G 1.0	6.3	29.0	72

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026718	4 G 1.0	6.9	39.0	88
1026719	5 G 1.0	7.5	48.0	104
1026720	7 G 1.0	9.0	67.0	142
1026721	12 G 1.0	10.9	115.0	221
1026722	18 G 1.0	13.2	173.0	324
1026723	25 G 1.0	15.7	240.0	445
1026724	2 X 1.5	6.5	29.0	74
1026725	3 G 1.5	6.9	43.2	93
1026726	4 G 1.5	7.6	58.0	114
1026727	5 G 1.5	8.5	72.0	139
1026728	7 G 1.5	10.3	101.0	189
1026729	12 G 1.5	12.3	173.0	295
1026730	18 G 1.5	14.9	259.0	429
1026731	25 G 1.5	17.9	360.0	597
1026732	3 G 2.5	8.4	72.0	145
1026733	4 G 2.5	9.3	96.0	179
1026734	7 G 2.5	12.7	168.0	218
1026737	4 G 4	11.1	160.0	266

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 100 m; Drum (500; 1000) m  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC FD 810 refer to page 107

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Basic Line for light & ordinary duty in power chain applications
- EMC-compliant

**ÖLFLEX® CHAIN 809 CY**

Screened, PVC-insulated, numbered, PVC sheath, approved



**Benefits**

- Good combination of quality and price
- Compact design

**Application range**

- In power 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
- Only for outdoor use within the indicated operating temperature range, with UV-protection

**Product features**

- Low-adhesive surface
- Designed for 1...2 million bending/unbending cycles in the power chain
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- cUL AWM II A/B FT1
- UL-AWM-Style 20886
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**Product make-up**

- Fine copper wire strands
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- Non-woven wrapping
- PVC outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
For flexible applications:  
Chains in self supporting non-gliding arrangements: 10 x outside diameter  
Chains in gliding arrangements: 12 x outside diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
VDE: U<sub>n</sub>/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: VDE 0 °C to +70 °C  
UL 0 °C to +80 °C  
Fixed installation: VDE -40°C to +70°C;  
UL -40°C to +80°C;

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026751	2 X 0.5	5.8	36.0	45
1026752	3 G 0.5	6.1	43.0	59
1026753	4 G 0.5	6.6	49.0	83
1026754	5 G 0.5	7.1	57.0	96
1026755	7 G 0.5	8.5	69.0	136
1026756	12 G 0.5	10.0	104.0	200
1026757	18 G 0.5	11.8	141.0	275
1026758	25 G 0.5	14.1	211.0	350
1026759	2 X 0.75	6.2	43.0	56
1026760	3 G 0.75	6.6	52.0	70
1026761	4 G 0.75	7.1	61.0	95
1026762	5 G 0.75	7.7	72.0	130
1026763	7 G 0.75	9.1	89.0	168
1026764	12 G 0.75	10.9	138.0	232
1026765	18 G 0.75	13.0	211.0	315
1026766	25 G 0.75	15.6	280.0	435
1026767	2 X 1.0	6.5	51.0	84
1026768	3 G 1.0	6.9	62.0	110

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026769	4 G 1.0	7.5	74.0	130
1026770	5 G 1.0	8.3	88.0	156
1026771	7 G 1.0	9.8	112.0	192
1026772	12 G 1.0	11.7	185.0	285
1026773	18 G 1.0	14.0	268.0	395
1026774	25 G 1.0	16.7	354.0	486
1026775	2 X 1.5	7.1	65.0	97
1026776	3 G 1.5	7.5	82.0	125
1026777	4 G 1.5	8.4	100.0	165
1026778	5 G 1.5	9.1	119.0	193
1026779	7 G 1.5	10.9	154.0	245
1026780	12 G 1.5	13.3	268.0	365
1026781	18 G 1.5	15.7	373.0	553
1026782	25 G 1.5	18.7	530.0	734
1026783	3 G 2.5	9.0	118.0	188
1026784	4 G 2.5	10.1	147.0	236
1026785	7 G 2.5	13.5	253.0	340
1026788	4 G 4	11.9	248.0	305

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 100 m; Drum (500; 1000) m  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC FD 810 CY refer to page 108

**Accessories**

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems

**Power chain applications**

Various applications, approved



**ÖLFLEX® FD 891**

PVC-insulated, numbered, PVC sheath, approved



**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Also suitable for mobile outdoor use

**Application range**

- In power 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**

- Oil-resistant
- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- In damp or wet interiors
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

**Norm references / Approvals**

- UL-AWM-Style 21098
- CSA AWM IA/B; IIA/B FT 1
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**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 (RAL 9005)

**Info**

- Core Line for ordinary duty in power chain applications

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
IEC: 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 +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)
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	8.0	36.0	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	180.0	415
1026127	3 G 1.0	7.1	28.8	65
1026129	4 G 1.0	7.8	39.0	82
1026130	5 G 1.0	8.8	48.0	105
1026128	7 G 1.0	10.5	67.2	149
1026131	12 G 1.0	12.5	116.0	225
1026132	18 G 1.0	15.0	173.0	331
1026133	25 G 1.0	17.9	240.0	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	72.0	147
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	360.0	670
1026334	34 G 1.5	23.6	489.6	897
1026403	3 G 2.5	8.8	72.0	129
1026404	4 G 2.5	9.8	96.0	167
1026405	5 G 2.5	11.0	120.0	212
1026407	7 G 2.5	13.4	168.0	304
1026412	12 G 2.5	15.8	288.0	452
1026504	4 G 4	11.8	153.6	263
1026505	5 G 4	13.2	192.0	325
1026507	7 G 4	16.1	268.8	469
1026604	4 G 6	13.7	230.4	368
1026614	4 G 10	17.9	384.0	588
1026624	4 G 16	24.1	614.4	1031
1026634	4 G 25	27.9	960.0	1530
1026644	4 G 35	31.1	1,344.0	1959

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



**Info**

- Core Line for ordinary duty in power chain applications
- EMC-compliant

**ÖLFLEX® FD 891 CY**

Screened, PVC-insulated, numbered, PVC inner and outer sheath, approved

LAPP KABEL STUTTGART ÖLFLEX® FD 891 CY AWM CSA CE

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Also suitable for mobile outdoor use

**Application range**

- In power 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**

- Oil-resistant
- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- In damp or wet interiors
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

**Norm references / Approvals**

- UL-AWM-Style 21098
- CSA AWM IA/B; IIA/B FT 1
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**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
- Non-woven wrapping
- PVC outer sheath, black (RAL 9005)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6
- Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
IEC: 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 +90°C  
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	10.0	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	56.0	124
1027301	4 G 1.0	9.8	70.2	155
1027293	5 G 1.0	10.6	84.0	182
1027294	7 G 1.0	12.3	108.0	237
1027295	12 G 1.0	14.7	178.0	352
1027302	18 G 1.0	17.3	255.0	497
1027296	25 G 1.0	20.5	352.0	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	13.0	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	12.4	157.5	275
1027504	4 G 4	14.0	218.1	365
1027507	7 G 4	18.3	373.2	629
1027604	4 G 6	16.1	304.7	500
1027624	4 G 16	27.1	803.6	1357
1027634	4 G 25	31.3	1,180.4	1879
1027644	4 G 35	34.3	1,593.7	2360

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



## ÖLFLEX® CHAIN 808 P

PVC-insulated, numbered, PUR sheath



**Info**

- Basic Line for light & ordinary duty in power chain applications

### Benefits

- Good combination of quality and price
- Compact design

### Application range

- Assembly lines, production lines, in all kinds of machines
- In dry, damp or wet interiors
- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Suitable for use in measuring, control and regulating circuits

### Product features

- Low-adhesive surface
- Oil-resistant
- Designed for 1...2 million bending/unbending cycles in the power chain

### Norm references / Approvals

- Based on EN 50525-2-21
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

### Product make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- PUR outer sheath, grey (RAL 7001)

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

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

**Minimum bending radius**  
For flexible applications:  
Chains in self supporting non-gliding arrangements: 10 x outside diameter  
Chains in gliding arrangements: 12 x outside diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 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  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027700	2 X 0.5	5.2	10.0	40
1027701	3 G 0.5	5.5	15.0	48
1027702	4 G 0.5	6.0	20.0	58
1027703	5 G 0.5	6.5	24.0	67
1027704	7 G 0.5	7.7	34.0	88
1027705	12 G 0.5	9.2	58.0	136
1027706	18 G 0.5	11.0	87.0	195
1027707	25 G 0.5	13.3	120.0	274
1027708	2 X 0.75	5.6	15.0	49
1027709	3 G 0.75	6.0	22.0	60
1027710	4 G 0.75	6.5	29.0	73
1027711	5 G 0.75	7.1	37.0	86
1027712	7 G 0.75	8.5	51.0	117
1027713	12 G 0.75	10.3	87.0	181
1027714	18 G 0.75	12.2	130.0	259
1027715	25 G 0.75	14.8	181.0	363
1027716	2 X 1.0	5.9	19.0	58
1027717	3 G 1.0	6.3	29.0	72

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027718	4 G 1.0	6.9	39.0	88
1027719	5 G 1.0	7.5	48.0	104
1027720	7 G 1.0	9.0	67.0	142
1027721	12 G 1.0	10.9	115.0	221
1027722	18 G 1.0	13.2	173.0	324
1027723	25 G 1.0	15.7	240.0	445
1027724	2 X 1.5	6.5	29.0	74
1027725	3 G 1.5	6.9	43.2	93
1027726	4 G 1.5	7.6	58.0	114
1027727	5 G 1.5	8.5	72.0	139
1027728	7 G 1.5	10.3	101.0	189
1027729	12 G 1.5	12.3	173.0	295
1027730	18 G 1.5	14.9	259.0	429
1027731	25 G 1.5	17.9	360.0	597
1027732	3 G 2.5	8.4	72.0	145
1027733	4 G 2.5	9.3	96.0	179
1027734	7 G 2.5	12.7	168.0	218
1027737	4 G 4	11.1	160.0	266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC FD 810 P refer to page 118

### Accessories

- SILVYN® CHAIN cable protection and guiding systems





**Info**

- Basic Line for light & ordinary duty in power chain applications
- EMC-compliant

**ÖLFLEX® CHAIN 808 CP**  
Screened, PVC-insulated, numbered, PUR sheath



**Benefits**

- Good combination of quality and price
- Compact design
- Various applications

**Application range**

- In power chains or moving machine parts
- In EMC-sensitive environments
- Particularly in wet areas of machine tools and transfer lines
- Suitable for use in measuring, control and regulating circuits
- In dry, damp or wet interiors

**Product features**

- Low-adhesive surface
- Oil-resistant
- Designed for 1...2 million bending/unbending cycles in the power chain

**Norm references / Approvals**

- Based on EN 50525-2-21
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- Non-woven wrapping
- PUR outer sheath, grey (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

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

**Minimum bending radius**  
For flexible applications:  
Chains in self supporting non-gliding arrangements: 10 x outside diameter  
Chains in gliding arrangements: 12 x outside diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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**  
Flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027751	2 X 0.5	5.8	36.0	45
1027752	3 G 0.5	6.1	43.0	59
1027753	4 G 0.5	6.6	49.0	83
1027754	5 G 0.5	7.1	57.0	96
1027755	7 G 0.5	8.5	69.0	136
1027756	12 G 0.5	10.0	104.0	200
1027757	18 G 0.5	11.8	141.0	275
1027758	25 G 0.5	14.1	211.0	350
1027759	2 X 0.75	6.2	43.0	56
1027760	3 G 0.75	6.6	52.0	70
1027761	4 G 0.75	7.1	61.0	95
1027762	5 G 0.75	7.7	72.0	130
1027763	7 G 0.75	9.1	89.0	168
1027764	12 G 0.75	10.9	138.0	232
1027765	18 G 0.75	13.0	211.0	315
1027766	25 G 0.75	15.6	280.0	435
1027767	2 X 1.0	6.5	51.0	84
1027768	3 G 1.0	6.9	62.0	110

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027769	4 G 1.0	7.5	74.0	130
1027770	5 G 1.0	8.3	88.0	156
1027771	7 G 1.0	9.8	112.0	192
1027772	12 G 1.0	11.7	185.0	285
1027773	18 G 1.0	14.0	268.0	395
1027774	25 G 1.0	16.7	354.0	656
1027775	2 X 1.5	7.1	65.0	97
1027776	3 G 1.5	7.5	82.0	125
1027777	4 G 1.5	8.4	100.0	165
1027778	5 G 1.5	9.1	119.0	193
1027779	7 G 1.5	10.9	154.0	245
1027780	12 G 1.5	13.3	268.0	365
1027781	18 G 1.5	15.7	373.0	553
1027782	25 G 1.5	18.7	530.0	734
1027783	3 G 2.5	9.0	118.0	188
1027784	4 G 2.5	10.1	147.0	236
1027785	7 G 2.5	13.5	253.0	340
1027788	4 G 4	11.9	248.0	305

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CLASSIC FD 810 CP refer to page 119

**Accessories**

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® CLASSIC FD 810 P

PVC-insulated, numbered, PUR sheath



### Benefits

- Well-proven and reliable
- Various applications

### Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Mechanical engineering
- Suitable for use in measuring, control and regulating circuits
- Power circuits for electrical equipments used in automation engineering

### Product features

- Low-adhesive surface
- Oil-resistant
- Flame-retardant according to IEC 60332.1.2
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

### Norm references / Approvals

- Core based on VDE 0245/0285
- Outer sheath based on VDE 0245/0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

**Info**

- Core Line for ordinary duty in power chain applications

### Technical data

- Classification**  
 ETIM 5.0 Class-ID: EC000104  
 ETIM 5.0 Class-Description: Control cable
- Core identification code**  
 Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
 > 20 GOhm x cm
- Conductor stranding**  
 Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**  
 For flexible use:  
 7.5 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**  
 Flexing: -5°C to +70°C  
 Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026300	2 X 0.5	5.3	10.0	36
0026301	3 G 0.5	5.7	15.0	44
0026302	4 G 0.5	6.3	19.0	53
0026303	5 G 0.5	6.8	24.0	62
0026304	7 G 0.5	8.0	34.0	82
0026305	12 G 0.5	9.5	58.0	129
0026306	18 G 0.5	11.4	86.4	185
0026319	2 X 0.75	5.7	15.0	44
0026320	3 G 0.75	6.2	22.0	55
0026321	4 G 0.75	6.8	29.0	67
0026322	5 G 0.75	7.4	37.0	80
0026323	7 G 0.75	8.9	51.0	109
0026324	12 G 0.75	10.6	87.0	172
0026326	18 G 0.75	12.7	130.0	247
0026327	25 G 0.75	15.2	181.0	346
0026330	2 X 1.0	6.1	20.0	52
0026331	3 G 1.0	6.6	29.0	66
0026332	4 G 1.0	7.3	39.0	82
0026333	5 G 1.0	8.0	48.0	97
0026334	7 G 1.0	9.6	67.0	117
0026335	12 G 1.0	11.4	115.0	211
0026338	18 G 1.0	13.9	173.0	310
0026339	25 G 1.0	16.4	240.0	426
0026341	34 G 1.0	18.9	326.4	571
0026342	41 G 1.0	20.6	394.0	684
0026343	50 G 1.0	22.3	480.0	822
0026344	65 G 1.0	25.4	624.0	1058

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026349	2 X 1.5	6.8	29.0	68
0026350	3 G 1.5	7.4	43.2	86
0026351	4 G 1.5	8.1	58.0	106
0026352	5 G 1.5	9.1	72.0	131
0026353	7 G 1.5	10.9	101.0	178
0026354	12 G 1.5	12.9	173.0	281
0026355	16 G 1.5	14.6	230.0	365
0026356	18 G 1.5	15.6	259.0	411
0026357	25 G 1.5	18.6	360.0	571
0026359	34 G 1.5	21.1	489.6	753
0026361	42 G 1.5	23.0	629.0	919
0026362	50 G 1.5	25.0	720.0	1093
0026370	3 G 2.5	9.0	72.0	135
0026371	4 G 2.5	10.0	96.0	168
0026372	5 G 2.5	11.2	120.0	206
0026373	7 G 2.5	13.6	168.0	286
0026374	12 G 2.5	16.0	288.0	453
0026375	14 G 2.5	17.2	336.0	525
0026381	4 G 4	11.7	160.0	252
0026382	5 G 4	13.1	200.0	309
0029200	1 G 6	6.4	60.0	84
0026383	4 G 6	13.9	230.0	377
0029210	1 G 10	7.7	100.0	141
0026385	4 G 10	17.6	384.0	614
0026386	5 G 10	19.6	480.0	751
0029220	1 G 16	9.2	160.0	198
0026387	4 G 16	21.0	615.0	851

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® FD 855 P refer to page 120

### Accessories

- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® CLASSIC FD 810 CP

Screened, PVC-insulated, numbered, PVC inner and PUR outer sheath

LAPP KABEL STUÏTGART ÖLFLEX® FD CLASSIC 810 CP CE

**Info**

- Core Line for ordinary duty in power chain applications
- EMC-compliant

### Benefits

- Well-proven and reliable
- Various applications

### Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Mechanical engineering
- Suitable for use in measuring, control and regulating circuits
- Power circuits for electrical equipments used in automation engineering

### Product features

- Low-adhesive surface
- Oil-resistant
- Flame-retardant according to IEC 60332.1.2
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

### Norm references / Approvals

- Core based on VDE 0245/0285
- Outer sheath based on VDE 0245/0285
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026400	2 X 0.5	6.9	33.0	70
0026401	3 G 0.5	7.3	39.0	80
0026402	4 G 0.5	7.9	46.0	94
0026403	5 G 0.5	8.4	54.0	106
0026404	7 G 0.5	9.8	70.0	138
0026405	12 G 0.5	11.3	100.0	194
0026419	2 X 0.75	7.3	39.0	81
0026420	3 G 0.75	7.8	48.0	95
0026421	4 G 0.75	8.4	59.0	111
0026422	5 G 0.75	9.0	69.0	128
0026423	7 G 0.75	10.7	90.0	171
0026424	12 G 0.75	12.4	129.0	244
0026425	16 G 0.75	14.2	186.0	328
0026426	18 G 0.75	14.9	205.0	356
0026427	25 G 0.75	17.4	271.0	479
0026430	2 X 1.0	7.7	46.0	93
0026431	3 G 1.0	8.2	57.0	109
0026432	4 G 1.0	8.9	70.0	129
0026433	5 G 1.0	9.8	81.0	154
0026434	7 G 1.0	11.4	110.0	200
0026435	12 G 1.0	13.4	182.0	304

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026438	18 G 1.0	16.1	254.0	429
0026439	25 G 1.0	18.8	365.0	593
0026449	2 X 1.5	8.4	58.0	112
0026450	3 G 1.5	9.0	75.0	133
0026451	4 G 1.5	9.9	91.0	163
0026452	5 G 1.5	10.9	112.0	193
0026453	7 G 1.5	12.7	145.0	252
0026454	12 G 1.5	15.1	247.0	391
0026456	18 G 1.5	17.8	348.0	542
0026457	25 G 1.5	21.2	498.0	767
0026470	3 G 2.5	10.8	119.0	199
0026471	4 G 2.5	11.8	161.0	238
0026472	5 G 2.5	13.2	194.0	297
0026473	7 G 2.5	15.8	262.0	403
0026474	12 G 2.5	18.2	410.0	589
0026475	14 G 2.5	19.8	490.0	702
0026481	4 G 4	13.7	238.0	349
0026483	4 G 6	16.1	318.0	499
0026484	5 G 6	17.7	410.0	596
0026485	4 G 10	20.2	521.0	842
0026487	4 G 16	23.6	780.0	1173

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® FD 855 CP refer to page 121

### Accessories

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® FD 855 P

TPE-insulated, numbered, PUR sheath



**Info**

- Extended Line for heavy duty in power chain applications
- Smallest bending radii of all FD cables

### Benefits

- Well-proven and reliable
- Various applications
- Suitable for all weather conditions

### Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Mechanical engineering
- Construction machinery
- Assembly lines, production lines, in all kinds of machines

### Product features

- Low-adhesive surface
- Oil-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

### Norm references / Approvals

- Based on VDE 0250 / 0285
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
For flexible use: 5 x outer diameter  
Fixed installation: 3 x outer diameter

**Nominal voltage**  
IEC U<sub>0</sub>/U: 300/500 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 +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027530	2 X 0.5	5.1	10.0	34
0027531	3 G 0.5	5.5	14.0	40
0027532	5 G 0.5	6.6	24.0	55
0027533	6 G 0.5	7.1	29.0	63
0027534	7 G 0.5	7.7	34.0	76
0027535	12 G 0.5	9.1	58.0	114
0027536	18 G 0.5	10.9	86.0	165
0027537	20 G 0.5	11.5	96.0	180
0027538	25 G 0.5	13.4	120.0	219
0027540	30 G 0.5	13.6	144.0	251
0027541	36 G 0.5	14.7	173.0	290
0027545	2 X 0.75	5.6	14.0	42
0027546	3 G 0.75	6.0	22.0	50
0027547	4 G 0.75	6.7	29.0	60
0027548	5 G 0.75	7.3	36.0	71
0027549	7 G 0.75	8.8	50.0	99
0027550	12 G 0.75	10.3	86.0	158
0027551	18 G 0.75	12.4	130.0	219
0027552	20 G 0.75	13.3	144.0	240
0027553	25 G 0.75	15.5	180.0	309
0027555	36 G 0.75	16.9	259.0	411
0027560	2 X 1.0	6.0	19.0	50
0027561	3 G 1.0	6.5	29.0	61
0027562	4 G 1.0	7.2	38.0	70
0027563	5 G 1.0	7.8	48.0	93

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027564	7 G 1.0	9.5	67.0	122
0027565	12 G 1.0	11.2	115.0	196
0027566	18 G 1.0	13.7	173.0	274
0027567	20 G 1.0	14.4	192.0	300
0027568	25 G 1.0	16.8	240.0	385
0027570	30 G 1.0	17.0	288.0	444
0027571	36 G 1.0	18.6	346.0	516
0027575	2 X 1.5	6.7	29.0	68
0027576	3 G 1.5	7.3	43.0	83
0027586	4 G 1.5	8.0	58.0	100
0027577	5 G 1.5	9.0	72.0	128
0027578	7 G 1.5	10.7	101.0	177
0027579	12 G 1.5	12.7	173.0	275
0027580	18 G 1.5	15.2	259.0	405
0027582	25 G 1.5	18.8	360.0	565
0027584	30 G 1.5	18.8	432.0	652
0027585	36 G 1.5	20.6	518.0	759
0027587	41 G 1.5	22.4	614.0	978
0027370	3 G 2.5	8.9	72.0	121
0027371	4 G 2.5	9.9	96.0	163
0027372	5 G 2.5	11.0	120.0	196
0027373	7 G 2.5	13.4	168.0	266
0027374	12 G 2.5	15.8	288.0	446
0027375	18 G 2.5	18.9	432.0	665
0027376	25 G 2.5	23.5	600.0	929

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CHAIN 896 P refer to page 126

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems

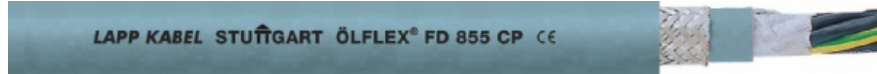


**Info**

- Extended Line for heavy duty in power chain applications
- EMC-compliant

**ÖLFLEX® FD 855 CP**

Screened, TPE-insulated, numbered, TPE inner sheath, PUR outer sheath



**Benefits**

- Well-proven and reliable
- Various applications
- Suitable for all weather conditions

**Application range**

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Mechanical engineering
- Construction machinery
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Low-adhesive surface
- Oil-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

**Norm references / Approvals**

- Based on VDE 0250 / 0285
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 7001)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
IEC U<sub>0</sub>/U: 300/500 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 +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027605	2 X 0.5	6.7	32.0	67
0027606	3 G 0.5	7.1	40.0	79
0027607	5 G 0.5	8.2	53.0	107
0027608	6 G 0.5	8.7	59.0	121
0027609	7 G 0.5	9.5	67.0	132
0027610	12 G 0.5	10.9	97.0	190
0027611	18 G 0.5	12.9	131.0	245
0027612	20 G 0.5	13.5	156.0	281
0027613	25 G 0.5	15.6	190.0	367
0027615	30 G 0.5	15.8	222.0	408
0027616	36 G 0.5	16.9	251.0	459
0027620	2 X 0.75	7.2	40.0	79
0027621	3 G 0.75	7.6	47.0	96
0027622	4 G 0.75	8.3	58.0	112
0027623	5 G 0.75	8.9	65.0	126
0027624	7 G 0.75	10.6	85.0	165
0027625	12 G 0.75	12.1	127.0	231
0027626	18 G 0.75	14.6	198.0	330
0027628	25 G 0.75	17.7	259.0	459
0027630	36 G 0.75	19.5	348.0	605
0027635	2 X 1.0	7.6	45.0	93
0027636	3 G 1.0	8.1	55.0	109
0027637	4 G 1.0	8.8	68.0	126

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027638	5 G 1.0	9.6	81.0	147
0027639	7 G 1.0	11.3	106.0	196
0027640	12 G 1.0	13.2	175.0	292
0027641	18 G 1.0	15.9	242.0	418
0027643	25 G 1.0	19.5	329.0	575
0027645	30 G 1.0	19.6	377.0	635
0027646	36 G 1.0	21.2	467.0	758
0027649	2 X 1.5	8.3	58.0	115
0027650	3 G 1.5	8.9	76.0	139
0027661	4 G 1.5	9.8	91.0	156
0027651	5 G 1.5	10.8	111.0	198
0027652	7 G 1.5	12.5	145.0	254
0027653	12 G 1.5	14.9	242.0	416
0027654	18 G 1.5	17.4	346.0	564
0027656	25 G 1.5	21.4	486.0	811
0027659	36 G 1.5	23.4	655.0	1066
0027380	3 G 2.5	10.7	110.0	194
0027381	4 G 2.5	11.7	136.0	234
0027382	5 G 2.5	12.8	180.0	293
0027383	7 G 2.5	15.6	246.0	418
0027384	12 G 2.5	18.0	377.0	629
0027385	18 G 2.5	21.5	569.0	912
0027386	25 G 2.5	26.5	765.0	1266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® PETRO FD 865 CP refer to page 122

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® PETRO FD 865 CP

Screened, TPE-insulated, numbered, TPE inner and special polymer outer sheath



### Benefits

- Suitable for long horizontal drag chain travel distances
- Reduced outer diameters enable space and weight saving installation
- Suitable for contact with oil- and ester-based drilling muds as well as calcium bromide solutions usually used on drilling rigs
- 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

- Permanently moved power chains or machine parts in harsh environment
- Onshore and offshore applications
- In wet areas within machinery and production or assembly lines

### Product features

- Good notch and abrasion resistance
- Good weather, ozone, UV and oil resistance
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

### Norm references / Approvals

- Based on VDE 0250 / 0285
- Resistant against oil and drilling fluids according to NEK TS 606:2009 and IEC 61892-4
- Salt water-resistant according to UL 1309
- For use in power chains: Please comply with the assembly guidelines listed in 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

**Info**

- Resistant to oil and drilling fluids acc. to NEK TS 606:2009 (Oil & Mud)
- Extended Line for heavy duty in power chain applications

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 +90°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0023300	2 X 0.5	6.7	32.0	67
0023301	3 G 0.5	7.1	40.0	79
0023302	4 G 0.5	7.6	47.0	84
0023303	5 G 0.5	8.2	53.0	107
0023304	7 G 0.5	9.5	67.0	132
0023305	12 G 0.5	10.9	97.0	190
0023306	18 G 0.5	12.9	131.0	245
0023307	20 G 0.5	13.5	156.0	281
0023308	25 G 0.5	15.6	190.0	367
0023309	30 G 0.5	15.8	222.0	408
0023310	36 G 0.5	16.9	251.0	459
0023311	2 X 0.75	7.2	40.0	79
0023312	3 G 0.75	7.6	47.0	96
0023313	4 G 0.75	8.3	58.0	112
0023314	5 G 0.75	8.9	65.0	126
0023315	7 G 0.75	10.6	85.0	165
0023316	12 G 0.75	12.1	127.0	231
0023317	18 G 0.75	14.6	198.0	330
0023318	20 G 0.75	15.5	213.0	354
0023319	25 G 0.75	17.7	259.0	459
0023320	30 G 0.75	17.7	296.0	480
0023321	36 G 0.75	19.5	348.0	605
0023322	2 X 1.0	7.6	45.0	93
0023323	3 G 1.0	8.1	55.0	109
0023324	4 G 1.0	8.8	68.0	126
0023325	5 G 1.0	9.6	81.0	147
0023326	7 G 1.0	11.3	106.0	196
0023327	12 G 1.0	13.2	175.0	292
0023328	18 G 1.0	15.9	242.0	418
0023329	20 G 1.0	16.6	269.0	427

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0023330	25 G 1.0	19.2	329.0	575
0023331	30 G 1.0	19.6	377.0	635
0023332	36 G 1.0	21.2	467.0	758
0023333	2 X 1.5	8.3	58.0	115
0023334	3 G 1.5	8.9	76.0	139
0023335	4 G 1.5	9.8	91.0	156
0023336	5 G 1.5	10.8	111.0	198
0023337	7 G 1.5	12.5	145.0	254
0023338	12 G 1.5	14.9	242.0	416
0023339	18 G 1.5	17.4	346.0	564
0023340	20 G 1.5	18.3	377.0	562
0023341	25 G 1.5	21.4	486.0	811
0023342	30 G 1.5	21.4	821.0	821
0023343	36 G 1.5	23.4	655.0	1066
0023344	2 X 2.5	9.8	73.0	129
0023345	3 G 2.5	10.7	110.0	194
0023346	4 G 2.5	11.7	136.0	234
0023347	5 G 2.5	12.8	180.0	293
0023348	7 G 2.5	15.6	246.0	418
0023349	12 G 2.5	18.0	377.0	629
0023350	18 G 2.5	21.5	569.0	912
0023351	20 G 2.5	22.7	582.0	850
0023352	25 G 2.5	26.5	765.0	1266
0023353	4 G 4	13.9	205.0	311
0023354	5 G 4	15.4	250.0	381
0023355	4 G 6	16.2	289.0	423
0023356	5 G 6	17.8	354.0	512
0023357	4 G 10	20.4	475.0	672
0023358	5 G 10	22.3	582.0	814

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® PETRO C HFFR refer to page 65

### Accessories

- SKINTOP® MS-M ATEX BRUSH refer to page 672
- SILVYN® CHAIN cable protection and guiding systems



**Info**

- Good chemical resistance
- Extended Line for heavy duty in power chain applications

**ÖLFLEX® ROBUST FD**  
TPE-insulated, numbered, TPE sheath



**Benefits**

- Well-proven and reliable
- Various applications
- Suitable for all weather conditions
- For indoor and outdoor use

**Application range**

- In power 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
- Particularly in wet areas of machine tools and transfer lines
- Resistant to contact with plant, animal or synthetic-based organic oils, greases, waxes and the related emulsions

**Product features**

- Low-adhesive surface
- Highly resistant to oil and chemicals
- Hydrolysis-resistant to warm and hot water
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

**Norm references / Approvals**

- Based on VDE 0250 / 0285
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 9005)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black cores with printed white numbers (VDE 0293-1)
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**  
For flexible use:  
7.5 x cable diameter (at temperatures < 70 °C)  
10 x cable diameter (at a max. temperature of 105 °C)  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 +110 °C  
Short-term: up to +120 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	36.0	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	180.0	421
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	48.0	105
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
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	11.0	72.0	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	360.0	695
0026531	4 G 2.5	11.8	96.0	181
0026532	5 G 2.5	12.9	120.0	228
0026533	7 G 2.5	15.7	168.0	329
0026534	12 G 2.5	18.7	288.0	491
0026541	4 G 4	13.8	153.6	261
0026551	4 G 6	14.8	230.4	356
0026561	4 G 10	20.1	384.0	596
0026571	4 G 16	23.8	614.4	910

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® FD 855 P refer to page 120

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



## ÖLFLEX® ROBUST FD C

Screened, TPE-insulated, numbered, TPE inner and outer sheath



### Benefits

- Well-proven and reliable
- Various applications
- Suitable for all weather conditions
- EMC-compliant
- For indoor and outdoor use

### Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Particularly in wet areas of machine tools and transfer lines
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Resistant to contact with plant, animal or synthetic-based organic oils, greases, waxes and the related emulsions
- Assembly lines, production lines, in all kinds of machines

### Product features

- Hydrolysis-resistant to warm and hot water
- Low-adhesive surface
- Highly resistant to oil and chemicals
- In dry, damp or wet interiors with normal mechanical stress conditions
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

### Norm references / Approvals

- Based on VDE 0250 / 0285
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in 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 (RAL 9005)



### Info

- Good chemical resistance
- Extended Line for heavy duty in power chain applications

### Technical data

- Classification**  
 ETIM ETIM 5.0 Class-ID: EC000104  
 ETIM 5.0 Class-Description: Control cable
- Core identification code**  
 Black cores with printed white numbers (VDE 0293-1)
- Specific insulation resistance**  
 > 20 GOhm x cm
- Conductor stranding**  
 Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6
- Minimum bending radius**  
 For flexible use:  
 7.5 x cable diameter (at temperatures < 70 °C)  
 10 x cable diameter (at a max. temperature of 105 °C)  
 Fixed installation: 4 x Outer diameter
- Nominal voltage**  
 U<sub>0</sub>/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  
 Short-term: up to +120 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	15.0	151.5	312
0026706	18 G 0.75	17.7	205.5	448
0026707	25 G 0.75	21.7	299.1	657
0026709	3 G 1.0	9.8	61.1	125
0026716	7 G 1.0	13.9	132.3	278
0026717	12 G 1.0	16.1	189.1	370
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	16.2	227.3	412
0026751	4 G 6	17.2	306.7	519
0026761	4 G 10	23.3	513.6	853
0026771	4 G 16	27.2	809.6	1273

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® PETRO FD 865 CP refer to page 122

### Accessories

- SKINTOP® MS-M BRUSH refer to page 675
- SILVYN® CHAIN cable protection and guiding systems





**Info**

- Core Line for ordinary duty in power chain applications

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

**Minimum bending radius**  
For flexible use:  
7.5 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
IEC: 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 +80°C  
Fixed installation: -40°C to +80°C



**ÖLFLEX® FD 891 P**

PVC-insulated, numbered, PUR sheath, approved

**Benefits**

- Multi-standard = fewer part varieties = cost savings
- Protection against water and dirt

**Application range**

- In power chains or moving machine parts
- Plant engineering
- Machine tools

**Product features**

- Abrasion and cut-resistant
- Oil-resistant
- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications.

**Norm references / Approvals**

- UL rec. AWM Style 20234
- CRU AWM II A/B FT 1
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E63634

**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 (RAL 9005)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	8.0	28.8	82
1028105	5 G 0.75	8.7	36.0	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	180.0	404
1028134	34 G 0.75	18.9	244.8	541
1028150	50 G 0.75	22.5	360.0	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	72.0	155
1028307	7 G 1.5	11.9	100.8	221
1028312	12 G 1.5	13.9	172.8	318
1028318	18 G 1.5	16.9	259.2	484
1028325	25 G 1.5	20.1	360.0	671
1028334	34 G 1.5	23.1	489.6	910
1028952	2 X 2.5	8.9	48.0	102
1028403	3 G 2.5	9.3	72.0	134
1028404	4 G 2.5	10.3	96.0	173
1028405	5 G 2.5	11.3	120.0	217
1028407	7 G 2.5	13.4	168.0	312
1028412	12 G 2.5	15.8	288.0	460
1028503	3 G 4	10.9	115.2	197
1028504	4 G 4	12.1	153.6	257
1028507	7 G 4	16.1	268.8	471
1028604	4 G 6	13.7	230.4	363
1028614	4 G 10	17.9	384.0	605
1028624	4 G 16	23.4	614.4	973
1028634	4 G 25	27.6	960.0	1437

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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® is a registered trademark of the German Machine Tool Builders' Association  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® FD 855 P refer to page 120

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems

**Power chain applications**

Harsh conditions, approved



**New**

**ÖLFLEX® CHAIN 896 P**  
PP-insulated, numbered, PUR sheath



**Info**

- New high-end version! For very dynamic motion sequences
- Extended Line for heavy duty in power chain applications

**Benefits**

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- Various applications
- Also suitable for mobile outdoor use
- To substitute 2 ÖLFLEX® SERVO FD product lines: -785P/-795P (without control pair)

**Application range**

- Applications in automation engineering
- Power circuits in industrial machines
- In power 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**

- Dynamic performance in power chains: Acceleration up to 50 m/s<sup>2</sup>. Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

**Norm references / Approvals**

- VDE - reg - no. 8661
- UL AWM Style 20234
- CSA AWM I/II, A/B 1000 V 80° FT 1
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- Minimum bending radius for flexible use: After consulting, in particular cases, usage at bending factor smaller 7,5 x outer diameter is possible.
- UL File Nr. E63634

**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 (RAL 9005)

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**  
For flexible use:  
7.5 x outer diameter (≤16mm<sup>2</sup>)  
10 x outer diameter (>16mm<sup>2</sup>)  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
IEC U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CHAIN 896 P</b>				
1023229	4 G 1.5	9.6	58.0	120
1023230	5 G 1.5	10.0	72.0	143
1023238	4 G 2.5	11.0	96.0	174
1023239	5 G 2.5	12.0	120.0	210
1023245	4 G 4	12.5	154.0	242
1023246	5 G 4	13.7	192.0	316
1023248	4 G 6	14.3	231.0	335
1023249	5 G 6	15.7	288.0	439
1023250	4 G 10	17.0	384.0	503
1023251	5 G 10	18.9	480.0	663
1023252	4 G 16	21.2	615.0	810
1023253	5 G 16	23.8	768.0	1065
1023254	4 G 25	25.9	960.0	1254
1023255	5 G 25	29.0	1,200.0	1582

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® SERVO FD 796 P refer to page 100

**Accessories**

- SILVYN® CHAIN cable protection and guiding systems



**Info**  
 • Simultaneous bending and torsion

**Benefits**

- Space-saving installation due to small cable diameters
- Hightech robot cable
- Protection against water and dirt
- Wear-resistant

**Application range**

- Plant engineering
- Machine tools
- Automated handling equipment
- Multi-axis articulated robots
- In power chains or moving machine parts

**Product features**

- Abrasion and cut-resistant
- Hydrolysis-resistant
- Oil-resistant
- Low-adhesive surface
- Flame-retardant

**Norm references / Approvals**

- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

**Product make-up**

- Fine or extra-fine strands made of bare copper wire
- Core insulation: TPE
- Cores twisted in layers
- PTFE tape wrapping
- PUR outer sheath, black (RAL 9005)

**ÖLFLEX® ROBOT 900 P**

TPE-PUR robot cable for flexing and torsion load



**Technical data**

- Classification**  
 ETIM 5.0 Class-ID: EC000104  
 ETIM 5.0 Class-Description: Control cable
- Core identification code**  
 Up to 0.34 mm<sup>2</sup>: DIN 47100 cores  
 From 0.5 mm<sup>2</sup>: black cores with white printed numbers
- Mutual capacitance**  
 C/C approx. 100 nF/km  
 C/S approx. 120 nF/km
- Peak operating voltage**  
 0.34 mm<sup>2</sup>: 350 V (not for power transmission)
- Specific insulation resistance**  
 > 20 GOhm x cm
- Inductivity**  
 approx. 0.7 mH/km
- Conductor stranding**  
 Fine wire or extra-fine wire
- Torsion**  
 Max. torsion load ± 360°/m
- Minimum bending radius**  
 Flexing: 15 x outer diameter  
 Fixed installation: 4 x outer diameter
- Nominal voltage**  
 48 V AC  
 From 0.5 mm<sup>2</sup> U0/U: 300/500 V
- Test voltage**  
 Up to 0.34 mm<sup>2</sup>: 1500 V  
 From 0.5 mm<sup>2</sup>: 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  
 Core insulation: capable of temporary overload to +120°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028110	7 X 0.25	6.2	16.8	48
0028116	25 X 0.25	10.2	60.0	141
0028188	2 X 0.34	5.0	7.0	27
0028145	18 G 0.5	11.2	86.4	120
0028146	25 G 0.5	13.3	120.0	254
0028160	4 G 0.75	6.6	28.8	63
0028164	14 G 0.75	11.2	100.8	199
0028170	2 X 1.0	6.2	19.2	47
0028171	3 G 1.0	6.5	29.0	61
0028172	4 G 1.0	7.0	38.4	76
0028174	7 G 1.0	9.3	67.2	131
0028176	12 G 1.0	11.5	115.2	216
0028185	16 G 1,0 + (2 x 1,0)	16.0	195.0	376
0028178	18 G 1.0	13.2	172.8	287
0028186	23 G 1,0 + (2 x 1,0)	17.3	262.0	470
0028180	25 G 1.0	16.4	240.0	433
0028190	34 G 1.0	19.9	326.4	571
0028191	41 G 1.0	22.3	393.6	705
0028198	18 G 1.5	15.8	259.2	446
0028181	3 G 2.5	9.3	72.0	136
0028182	4 G 2.5	10.1	96.0	171
0028400	3 G 16	21.4	460.8	721
0028187	3 G 25	26.2	720.0	1178
0028189	3 G 35	28.8	1,008.0	1559

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

Power chain applications

Torsion, articulated robot



## ÖLFLEX® ROBOT 900 DP

Screened TPE-PUR robot cable for bending and torsion loads



**Info**

- Simultaneous bending and torsion
- EMC-compliant

**Benefits**

- Space-saving installation due to small cable diameters
- Hightech robot cable
- Protection against water and dirt
- Wear-resistant

**Application range**

- Plant engineering
- Machine tools
- Automated handling equipment
- Multi-axis articulated robots
- In power chains or moving machine parts

**Product features**

- Abrasion and cut-resistant
- Hydrolysis-resistant
- Oil-resistant
- Low-adhesive surface
- Flame-retardant

**Norm references / Approvals**

- For use in power chains: Please comply with the assembly guidelines listed in 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
- PTFE tape wrapping
- Screened version (DP): wrapped with braided tinned-copper wires
- PUR outer sheath, black (RAL 9005)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Up to 0.34 mm<sup>2</sup>: DIN 47100 cores  
From 0.5 mm<sup>2</sup>: black cores with white printed numbers

**Mutual capacitance**  
C/C approx. 100 nF/km  
C/S approx. 120 nF/km

**Peak operating voltage**  
0.34 mm<sup>2</sup>: 350 V (not for power transmission)

**Specific insulation resistance**  
> 20 GOhm x cm

**Inductivity**  
approx. 0.7 mH/km

**Conductor stranding**  
Fine wire or extra-fine wire

**Torsion**  
Max. torsion load  
± 180°/m

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

**Nominal voltage**  
48 V AC  
From 0.5 mm<sup>2</sup> U0/U: 300/500 V

**Test voltage**  
Up to 0.34 mm<sup>2</sup>: 1500 V  
From 0.5 mm<sup>2</sup>: 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  
Core insulation: capable of temporary overload to +120°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028100	12 x 0,14	6.7	42.5	69
0028105	3 x 2 x 0,14	6.2	17.0	44
0028126	25 x 0,25	11.1	103,5	183
0028135	4 x 0,34	5.7	21.3	46
0028136	5 x 2 x 0,34	9.1	64.4	114
0028195	12 G 1,5	14.0	259.0	395

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® ROBOT F1 ( C ) refer to page 130

**Accessories**

- SILVYN® RILL PA 12 refer to page 790



**Info**

- Simultaneous bending and torsion
- AWM approvals for USA and Canada

**ÖLFLEX® ROBOT F1**

TPE-PUR robot cable for flexing and torsion load, approved



**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Up to 0.34 mm<sup>2</sup>: DIN 47100 cores  
From 0.5 mm<sup>2</sup>: white cores with black printed numbers

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Fine wire or extra-fine wire

**Torsion**  
Max. torsion load  
Max. torsion load ± 360°/m

**Minimum bending radius**  
Flexible use: 10 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
IEC: up to 0.34 mm<sup>2</sup> 250 Vss. 0.5 - 2.5 mm<sup>2</sup> 300/500 V  
UL/CSA up to 1.5 mm<sup>2</sup> 600 V, from 2.5 mm<sup>2</sup> 1000 V

**Test voltage**  
Cores: spark test 6 kV

**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  
Core insulation: capable of temporary overload to +120°C

**Benefits**

- Space-saving installation due to small cable diameters
- Hightech robot cable
- Protection against water and dirt
- Wear-resistant

**Application range**

- Plant engineering
- Multi-axis articulated robots
- Automated handling equipment
- In power chains or moving machine parts

**Product features**

- Abrasion and cut-resistant
- Hydrolysis-resistant
- Oil-resistant
- Low-adhesive surface
- Flame-retardant

**Norm references / Approvals**

- UL appr AWM style 20940 VW1  
cUL appr AWM I/II A/B FT 1
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E213974

**Product make-up**

- Fine or extra-fine strands, 0.14 mm<sup>2</sup> - 0.5 mm<sup>2</sup>, made from tinned-copper wires, bare above.
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- PTFE tape wrapping
- Pair screen (D): layer of tinned-copper wires
- PUR outer sheath, black (RAL 9005)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0029590	7 X 0.25	6.7	16.8	62
0029591	12 X 0.25	9.0	30.0	122
0029592	18 X 0.25	10.6	45.0	156
0029593	25 X 0.25	12.5	60.0	205
0029594	2 X 0.34	4.6	7.0	38
0029595	3 X 0.34	4.8	10.0	40
0029596	4 X 0.34	5.2	15.0	48
0029599	12 X 0.34	9.4	40.0	130
0029600	18 X 0.34	11.2	60.0	170
0029601	25 X 0.34	13.1	83.0	220
0029608	18 G 0.5	12.3	84.0	202
0029609	25 G 0.5	15.2	120.0	284
0029610	2 X 1.0	6.3	19.0	60
0029611	3 G 1.0	6.6	28.0	71
0029612	4 G 1.0	7.2	38.0	87
0029614	7 G 1.0	9.2	65.0	141
0029615	12 G 1.0	12.4	110.0	237
0029616	14 G 1.0	13.2	128.0	257
0029617	16 G 1,0 + (2 x 1,0)	15.4	190.0	346
0029618	18 G 1.0	16.1	170.0	349
0029619	23 G 1 + (2 x 1,0)	18.0	250.0	461
0029620	25 G 1.0	17.8	240.0	407
0029621	34 G 1.0	21.1	320.0	600
0029622	41 G 1.0	23.6	390.0	753
0029624	4 G 1.5	8.2	57.0	114
0029625	5 G 1.5	9.1	72.0	141
0029627	7 G 1.5	10.5	101.0	187
0029629	12 G 1.5	14.3	170.0	294
0029630	18 G 1.5	17.5	259.0	450
0029631	25 G 1.5	22.2	360.0	661
0029632	3 G 2.5	9.1	72.0	136
0029641	4 G 6	13.3	220.0	330

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

Power chain applications

Torsion, articulated robot, approved



# ÖLFLEX® ROBOT F1 ( C )

Screened TPE-PUR robot cable for bending and torsion loads, approved



**Info**

- Simultaneous bending and torsion
- AWM approvals for USA and Canada

**Benefits**

- Space-saving installation due to small cable diameters
- Hightech robot cable
- Protection against water and dirt
- Wear-resistant

**Application range**

- Plant engineering
- Multi-axis articulated robots
- Automated handling equipment
- In power chains or moving machine parts

**Product features**

- Abrasion and cut-resistant
- Hydrolysis-resistant
- Oil-resistant
- Low-adhesive surface
- Flame-retardant

**Norm references / Approvals**

- UL appr AWM style 20940 VW1 cUL appr AWM I/II A/B FT 1
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File Nr. E213974

**Product make-up**

- Fine or extra-fine strands, 0.14 mm<sup>2</sup> - 0.5 mm<sup>2</sup>, made from tinned-copper wires, bare above.
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- PTFE tape wrapping
- Screening: wrapped with braided tinned-copper wires, or layers of tinned-copper wires. Refer to the respective data sheet for each article number.
- PUR outer sheath, black (RAL 9005)

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Up to 0.34 mm<sup>2</sup>: DIN 47100 cores  
From 0.5 mm<sup>2</sup>: white cores with black printed numbers

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Fine wire or extra-fine wire

**Torsion**  
Max. torsion load ± 180°/m

**Minimum bending radius**  
Flexible use: 10 x outer diameter  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
IEC: up to 0.34 mm<sup>2</sup> 250 Vss.  
0.5 - 2.5 mm<sup>2</sup> 300/500 V  
UL/CSA up to 1.5 mm<sup>2</sup> 600 V, from 2.5 mm<sup>2</sup> 1000 V

**Test voltage**  
Cores: spark test 6 kV

**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  
Core insulation: capable of temporary overload to +120°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0029653	3 x 2 x 0,25	8.0	38.0	100
0029654	25 x 0,25	13.8	115.0	280
0029655	2 x 0,34	5.2	18.0	54
0029656	3 x 0,34	5.4	20.0	56
0029657	4 x 0,34	6.6	28.0	72
0029658	5 x 2 x 0,34	10.2	69.0	158
0029689	12 G 1,5	15.4	230.0	380
0029690	18 G 1,5	18.5	340.0	550
0029664	4 G 1,5	8.8	75.1	120
0029665	4 G 2,5	10.3	116.0	200
0029691	4 G 1,5 + (2 x 1,0)	11.0	116.0	213
0029692	4 G 2,5 + (2 x 1,0)	12.0	150.0	270

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® RILL PA 12 refer to page 790

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**LIFY**

**Flexible at cold temperatures, Class 6 single conductor for devices or measurements**

**Info**

- Extremely flexible / Super-finiest 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 0682/ 0683 and DIN 46438/ 46440

**Product make-up**

- Stranded copper wire
- Core insulation: Based on PVC

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Extra-finely stranded IEC conductor class 6: 0.07 mm

**Nominal voltage**  
Highly flexible LiFY cores:  
up to 1.0 mm<sup>2</sup>: U0/U: 300/500 V,  
from 1.5 mm<sup>2</sup>: U0/U: 450/750 V

**Temperature range**  
Flexible use: -15°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	PU	black	blue	green/yellow	red
0.75	2.5	7.2	100	4560013S	4560014S	4560017S	4560016S
1	2.9	9.6	100	4560023S	4560024S	4560027S	4560026S
1.5	3.7	14.4	100	4560033S	4560034S	4560037S	4560036S
2.5	4.2	24.0	50	4560053S	4560054S	4560057S	4560056S
4	5.1	38.4	100	4560063	4560064	4560067	
6	6.0	57.6	50	4560073	4560074	4560077	4560076
10	7.4	96.0	50	4560083		4560087	4560086

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. 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.

**Accessories**

- DIN-assorted boxes conductor end sleeves refer to page 917
- PEW 8.87 crimping pliers refer to page 921
- KS 15 cable shears refer to page 908

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SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## LIFY 1 kV

Flexible at cold temperatures, Class 6 single conductor for devices or measurements



**Info**

- Extremely flexible / Super-finiest 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 0682/ 0683 and DIN 46438/ 46440

### Product make-up

- Stranded copper wire
- Core insulation: Based on PVC

### Technical data

	<b>Classification</b> ETIM 5.0 Class-ID: EC000993 ETIM 5.0 Class-Description: Single core cable
	<b>Specific insulation resistance</b> > 20 GOhm x cm
	<b>Conductor stranding</b> Extra-finely stranded IEC conductor class 6: 0.07 mm
	<b>Nominal voltage</b> LiFY measurement cores: U: 1000 VAC
	<b>Temperature range</b> Flexible use: -15°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	PU	black	blue	red
0.75	4.0	7.2	50	4560011S	4560021S	4560041S
1.5	4.0	14.4	50	4560012S	4560022S	4560042S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- DIN-assorted boxes conductor end sleeves refer to page 917
- PEW 8.87 crimping pliers refer to page 921
- KS 15 cable shears refer to page 908

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX





## 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**

- Strands of bare copper wires
- Braiding made of bare copper wires
- PVC-based outer sheath, transparent

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
refer to article table

**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 (mm <sup>2</sup> )	Conductor stranding: number of wires x wire diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4571101	16	4200 x 0.07	8.8	177.0	230
4571102	25	3192 x 0.1	10.4	275.0	316
4571103	35	4480 x 0.1	12.4	387.0	475
4571104	50	6383 x 0.1	14.6	560.0	670
4571105	70	8918 x 0.1	17.0	791.0	905
4571106	95	12100 x 0.1	19.8	1,069.0	1220

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- X00V3-D Copper Earthing Cable refer to page 134

**Accessories**

- KT cable shears refer to page 908



## X00V3-D Copper Earthing Cable

Flexible at cold temperatures, <HAR>-type single conductor for earthing and shorting

H00V3-D



### Info

- Formerly: H00V3-D Copper Earthing Cable
- 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 or EN 61138

### Product make-up

- Strands of bare copper wires
- PVC-based outer sheath, transparent

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable



#### Specific insulation resistance

> 20 GOhm x cm



#### Conductor stranding

Based on VDE 0283 Part 3 or 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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4571110	16	8.1	153.6	223
4571111	25	9.5	240.0	330
4571112	35	11.0	336.0	455
4571113	50	13.2	480.0	648
4571114	70	15.8	672.0	913
4571115	95	18.3	912.0	1234

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ESUY Copper Earthing Cable refer to page 133

### Accessories

- KT cable shears refer to page 908



## ÖLFLEX® TRUCK 170 FLRY



**Info**

- Commercial vehicles
- Hazardous materials transportation

### Benefits

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

### Application range

- Commercial vehicles
- 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

- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Core identification code**  
ISO 4141-3
- Insulation resistance**  
10 MOhm x km
- 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Colour	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® TRUCK 170 FLRY</b>					
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	48.0	97
7027065	5 x 1,0 + 1 x 2,5	9.0	1.0 = green/brown/red/blue/violet; 2.5 = white	72.0	133
7027066	5 x 1,0 + 1 x 2,5	9.0	1.0 = yellow/black/red/blue/violet; 2.5 = white	72.0	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	72.0	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	72.0	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	216.0	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	120.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.



## ÖLFLEX® TRUCK 470 P FLRYY11Y



**Info**

- Commercial vehicles
- Hazardous materials transportation
- Hydrolysis and microbe resistant

**Benefits**

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

**Application range**

- Commercial vehicles
- 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**

- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based inner sheath
- Outer sheath made of special polyurethane

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
ISO 4141-3 in conjunction with DIN 72551-7

**Insulation resistance**  
10 MOhm x km

**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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Colour	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® TRUCK 470 P FLRYY11Y</b>					
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	48,0	97
7027085	5 x 1,0 + 1 x 2,5	9,0	1.0 = green/brown/red/blue/violet; 2.5 = white	72,0	133
7027086	5 x 1,0 + 1 x 2,5	9,0	1.0 = yellow/black/red/blue/violet; 2.5 = white	72,0	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	72,0	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	216,0	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	216,0	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	360,0	560

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.



## ÖLFLEX® TRUCK 170 TWIN



**Info**

- Commercial vehicles
- Hazardous materials transportation
- Battery twin cable

### 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
- Commercial vehicles

### 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

- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Insulation resistance**  
10 MOhm x km
- 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 mm <sup>2</sup> per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)
<b>ÖLFLEX® TRUCK 170 TWIN PVC/PVC</b>			
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	192.0
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	480.0
7027059	PVC/PVC 2 x 35,0	28.4 x 13.5	672.0
7027054	PVC/PVC 2 x 50,0	33.0 x 16.0	960.0
7027052	PVC/PVC 2 x 70,0	39.8 x 18.4	1,344.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.



## ÖLFLEX® SOLAR XLR-R

Electron beam cross-linked solar cables with reduced diameters - TÜV type approved



**Info**

- Optimised cable design - thin, light and robust
- TÜV Type approved (2PFG 1169/08.07) According to DKE specification PV1-F
- New version with coloured stripe

### Benefits

- Reduced outer diameters enable space and weight saving installation
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

### Application range

- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLR-R = X-Linked Radiated-Reduced Proven electron beam cross-linked quality

### Norm references / Approvals

- PV1-F (TÜV type approved according to 2 PFG 1169/08.2007)

### 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 respectively black with red or blue stripe

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
AC  $U_0/U$  : 600/1000 V  
DC  $U_0/U$  : 900/1500 V  
Max. permissible operating voltage:  
DC 1,8 kV (Conductor-conductor, non earthed system)

**Test voltage**  
AC 6500 V

**Current rating**  
Im compliance with TÜV requirements spec. 2 PFG 1169/08.2007 table 1

**Temperature range**  
-40°C to +120°C max. conductor temperature based on EN 60216-1  
Ambient temperature range according to TÜV 2 PFG 1169/08.07: -40°C to +90°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SOLAR XLR-R</b>				
<b>Core insulation: white / Outer sheath: black</b>				
0023175	1.5	4.4	14.4	34
0023176	2.5	4.8	24.0	46
0023177	4.0	5.2	38.4	63
0023178	6.0	5.8	57.6	86
0023179	10.0	7.0	96.0	132
0023180	16.0	8.3	153.6	197
<b>Core insulation: white / Outer sheath: black with red stripe</b>				
0023360	2.5	4.8	24.0	46
0023361	4.0	5.2	38.4	63
0023362	6.0	5.8	57.6	86
0023363	10.0	7.0	96.0	132
0023364	16.0	8.3	153.6	197
<b>Core insulation: white / Outer sheath: black with blue stripe</b>				
0023370	2.5	4.8	24.0	46
0023371	4.0	5.2	38.4	63
0023372	6.0	5.8	57.6	86
0023373	10.0	7.0	96.0	132
0023374	16.0	8.3	153.6	197

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 100 m; Drum (500; 1000) m  
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- EPIC® SOLAR 4 Thin M pre-assembled refer to page 646
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- KS 20 cable shears refer to page 908
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 646



## ÖLFLEX® SOLAR XLS-R

Electron beam cross-linked solar cables with reduced outer diameters



**Info**

- Optimised cable design - thin, light and robust
- New version with coloured stripe

### Benefits

- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- 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

- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLS-R = X-Linked Standard - Reduced Proven electron beam cross-linked quality

### 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 respectively black with red or blue stripe

### Technical data

**Classification**  
 ETIM 5.0 Class-ID: EC001578  
 ETIM 5.0 Class-Description: Flexible cable

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

**Minimum bending radius**  
 Fixed installation: 4 x outer diameter

**Nominal voltage**  
 AC  $U_0/U$  : 600/1000 V  
 DC  $U_0/U$  : 900/1500 V  
 Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

**Test voltage**  
 AC 6500 V

**Temperature range**  
 Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SOLAR XLS-R</b>				
<b>Core insulation: white / Outer sheath: black</b>				
0023100	1.5	4.4	14.4	34
0023136	2.5	4.8	24.0	46
0023137	4.0	5.2	38.4	63
0023138	6.0	5.8	57.6	86
0023104	10.0	7.0	96.0	132
0023105	16.0	8.3	153.6	197
<b>Core insulation: white / Outer sheath: black with red stripe</b>				
0023390	2.5	4.8	24.0	46
0023391	4.0	5.2	38.4	63
0023392	6.0	5.8	57.6	86
0023393	10.0	7.0	96.0	132
0023394	16.0	8.3	153.6	197
<b>Core insulation: white / Outer sheath: black with blue stripe</b>				
0023395	2.5	4.8	24.0	46
0023396	4.0	5.2	38.4	63
0023397	6.0	5.8	57.6	86
0023398	10.0	7.0	96.0	132
0023399	16.0	8.3	153.6	197

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: Coil 100 m; Drum (500; 1000) m  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® SOLAR XLR-R refer to page 138

### Accessories

- EPIC® SOLAR 4 Thin M pre-assembled refer to page 646
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- KS 20 cable shears refer to page 908
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 646



## ÖLFLEX® SOLAR XLSv

Robust solar cables with large conductor cross-sections



**Info**

- Reinforced outer sheath design
- For high electrical power loads
- Suitable for direct burial

### Benefits

- Reinforced outer sheath gives enhanced protection against mechanical stress
- High thermal capacity for long-lasting operation of the PV system in all seasons
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- For outdoor use, and if the general installation guidelines are followed, this is also suitable for direct burial
- Exact quantity control during installation by meter marking on the cable sheath

### Application range

- Large conductor cross sections are used as a collecting main to transmit high power loads between the individual panel strings and as connection to the DC/AC inverter of large PV plants and solar fields
- For connecting individual module strings, as well as for fixed solar generators and moving tracking systems

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLS - X-Linked Standard  
Proven electron beam cross-linked quality

### Product make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

**Core identification code**  
Colour: black (RAL 9005)

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

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
AC  $U_0/U$  : 600/1000 V  
DC  $U_0/U$  : 900/1500 V  
Max. permissible operating voltage:  
DC 1,8 kV (Conductor-conductor, non earthed system)

**Test voltage**  
AC 6500 V

**Temperature range**  
Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SOLAR XLSv</b>				
0027110	4.0	8.0	38.4	104
0027111	6.0	9.1	57.6	141
0027112	10.0	10.5	96.0	201
0027113	16.0	11.9	153.6	280
0027114	25.0	13.8	240.0	386
0027115	35.0	15.2	336.0	502
0027116	50.0	17.6	480.0	698
0027117	70.0	19.4	672.0	921

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Drum

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

On request and under consideration of the economic minimum lengths, we produce versions with larger conductor cross sections, or with red or blue core insulation, or an imprinted code stripe on the black outer sheath as distinctive feature

### Similar products

- ÖLFLEX® TRAF0 XLv 1.8/3 kV refer to page 141

### Accessories

- Tube cable lugs KR/ KRT/ KRF refer to page 932
- WT 3195 G pressing pliers, hydraulic
- V 1311 pressing pliers, hydraulic refer to page 934
- KT cable shears refer to page 908





## ÖLFLEX® TRAF0 XLv 1.8/3 kV

Flexible and mechanically robust single-core connection cables



**Info**

- Voltage rating 1.8/3 kV
- Suitable for direct burial
- Halogen-free and flame-retardant

### Benefits

- Reinforced outer sheath gives enhanced protection against mechanical stress
- Wide temperature range for applications in harsh climatic environments
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- For outdoor use, and if the general installation guidelines are followed, this is also suitable for direct burial
- Flexible and fine-wired conductor design enables easy on-site installation

### Application range

- Required rated voltage 1.8/3 kV
- In the field of renewable energy and conventional power generation
- Photovoltaic plants and solar parks
- Drip-loop installation in wind turbines
- As connection between the converter and the transformer substation

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Suitable for direct burial according to UL 1277
- Torsion-tested for wind turbines

### Product make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of cross-linked polyolefin
- Outer sheath made of cross-linked copolymer
- Core insulation and outer sheath are extruded together
- Outer sheath colour: black

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable
- Core identification code**  
Colour: black (RAL 9005)
- Fire test**  
Flame-retardant according IEC 60332-1-2
- 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**  
U<sub>0</sub>/U: 1.8/3 kV
- Test voltage**  
AC 6500 V
- Temperature range**  
Flexing: -40°C to +90°C  
Fixed installation: -40°C to +90°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® TRAF0 XLv 1.8/3 kV</b>				
1151010	95.0	22.1	912.0	1218
1151011	120.0	24.4	1,152.0	1496
1151012	150.0	25.9	1,440.0	1810
1151013	185.0	28.2	1,776.0	2184
1151014	240.0	30.3	2,304.0	2757
1151015	300.0	34.0	2,880.0	3407

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Drum  
Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® SOLAR XLSv refer to page 140

### Accessories

- Tube cable lugs KR/ KRT/ KRF refer to page 932
- WT 3195 G pressing pliers, hydraulic
- V 1311 pressing pliers, hydraulic refer to page 934
- KT cable shears refer to page 908



## ÖLFLEX® SOLAR XLS-R T

Electron beam cross-linked solar twin-cables - separable



**Info**

- Optimised cable design - thin, light and robust
- Time-saving installation
- Ideal for stand-alone PV power systems

### Benefits

- Easy to split into two separate cables
- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Exact quantity control during installation by meter marking on the cable sheath

### Application range

- Ideal for stand-alone PV power systems
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLS-R T= X-Linked Standard-Reduced Twin Proven electron beam cross-linked quality

### Norm references / Approvals

- Also available as TÜV PV1-F approved version upon request

### Product make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black
- Cores connected in parallel with a separating strip

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

**Core identification code**  
black / red  
blue / red

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

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
AC  $U_0/U$  : 600/1000 V  
DC  $U_0/U$  : 900/1500 V  
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

**Test voltage**  
AC 6500 V

**Temperature range**  
Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SOLAR XLS-R T</b>				
<b>Core insulation: red / black</b>				
0023982	2 X 2.5	9.9 x 4.8	48.0	94
0023984	2 X 4.0	10.7 x 5.2	76.8	128
0023986	2 X 6.0	11.9 x 5.8	115.2	174
0023988	2 X 10.0	14.3 x 7.0	192.0	267
<b>Core insulation: red / blue</b>				
0023983	2 X 2.5	9.9 x 4.8	48.0	94
0023985	2 X 4.0	10.7 x 5.2	76.8	128
0023987	2 X 6.0	11.9 x 5.8	115.2	174
0023989	2 X 10.0	14.3 x 7.0	192.0	267

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 100 m; Drum (500; 1000) m  
Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® SOLAR XLS-R refer to page 139

### Accessories

- EPIC® SOLAR 4 Thin M pre-assembled refer to page 646
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- KS 20 cable shears refer to page 908
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 646



## ÖLFLEX® SOLAR V4A

Extra robust solar cables with high-grade steel protection braiding



**Info**

- Protected against martens, rodents and termites

### Benefits

- High-grade stainless steel wire braiding (class V4A) provides highly effective protection against martens, rodents and even termites
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire

### Application range

- For use in PV systems that are installed on the roofs of stables or barns situated in farmsteads or densely-forested areas
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks

### Product features

- Weather/UV-resistant acc. to HD 605/A1
- Halogen-free and flame-retardant
- Good mechanical strength

### Product make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black
- Armouring made of stainless V4A high-grade steel wire braiding

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

**Core identification code**  
Black

**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**  
AC  $U_0/U$  : 600/1000 V  
DC  $U_0/U$  : 900/1500 V  
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

**Test voltage**  
AC 6500 V

**Temperature range**  
Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® SOLAR V4A stainless steel</b>				
0025960	4.0	7.0	38.4	98
0025961	6.0	8.0	57.6	158

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 100 m; Drum (500; 1000) m  
Photographs are not to scale and do not represent detailed images of the respective products.

Special applications

Wind energy



New

# ÖLFLEX® TORSION

Power and control cables for flexible use under torsional load

(e.g., drip loop) - 0.6/1 kV



**Info**

- Torsion resistant, Cold flexible/90 °C (UL)
- Can be used in the cable drip loop underneath the nacelle
- Salt-water test, UV/ozone-resistant

**Benefits**

- The special design reliably compensates for the permanent torsional drip loop movements inside the wind turbine between the nacelle and the tower

**Application range**

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Very suitable for installation in the drip loop, between the rotating nacelle and the stationary windmill tower, to connect the generator to the control units

**Product features**

- Torsion resistant till +/-150 ° per metre, Flexible, Easy dismantling
- Flame-retardant according to IEC 60332-1-2, VW-1, FT1
- Flexible at cold temperatures (IEC 60811/ VDE 0473-811), 90 °C compounds according to UL
- Oil-resistant according to IEC 60227-1 PVC/ ST9, salt-water immersion test according to UL 1309
- UV-resistant according to ISO 4892-2-2006, method A, and ozone-resistant according to EN 50396, method B

**Norm references / Approvals**

- UL cable type certification acc. UL standard UL 758: UL AWM/ style 10012 + style 20886
- UL cable type certifications acc. CSA AWM standard CSA C22.2 No. 210-05: cUL AWM I A/B, cUL AWM II A/B
- Based on EN 50525-2-51 and VDE 0250-1

**Product make-up**

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation made of special PVC compound: flexible at cold temperatures according to IEC 60811-504/ VDE 0473-811-504, 90 °C according to UL
- Black, special, PVC based, outer sheath: Flexible at cold temperatures according to IEC 60811-504/ VDE 0473-811-504, 90 °C according to UL

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
Conductor class 5 (fine-wired) acc. IEC 60228

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

**Minimum bending radius**  
Flexible use: 10 x outer diameter  
Fixed installation: 6 x outer diameter

**Nominal voltage**  
According to IEC/VDE:  
U0/U 0.6/1 kV ac  
According to UL/CSA: 1000 V

**Test voltage**  
C/C: 4000 V

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

**Temperature range**  
Flexible use: -35°C to +90°C (acc. UL)  
Fixed installation: -40°C to +90°C (according to UL)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® TORSION</b>				
1150465	12 G 0.75	12.4	86.4	222.43
1150466	14 G 0.75	13.0	100.8	272.59
1150467	18 G 0.75	14.6	129.6	304.28
1150468	25 G 0.75	17.8	180.0	450.97
1150469	41 G 0.75	22.4	295.2	701
1150470	50 G 0.75	24.2	360.0	835.1
1150479	12 G 1.0	13.2	115.2	258.63
1150480	16 G 1.0	14.8	153.6	368.93
1150485	3 G 1.5	9.0	43.2	122.5
1150486	4 G 1.5	9.7	57.6	146.48
1150487	5 G 1.5	10.6	72.0	172.26
1150488	7 G 1.5	12.6	100.8	238.27
1150489	12 G 1.5	15.3	172.8	365.37
1150490	19 G 1.5	18.3	273.6	530
1150491	25 G 1.5	22.8	360.0	790.84
1150492	32 G 1.5	24.5	460.8	942.4
1150495	3 G 2.5	10.4	72.0	170.45
1150496	4 G 2.5	11.3	96.0	227.87
1150497	5 G 2.5	12.4	120.0	244.65
1150498	7 G 2.5	15.0	168.0	352.26
1150499	12 G 2.5	18.9	288.0	540
1150500	16 G 2.5	20.8	384.0	760
1150501	19 G 2.5	23.9	456.0	879.61
1150502	25 G 2.5	26.8	600.0	1126.58
1150505	3 G 4	11.9	115.2	240.57

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1150506	4 G 4	13.0	153.6	297.57
1150507	5 G 4	14.3	192.0	352.77
1150508	3 G 6	12.9	172.8	322.03
1150509	4 G 6	14.4	230.4	384.49
1150510	5 G 6	16.0	288.0	466.84
1150511	3 G 10	16.6	288.0	530.15
1150512	4 G 10	18.4	384.0	631.48
1150513	5 G 10	20.5	480.0	768.13
1150514	3 G 16	19.2	460.8	794
1150515	4 G 16	22.2	614.4	1017.78
1150516	5 G 16	24.4	768.0	1147.35
1150517	3 G 25	24.5	720.0	1133
1150518	3 X 25	24.5	720.0	1133
1150519	4 G 25	26.9	960.0	1471.23
1150520	5 G 25	29.9	1,200.0	1815.1
1150521	3 G 35	27.1	1,008.0	1521
1150522	3 X 35	27.1	1,008.0	1521
1150523	4 G 35	30.1	1,344.0	1952
1150524	5 G 35	33.7	1,680.0	2438.71
1150525	3 G 50	32.1	1,440.0	2235
1150526	3 X 50	32.1	1,440.0	2235
1150527	4 G 50	35.7	1,920.0	2866
1150528	5 G 50	39.5	2,400.0	3583.23
1150529	3 G 70	37.0	2,016.0	3150
1150530	3 X 70	37.0	2,016.0	3150
1150531	4 G 70	41.4	2,688.0	4112

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Details of the clamping force are available upon request, halogen-free.  
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## 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



## ÖLFLEX® TORSION D FRNC

Screened, 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
- EMC/Screened



### Benefits

- The special design reliably compensates for the permanent torsional drip loop movements inside the wind turbine between the nacelle and the tower
- The high flexibility and good dismantling and stripping properties enable easy space-saving cable installation and fast processing
- Sea water-resistant for onshore and offshore applications
- 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
- The copper wrapping of the screened D version protects against electromagnetic interference

### Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Very suitable for installation in the drip loop, between the rotating nacelle and the stationary windmill tower, to connect the generator to the control units

### Product features

- Torsion-resistant up to  $\pm 150^\circ$  / m
- Good weather, abrasion, temperature and UV-resistance
- Resistant to oils
- Halogen-free and highly flame-retardant
- Depending on the quantity, customised designs are also possible upon request

### Norm references / Approvals

- Use of leading, European metric stranded conductors according to the IEC scale for conductor nominal cross-sections in mm<sup>2</sup> according to IEC 60228/VDE 0295, braided conductor class 6 (tinned): For converting to AWG, odd-numbered nominal AWG cross-sections must be excluded. The next lowest nominal AWG conductor cross-section in mm<sup>2</sup> must then be allocated to the metric nominal conductor cross-section in mm<sup>2</sup> (according to IEC 60228) (please refer to the technical catalogue appendix T16). This is to ensure that the normative current rating defined by the nominal AWG conductor cross-section does not exceed the physical/real current rating defined by the nominal IEC conductor cross-section that is actually used
- Cable type certifications: UL AWM style 21288 by UL acc. UL standard as well as cUL AWM II A/B by UL acc. CSA AWM standard
- 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)
  - No fire propagation (IEC 60332-3-24 and IEC 60332-3-25)
- Oil-resistant according to EN 60811-404 and UL OIL RES I and UL OIL RES II
- UV-resistant according to ISO 4892-2 and ozone-resistant according to EN 50396

### Product make-up

- Extra-fine wire conductor made of bare copper
- Core insulation: polyolefin compound
- Core connection optimised for high torsion requirements, twisted in layers
- Optional screening (D): wrapped with braided tinned-copper wires
- Outer sheath: special compound, halogen-free, black (RAL 9005)

### Technical data



**Classification**

- **ÖLFLEX® TORSION FRNC**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable
- **ÖLFLEX® TORSION D FRNC**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Core identification code**

Power and control cables:  
Colour-coded in accordance with VDE 0293-308, refer to Appendix T9  
From 6 cores: black with white numbers  
Paired signal cables: DIN 47100



**Specific insulation resistance**

> 20 GOhm x cm



**Conductor stranding**

**ÖLFLEX® TORSION FRNC**  
Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6 (Refer to Appendix T16 for the matching US conductor sizes in AWG standard)

**ÖLFLEX® TORSION D FRNC**  
Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6



**Torsion movement in WTG**

TW-0 & TW-2, refer to Appendix T0



**Minimum bending radius**

Flexible use: 10 x outer diameter  
Fixed installation: 6 x outer diameter



**Nominal voltage**

According to IEC/VDE:  
U0/U 0.6/1 kV ac  
Operating voltage in accordance with UL: 1000V



**Test voltage**

**ÖLFLEX® TORSION FRNC**  
C/C: 4000 V  
**ÖLFLEX® TORSION D FRNC**  
C/C: 4000 V  
C/S: 2000 V



**Protective conductor**

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



**Temperature range**

Flexible use: -40°C to +90°C (UL +80°C)  
Fixed installation: -40°C to +90°C (UL +80°C)

Special applications

Wind energy

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® TORSION FRNC</b>				
1150199	12 G 0.75	12.4	86.4	237
1150377	14 G 0.75	13.0	100.8	291
1150201	18 G 0.75	14.6	129.6	323
1150204	25 G 0.75	17.8	180.0	480
1150208	50 G 0.75	24.2	360.0	886
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	72.0	183
1150275	7 G 1.5	12.6	100.8	253
1150279	12 G 1.5	15.3	172.8	386
1150280	18 G 1.5	18.3	259.2	563
1150374	25 G 1.5	22.8	360.0	837
1150375	32 G 1.5	24.5	460.8	994
1150311	3 G 2.5	10.4	72.0	181
1150312	4 G 2.5	11.3	96.0	242
1150313	5 G 2.5	12.4	120.0	258
1150315	7 G 2.5	15.0	168.0	372
1150319	12 G 2.5	18.9	288.0	567
1150322	19 G 2.5	23.9	456.0	925
1150376	25 G 2.5	26.8	600.0	1183
1150350	3 G 4	11.9	115.2	254
1150351	4 G 4	13.0	153.6	313
1150352	5 G 4	14.3	192.0	370
1150355	3 G 6	12.9	172.8	338
1150356	4 G 6	14.4	230.4	401
1150357	5 G 6	16.0	288.0	486
1150360	3 G 10	16.6	288.0	556.1
1150361	4 G 10	18.4	384.0	658
1150362	5 G 10	20.5	480.0	799
1150366	4 G 16	22.2	614.4	1061
1150367	5 G 16	24.4	768.0	1188
1150371	4 G 25	26.9	960.0	1526
1150372	5 G 25	29.9	1,200.0	1881
1150369	5 G 35	33.7	1,680.0	2520
1150379	5 G 50	39.5	2,400.0	3710
<b>ÖLFLEX® TORSION D FRNC - screened</b>				
1150111	4 x 2 x 0.5	11.9	71.0	205
1150115	12 x 2 x 0.5	18.3	188.0	518
1150121	4 x 2 x 0.75	12.7	90.0	232
1150125	12 x 2 x 0.75	19.8	258.0	603
1150221	18 G 0.75	15.2	180.0	402
1150228	50 G 0.75	24.9	470.0	1079

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: Drum  
 Details of the clamping force are available upon request, halogen-free.  
 Photographs are not to scale and do not represent detailed images of the respective products.

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**New**

## ÖLFLEX® CHARGE OG

Spiralisable, halogen-free battery charging cable acc. VDE-AR-E 2283-5 for charging electrically powered vehicles

**Info**

- VDE EVC type certified
- Halogen-free and flame-retardant
- Spiralizable

LAPP KABEL STUÏGART ÖLFLEX® CHARGE EVC ROHS CE

### Benefits

- Normative compliance of the charging process with IEC 61851-1
- VDE EVC certified VDE-AR-E 2283-5 in compliance with the European EVC type as third-party approved component involved in charging
- Low toxicity of flue in the event of fire
- Permanent connection as flexible charging cable to charging station or for permanent on-board carriage inside vehicles
- Suitability of this metre ware for the spiralization finishing process

### Product features

- Flame-retardant acc. IEC 60332-1-2 as well as Halogen-free acc. VDE-AR-E 2283-5/ appendices B+C, EN 50267-2-1, EN 50267-2-2, EN 50525-1/ appendix C, EN 60684-2
- UV-resistant acc. EN ISO 4892-2, 2.4.20, as well as ozone-resistant acc. EN 50396, 8.1.3
- High resistance to usual vehicle chemicals, such as fuels and oils, according to VDE-AR-E 2283-5, appendix G
- Resistance to acids and solutions acc. EN 60811 (N oxalic acid and N sodium hydroxide solution)
- Cold-flexible as well as water-resistant at short, complete water contact according to AD6 of HD 516 and VDE-AR-E 2283-5, appendix I

### Norm references / Approvals

- <VDE> EVC cable type certification issued by the electric third-party association VDE according to the VDE application standard VDE-AR-E 2283-5

### Product make-up

- Finely stranded copper conductors of IEC conductor class 5 acc. IEC 60228/ VDE 0295
- Core insulations of power cores made of special, halogen-free, cross-linked elastomer EVI-2 acc. VDE-AR-E 2283-5
- Use of talcum powder on the power core surfaces
- Core insulation control/ pilot core(s): Halogen-free, thermoplastic, special compound EVI acc. VDE-AR-E 2283-5
- Twisted core assembly including power cores acc. HD 308 as well as control/ pilot core(s)
- Halogen-free, outer sheath made of PUR in compliance with the normative compound EVM acc. VDE-AR-E 2283-5
- Colour of the outer sheath: Orange

### Technical data

- Core identification code**  
 Power cores: colour-coded according to HD 308/VDE 0293-308  
 Control/Pilot core: White
- Conductor stranding**  
 Fine wire according to IEC 60228/ VDE 0295, class 5  
 Bare strands
- Minimum bending radius**  
 10 x outer diameter
- Nominal voltage**  
 $U_0/U = 450/750$  V DC
- Test voltage**  
 At the core: 2.5 kV AC  
 At the finished cable: 3 kV AC
- Protective conductor**  
 Always with protective conductor (PE), hence uppercase "G" as part of the dimension abbreviation
- Temperature range**  
 -25°C to +80°C  
 Maximum permissible conductor temperature: +90 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Copper index (kg/km)	Weight (kg/km)
74880550	3G2,5+1X0,5	76.8	155
74880558	3G6+1X0,5	177.6	330

Article number	Number of cores and mm <sup>2</sup> per conductor	Copper index (kg/km)	Weight (kg/km)
74880574	5G2,5+1X0,5	124.8	260
74880582	5G6+1X0,5	292.8	460

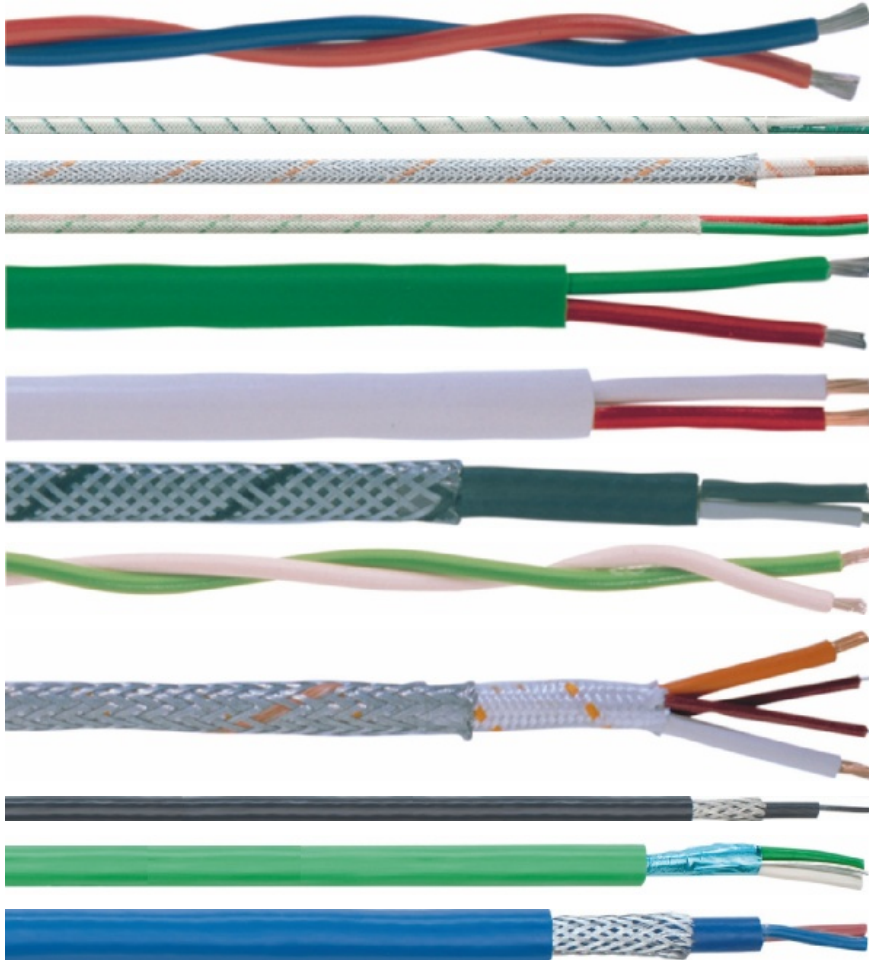
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Photographs are not to scale and do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

Special applications

Temperature measurement (extension and compensating cables)



**Extension- and compensating cables, paired**  
PVC, silicone or glass fibre-insulated



Info

- Available in many different designs

**Application range**

- 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 (KCA, KX)**  
KCA version: compensating alloys, not identical to thermocouple alloys  
KX version - conductor alloys are identical to thermocouple alloys
- PtRh/Pt (RCB, SCB)**  
Compensating alloys 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**

- Product make-up abbreviations:**  
**PVC:** Polyvinylchloride  
**SIL:** Silicone rubber  
**GL:** Glass fibre  
**C:** Copper braiding screen  
**ST:** Aluminium foil screen  
**S:** Steel wire braiding
- Product make-up, 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

**Technical data**

- Classification**  
 ETIM 5.0 Class-ID: EC000838  
ETIM 5.0 Class-Description: Thermocouple cable
- Based on**  
 Limiting deviation in accordance with DIN and IEC in accordance with class 2
- Conductor stranding**  
 1.5 mm<sup>2</sup>: approx. 48 x 0.20 mm  
0.75 mm<sup>2</sup>: approx. 24 x 0.20 mm  
0.5 mm<sup>2</sup>: approx. 16 x 0.20 mm  
0.22 mm<sup>2</sup>: 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 +70°C  
Silicone: -25°C to +180°C  
Glass fibre: -25°C to +200°C





Special applications

Temperature measurement (extension and compensating cables)

Article number	Reference/article designation	Thermocouple	Design	Cable design	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Outer dimensions, width x height (mm)	Weight (kg/km)
<b>Glass fibre-insulated versions 1.5 mm<sup>2</sup></b>								
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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 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 electromagnetic 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 version Y
  - Cores twisted in pairs, pairs twisted in layers
  - Aluminium foil screening + drain wire
  - PVC outer sheath
- Product make-up, for example PVC-PVC-S-PVC:**
  - PVC core insulation
  - PVC inner sheath
  - Steel wire braiding
  - PVC outer sheath

- Product make-up, 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 5.0 Class-ID: EC000838  
 ETIM 5.0 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 +70°C  
 Fixed installation: -40°C to +80°C

Article number	Thermocouple	Design	Cable design	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Weight (kg/km)
<b>Type Y without steel wire braiding</b>						
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

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Temperature measurement (extension and compensating cables)

Article number	Thermocouple	Design	Cable design	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Weight (kg/km)
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
<b>Type ST with steel wire braiding</b>						
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
<b>Type ST with static overall screening</b>						
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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



## 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 application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165
- 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 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 10 GOhm x cm

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

**Minimum bending radius**  
7.5 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 600/1000 V

**Test voltage**  
3000 V

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

**Current rating**  
VDE 0298 Part 4

**Temperature range**  
-25°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE NSHTÖU</b>				
0043006	3 G 1.5	12.2	43.2	190
00430053	4 G 1.5	14.8	57.6	220
00430073	5 G 1.5	15.7	72.0	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	432.0	1320
0043013	3 G 2.5	13.5	72.0	250
00430303	4 G 2.5	16.9	96.0	330
00430143	5 G 2.5	18.0	120.0	390
0043015	7 G 2.5	20.6	168.0	510
0043016	12 G 2.5	27.4	288.0	970
0043017	18 G 2.5	27.4	432.0	1100

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0043018	24 G 2.5	31.6	576.0	1450
0043019	30 G 2.5	36.3	720.0	1950
00430203	4 G 4	18.4	153.6	440
00430333	5 G 4	19.6	192.0	520
00430213	4 G 6	19.8	230.4	530
00430343	5 G 6	21.7	288.0	690
00430223	4 G 10	23.4	384.0	830
00430003	5 G 10	25.2	480.0	1000
00430233	4 G 16	25.5	614.4	1170
00430323	5 G 16	27.5	768.0	1400
00430243	4 G 25	32.6	960.0	1830
00430253	4 G 35	34.8	1,344.0	2280
00430263	4 G 50	40.6	1,920.0	3220
00430283	4 G 70	44.8	2,688.0	4200
00430293	4 G 95	51.2	3,648.0	5530

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 153
- ÖLFLEX® CRANE PUR refer to page 154

### Accessories

- STAR STRIP stripping tool refer to page 910
- KT cable shears refer to page 908

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## 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

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 10 GOhm x cm

**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**  
U<sub>0</sub>/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**  
-25°C to +80°C

**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, unreeling, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165

**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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE VS (N)SHTÖU</b>					
0044008	7 G 1.5	18.8	2,000	100.8	430
0044009	12 G 1.5	25.3	2,000	172.8	820
0044010	18 G 1.5	25.3	2,000	259.2	930
0044011	24 G 1.5	30.1	2,000	345.6	1260
0044036	36 G 1.5	34.0	2,000	518.4	1650
0044015	7 G 2.5	21.6	2,000	168.0	630
0044016	12 G 2.5	29.4	2,000	288.0	1150
00440333	5 G 4	19.6	2,000	192.0	510
00440223	4 G 10	23.4	2,000	384.0	830
00440233	4 G 16	25.5	2,000	614.4	1170
00440323	5 G 16	27.5	2,400	768.0	1400
00440243	4 G 25	32.6	3,000	960.0	1850
00440253	4 G 35	34.8	4,000	1,344.0	2250
00440263	4 G 50	40.6	6,000	1,920.0	3200
00440283	4 G 70	44.8	8,000	2,688.0	4200
00440293	4 G 95	51.2	11,000	3,648.0	5550

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CRANE NSHTÖU refer to page 152
- ÖLFLEX® CRANE PUR refer to page 154

**Accessories**

- EASY STRIP stripping and cutting tool refer to page 909
- V 1311 pressing pliers, hydraulic refer to page 934
- STAR STRIP stripping tool refer to page 910
- KT cable shears refer to page 908



## ÖLFLEX® CRANE PUR

Reelable polyurethane cables for low, medium and high mechanical stress



### 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, unreeling, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX(R) 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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165

### Product make-up

- Strands of bare copper wires
- Core insulatoin: TPE compound
- Central supporting element
- Support braid integrated in the outer sheath
- Outer sheath: PUR compound, halogen-free

**Info**

- Multifunctional application possibilities
- Lightweight due to minimised diameters
- Halogen-free

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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

**Specific insulation resistance**  
> 10 GOhm x cm

**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**  
U<sub>0</sub>/U: 600/1000 V

**Test voltage**  
3500 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  
Max. cond. temperature: +80 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE PUR</b>					
0045207	4 G 1.5	10.9	500	57.6	169
0045209	5 G 1.5	11.6	1,000	72.0	197
0045210	7 G 1.5	12.9	2,500	100.8	239
0045211	12 G 1.5	17.6	2,500	172.8	401
0045212	18 G 1.5	17.5	2,500	259.2	507
0045213	24 G 1.5	20.7	2,500	345.6	673
0045215	30 G 1.5	32.5	3,000	432.0	1530
0045214	36 G 1.5	31.4	3,000	518.4	1011
0045216	4 G 2.5	12.2	500	96.0	227
0045218	5 G 2.5	13.2	2,000	120.0	274
0045220	7 G 2.5	15.4	3,000	168.0	358
0045221	12 G 2.5	21.6	3,000	288.0	619
0045222	18 G 2.5	21.5	3,000	432.0	793
0045223	24 G 2.5	25.5	3,000	576.0	1123
0045224	30 G 2.5	34.7	3,000	720.0	1641
0045225	4 G 4	14.3	1,000	153.6	341
0045227	5 G 4	15.5	2,000	192.0	411
0045228	4 G 6	16.6	1,500	230.4	457
0045229	5 G 6	17.7	2,000	288.0	538
0045230	4 G 10	19.2	2,000	384.0	674
0045237	5 G 10	21.6	2,500	480.0	825
0045231	4 G 16	22.2	2,500	614.4	966
0045238	5 G 16	25.6	3,500	768.0	1222
0045232	4 G 25	27.6	3,500	960.0	1506
0045233	4 G 35	31.0	4,500	1,344.0	2004
0045234	4 G 50	36.1	6,000	1,920.0	2838
0045240	3x25+3G6	25.7	2,000	892.8	1380
0045241	3x35+3G6	27.6	2,500	1,180.8	1695
0045242	3x50+3G10	32.1	3,500	1,728.0	2307

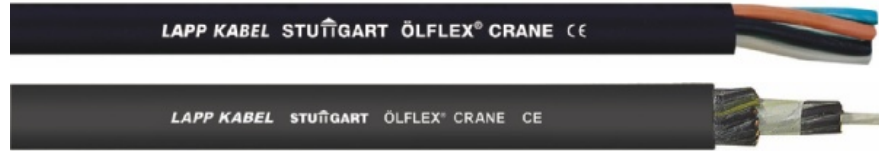
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
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 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**ÖLFLEX® CRANE**

Highly flexible and weather-proof rubber cables with support element



**Info**

- Suitable for outdoor use
- Integrated supporting element
- Also suitable for power 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 power 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 application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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 power 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**

- Strands of bare copper wires
- Core insulation: rubber compound
- Special supporting element as strain relief
- Outer sheath: rubber compound, type EM2

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**Conductor stranding**  
0.15 mm wire diameter at 1.0 mm<sup>2</sup>  
0.20 mm wire diameter from 1.5 mm<sup>2</sup>

**Minimum bending radius**  
Flexible use: 12.5 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE</b>					
0039001	2 X 1.0	7.4	300	19.2	89
0039002	3 G 1.0	8.3	300	28.8	106
00390033	4 G 1.0	8.9	300	38.4	127
00390043	5 G 1.0	10.4	300	48.0	149
0039107	7 G 1.0	12.9	300	67.2	206
0039109	9 G 1.0	14.4	300	86.4	281
0039054	12 G 1.0	18.5	360	115.2	422
0039116	16 G 1.0	17.9	480	153.6	407
0039055	18 G 1.0	19.2	540	172.8	451
0039120	20 G 1.0	20.5	600	192.0	530
0039056	24 G 1.0	22.1	720	230.4	646
0039057	36 G 1.0	26.1	1,080	345.6	863
0039148	48 G 1.0	29.6	1,440	460.8	1222
0039017	2 X 1.5	8.0	300	28.8	108
0039018	3 G 1.5	8.7	300	43.2	128
00390193	4 G 1.5	9.9	300	57.6	158
00390203	5 G 1.5	10.9	300	72.0	188
0039061	7 G 1.5	14.0	315	100.8	260
0039208	8 G 1.5	15.2	360	115.2	300
0039209	9 G 1.5	15.9	405	129.6	375
0039210	10 G 1.5	17.0	450	144.0	427

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
0039058	12 G 1.5	19.9	540	172.8	557
0039059	18 G 1.5	20.9	810	259.2	608
0039060	24 G 1.5	23.4	1,080	345.6	825
0039034	2 X 2.5	9.7	300	48.0	145
0039035	3 G 2.5	10.2	300	72.0	173
00390363	4 G 2.5	11.6	300	96.0	219
00390373	5 G 2.5	12.4	375	120.0	259
0039307	7 G 2.5	16.6	525	168.0	378
0039309	9 G 2.5	18.9	675	216.0	518
0039312	12 G 2.5	23.3	900	288.0	770
0039316	16 G 2.5	22.8	1,200	384.0	749
0039318	18 G 2.5	24.4	1,350	432.0	837
0039324	24 G 2.5	28.5	1,800	576.0	1184
0039336	36 G 2.5	33.2	2,700	864.0	1634
00390463	4 G 4	15.2	480	153.6	307
00390473	5 G 4	16.8	600	192.0	394
00390483	4 G 6	16.8	720	230.4	409
00390493	5 G 6	19.2	900	288.0	528
00390503	4 G 10	21.8	1,200	384.0	698
00390513	5 G 10	24.6	1,500	480.0	853
00390523	4 G 16	25.4	1,920	614.4	974
00390533	5 G 16	28.0	2,400	768.0	1226

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CRANE NSHTÖU refer to page 152
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 153

**Accessories**

- SKINTOP® CLICK System refer to page 657

Conveyor technology

For push-button control units



## ÖLFLEX® CRANE 2S

Flexible at cold temperatures, PVC cables with external steel supporting elements



**Info**

- Double tensile strength safety
- Teach pad cable

**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!
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

**Norm references / Approvals**

- Flame-retardant according IEC 60332-1-2
- Flexible at low temperatures

**Norm references / Approvals**

- Based on VDE 0250

**Product make-up**

- Strands 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 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
3000 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 mm <sup>2</sup> per conductor	Cable Ø (mm)	Distance between strain wires (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE 2S</b>					
0027503	8 G 1.5	14.7	20	115.0	372.5
0027504	12 G 1.5	16.2	21	172.8	439
0027505	20 G 1.5	20.1	25	288.0	674

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- EASY STRIP stripping and cutting tool refer to page 909





**ÖLFLEX® LIFT**

Flexible at cold temperatures, PVC lift cables with supporting element



**Info**

- High operating efficiency
- Suspension length up to 90 m
- VDE-tested and registered

**Benefits**

- Special cable design for a long service life
- Attractive price and maximum operational efficiency
- 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 application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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

**Norm references / Approvals**

- VDE registration under VDE reg. no. 7039

**Product make-up**

- Strands of bare copper wires
- Special PVC-based core insulation
- Supporting element made of hemp or aramid
- Fleece-wrapping between cores and sheath
- Special PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000826  
ETIM 5.0 Class-Description: Elevator cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Suspension length**  
refer to article table

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Max. suspension length (m)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® LIFT</b>					
0027020	7 G 1.0	11.5	80	67.2	178
0027022	12 G 1.0	16.3	80	115.2	332
0027024	18 G 1.0	16.4	70	172.8	405
0027027	24 G 1.0	19.4	60	230.4	533.25
0027029	36 G 1.0	25.1	90	345.6	887

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® LIFT T refer to page 158
- ÖLFLEX® LIFT S refer to page 159

**Accessories**

- Round cable wedged clamps
- KT cable shears refer to page 908



## ÖLFLEX® LIFT T

Flexible at cold temperatures, PVC lift cables with textile braiding and supporting element



**Info**

- Robust cable design
- Suspension length up to 110 m
- VDE-tested and registered

### Benefits

- Special cable design for a long service life
- Able to withstand mechanical stress at high suspension lengths
- 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 application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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
- Flexible at low temperatures

### Norm references / Approvals

- VDE registration under VDE reg. no. 7040

### Product make-up

- Strands of bare copper wires
- Special PVC-based core insulation
- Supporting element made of hemp or aramid
- Fleece-wrapping between cores and sheath
- Support braid made of textile fibre blend
- Special PVC-based outer sheath

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000826  
ETIM 5.0 Class-Description: Elevator cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Suspension length**  
refer to article table

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Max. suspension length (m)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® LIFT T</b>					
0027506	12 G 0.75	18.1	110	86.0	360
0027507	18 G 0.75	18.3	110	129.6	460
0027508	24 G 0.75	21.0	80	172.8	530
0027001	7 G 1.0	14.5	80	67.0	225
0027002	12 G 1.0	19.2	80	115.0	410
0027008	18 G 1.0	19.5	70	172.8	475
0027004	20 G 1.0	20.3	70	192.0	525
0027005	24 G 1.0	22.1	60	230.0	600
0027007	36 G 1.0	28.6	90	345.6	950
0027006	28 G 1,0 + 2 x (0,5) C	25.2	90	293.0	765

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® LIFT refer to page 157
- ÖLFLEX® LIFT S refer to page 159

### Accessories

- Round cable wedged clamps
- KT cable shears refer to page 908



**ÖLFLEX® LIFT S**

Flexible at cold temperatures, PVC lift cables with textile braiding and steel supporting element

**Info**

- Robust cable design
- Suspension length up to 150 m



**Benefits**

- Special cable design for a long service life
- Practical experience and long-term tests proved that the cable can withstand extreme stress
- High suspension lengths due to the steel wire supporting element
- 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 application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- 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
- Flexible at low temperatures

**Product make-up**

- Strands of bare copper wires
- Special PVC-based core insulation
- Steel support element
- Fleece-wrapping between cores and sheath
- Support braid made of textile fibre blend
- Special PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000826  
ETIM 5.0 Class-Description: Elevator cable

**Core identification code**  
Black with white numbers acc. to VDE 0293-1

**Suspension length**  
refer to article table

**Specific insulation resistance**  
> 20 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Max. suspension length (m)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® LIFT S</b>					
0027009	24 G 1.0	22.1	150	230.0	680
0027010	36 G 1.0	28.6	150	345.6	1092

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® LIFT refer to page 157
- ÖLFLEX® LIFT T refer to page 158

**Accessories**

- Round cable wedged clamps
- STAR STRIP stripping tool refer to page 910



## ÖLFLEX® CRANE F

Weather-resistant flat rubber cables



### Benefits

- Weather-resistant for harsh environmental conditions
- Flat cables need less space than round cables
- Smaller bending radii is possible

### 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
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

### Product features

- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0250 (NGFLGÖU)

### Product make-up

- Strands of bare or tinned-copper wires
- Core insulation: rubber compound
- Outer sheath: special rubber compound

**Info**

- For outdoor cable trolley application
- Space-saving installation
- Also suitable for power chains and lift applications

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000825  
ETIM 5.0 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

**Specific insulation resistance**  
> 10 GΩm x cm

**Conductor stranding**  
Copper conductor according to VDE 0295/IEC 60228  
up to 25 mm<sup>2</sup>: extra-fine wire, class 6  
from 35 mm<sup>2</sup>: fine wire, class 5

**Minimum bending radius**  
Flexible use: 10 x cable thickness

**Nominal voltage**  
U<sub>0</sub>/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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE F</b>				
0041041	4 G 1.5	17.5 x 6.2	57.6	200
0041042	5 G 1.5	21.5 x 6.2	72.0	240
0041043	7 G 1.5	29.0 x 6.2	100.8	360
0041044	8 G 1.5	31.5 x 6.2	115.0	370
0041045	10 G 1.5	40.0 x 6.5	144.0	520
0041046	12 G 1.5	47.0 x 6.5	172.8	620
0041047	4 G 2.5	21.0 x 7.5	96.0	280
0041048	5 G 2.5	27.0 x 7.5	120.0	400
0041049	7 G 2.5	35.0 x 7.5	168.0	520
0041050	8 G 2.5	39.0 x 7.5	192.0	550
0041051	12 G 2.5	56.0 x 8.0	288.0	800
0041052	4 G 4	26.0 x 9.0	153.6	410
0041053	7 G 4	42.0 x 9.0	268.8	700
0041054	4 G 6	29.0 x 9.5	230.0	600
0041055	5 G 6	35.0 x 9.5	288.0	650
0041056	7 G 6	42.0 x 9.5	403.0	850
0041057	4 G 10	33.0 x 11.0	384.0	800
0041058	5 G 10	44.0 x 11.0	480.0	1000
0041059	4 G 16	38.0 x 13.0	614.0	1150
0041060	4 G 25	49.5 x 15.0	960.0	1700
0041061	4 G 35	55.0 x 17.0	1,344.0	2360
0041062	4 G 50	63.0 x 19.0	1,920.0	3000
0041063	4 G 70	71.0 x 22.0	2,688.0	4000

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® LIFT F refer to page 162

**Accessories**

- Cable trolley systems refer to page 971
- Flat cable wedge clamps



**Info**

- For outdoor cable trolley application
- EMC-compliant

## ÖLFLEX® CRANE CF

Weather-resistant flat rubber cables with copper screening



### 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
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

### Product features

- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0250 (NGFLGÖU)

### Product make-up

- Strands of bare or tinned-copper wires
- 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 5.0 Class-ID: EC000825  
ETIM 5.0 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
- Specific insulation resistance**  
> 10 GOhm x cm
- Conductor stranding**  
Copper conductor according to VDE 0295/IEC 60228  
up to 25 mm<sup>2</sup>: extra-fine wire, class 6  
from 35 mm<sup>2</sup>: fine wire, class 5
- Minimum bending radius**  
Flexible use: 10 x cable thickness
- Nominal voltage**  
U<sub>0</sub>/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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® CRANE CF</b>				
0041075	4 G 1.5	18.5 x 6.5	79.0	220
0041076	8 G 1.5	36.0 x 7.5	155.0	470
0041077	12 G 1.5	54.5 x 8.5	238.0	745
0041078	4 G 2.5	22.5 x 7.5	141.0	320
0041079	12 G 2.5	69.5 x 9.5	499.0	1180
0041080	4 G 4	29.0 x 10.5	219.0	505
0041081	4 G 6	31.0 x 10.5	302.0	605
0041082	4 G 10	36.0 x 11.5	472.0	840
0041083	4 G 16	41.5 x 13.5	687.0	1180
0041084	4 G 25	47.0 x 15.0	1,114.0	1605
0041085	4 G 35	55.0 x 17.0	1,482.0	2520
0041086	4 G 50	66.0 x 20.5	2,238.0	3000

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CRANE F refer to page 160
- ÖLFLEX® LIFT F refer to page 162

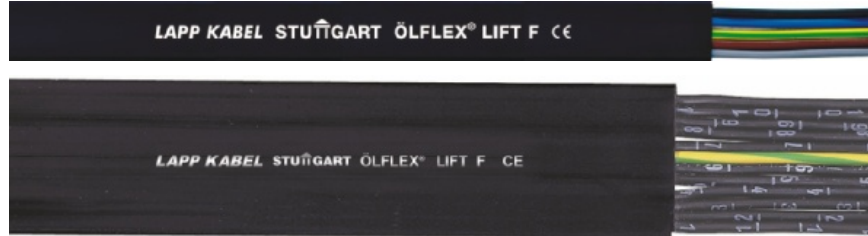
### Accessories

- Cable trolley systems refer to page 971
- Flat cable wedge clamps



# ÖLFLEX® LIFT F

Flexible at cold temperatures, PVC flat cables



**Info**

- For cable trolley application
- Space-saving installation
- Also suitable for power chains and lift applications

**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
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

**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**

- Strands of bare copper wires
- Core insulation: Based on PVC
- PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000825  
ETIM 5.0 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

**Specific insulation resistance**  
> 20 GOhm x cm

**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 mm<sup>2</sup>: finely stranded/ class 5)

**Minimum bending radius**  
Flexible use: 10 x cable thickness

**Nominal voltage**  
Up to 1.0 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 V  
From 1.5 mm<sup>2</sup>: U<sub>0</sub>/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 mm<sup>2</sup>)  
-15 °C to +70 °C (as from 1.5 mm<sup>2</sup>)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® LIFT F</b>				
Nominal voltage U <sub>0</sub> /U: 300/500 V, temperature range: 0°C to +70°C				
0042020	12 G 1.0	36.0 x 4.7	115.0	392
0042021	16 G 1.0	48.5 x 4.7	153.6	521
0042022	20 G 1.0	59.0 x 4.7	192.0	645
0042023	24 G 1.0	71.5 x 4.7	230.0	772
Nominal voltage U <sub>0</sub> /U: 450/750 V, temperature range: -15°C to +70°C				
00420013	4 G 1.5	15.5 x 5.2	57.6	132
00420023	5 G 1.5	19.7 x 5.2	72.0	170
0042003	7 G 1.5	27.0 x 5.2	100.8	236
0042004	8 G 1.5	29.0 x 5.2	115.0	266
0042005	10 G 1.5	36.5 x 5.2	144.0	333
0042006	12 G 1.5	42.0 x 5.2	172.8	422
00420073	4 G 2.5	19.0 x 5.9	96.0	206
00420083	5 G 2.5	24.0 x 5.9	120.0	257
0042009	7 G 2.5	32.5 x 5.9	168.0	345
0042010	8 G 2.5	35.0 x 5.9	192.0	390
0042050	12 G 2.5	52.5 x 5.9	288.0	580
00420113	4 G 4	21.0 x 6.8	153.6	343
0042012	7 G 4	38.0 x 6.8	268.8	589
00420133	4 G 6	24.0 x 7.3	230.0	425
00420143	4 G 10	30.5 x 9.5	384.0	709
00420153	4 G 16	35.0 x 10.8	614.0	1015
00420163	4 G 25	42.0 x 13.0	960.0	1366

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® CRANE F refer to page 160

**Accessories**

- Cable trolley systems refer to page 971
- Flat cable wedge clamps

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## ÖLFLEX® HEAT 105 MC

Colour-coded connection cables made of high heat-resistant PVC



**Info**

- Based on H05V2V2-F

### 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

### 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 VDE 0250 / 0285

### 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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9  
From 7 cores: ÖLFLEX® colour code, refer to Appendix T7
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>
- Minimum bending radius**  
Occasional flexing: 15 x outer diameter  
Fixed installation: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
2500 V
- Protective conductor**  
G = with GN-YE protective conductor  
X = without protective conductor
- Temperature range**  
Fixed installation: -20°C to +90°C  
Short-term: +105 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 105 MC</b>				
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	36.0	95
0026005	7 G 0.75	9.7	50.0	113
0026006	2 X 1	6.5	19.2	61
0026007	3 G 1	6.9	29.0	74
00260083	4 G 1	7.7	38.4	89
00260093	5 G 1	8.4	48.0	110
0026010	7 G 1	10.2	67.0	130
0026011	2 X 1.5	7.5	29.0	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	72.0	144
0026015	7 G 1.5	12.3	101.0	180

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

Expanded ambient temperatures

Cross-linked cables (-55 °C to +125 °C)



# ÖLFLEX® HEAT 145 MC\*

Electron beam cross-linked cables for more demanding application requirements



**Info**

- Improved characteristics in the event of a fire
- Voltage class from 1.5 mm<sup>2</sup> 450/750 V
- Please note: Discontinued product!

**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

**Product features**

- Low smoke density according to IEC 61034-2
- Good weather and UV-resistance
- Halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2
- 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**

- GL - Germanischer Lloyd approved

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable



**Core identification code**

Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9  
From 7 cores:  
black with white numbers



**Conductor stranding**

Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>



**Minimum bending radius**

Occasional flexing: 15 x outer diameter  
Fixed installation: 4 x outer diameter



**Nominal voltage**

Up to 1.0mm<sup>2</sup> U<sub>0</sub>/U 300/500 V  
From 1.5mm<sup>2</sup> U<sub>0</sub>/U 450/750 V  
0.6/1kV from 1.5 mm<sup>2</sup> in the case of fixed and protected installation



**Test voltage**

3500 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  
Short-term: up to +145 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 145 MC 300/500 V</b>				
0026805	2 X 0.75	5.9	14.4	40
0026806	3 G 0.75	6.2	21.6	53
00268073	4 G 0.75	6.9	28.8	69
00268083	5 G 0.75	7.7	36.0	86
0026815	2 X 1	6.3	19.2	50
0026816	3 G 1	6.8	28.8	67
00268173	4 G 1	7.4	38.4	87
00268183	5 G 1	8.3	48.0	107
0026819	7 G 1	9.9	67.2	152
<b>ÖLFLEX® HEAT 145 MC 450/750 V</b>				
0026825	2 X 1.5	7.6	28.8	71
0026826	3 G 1.5	8.1	43.2	96
00268273	4 G 1.5	8.8	57.6	123

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
00268293	5 G 1.5	9.8	72.0	156
0026830	7 G 1.5	12.0	101.0	224
0026831	10 G 1.5	14.6	144.0	322
0026832	12 G 1.5	14.6	173.0	316
0026833	16 G 1.5	16.2	230.0	415
0026837	25 G 1.5	21.1	360.0	731
0026838	2 X 2.5	9.0	48.0	102
0026839	3 G 2.5	9.8	72.0	145
00268403	4 G 2.5	10.8	96.0	189
00268413	5 G 2.5	12.0	120.0	235
0026842	7 G 2.5	14.6	168.0	344
00268503	4 G 4	12.2	153.6	276
00268513	5 G 4	13.5	192.0	334
00268563	5 G 6	15.4	288.0	494

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.





## ÖLFLEX® HEAT 145 C MC\*

Electron beam cross-linked cables for more demanding application requirements

**Info**

- Improved characteristics in the event of a fire
- Screened to comply with EMC
- Please note: Discontinued product!

### 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 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

### Product features

- Halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Low smoke density according to IEC 61034-2
- Good weather and UV-resistance

### Norm references / Approvals

- GL - Germanischer Lloyd approved

### 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

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Core identification code**  
Black with white numbers (without gn/ye)

**Specific insulation resistance**  
>2 TOhm x cm

**Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>

**Minimum bending radius**  
Occasional flexing: 15 x outer diameter  
Fixed installation: 5 x outer diameter

**Nominal voltage**  
Up to 1.0mm<sup>2</sup> U<sub>0</sub>/U 300/500 V  
From 1.5mm<sup>2</sup> U<sub>0</sub>/U 450/750 V  
0.6/1kV from 1.5 mm<sup>2</sup> in the case of fixed and protected installation

**Test voltage**  
C/C 3500 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  
Short-term: up to +145 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 145 C MC screened 300/500 V</b>				
0026908	2 X 0.75	6.9	38.0	79
0026909	3 X 0.75	6.9	50.0	96
0026910	4 X 0.75	7.6	58.0	116
0026911	5 X 0.75	8.3	70.0	139
0026912	7 X 0.75	9.9	84.9	186
0026916	2 X 1	7.0	43.3	90
0026917	3 X 1	7.4	56.0	104
0026918	4 X 1	8.1	66.0	129
0026919	5 X 1	8.9	95.0	153
0026920	7 X 1	10.5	109.0	211
<b>ÖLFLEX® HEAT 145 C MC screened 450/750 V</b>				
0026924	2 X 1.5	8.2	58.0	114

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026925	3 X 1.5	8.7	71.0	132
0026926	4 X 1.5	9.4	86.0	163
0026927	5 X 1.5	10.5	104.0	200
0026928	7 X 1.5	12.6	136.0	273
0026932	2 X 2.5	9.8	96.0	157
0026933	3 X 2.5	10.4	146.0	198
0026934	4 X 2.5	11.5	150.0	236
0026935	5 X 2.5	12.6	200.0	287
0026938	4 X 4	12.8	220.0	317
0026939	5 X 4	14.3	259.0	376

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-SC refer to page 733
- SKINTOP® MS-M BRUSH refer to page 675

Expanded ambient temperatures

Silicone cables (-50°C to +180°C)



# ÖLFLEX® HEAT 180 SiHF

Silicone cables with extended temperature range



**Info**

- The classic for multi-functional use

**Benefits**

- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO<sub>2</sub> 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 and flame-retardant (IEC 60332-1-2)
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
>200 GOhm 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 SiHF</b>				
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	36.0	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	6.6	19.2	66
0046008	3 G 1	7.0	29.0	79
00460093	4 G 1	7.9	38.4	101
00460103	5 G 1	8.8	48.0	127
0046012	7 G 1	9.5	67.0	156
0046013	2 X 1.5	7.6	29.0	90
0046014	3 G 1.5	8.0	43.0	109
00460153	4 G 1.5	8.8	58.0	134
00460163	5 G 1.5	9.6	72.0	163
0046018	7 G 1.5	10.4	101.0	202
0046039	12 G 1.5	14.0	173.0	361
0046040	16 G 1.5	16.2	230.4	478
0046041	20 G 1.5	17.5	288.0	574

Article number	Number of cores and mm <sup>2</sup> 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	48.0	128
0046020	3 G 2.5	9.7	72.0	167
00460213	4 G 2.5	10.6	96.0	206
00460223	5 G 2.5	11.6	120.0	251
0046024	7 G 2.5	12.6	168.0	313
0046025	2 X 4	10.8	76.8	196
0046026	3 G 4	11.5	115.0	241
00460273	4 G 4	12.6	154.0	300
00460283	5 G 4	14.0	192.0	374
0046030	7 G 4	15.6	269.0	486
0046031	2 X 6	12.4	116.0	268
0046032	3 G 6	13.2	173.0	333
00460333	4 G 6	14.7	230.0	425
00460343	5 G 6	16.6	288.0	538
0046036	7 G 6	18.6	403.0	705
00460373	4 G 10	19.4	384.0	707
00460453	5 G 10	21.6	480.0	878
00460383	4 G 16	21.4	614.0	1004

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 180 H05SS-F EWKF refer to page 167
- ÖLFLEX® HEAT 180 EWKF refer to page 170



## 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 SiO<sub>2</sub> 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

- Halogen-free and 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
- EWKF:** Initial tear propagation and notch resistance

### 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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
>200 GOhm 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: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 H05SS-F EWKF</b>				
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	36.0	105
0046904	2 X 1	6.8	19.2	63
0046905	3 G 1	7.2	28.8	81
00469063	4 G 1	7.9	38.4	98
00469073	5 G 1	8.8	48.0	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	72.0	154
0046912	2 X 2.5	9.8	48.0	141
0046913	3 G 2.5	10.4	72.0	158
00469143	4 G 2.5	11.6	96.0	195
00469153	5 G 2.5	12.9	120.0	241
0046916	3 G 4	12.3	115.2	239
00469173	4 G 4	13.7	153.6	312
0046919	3 G 6	14.0	172.8	345
00469203	4 G 6	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® HEAT 180 EWKF refer to page 170
- ÖLFLEX® HEAT 180 EWKF C refer to page 171

Expanded ambient temperatures

Silicone cables (-50°C to +180°C)



# 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/600V)

**Benefits**

- Certified for the USA and Canada for export-oriented 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 SiO<sub>2</sub> 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**

- Metric flexible conductor design
- Halogen-free and 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

**Norm references / Approvals**

- UL AWM 4476 and cUL AWM II A/B Construction B, External interconnection

**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 5.0 Class-ID: EC001578  
ETIM 5.0 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**  
U<sub>0</sub>/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: -50 °C to +180 °C  
Normatively acc. UL Style: up to +150 °C  
(adequate ventilation required)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 MS</b>				
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	8.2	19.2	93
0046613	3 G 1	8.7	28.8	110
00466143	4 G 1	9.4	38.4	133
00466153	5 G 1	10.3	48.0	160
0046616	7 G 1	11.1	67.2	195
0046617	12 G 1	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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
00466213	5 G 1.5	11.1	72.0	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	360.0	904
0046628	2 X 2.5	9.6	48.0	146
0046629	3 G 2.5	10.2	72.0	178
00466303	4 G 2.5	11.1	96.0	220
00466313	5 G 2.5	12.2	120.0	269
0046633	3 G 4	11.5	115.2	246
00466343	4 G 4	12.6	153.6	307
00466353	5 G 4	14.2	192.0	389
0046636	3 G 6	14.9	172.8	396
00466373	4 G 6	16.4	230.4	495
00466383	5 G 6	18.0	288.0	608

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 180 C MS refer to page 169

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## 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/600V)
- EMC compliant copper screening

**Benefits**

- Certified for the USA and Canada for export-oriented 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**

- Metric flexible conductor design
- Halogen-free and 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

**Norm references / Approvals**

- UL AWM 4476 and cUL AWM II A/B Construction B, External interconnection

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
>200 GOhm x cm

**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**  
U<sub>0</sub>/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: -50 °C to +180 °C  
Normatively acc. UL Style: up to +150 °C  
(adequate ventilation required)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 C MS</b>				
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	9.0	48.2	104
0046709	3 G 1	9.5	65.0	131
0046710	4 G 1	10.2	74.6	152
0046711	5 G 1	11.0	91.5	181
0046712	7 G 1	11.9	117.9	228
0046716	2 X 1.5	9.6	65.0	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 mm <sup>2</sup> 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	12.3	165.9	261
0046735	4 G 4	13.4	211.5	325
0046736	5 G 4	14.9	257.2	389
0046740	4 G 6	17.2	302.8	482
0046741	5 G 6	18.7	367.6	580
0046742	4 G 10	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 180 MS refer to page 168
- ÖLFLEX® HEAT 180 EWKF C refer to page 171

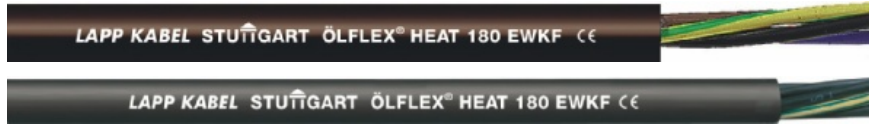
Expanded ambient temperatures

Silicone cables (-50°C to +180°C)



# ÖLFLEX® HEAT 180 EWKF

Silicone cables with increased mechanical characteristics



**Info**

- Proven notch-resistant EWKF quality

**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 SiO<sub>2</sub> 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**

- Halogen-free and 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
- **EWKF:** Initial tear propagation and notch resistant

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
>200 GOhm 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 EWKF</b>				
0046500	2 X 0.75	6.4	15.0	49
0046501	3 G 0.75	6.9	22.0	60
00465023	4 G 0.75	7.6	29.0	76
00465033	5 G 0.75	8.5	36.0	96
0046506	2 X 1	6.8	20.0	56
0046507	3 G 1	7.1	29.0	68
00465083	4 G 1	7.9	39.0	88
00465093	5 G 1	8.8	48.0	110
0046110	7 G 1	9.5	67.2	137
0046511	2 X 1.5	8.0	29.0	77
0046512	3 G 1.5	8.4	43.0	94
00465133	4 G 1.5	9.5	58.0	117
00465143	5 G 1.5	10.4	72.0	143

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0046115	7 G 1.5	11.0	101.0	180
0046116	12 G 1.5	14.9	173.0	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	48.0	110
0046521	3 G 2.5	9.8	72.0	146
00465223	4 G 2.5	11.1	96.0	181
00465233	5 G 2.5	12.4	120.0	222
0046131	3 G 4	11.5	114.0	213
00461323	4 G 4	12.5	152.0	267
00461333	5 G 4	13.9	190.0	334
0046141	3 G 6	13.2	174.0	297
00461423	4 G 6	14.7	232.0	381
00461433	5 G 6	16.5	290.0	481

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 180 H05SS-F EWKF refer to page 167
- ÖLFLEX® HEAT 180 EWKF C refer to page 171

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Proven notch-resistant EWKF quality
- EMC compliant copper screening

## ÖLFLEX® HEAT 180 EWKF C

Screened silicone cables with increased mechanical characteristics



### 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

- Halogen-free and 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
- **EWKF:** Initial tear propagation and notch resistance

### 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 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
>200 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 EWKF C</b>				
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	9.0	43.0	116
0046308	3 G 1	9.7	55.7	142
00463093	4 G 1	10.9	67.8	175
00463103	5 G 1	11.6	80.3	203
0046312	7 G 1	12.3	113.9	250
0046313	2 X 1.5	10.8	58.0	166
0046314	3 G 1.5	11.2	74.0	188

Article number	Number of cores and mm <sup>2</sup> 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	16.0	218.0	448
00463283	5 G 4	17.2	262.9	531
0046330	3 G 6	16.4	240.5	489
00463313	4 G 6	17.9	304.7	591
00463323	5 G 6	19.4	370.0	706

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® HEAT 180 H05SS-F EWKF refer to page 167
- ÖLFLEX® HEAT 180 EWKF refer to page 170

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-SC refer to page 733
- SKINTOP® MS-M BRUSH refer to page 675



## 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 SiO<sub>2</sub> 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 and flame-retardant (IEC 60332-1-2)
- Only suitable for use in dry conditions

### 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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
>200 GOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 GLS</b>				
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	36.0	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	7.8	19.2	92
0046208	3 G 1	8.2	28.8	106
00462093	4 G 1	9.1	38.4	132
00462103	5 G 1	10.0	48.0	161
0046212	7 G 1	10.7	67.0	205
0046213	2 X 1.5	8.8	29.0	119
0046214	3 G 1.5	9.2	43.0	140
00462153	4 G 1.5	10.0	57.6	168

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
00462163	5 G 1.5	10.8	72.0	212
0046218	7 G 1.5	11.8	101.0	255
0046237	12 G 1.5	15.4	173.0	433
0046219	2 X 2.5	10.0	48.0	162
0046220	3 G 2.5	10.9	72.0	217
00462213	4 G 2.5	12.0	96.0	260
00462223	5 G 2.5	13.0	120.0	310
0046224	7 G 2.5	14.0	168.0	362
0046226	3 G 4	12.9	115.0	300
00462273	4 G 4	14.0	154.0	365
00462283	5 G 4	15.4	192.0	446
00462313	4 G 6	16.1	230.0	500
00462343	4 G 10	20.8	384.0	807
00462353	4 G 16	22.8	614.0	1117

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® HEAT 260 GLS refer to page 176





**Info**

- Good chemical resistance
- Wide temperature application range
- Thin, light and robust

**Info**

- EMC compliant copper screening

## ÖLFLEX® HEAT 205 MC

Fluorinated ethylene propylene cables for harsh applications



## ÖLFLEX® HEAT 205 PTFE/FEP

4-cored version with PTFE insulation and special core identity code



### Benefits

- Space and weight-saving installations due to small cable diameters
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour

### Application range

- Conventional cables are not designed for use in environments with very high operating temperatures, heavy usage of chemical agents, or tight 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

### Norm references / Approvals

- 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

- ÖLFLEX® HEAT 205 MC**
- Fine-wire, tinned-copper conductor
  - FEP-based core insulation
  - Cores twisted together
  - FEP-based outer sheath, black
- ÖLFLEX® HEAT 205 PTFE/FEP**
- Fine-wire, tinned-copper conductor
  - PTFE-based core insulation
  - Cores twisted together
  - Tinned-copper braiding
  - Outer sheath: FEP-based, white

### Technical data

- Classification**  
 ETIM 5.0 Class-ID: EC001578  
 ETIM 5.0 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 PTFE/FEP**  
 Blue, red, grey, black
- Conductor stranding**  
 Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>
- Minimum bending radius**  
 Occasional flexing: 15 x outer diameter  
 Fixed installation: 4 x outer diameter
- Nominal voltage**  
 U<sub>0</sub>/U: 300/500 V
- Test voltage**  
**ÖLFLEX® HEAT 205 MC**  
 2500 V  
**ÖLFLEX® HEAT 205 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 205 MC</b>				
0091200	2 X 0.25	3.1	5.0	17.2
0091201	3 G 0.25	3.3	7.5	22.2
00912023	4 G 0.25	3.6	10.0	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	29.0	57.9
0091230	2 X 1	4.5	19.0	41.6
0091231	3 G 1	4.8	29.0	55.6

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
00912323	4 G 1	5.3	38.0	70
0091100	3 G 1.5	5.6	43.0	70
00911033	4 G 1.5	6.1	58.0	98
00911013	5 G 1.5	6.8	72.0	117
0091102	7 G 1.5	7.4	101.0	184
0091236	3 G 2.5	6.6	72.0	86
00912353	4 G 2.5	7.3	96.0	115
00912373	5 G 2.5	8.2	120.0	144
00912423	4 G 4	8.7	154.0	180
00912433	5 G 4	9.6	192.0	225
<b>ÖLFLEX® HEAT 205 PTFE/FEP</b>				
30016373	4 X 0.75	5.9	49.0	78

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- **ÖLFLEX® HEAT 205 MC**
- ÖLFLEX® HEAT 260 MC refer to page 174

Expanded ambient temperatures

PTFE cables (-190°C to +260°C)



# 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
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour
- Copper braiding of screened version complies with EMC requirements and protects against electromagnetic interference

**Application range**

- Conventional cables are not designed for use in environments with very high operating temperatures, heavy usage of chemical agents, or tight 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

**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

**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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable

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

**Specific insulation resistance**  
> 1 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: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 260 MC</b>				
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	4.8	19.2	42
0091311	3 G 1	5.1	28.8	56
0091312	4 G 1	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	72.0	118
0091320	3 G 2.5	7.1	72.0	87
0091321	4 G 2.5	7.7	96.0	116
0091322	5 G 2.5	8.5	120.0	145

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 205 MC refer to page 173

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## 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
- Copper braiding of screened version complies with EMC requirements and protects against electromagnetic interference

### Application range

- Conventional cables are not designed for use in environments with very high operating temperatures, heavy usage of chemical agents, or tight 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

### 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

### 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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
Colours according to VDE 0293-308, refer to Appendix T9
- Specific insulation resistance**  
> 1 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: 4 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 260 C MC</b>				
0091330	3 G 0.75	5.5	46.0	75
0091331	4 G 0.75	5.9	51.0	87
0091332	3 G 1	5.8	48.0	81
0091333	4 G 1	6.4	65.0	104
0091334	3 G 1.5	6.3	65.0	101
0091335	4 G 1.5	7.2	86.0	134
0091336	5 G 1.5	7.8	105.0	162
0091337	3 G 2.5	7.9	114.0	160
0091338	4 G 2.5	8.7	140.0	204
0091339	5 G 2.5	9.4	209.0	270

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

Expanded ambient temperatures

PTFE cables (-190°C to +260°C)



# 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 approval 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

**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**

- GL - Germanischer Lloyd approved

**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 5.0 Class-ID: EC001578  
ETIM 5.0 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

**Specific insulation resistance**  
> 1 TOhm x cm

**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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 260 GLS</b>				
0091120	2 X 1.5	5.7	29.0	93
0091121	3 G 1.5	6.1	43.0	102
00911223	4 G 1.5	6.6	58.0	130
00911233	5 G 1.5	7.3	72.0	149
0091124	7 G 1.5	8.0	101.0	180

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® HEAT 180 GLS refer to page 172

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## 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

### Application range

- Wide operating temperature range allows the product to be used in applications under Thermal Class C.
- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Lighting, apparatus and instrument industry

### Product features

- Flame-retardant according IEC 60332-1-2
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 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 5.0 Class-ID: EC001578  
ETIM 5.0 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**  
U<sub>0</sub>/U 230/400 V
- Test voltage**  
1500 V
- Temperature range**  
Fixed installation: -50 °C to +350 °C (adequate ventilation required)

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 350 MC</b>				
0091375	2 X 1	6.8	19.2	56
0091376	3 G 1	7.4	28.8	70
0091377	4 G 1	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	72.0	140
0091390	3 G 2.5	8.9	72.0	124
0091391	4 G 2.5	9.8	96.0	160
0091392	5 G 2.5	10.1	120.0	194

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- ÖLFLEX® HEAT 1565 MC refer to page 178

Expanded ambient temperatures

Glass fibre cables (above +260°C)



# 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
- 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 5.0 Class-ID: EC001578  
ETIM 5.0 Class-Description: Flexible cable
- Core identification code**  
2-core cable: blue, brown  
4-core cable: black, blue, yellow, brown
- Conductor stranding**  
Fine copper wire strands
- Minimum bending radius**  
Fixed installation: 5 x cable diameter
- Nominal voltage**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
2200 V
- Temperature range**  
-195 °C to +400 °C (adequate ventilation required)  
Short-term: up to +1565 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 1565 MC</b>				
30020808	2 x 0.5	7.0	9.6	48
30020809	2 x 0.75	7.4	14.4	66
30016609	2 x 1	7.7	19.2	74
30016603	2 x 1.5	8.2	28.8	87
30020810	2 x 2.5	9.7	48.0	114
30020811	2 x 4	11.2	76.8	161
30016606	4 x 1	8.9	38.4	123
30016600	4 x 1.5	9.5	57.6	148

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.



**New**

# ÖLFLEX® HEAT 125 SC

VDE tested single cores according to EN 50525-3-41 (H05Z-K & H07Z-K) for more demanding requirements

**Info**

- Substitutes previous ÖLFLEX® HEAT 145 SC, H05Z-K 110 °C & H07Z-K 110 °C
- VDE-tested and -marked
- Improved characteristics in the event of a fire

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Core identification code**  
refer to article table

**Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
Up to 1.0mm<sup>2</sup> U<sub>0</sub>/U 300/500 V  
From 1.5mm<sup>2</sup> U<sub>0</sub>/U 450/750 V  
0.6/1kV from 1.5 mm<sup>2</sup> in the case of fixed and protected installation

**Test voltage**  
3500 V

**Temperature range**  
Fixed installation: -55 °C to +125 °C  
Short-term: 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 installation in tubes, on, in and under plaster as well as in closed installation ducts
- **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)
    - Low toxicity (EN 50305)
  - Extended fire behaviour:
    - H05Z-K (0,5mm<sup>2</sup> up to 1,0mm<sup>2</sup>): see data sheet
    - H07Z-K (≥ 1,5mm<sup>2</sup>): no fire propagation according to IEC 60332-3-24 respectively IEC 60332-3-25
  - Abrasion and notch-resistant
- **Norm references / Approvals**
  - According to EN 50525-3-41 with advanced features
  - GL (Germanischer Lloyd)
- **Product make-up**
  - Fine-wire, tinned-copper conductor
  - Electron beam cross-linked polyolefin copolymer insulation

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange
<b>ÖLFLEX® HEAT 125 SC - H05Z-K</b>									
0.5	2.2	4.8	8.0	1232003	1232001	1232106	1232002	1232000	1232009
0.75	2.4	7.2	11.0	1233003	1233001	1233106	1233002	1233000	1233009
1	2.5	9.6	14.0	1234003	1234001	1234106	1234002	1234000	
<b>ÖLFLEX® HEAT 125 SC - H07Z-K</b>									
1.5	3.0	14.4	21.0	1235003	1235001	1235106	1235002	1235000	1235009
2.5	3.6	24.0	33.0	1236003	1236001	1236106	1236002	1236000	1236009
4	4.3	38.4	49.0	1237003	1237001	1237106	1237002	1237000	1237009
6	4.8	57.6	67.0	1238003	1238001	1238106	1238002	1238000	
10	6.2	96.0	112.0	1239003	1239001		1239002	1239000	
16	7.2	153.6	172.0		1240001		1240002	1240000	
25	8.9	240.0	262.0		1241001			1241000	
35	10.1	336.0	362.0		1242001			1242000	
50	12.5	480.0	512.0		1243001			1243000	
70	14.2	672.0	710.0		1244001			1244000	
95	16.6	912.0	937.0		1245001				
120	18.2	1,152.0	1,159.0		1246001				
150	20.6	1,440.0	1,447.0		1247001			1247000	
185	22.5	1,776.0	1,790.0		1248001				
240	26.4	2,304.0	2,318.0		1249001				

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	Dark blue	white	green	yellow	violet	red
<b>ÖLFLEX® HEAT 125 SC - H05Z-K</b>									
0.5	2.2	4.8	8.0	1232114	1232105	1232006	1232005	1232007	1232104
0.75	2.4	7.2	11.0	1233114	1233105	1233006	1233005	1233007	1233104
1	2.5	9.6	14.0	1234114	1234105	1234006	1234005	1234007	1234104
<b>ÖLFLEX® HEAT 125 SC - H07Z-K</b>									
1.5	3.0	14.4	21.0	1235114	1235105	1235006	1235005	1235007	1235104
2.5	3.6	24.0	33.0	1236114	1236105	1236006	1236005	1236007	1236104
4	4.3	38.4	49.0	1237114	1237105				1237104
6	4.8	57.6	67.0	1238114					1238104
10	6.2	96.0	112.0						1239104
16	7.2	153.6	172.0						1240104

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.  
 Cross-section 0.25 mm<sup>2</sup> only available as 300 m box Cross-section 0.5 mm<sup>2</sup> only available as 200 m box Cross-section 1.0 - 4 mm<sup>2</sup> only available as 100 m box  
 Article number index of core colours: 000 = green-yellow / 001 = black/ 002 = blue/ 114 = dark blue / 003 = brown / 005 = yellow / 006 = green / 007 = violet / 009 = orange / 104 = red / 105 = white / 106 = grey

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

Expanded ambient temperatures

Silicone single cores (-50°C to +180°C)



# ÖLFLEX® HEAT 180 SiF

Versatile stranded conductors with extended temperature range



Info

- Flexible fine-wire copper conductor

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Specific insulation resistance**  
>200 GOhm x cm
- Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>
- Minimum bending radius**  
Fixed installation: 6 x core diameter  
One bend at end of core:  
3 x cable diameter
- Nominal voltage**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
2000 V
- Temperature range**  
-50 °C to +180 °C  
(adequate ventilation required)  
Short-term: +200°C

**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
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

**Product make-up**

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	white
0.25	1.9	2.4	5.4	0047003	0047001	0047106	0047002	0047000	0047009	0047105
0.5	2.1	4.8	9.0	0048003	0048001	0048106	0048002	0048000	0048009	0048105
0.75	2.4	7.2	12.0	0049003	0049001	0049106	0049002	0049000	0049009	0049105
1	2.5	9.6	15.0	0050003	0050001	0050106	0050002	0050000	0050009	0050105
1.5	2.8	14.4	20.0	0051003	0051001	0051106	0051002	0051000	0051009	0051105
2.5	3.4	24.0	32.0	0052003	0052001	0052106	0052002	0052000		0052105
4	4.2	38.0	50.0	0053003	0053001	0053106	0053002	0053000	0053009	0053105
6	5.0	58.0	73.0	0054003	0054001	0054106	0054002	0054000		0054105
10	6.6	96.0	118.0	0055003	0055001	0055106	0055002	0055000	0055009	
16	7.4	154.0	177.0		0056001	0056106	0056002	0056000		
25	9.2	240.0	277.0		0057001	0057106	0057002	0057000		
35	10.3	336.0	374.0		0058001		0058002	0058000		
50	12.2	480.0	530.0		0059001			0059000		
70	14.2	672.0	724.0		0060001		0060002	0060000		
95	16.6	912.0	982.0		0061001			0061000		0061105
120	18.0	1,152.0	1,219.0		0062001			0062000		
150	20.0	1,440.0	1,524.0		0063001					
185	22.5	1,776.0	1,915.0		0064001					

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	pink	beige
0.25	1.9	2.4	5.4	0047006	0047005	0047007	0047104	0047008	
0.5	2.1	4.8	9.0	0048006	0048005	0048007	0048104	0048008	
0.75	2.4	7.2	12.0	0049006	0049005	0049007	0049104	0049008	
1	2.5	9.6	15.0	0050006	0050005	0050007	0050104	0050008	0050004
1.5	2.8	14.4	20.0	0051006	0051005	0051007	0051104	0051008	
2.5	3.4	24.0	32.0	0052006	0052005	0052007	0052104		
4	4.2	38.0	50.0	0053006	0053005		0053104		
6	5.0	58.0	73.0	0054006	0054005		0054104		0054004
10	6.6	96.0	118.0				0055104		
16	7.4	154.0	177.0				0056104		
25	9.2	240.0	277.0				0057104		
35	10.3	336.0	374.0				0058104		
50	12.2	480.0	530.0				0059104		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.  
 Article number index of core colours: 000 = green-yellow; 001 = black; 002 = blue; 003 = brown; 004 = beige; 005 = yellow; 006 = green; 007 = violet; 008 = pink; 009 = orange; 104 = red; 105 = white; 106 = grey  
 Other colours are available upon request

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UNITRONIC®  
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SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





## ÖLFLEX® HEAT 180 SiD

Versatile solid conductors with extended temperature range

**Info**

- Solid single copper 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
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

### Product make-up

- Tinned solid copper wire
- Silicone-based insulation

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Specific insulation resistance**  
>200 GOhm x cm
- 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**  
U<sub>0</sub>/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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	brown	black	blue	green/yellow	white
0.5	2.0	4.8	9.0		0068001			0068105
0.75	2.2	7.2	12.0	0069003	0069001	0069002	0069000	0069105
1	2.3	9.6	15.0	0070003	0070001	0070002	0070000	0070105
1.5	2.6	14.4	20.0	0071003	0071001	0071002	0071000	0071105
2.5	3.2	24.0	32.0		0072001	0072002		
4	3.9	38.0	50.0		0073001			
6	4.6	58.0	64.5		0074001	0074002		

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	green	violet	red	beige
0.75	2.2	7.2	12.0	0069006	0069007	0069104	
1	2.3	9.6	15.0		0070007	0070104	
1.5	2.6	14.4	20.0				0071004

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.  
 Article number index of core colours: 000 = green-yellow; 001 = black; 002 = blue; 003 = brown; 004 = beige; 006 = green; 007 = violet; 104 = red; 105 = white  
 Other colours are available upon request

### Similar products

- ÖLFLEX® HEAT 180 SiF refer to page 180

**Expanded ambient temperatures**

Silicone single cores (-50°C to +180°C)



**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

**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
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

**Norm references / Approvals**

- ÖLFLEX® HEAT 180 FZLSi**
- Increased voltage rating is not subject to the Low Voltage Directive 2006/95/EC

**Product make-up**

- ÖLFLEX® HEAT 180 SiF/GL**
- Fine-wire, tinned-copper conductor
  - Silicone-based insulation
  - Impregnated glass fibre braiding
- ÖLFLEX® HEAT 180 SiZ**
- Fine-wire, tinned-copper conductor
  - Silicone-based insulation
  - Cores connected in parallel with a separating strip
- ÖLFLEX® HEAT 180 FZLSi**
- Fine-wire, tinned-copper conductor
  - Silicone-based insulation

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>
- 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:  
U<sub>c</sub>/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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 180 SiF/GL hook-up wire with glass fibre braiding</b>				
0065102	0.5	2.5	4.8	11.0
0065103	0.75	2.8	7.2	14.0
0065104	1	2.9	9.6	17.0
0065105	1.5	3.2	14.4	23.0
0065106	2.5	3.8	24.0	36.0
0065107	4	4.6	38.0	54.0
0065108	6	5.4	58.0	80.0
0065109	10	7.6	96.0	133.0
0065110	16	8.4	154.0	198.0
0065111	25	10.2	240.0	301.0
0065112	35	11.3	336.0	401.0
0065113	50	13.4	480.0	567.0
<b>ÖLFLEX® HEAT 180 SiZ twin conductor</b>				
0065201	2 x 0.5	2.1 x 4.2	9.6	17.0
0065202	2 x 0.75	2.3 x 4.6	14.4	24.0
<b>ÖLFLEX® HEAT 180 FZLSi high-voltage ignition wire</b>				
2510001	1 (32 x 0,2)	7.0	9.6	68.0
2510005	1,5 (30 x 0,25)	7.6	14.4	83.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.  
Colour of core insulation: ÖLFLEX® HEAT 180 SiF/GL = white; with natural glass fibre braiding / ÖLFLEX® HEAT 180 SiZ = red; ÖLFLEX® HEAT 180 FZLSi = red

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## ÖLFLEX® HEAT 205 SC

For very high and low temperature requirements

**Info**

- Thermal and chemical resistance
- Space and weight-saving
- FEP = fluorinated ethylene propylene



### Benefits

- Small outer diameters for maximum saving of space and weight
- Resistant to contact with mostly all highly aggressive chemical media

### Application range

- Conventional cables are not designed for use in environments with very high operating temperatures, heavy usage of chemical agents, or tight 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

- 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

### Technical data

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Specific insulation resistance**  
>2 TΩm x cm

**Conductor stranding**  
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm<sup>2</sup>

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
2500 V

**Temperature range**  
Fixed installation: -100°C to +205°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	white
0.14	1.0	1.3	2.6		0080001		0080002			0080105
0.25	1.2	2.4	4	0081003	0081001	0081106	0081002		0081009	0081105
0.5	1.4	4.8	6.8	0082003	0082001	0082106	0082002	0082000	0082009	0082105
0.75	1.8	7.2	10.1	0083003	0083001		0083002	0083000		0083105
1	1.9	9.6	12.8	0084003	0084001	0084106	0084002	0084000		0084105
1.5	2.1	14.4	18	0085003	0085001		0085002	0085000		0085105
2.5	2.6	24.0	29.5	0086003	0086001	0086106	0086002	0086000		0086105
4	3.1	38.0	45	0087003	0087001		0087002	0087000		0087105
6	3.8	58.0	68	0088003	0088001		0088002	0088000		
10	4.7	96.0	116	0089003	0089001	0089106	0089002	0089000		0089105
16	6.6	154.0	175		0090001		0090002	0090000		

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	transparent	pink
0.14	1.0	1.3	2.6	0080006	0080005		0080104	0080010	
0.25	1.2	2.4	4	0081006	0081005		0081104	0081010	
0.5	1.4	4.8	6.8	0082006	0082005	0082007	0082104	0082010	
0.75	1.8	7.2	10.1	0083006	0083005		0083104	0083010	0083008
1	1.9	9.6	12.8	0084006	0084005	0084007	0084104	0084010	
1.5	2.1	14.4	18		0085005		0085104	0085010	
2.5	2.6	24.0	29.5			0086007	0086104	0086010	
4	3.1	38.0	45		0087005		0087104	0087010	
6	3.8	58.0	68				0088104	0088010	
10	4.7	96.0	116				0089104	0089010	
16	6.6	154.0	175				0090104		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 100m

Available as original coil goods only

Also available on large spools and non-returnable drums.

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

Article number index of core colours: 000 = green-yellow; 001 = black; 002 = blue; 003 = brown; 005 = yellow; 006 = green; 007 = violet; 008 = pink; 009 = orange; 010 = transparent; 104 = red; 105 = white; 106 = grey

Other colours are available upon request

### Similar products

- ÖLFLEX® HEAT 260 SC refer to page 184

### Accessories

- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- KT 11 cable shears refer to page 907

Expanded ambient temperatures

PTFE single cores (-190°C to +260°C)



# ÖLFLEX® HEAT 260 SC

For use in the most extreme conditions



**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**

- Conventional cables are not designed for use in environments with very high operating temperatures, heavy usage of chemical agents, or tight 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**

- 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

**Info**

- Excellent chemical, thermal and electrical performance
- Space and weight-saving
- PTFE= Polytetrafluoroethylene

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Specific insulation resistance**  
> 1 TOhm x cm

**Conductor stranding**  
AWG conductor sizes: 7, 19 or 37 wires

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>0</sub>/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)	brown	black	grey	blue	green/yellow	orange	white
28 (7)	0.8	0.9	2	0094003	0094001	0094106	0094002	0094000	0094009	0094105
26 (7)	0.9	1.4	2.7		0095001	0095106	0095002		0095009	0095105
26 (19)	0.9	1.5	2.9		0096001			0096000		
24 (7)	1.1	2.2	3.8	0097003	0097001		0097002			0097105
24 (19)	1.1	2.3	4	0098003	0098001	0098106	0098002	0098000		0098105
22 (7)	1.2	3.4	5.4	0099003	0099001		0099002			0099105
22 (19)	1.2	3.7	5.7	0100003	0100001		0100002		0100009	0100105
20 (7)	1.4	5.4	7.7	0101003	0101001		0101002			0101105
20 (19)	1.4	5.9	8.2	0102003	0102001	0102106	0102002		0102009	0102105
18 (7)	1.7	8.6	12		0103001					
18 (19)	1.7	9.3	12	0104003	0104001		0104002	0104000	0104009	0104105
16 (19)	2.0	11.8	16	0105003	0105001		0105002	0105000	0105009	0105105
14 (19)	2.4	18.7	23	0106003	0106001	0106106	0106002	0106000		0106105
12 (19)	2.8	29.6	35	0107003	0107001		0107002	0107000		0107105
10 (37)	3.4	45.6	51		0108001		0108002	0108000		0108105

AWG No. and wire number	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	transparent	pink
28 (7)	0.8	0.9	2	0094006	0094005	0094007	0094104	0094010	0094008
26 (7)	0.9	1.4	2.7	0095006	0095005	0095007	0095104		
26 (19)	0.9	1.5	2.9	0096006			0096104		
24 (7)	1.1	2.2	3.8				0097104		
24 (19)	1.1	2.3	4	0098006			0098104		
22 (7)	1.2	3.4	5.4	0099006		0099007	0099104		
22 (19)	1.2	3.7	5.7		0100005		0100104		
20 (7)	1.4	5.4	7.7	0101006			0101104		
20 (19)	1.4	5.9	8.2	0102006	0102005	0102007	0102104		
18 (19)	1.7	9.3	12	0104006	0104005	0104007	0104104	0104010	
16 (19)	2.0	11.8	16	0105006	0105005	0105007	0105104		0105008
14 (19)	2.4	18.7	23	0106006	0106005		0106104		
12 (19)	2.8	29.6	35	0107006	0107005				
10 (37)	3.4	45.6	51				0108104		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.  
 Article number index of core colours: 000 = green-yellow; 001 = black; 002 = blue; 003 = brown; 005 = yellow; 006 = green; 007 = violet; 008 = pink; 009 = orange; 010 = transparent; 104 = red; 105 = white; 106 = grey  
 Other colours are available upon request

**Similar products**

- ÖLFLEX® HEAT 205 SC refer to page 183

**Accessories**

- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- KT 11 cable shears refer to page 907

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SILVYN® SKINTOP® FLEXIMARK® ACCESSORIES APPENDIX



## ÖLFLEX® HEAT 350 SC

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

### Application range

- Wide operating temperature range allows the product to be used in applications under Thermal Class C.
- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Lighting, apparatus and instrument industry

### Product features

- Flame-retardant according IEC 60332-1-2
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 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 (additional mica wrapping from 16 mm<sup>2</sup>) and impregnated glass fibre braid, core colour = white (natural)

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Core identification code**  
Natural colour
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
1500 V
- Temperature range**  
Fixed installation: -50 °C to +350 °C (adequate ventilation required)

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT 350 SC</b>				
0091350	0.5	2.5	4.8	13.0
0091351	0.75	3.0	7.2	15.0
0091352	1	3.4	9.6	17.0
0091353	1.5	3.5	14.4	23.0
0091354	2.5	3.7	24.0	34.0
0091355	4	4.2	38.4	54.0
0091356	6	6.2	57.6	84.0
0091357	10	7.3	96.0	120.0
0091358	16	8.0	153.6	199.0
0091359	25	9.5	240.0	300.0
0091360	35	10.9	336.0	399.0
0091361	50	13.2	480.0	540.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® HEAT 1565 SC refer to page 186

### Accessories

- BULLI cable shears refer to page 907
- SMART STRIP stripping tool refer to page 911

**Expanded ambient temperatures**

Glass fibre single cores (above +260 °C)



# 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 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Core identification code**  
red
- Conductor stranding**  
Fine copper wire strands
- Minimum bending radius**  
Fixed installation: 5 x outer diameter
- Nominal voltage**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
2200 V
- Temperature range**  
-195 °C to +400 °C  
(adequate ventilation required)  
Short-term: up to +1565 °C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>ÖLFLEX® HEAT SC 1565</b>				
3020780	0.75	2.9	7.2	15.9
3020781	1	3.0	9.6	18.8
3013234	1.5	3.3	14.4	24.3
3020782	2.5	3.8	24.0	35.0
3018942	4	4.8	38.4	56.0
3020783	6	5.6	57.6	86.4
3016697	10	6.2	96.0	123.0
3016698	16	7.9	153.6	202.5
3016699	25	9.2	240.0	295.1
3016771	35	10.6	336.0	403.9
3017861	50	12.2	480.0	545.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- STAR STRIP stripping tool refer to page 910
- KS 15 cable shears refer to page 908

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 ACCESSORIES  
 APPENDIX

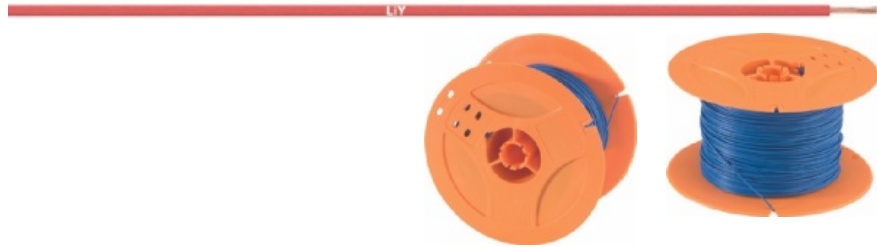


**LIY**

**Stranded hook-up wire for telecommunication devices and electronic components**

**Info**

- PVC control hook-up wire
- Favourable



**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 YI 2/TI 2 acc. VDE 0207-4

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Peak operating voltage**  
500 V (0.14 mm<sup>2</sup>)  
900 V (0.25 sq.mm)
- Conductor stranding**  
0.14 mm<sup>2</sup>: ≥ 18 strands (each with 0.10 mm Ø)  
0.25 mm<sup>2</sup>: ≥ 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 mm<sup>2</sup>)  
2500 V (0.25 mm<sup>2</sup>)
- Temperature range**  
Fixed installation: -30°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	brown	black	grey	blue	green/yellow
0.14	1.1	500	1.3	4125003S	4125001S	4125106S	4125002S	
0.25	1.3	250	2.4	4126003S	4126001S	4126106S	4126002S	4126000S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	orange	Dark blue	white	green	yellow
0.14	1.1	500	1.3	4125009S		4125105S	4125006S	4125005S
0.25	1.3	250	2.4	4126009S	4126014S	4126105S	4126006S	4126005S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	violet	red	pink
0.14	1.1	500	1.3	4125007S	4125104S	
0.25	1.3	250	2.4	4126007S	4126104S	4126008S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. 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.



## LIY with twin colour helix insulation

Stranded hook-up wire with telecommunication conductor and coloured stripes



**Info**

- PVC control hook-up wire
- Favourable
- 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 YI 2/TI 2 acc. VDE 0207-4
- Labelled with coloured stripes

### Technical data

- Peak operating voltage**  
900 V (0.25 sq.mm)
- Conductor stranding**  
0.25 mm<sup>2</sup>: ≥ 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 mm<sup>2</sup>)
- Temperature range**  
Fixed installation: -30°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	blue/black	brown/green	brown/white	orange-black
0.25	1.5	250	2.4	4502232S	4502282S	4502292S	4502382S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	orange-white	white-red
0.25	1.5	250	2.4	4502392S	4502462S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Photographs are not to scale and do not represent detailed images of the respective products.

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## X05V-K with twin colour helix insulation

**Info**

- 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

- Conductor stranding**  
Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Minimum bending radius**  
4 x outer diameter (OD) if used as defined for H05V-K; 2 x OD for cautious bending
- Nominal voltage**  
U<sub>0</sub>/U: 300/500 V
- Test voltage**  
2000 V
- Current rating**  
VDE 0298 Part 4  
HD 516/VDE 0298-300
- Temperature range**  
Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	Weight (kg/km)	blue/white	Dark blue/white	black/white	blue/black
0.5	2.5	250	4.8	9	4512261S	4512921S		4512231S
0.75	2.7	250	7.2	12	4512262S	4512922S	4512222S	4512232S
1	2.8	250	9.6	15	4512263S	4512923S	4512223S	4512233S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	blue/green	blue / red	brown/black	brown/white
0.5	2.5	250		4.8	9	4512241S	4512251S		4512291S
0.75	2.7	250		7.2	12	4512242S	4512252S	4512272S	4512292S
0.75	2.7		4,000	7.2	12		4512252K		
1	2.8	250		9.6	15	4512243S	4512253S		4512293S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	Weight (kg/km)	yellow-white	violet-black	violet-white	orange-black
0.5	2.5	250	4.8	9	4512321S	4512351S	4512371S	4512381S
0.75	2.7	250	7.2	12	4512322S	4512352S	4512372S	4512382S
1	2.8	250	9.6	15		4512353S	4512373S	4512383S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	orange-white	red-black	red-white	white=black
0.5	2.5	250		4.8	9	4512391S	4512401S	4512421S	
0.75	2.7	250		7.2	12	4512392S	4512402S	4512422S	4512432S
1	2.8	250		9.6	15	4512393S	4512403S	4512423S	4512433S
1	2.8		2,000	9.6	15	4512393K		4512423K	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	Copper index (kg/km)	Weight (kg/km)	white-blue	grey-black
0.5	2.5	250	4.8	9	4512441S	4512471S
0.75	2.7	250	7.2	12	4512442S	4512472S
1	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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges. Photographs 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.



**New**

## Lapp Kabel H05V-K

<VDE> cable type certification



Info

- <VDE>

### Benefits

- Cables' <VDE> marking is a testing mark / proof of the successful testing according to VDE / EN / HD / IEC standards as well as possible health and safety regulations. <VDE> is issued by the VDE testing and certification institute.

### 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 acc. to IEC 60332-1-2

### Norm references / Approvals

- <VDE> 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
- PVC core insulation

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable



#### Conductor stranding

Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228



#### Minimum bending radius

At a cable temperature of 20°C ± 10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending



#### Nominal voltage

U<sub>0</sub>/U: 300/500 V



#### Test voltage

2000 V



#### Current rating

VDE 0298 Part 4  
HD 516/VDE 0298-300



#### Temperature range

Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1	2.8	100	9.6	15	8110033	8110013	8110063	8110023	8110003

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. The outer diameters stated in the part number table are maximum values.



**H05V-K**

**European <HAR> cable type certification**



**Info**  
• <HAR>

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

**Conductor stranding**  
Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228

**Minimum bending radius**  
At a cable temperature of 20°C ± 10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
2000 V

**Current rating**  
VDE 0298 Part 4  
HD 516/VDE 0298-300

**Temperature range**  
Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C

**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

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
0.5	2.5	100		4.8	9	4510031	4510011	4510061	4510021	4510001
0.75	2.7	100		7.2	12	4510032	4510012	4510062	4510022	4510002
1	2.8	100		9.6	15	4510033	4510013	4510063	4510023	4510003
0.5	2.5		250	4.8	9	4510031S	4510011S	4510061S	4510021S	4510001S
0.75	2.7		250	7.2	12	4510032S	4510012S	4510062S	4510022S	4510002S
1	2.8		250	9.6	15	4510033S	4510013S	4510063S	4510023S	4510003S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	Dark blue	white	green	yellow
0.5	2.5	100		4.8	9	4510091	4510141	4510051	4510121	4510111
0.75	2.7	100		7.2	12	4510092	4510142	4510052	4510122	4510112
1	2.8	100		9.6	15	4510093	4510143	4510053	4510123	4510113
0.5	2.5		250	4.8	9	4510091S	4510141S	4510051S	4510121S	4510111S
0.75	2.7		250	7.2	12	4510092S	4510142S	4510052S	4510122S	4510112S
1	2.8		250	9.6	15	4510093S	4510143S	4510053S		

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue	Dark blue/white	transparent
0.5	2.5	100		4.8	9	4510071	4510041	4510161	4510921	
0.75	2.7	100		7.2	12	4510072	4510042		4510922	
1	2.8	100		9.6	15	4510073	4510043	4510163	4510923	
0.5	2.5		250	4.8	9	4510071S	4510041S			
0.75	2.7		250	7.2	12	4510072S	4510042S	4510162S		4510102S
1	2.8		250	9.6	15	4510073S	4510043S	4510163S		4510103S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	pink
0.5	2.5	100		4.8	9	4510081
0.75	2.7	100		7.2	12	4510082
1	2.8	100		9.6	15	4510083
0.75	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 150/100kg. 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. The outer diameters stated in the part number table are maximum values.

New

# Lapp Kabel H07V-K

<VDE> cable type certification



Info

- <VDE>

### Benefits

- Cables' <VDE> marking is a testing mark/ proof of the successful testing according to VDE/ EN/ HD/ IEC standards as well as possible health and safety regulations. <VDE> is issued by the VDE testing and certification institute.

### 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 acc. to IEC 60332-1-2

### Norm references / Approvals

- <VDE> 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
- PVC core insulation

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable



#### Conductor stranding

Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228



#### Minimum bending radius

At a cable temperature of 20°C ± 10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending



#### Nominal voltage

U<sub>0</sub>/U: 450/750 V



#### Test voltage

2500 V



#### Current rating

VDE 0298 Part 4  
HD 516/VDE 0298-300



#### Temperature range

Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	3.4	100	14.4	22	8120031	8120011	8120061	8120021	8120001
2.5	4.1	100	24.0	37	8120032	8120012	8120062	8120022	8120002
4	4.8	100	38.4	45	8120033	8120013	8120063	8120023	8120003
6	5.3	100	57.6	71	8120034	8120014	8120064	8120024	8120004

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. The outer diameters stated in the part number table are maximum values.

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**Info**  
 • <HAR>



**H07V-K**

**European <HAR> cable type certification**



**Technical data**

**Classification**  
 ETIM 5.0 Class-ID: EC000993  
 ETIM 5.0 Class-Description: Single core cable

**Conductor stranding**  
 Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228

**Minimum bending radius**  
 At a cable temperature of 20°C ±10°C, according to HD 516  
 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**  
 U<sub>0</sub>/U: 450/750 V

**Test voltage**  
 2500 V

**Current rating**  
 VDE 0298 Part 4  
 HD 516/VDE 0298-300

**Temperature range**  
 Fixed installation:  
 -30°C to +80°C  
 Moved: +5°C to +70°C

- 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
- 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

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	3.4		150	14.4	22	4520031S	4520011S	4520061S	4520021S	4520001S
2.5	4.1		100	24.0	37	4520032S	4520012S	4520062S	4520022S	4520002S
1.5	3.4	100		14.4	22	4520031	4520011	4520061	4520021	4520001
2.5	4.1	100		24.0	37	4520032	4520012	4520062	4520022	4520002
4	4.8	100		38.4	45	4520033	4520013	4520063	4520023	4520003
6	5.3	100		57.6	71	4520034	4520014	4520064	4520024	4520004
10	6.8	100		96.0	120	4520035	4520015	4520065	4520025	4520005
16	8.1			153.6	187	4520036	4520016	4520066	4520026	4520006
25	10.2			240.0	290	4521031	4521011		4521021	4521001
35	11.7			336.0	399	4521032	4521012	4521062	4521022	4521002
50	13.9			480.0	559		4521013		4521023	4521003
70	16.0			672.0	776		4521014		4521024	4521004
95	18.2			912.0	1031		4521015		4521025	4521005
120	20.2			1,152.0	1285		4521016			4521006
150	22.5			1,440.0	1563		4521017			4521007
185	24.9			1,776.0	1915		4521018			4521008
240	28.4			2,304.0	2550		4521019			4521009

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	Dark blue	white	green	yellow
1.5	3.4		150	14.4	22		4520141S	4520051S		
2.5	4.1		100	24.0	37		4520142S			
1.5	3.4	100		14.4	22	4520091	4520141	4520051	4520121	4520111
2.5	4.1	100		24.0	37	4520092	4520142	4520052	4520122	4520112
4	4.8	100		38.4	45	4520093	4520143	4520053	4520123	4520113
6	5.3	100		57.6	71	4520094	4520144	4520054	4520124	4520114
10	6.8	100		96.0	120	4520095	4520145	4520055		
16	8.1			153.6	187	4520096	4520146	4520056	4520126	
25	10.2			240.0	290	4521091				
35	11.7			336.0	399	4521092				

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue
1.5	3.4		150	14.4	22		4520041S	
2.5	4.1		100	24.0	37		4520042S	
1.5	3.4	100		14.4	22	4520071	4520041	4520161
2.5	4.1	100		24.0	37	4520072	4520042	4520162
4	4.8	100		38.4	45		4520043	4520163
6	5.3	100		57.6	71	4520074	4520044	4520164
10	6.8	100		96.0	120		4520045	
16	8.1			153.6	187		4520046	
25	10.2			240.0	290		4521041	
35	11.7			336.0	399		4521042	
50	13.9			480.0	559		4521043	
70	16.0			672.0	776		4521044	

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Packaging size: Coil ≤ 30 kg, otherwise drum  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 \*for conventional use, \*\*for careful bending; "OD" = outer diameter  
 The outer diameters stated in the part number table are maximum values.

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 APPENDIX



## X07V-K with twin colour helix insulation



Info

- 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

- Conductor stranding**  
 Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Minimum bending radius**  
 4 x outer diameter (OD) if used as defined for H07V-K; 2 x OD for short-term bending
- Nominal voltage**  
 $U_0/U$ : 450/750 V
- Test voltage**  
 2500 V
- Current rating**  
 VDE 0298 Part 4  
 HD 516/VDE 0298-300
- Temperature range**  
 Fixed installation:  
 -30°C to +80°C  
 Moved: +5°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	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	3.4	150	14.4	22	4522261S	45222921S	4522211S	4522221S	4522231S	4522251S	4522291S
2.5	4.1	100	24.0	37	4522262S	45222922S				4522252S	4522292S

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	yellow-red	yellow-white	violet-white	orange-black	orange-white	red-black	red-white
1.5	3.4	150		14.4	22		4522321S	4522371S	4522381S	4522391S	4522401S	4522421S
1.5	3.4		2,000	14.4	22					4522391K		
2.5	4.1	100		24.0	37					4522392S		4522422S
2.5	4.1		1,000	24.0	37	4522312K					4522402K	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	white-blue	white-red
1.5	3.4	150		14.4	22	4522441S	
1.5	3.4		2,000	14.4	22		4522461K

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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.  
 The outer diameters stated in the part number table are maximum values.

### Similar products

- X05V-K with twin colour helix insulation refer to page 189

### Accessories

- DIN-assorted boxes conductor end sleeves refer to page 917
- EASY STRIP stripping and cutting tool refer to page 909
- PEW 8.87 crimping pliers refer to page 921



## H05V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation

**Info**

- Efficient
- <HAR>

**Technical data**

**Conductor stranding**  
Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228

**Minimum bending radius**  
At a cable temperature of 20°C ±10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
2000 V

**Current rating**  
VDE 0298 Part 4  
HD 516/VDE 0298-300

**Temperature range**  
Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C



- 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 and trouble-free printing
  - 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

Conductor cross-section (mm²)	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
0.5	2.5	3,000	4.8	9	4511065K	4510011K	4511073K	4510021K	4510001K
0.5	2.5	9,000	4.8	9				4510021E	
0.75	2.7	2,500	7.2	12	4510032K	4510012K	4510062K	4510022K	4510002K
0.75	2.7	7,500	7.2	12				4510022E	
1	2.8	2,000	9.6	15	4510033K	4510013K	4510063K	4510023K	4510003K
1	2.8	6,000	9.6	15		4510013E		4510023E	

Conductor cross-section (mm²)	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	orange	Dark blue	white	green	yellow
0.5	2.5	3,000	4.8	9		4511064K	4511072K		
0.5	2.5	9,000	4.8	9		4511060E			
0.75	2.7	2,500	7.2	12	4510092K	4510142K	4510052K	4510122K	4510112K
0.75	2.7	7,500	7.2	12		4511061E			
1	2.8	2,000	9.6	15	4510093K	4510143K	4510053K		4510113K
1	2.8	6,000	9.6	15		4511062E			

Conductor cross-section (mm²)	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue	blue/white	Dark blue/white
0.5	2.5	3,000	4.8	9	4511068K	4511071K	4510161K		4510921K
0.75	2.7	2,500	7.2	12	4510072K	4510042K	4510162K	4510262K	4510922K
1	2.8	2,000	9.6	15	4510073K	4510043K	4510163K	4510263K	4510923K

Conductor cross-section (mm²)	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	pink
0.75	2.7	2,500	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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Photographs 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.

- Similar products**
- H05V-K refer to page 191
  - H07V-K refer to page 193

- Accessories**
- DIN-assorted boxes conductor end sleeves refer to page 917
  - EASY STRIP stripping and cutting tool refer to page 909
  - BULLI cable shears refer to page 907
  - PEW 8.87 crimping pliers refer to page 921



## H07V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation



**Info**

- 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 and trouble-free printing
- 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

- Conductor stranding**  
Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Minimum bending radius**  
At a cable temperature of 20°C ± 10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending
- Nominal voltage**  
U<sub>0</sub>/U: 450/750 V
- Test voltage**  
2500 V AC
- Current rating**  
VDE 0298 Part 4  
HD 516/VDE 0298-300
- Temperature range**  
Fixed installation:  
-30°C to +80°C  
Moved: +5°C to +70°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	3.4	1,500	14.4	22	4520031K	4520011K	4520061K	4520021K	4520001K
1.5	3.4	4,000	14.4	22		4520011E		4520021E	4520001E
2.5	4.1	900	24.0	37	4520032K	4520012K	4520062K	4520022K	4520002K
2.5	4.1	2,500	24.0	37		4520012E		4520022E	4520002E
4	4.8	600	38.4	45	4520033K	4520013K	4520063K	4520023K	4520003K
4	4.8	2,000	38.4	45		4520013E			
6	5.3	400	57.6	71		4520014K		4520024K	4520004K
6	5.3	1,500	57.6	71		4520014E		4520024E	4520004E

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	orange	Dark blue	white	green	yellow
1.5	3.4	1,500	14.4	22	4520091K	4520141K	4520051K		4520111K
1.5	3.4	4,000	14.4	22	4520091E	4520141E			
2.5	4.1	900	24.0	37	4520092K	4520142K	4520052K	4520122K	
4	4.8	600	38.4	45	4520093K	4520143K			
6	5.3	400	57.6	71	4520094K				

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red	blue/white	Dark blue/white
1.5	3.4	1,500	14.4	22	4520071K	4520041K		
1.5	3.4	4,000	14.4	22		4520041E		
2.5	4.1	900	24.0	37		4520042K		4520922K
4	4.8	600	38.4	45		4520043K	4520263K	4520923K
6	5.3	400	57.6	71		4520044K	4520264K	4520924K
6	5.3	1,500	57.6	71		4520044E		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. 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.  
The outer diameters stated in the part number table are maximum values.

### Similar products

- H05V-K refer to page 191
- H07V-K refer to page 193

### Accessories

- DIN-assorted boxes conductor end sleeves refer to page 917
- EASY STRIP stripping and cutting tool refer to page 909
- BULLI cable shears refer to page 907
- PEW 8.87 crimping pliers refer to page 921

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX





**MULTI-STANDARD SC 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

**Technical data**

**Classification**  
 ETIM 5.0 Class-ID: EC000993  
 ETIM 5.0 Class-Description: Single core cable

**Specific insulation resistance**  
 > 10 GOhm x cm

**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: U<sub>i</sub>/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): -40°C to +105°C;  
 CSA (AWM I A/B): -40°C to +105°C

**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 mm<sup>2</sup> 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
- No outer sheath, no nylon jacket, no outer wrapping

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
0.5	2.5	100	4.8	9		4180401	4180406
0.75	2.6	100	7.2	12	4180503	4180501	4180506
1	2.8	100	9.6	15	4180603	4180601	4180606

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow	orange
0.5	2.5	100		4.8	9	4180402	4180400	4180409
0.75	2.6	100		7.2	12	4180502	4180500	
1	2.8	100		9.6	15	4180602	4180600	4180609
1	2.8		2,000	9.6	15		4180600K	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	Dark blue	white	violet
0.5	2.5	100		4.8	9	4180414	4180405	
0.5	2.5		3,000	4.8	9	4180414K		
0.75	2.6	100		7.2	12	4180514		4180507
0.75	2.6		2,500	7.2	12	4180514K		
1	2.8	100		9.6	15	4180614	4180605	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	red
0.5	2.5	100	4.8	9	4180404
0.75	2.6	100	7.2	12	4180504
1	2.8	100	9.6	15	4180604

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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.  
 The outer diameters stated in the part number table are maximum values.

- Similar products**
- H05V-K refer to page 191
  - MULTI-STANDARD SC 2.1 refer to page 198

- Accessories**
- DIN-assorted boxes conductor end sleeves refer to page 917
  - EASY STRIP stripping and cutting tool refer to page 909
  - PEW 8.87 crimping pliers refer to page 921
  - FLEXIMARK® Collar Snap-on refer to page 895



## MULTI-STANDARD SC 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

### 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 mm<sup>2</sup> 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 T 16 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
- No outer sheath, no nylon jacket, no outer wrapping

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Specific insulation resistance**  
> 10 GOhm x cm
- 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: U<sub>0</sub>/U: 450/750 V;  
UL (AWM): U: 600 V;  
UL (MTW): U: 600 V;  
CSA (TEW): U: 600 V
- Test voltage**  
2500 V
- Temperature range**  
Fixed installation:  
HAR/IEC: -40°C to +70°C;  
UL (AWM): -40°C to +105°C;  
UL (MTW): -40°C to +90°C;  
CSA (TEW): -40°C to +105°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black
0.5	2.7	100		4.8	10	4160103	4160101
0.5	2.7		3,000	4.8	10		4160101K
0.75	2.9	100		7.2	13	4160203	4160201
0.75	2.9		2,500	7.2	13	4160203K	
1	3.1	100		9.6	16	4160303	4160301
1	3.1		2,000	9.6	16	4160303K	4160301K
1.5	3.4	100		14.4	22	4160403	4160401
1.5	3.4		1,500	14.4	22	4160403K	4160401K
2.5	4.0	100		24.0	37	4160503	4160501
2.5	4.0		900	24.0	37		4160501K
4	4.6	100		38.4	45	4160603	4160601
4	4.6		600	38.4	45		4160601K
6	5.1	100		57.6	71	4160703	4160701
6	5.1		400	57.6	71		4160701K
10	6.8	100		96.0	120	4160803	4160801
16	9.0	100		153.6	187	4160903	4160901
25	10.2	100		240.0	290	4161003	4161001
35	11.7			336.0	399		4161101
50	13.9			480.0	559		4161201
70	16.0			672.0	776		4161301
95	18.2			912.0	1031		4161401
120	19.8			1,152.0	1285		4161501

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	grey	blue
0.5	2.7	100		4.8	10	4160106	4160102
0.5	2.7		3,000	4.8	10	4160106K	4160102K
0.75	2.9	100		7.2	13	4160206	4160202
0.75	2.9		2,500	7.2	13		4160202K
1	3.1	100		9.6	16	4160306	4160302
1	3.1		2,000	9.6	16		4160302K
1.5	3.4	100		14.4	22	4160406	4160402
1.5	3.4		1,500	14.4	22	4160406K	4160402K
2.5	4.0	100		24.0	37	4160506	4160502

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	grey	blue
2.5	4.0		900	24.0	37	4160506K	4160502K
4	4.6	100		38.4	45	4160606	4160602
6	5.1	100		57.6	71	4160706	4160702
6	5.1		400	57.6	71		4160702K
10	6.8	100		96.0	120	4160806	4160802
16	9.0	100		153.6	187	4160906	4160902
25	10.2	100		240.0	290	4161006	4161002
35	11.7			336.0	399		4161102
50	13.9			480.0	559		4161202
95	18.2			912.0	1031		4161402
120	19.8			1,152.0	1285		4161502

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange
0.5	2.7	100		4.8	10	4160100	4160109
0.5	2.7		3,000	4.8	10		4160109K
0.75	2.9	100		7.2	13	4160200	4160209
0.75	2.9		2,500	7.2	13		4160209K
1	3.1	100		9.6	16	4160300	4160309
1	3.1		2,000	9.6	16	4160300K	4160309K
1.5	3.4	100		14.4	22	4160400	4160409
1.5	3.4		1,500	14.4	22	4160400K	4160409K
2.5	4.0	100		24.0	37	4160500	4160509
2.5	4.0		900	24.0	37	4160500K	4160509K
4	4.6	100		38.4	45	4160600	4160609
4	4.6		600	38.4	45	4160600K	4160609K
6	5.1	100		57.6	71	4160700	4160709
6	5.1		400	57.6	71	4160700K	4160709K
10	6.8	100		96.0	120	4160800	4160809
16	9.0	100		153.6	187	4160900	4160909
25	10.2	100		240.0	290	4161000	4161009
35	11.7			336.0	399	4161100	
50	13.9			480.0	559	4161200	
70	16.0			672.0	776	4161300	
95	18.2			912.0	1031	4161400	
120	19.8			1,152.0	1285	4161500	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	Dark blue	white
0.5	2.7	100		4.8	10	4160114	4160105
0.5	2.7		3,000	4.8	10	4160114K	
0.75	2.9	100		7.2	13	4160214	4160205
0.75	2.9		2,500	7.2	13	4160214K	
1	3.1	100		9.6	16	4160314	4160305
1	3.1		2,000	9.6	16	4160314K	4160305K
1.5	3.4	100		14.4	22	4160414	4160405
1.5	3.4		1,500	14.4	22	4160414K	4160405K
2.5	4.0	100		24.0	37	4160514	4160505
2.5	4.0		900	24.0	37	4160514K	4160505K
4	4.6	100		38.4	45	4160614	4160605
4	4.6		600	38.4	45	4160614K	4160605K
6	5.1	100		57.6	71	4160714	4160705
6	5.1		400	57.6	71	4160714K	
10	6.8	100		96.0	120	4160814	4160805
16	9.0	100		153.6	187	4160914	4160905

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow
0.5	2.7	100		4.8	10	4160111	4160110
0.75	2.9	100		7.2	13		4160210
1	3.1	100		9.6	16	4160311	4160310
1.5	3.4	100		14.4	22	4160411	4160410
2.5	4.0	100		24.0	37	4160511	4160510
4	4.6	100		38.4	45	4160611	4160610
4	4.6		600	38.4	45		4160610K
6	5.1	100		57.6	71	4160711	4160710
10	6.8	100		96.0	120	4160811	4160810
16	9.0	100		153.6	187	4160911	4160910
25	10.2	100		240.0	290	4161011	4161010
35	11.7			336.0	399	4161111	
50	13.9			480.0	559	4161211	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red
0.5	2.7	100		4.8	10	4160107	4160104
0.5	2.7		3,000	4.8	10		4160104K
0.75	2.9	100		7.2	13	4160207	4160204
1	3.1	100		9.6	16	4160307	4160304
1	3.1		2,000	9.6	16		4160304K
1.5	3.4	100		14.4	22	4160407	4160404
1.5	3.4		1,500	14.4	22		4160404K
2.5	4.0	100		24.0	37	4160507	4160504
2.5	4.0		900	24.0	37		4160504K
4	4.6	100		38.4	45		4160604
6	5.1	100		57.6	71		4160704
6	5.1		400	57.6	71		4160704K

**Control Cabinet Single Cores**

Harmonised and approved

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red
10	6.8	100		96.0	120		4160804
16	9.0	100		153.6	187		4160904
25	10.2	100		240.0	290		4161004
35	11.7			336.0	399		4161104

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
0.5	2.7	100		4.8	10	4160126	
0.75	2.9	100		7.2	13	4160226	
0.75	2.9		2,500	7.2	13	4160226K	
1	3.1	100		9.6	16	4160326	
1	3.1		2,000	9.6	16	4160326K	
1.5	3.4	100		14.4	22	4160426	4160408
1.5	3.4		1,500	14.4	22	4160426K	
2.5	4.0	100		24.0	37	4160526	
4	4.6	100		38.4	45	4160626	
6	5.1	100		57.6	71	4160726	
10	6.8	100		96.0	120	4160826	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	white-blue
0.5	2.7		3,000	4.8	10	4160144K
0.75	2.9	100		7.2	13	4160244
0.75	2.9		2,500	7.2	13	4160244K
1	3.1	100		9.6	16	4160344
1	3.1		2,000	9.6	16	4160344K
1.5	3.4	100		14.4	22	4160444
2.5	4.0	100		24.0	37	4160544
2.5	4.0		900	24.0	37	4160544K
4	4.6	100		38.4	45	4160644
6	5.1	100		57.6	71	4160744
10	6.8	100		96.0	120	4160844

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: Coil ≤ 30 kg, otherwise drum

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

Non-harmonised, nominal cross-sections: 0.5 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, 1 mm<sup>2</sup>, 16 mm<sup>2</sup>

\*for conventional use, \*\*for careful bending; "OD" = outer diameter

The outer diameters stated in the part number table are maximum values.

■ **Similar products**

- H07V-K refer to page 193
- MULTI-STANDARD SC 2.2 refer to page 201

■ **Accessories**

- DIN-assorted boxes conductor end sleeves refer to page 917
- Conductor end sleeves XL, insulated refer to page 918
- PEW 8.87 crimping pliers refer to page 921



**MULTI-STANDARD SC 2.2**

UL-listed (MTW), CSA (TEW), <HAR> H07V2-K: max. +90°C, UL (AWM): U<sub>max</sub> = 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



**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
- 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 mm<sup>2</sup> 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
- No outer sheath, no nylon jacket, no outer wrapping

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable
- Specific insulation resistance**  
> 10 GOhm x cm
- 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: U<sub>0</sub>/U: 450/750 V;  
UL (AWM): U: 1000 V;  
UL (MTW): U: 600 V;  
CSA (TEW): U: 600 V
- Test voltage**  
IEC: 2500 V AC  
UL: 4000 V AC
- Temperature range**  
Fixed installation:  
HAR/IEC: -40°C to +90°C;  
UL (AWM): -40°C to +105°C;  
UL (MTW): -40°C to +90°C;  
CSA (TEW): -40°C to +105°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
0.5	2.7	100		4.8	10		4150101	
0.75	2.9	100		7.2	13		4150201	
1	3.1	100		9.6	16		4150301	
1	3.1		2,000	9.6	16		4150301K	
1.5	3.4	100		14.4	22	4150403	4150401	4150406
2.5	4.0	100		24.0	37	4150503	4150501	4150506
2.5	4.0		900	24.0	37		4150501K	
4	4.6	100		38.4	45	4150603	4150601	
4	4.6		600	38.4	45		4150601K	
6	5.1	100		57.6	71		4150701	
10	6.8	100		96.0	120		4150801	
16	9.0	100		153.6	187		4150901	
25	10.2	100		240.0	290		4151001	
35	11.7			336.0	399		4151101	
50	13.9			480.0	559		4151201	
70	16.0			672.0	776		4151301	
95	18.2			912.0	1031		4151401	

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow	orange
0.5	2.7	100	4.8	10	4150102		
0.75	2.9	100	7.2	13	4150202		
1	3.1	100	9.6	16	4150302		4150309
1.5	3.4	100	14.4	22	4150402	4150400	4150409
2.5	4.0	100	24.0	37	4150502	4150500	4150509
4	4.6	100	38.4	45	4150602	4150600	
6	5.1	100	57.6	71	4150702	4150700	
10	6.8	100	96.0	120		4150800	4150809
16	9.0	100	153.6	187		4150900	
25	10.2	100	240.0	290		4151000	
35	11.7		336.0	399		4151100	

Control Cabinet Single Cores

Harmonised and approved

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	Dark blue	white	yellow
0.5	2.7	100	4.8	10	4150114	4150105	
0.75	2.9	100	7.2	13	4150214	4150205	
1	3.1	100	9.6	16		4150305	
1.5	3.4	100	14.4	22	4150414	4150405	4150410
4	4.6	100	38.4	45			4150610

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	Copper index (kg/km)	Weight (kg/km)	red
0.5	2.7	100	4.8	10	4150104
0.75	2.9	100	7.2	13	4150204
1	3.1	100	9.6	16	4150304
1.5	3.4	100	14.4	22	4150404
2.5	4.0	100	24.0	37	4150504
4	4.6	100	38.4	45	4150604
6	5.1	100	57.6	71	4150704

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Packaging size: Coil ≤ 30 kg, otherwise drum  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 Non-harmonised, nominal cross-sections: 0.5 mm<sup>2</sup>, 0.75 mm<sup>2</sup>, 1 mm<sup>2</sup>, 16 mm<sup>2</sup>, 50 mm<sup>2</sup>, 70 mm<sup>2</sup>, 95 mm<sup>2</sup>, 120 mm<sup>2</sup>  
 \*for conventional use, \*\*for careful bending; "OD" = outer diameter  
 The outer diameters stated in the part number table are maximum values.

**Similar products**

- MULTI-STANDARD SC 2.1 refer to page 198

**Accessories**

- DIN-assorted boxes conductor end sleeves refer to page 917
- Conductor end sleeves XL, insulated refer to page 918
- EASY STRIP stripping and cutting tool refer to page 909
- PEW 8.87 crimping pliers refer to page 921
- FLEXIMARK® Collar Snap-on refer to page 895

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures see ÖLFLEX® HEAT 125 SC

**H05Z-K 90°C**

Unharmful; halogen-free to protect human life, the environment and material assets

H05Z-K



**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

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

**Minimum bending radius**  
At a cable temperature of 20°C ± 10°C, according to HD 516  
4 x outer diameter (OD) for normal use;  
2 x OD for cautions bending

**Nominal voltage**  
U<sub>0</sub>/U: 300/500 V

**Test voltage**  
2000 V AC

**Current rating**  
VDE 0298-4  
HD 516/VDE 0298-300

**Temperature range**  
Fixed installation: -15°C to +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 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**

- EN 50525-3-41

**Product make-up**

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue
0.5	2.6	100		4.8	9	4725031	4725011	4725061	4725021
0.5	2.6		3,000	4.8	9	4725031K	4725011K	4725061K	4725021K
0.75	2.8	100		7.2	11	4725032	4725012	4725062	4725022
0.75	2.8		2,500	7.2	11	4725032K	4725012K	4725062K	4725022K
1	2.9	100		9.6	14	4725033	4725013	4725063	4725023
1	2.9		2,000	9.6	14	4725033K	4725013K	4725063K	4725023K

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange	dark blue	white
0.5	2.6	100		4.8	9	4725001	4725091	4725141	4725051
0.5	2.6		3,000	4.8	9	4725001K	4725091K	4725141K	4725051K
0.75	2.8	100		7.2	11	4725002	4725092	4725142	4725052
0.75	2.8		2,500	7.2	11	4725002K	4725092K	4725142K	4725052K
1	2.9	100		9.6	14	4725003	4725093	4725143	4725053
1	2.9		2,000	9.6	14	4725003K	4725093K	4725143K	4725053K

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red
0.5	2.6	100		4.8	9	4725121	4725111	4725071	4725041
0.5	2.6		3,000	4.8	9	4725121K	4725111K	4725071K	4725041K
0.75	2.8	100		7.2	11	4725122	4725112	4725072	4725042
0.75	2.8		2,500	7.2	11	4725122K	4725112K	4725072K	4725042K
1	2.9	100		9.6	14	4725123	4725113	4725073	4725043
1	2.9		2,000	9.6	14	4725123K	4725113K	4725073K	4725043K

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
0.5	2.6	100		4.8	9		4725081
0.5	2.6		3,000	4.8	9		4725081K
0.75	2.8	100		7.2	11		4725082
0.75	2.8		2,500	7.2	11		4725082K
1	2.9	100		9.6	14		4725083
1	2.9		2,000	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: Coil ≤ 30 kg, otherwise drum

Photographs 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.

**Similar products**

- ÖLFLEX® HEAT 125 SC refer to page 179



## H07Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets



**Info**

- 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

- 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 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable

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

**Minimum bending radius**  
At a cable temperature of 20°C ± 10°C, according to HD 516  
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**  
U<sub>0</sub>/U: 450 / 750 V

**Test voltage**  
2500 V

**Current rating**  
VDE 0298-4  
HD 516/VDE 0298-300

**Temperature range**  
Fixed installation: -15°C to +90°C

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue
1.5	3.5	100		14.4	20	4726031	4726011	4726061	4726021
1.5	3.5		1,500	14.4	20	4726031K	4726011K	4726061K	4726021K
2.5	4.3	100		24.0	32	4726032	4726012	4726062	4726022
2.5	4.3		900	24.0	32	4726032K	4726012K	4726062K	4726022K
4	4.9	100		38.4	45	4726033	4726013	4726063	4726023
4	4.9		600	38.4	45	4726033K	4726013K	4726063K	4726023K
6	5.5	100		57.6	65	4726034	4726014	4726064	4726024
6	5.5		400	57.6	65	4726034K	4726014K	4726064K	4726024K
10	7.1	100		96.0	110	4726035	4726015	4726065	4726025
16	8.4	100		153.6	170	4726036	4726016	4726066	4726026
25	10.6	100		240.0	290	4726037	4726017	4726067	4726027
35	12.1			336.0	380	4726038	4726018	4726068	4726028
50	14.4			480.0	530	4726039	4726019	4726069	4726029
70	16.6			672.0	750	4727031	4727011	4727061	4727021
95	18.8			912.0	1000	4727032	4727012	4727062	4727022

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange	dark blue	white
1.5	3.5	100		14.4	20	4726001	4726091	4726141	4726051
1.5	3.5		1,500	14.4	20	4726001K	4726091K	4726141K	4726051K
2.5	4.3	100		24.0	32	4726002	4726092	4726142	4726052
2.5	4.3		900	24.0	32	4726002K	4726092K	4726142K	4726052K
4	4.9	100		38.4	45	4726003	4726093	4726143	4726053
4	4.9		600	38.4	45	4726003K	4726093K	4726143K	4726053K
6	5.5	100		57.6	65	4726004	4726094	4726144	4726054
6	5.5		400	57.6	65	4726004K	4726094K	4726144K	4726054K
10	7.1	100		96.0	110	4726005	4726095	4726145	4726055
16	8.4	100		153.6	170	4726006	4726096	4726146	4726056
25	10.6	100		240.0	290	4726007	4726097	4726147	4726057
35	12.1			336.0	380	4726008	4726098	4726148	4726058
50	14.4			480.0	530	4726009	4726099	4726149	4726059
70	16.6			672.0	750	4727001	4727091	4727141	4727051
95	18.8			912.0	1000	4727002	4727092	4727142	4727052



Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red
1.5	3.5	100		14.4	20	4726121	4726111	4726071	4726041
1.5	3.5		1,500	14.4	20	4726121K	4726111K	4726071K	4726041K
2.5	4.3	100		24.0	32	4726122	4726112	4726072	4726042
2.5	4.3		900	24.0	32	4726122K	4726112K	4726072K	4726042K
4	4.9	100		38.4	45	4726123	4726113	4726073	4726043
4	4.9		600	38.4	45	4726123K	4726113K	4726073K	4726043K
6	5.5	100		57.6	65	4726124	4726114	4726074	4726044
6	5.5		400	57.6	65	4726124K	4726114K	4726074K	4726044K
10	7.1	100		96.0	110	4726125	4726115	4726075	4726045
16	8.4	100		153.6	170	4726126	4726116	4726076	4726046
25	10.6	100		240.0	290	4726127	4726117	4726077	4726047
35	12.1			336.0	380	4726128	4726118	4726078	4726048
50	14.4			480.0	530	4726129	4726119	4726079	4726049
70	16.6			672.0	750	4727121	4727111	4727071	4727041
95	18.8			912.0	1000	4727122	4727112	4727072	4727042

Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
1.5	3.5	100		14.4	20		4726081
1.5	3.5		1,500	14.4	20	4726261K	4726081K
2.5	4.3	100		24.0	32		4726082
2.5	4.3		900	24.0	32	4726262K	4726082K
4	4.9	100		38.4	45		4726083
4	4.9		600	38.4	45		4726083K
6	5.5	100		57.6	65		4726084
6	5.5		400	57.6	65		4726084K
10	7.1	100		96.0	110		4726085
16	8.4	100		153.6	170		4726086
25	10.6	100		240.0	290		4726087
35	12.1			336.0	380		4726088
50	14.4			480.0	530		4726089
70	16.6			672.0	750		4727081
95	18.8			912.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: Coil ≤ 30 kg, otherwise drum

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

\*for conventional use, \*\*for careful bending; "OD" = outer diameter

The outer diameters stated in the part number table are maximum values.

**Similar products**

- ÖLFLEX® HEAT 125 SC refer to page 179



## 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
- PVC-based outer sheath, transparent

#### Technical data



##### Classification

ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable



##### Peak operating voltage

350 V (not for power transmission)



##### Specific insulation resistance

10 GOhm x cm



##### 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 (mm <sup>2</sup> )	Number of wires x wire-Ø (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4530101	0.14	18 x 0.10	2.8	7.0	13
4530102	0.25	14 x 0.15	3.3	9.0	18
4530103	0.5	16 x 0.20	3.6	15.0	20
4530104	0.75	24 x 0.20	3.9	18.0	31
4530105	1	32 x 0.20	4.7	25.0	35.9
4530106	1.5	30 x 0.25	4.7	30.0	39
4530107	2.5	50 x 0.25	6.0	35.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil

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

#### Accessories

- SENSOR STRIP stripping tool refer to page 912



## Li2YCY

### Low-capacitance, screened wiring single-core with PVC-based outer sheath



#### 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
- Low cable capacitance, short signal transmission time
- 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: PE
- Wrapped screening made from tinned copper wire
- PVC-based outer sheath, transparent

#### Technical data



##### Classification

ETIM 5.0 Class-ID: EC000993  
ETIM 5.0 Class-Description: Single core cable



##### Peak operating voltage

350 V (not for power transmission)



##### Specific insulation resistance

2 GOhm x cm



##### Test voltage

1200 V



##### Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -30°C to +80°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Number of wires x wire-Ø (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4550115	0.14	18 x 0.10	2.3	7.0	10
4550116	0.25	14 x 0.15	2.5	9.0	15
4550117	0.5	16 x 0.20	3.1	15.0	19.5
4550118	0.75	24 x 0.20	3.3	18.0	28
4550119	1	32 x 0.20	3.7	25.0	30

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil

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



## ÖLFLEX® STATIC CY black

Closely screened, double insulated PVC single core for fixed installation

LAPP KABEL STUTTGART ÖLFLEX® STATIC CY black



**Info**

- An alternative to single-core NYY with overall braiding used as EMC-relevant screening
- EMC-compliant

### Benefits

- Cost-effective, double-insulated/sheathed single-core cable for fixed, unprotected installation indoors or outdoors, at most occasional flexing taking into account the higher minimum bending radii of 12.5 x cable outer diameter
- High degree of screening enables a very good EMC performance
- No additional protection such as a closed cable duct or protective conduit is required for installation

### Application range

- Very suitable for power circuits as an external connection or for the internal wirings in electric and electronic equipment
- In dry or damp interiors with low mechanical stress conditions
- Can be used indoors as a connecting cable to the inverter in the photovoltaic sector
- Outdoor use is possible within the indicated operating temperature range

### Product features

- Flame retardant acc. to IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

### Product make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Based on PVC
- Nonwoven wrapping/plastic foil
- Tinned-copper braiding
- PVC-based outer sheath

### Technical data

- Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5 / IEC 60228 Class 5
- Minimum bending radius**  
Fixed installation: 6 x outer diameter  
Occasional flexing: 12.5 x outer diameter
- Nominal voltage**  
 $U_0/U$ : 600/1000 V
- Test voltage**  
Core/screen: 2000 V
- Temperature range**  
Fixed installation: -40°C to +80°C  
Occasional flexing: -30°C to +70°C

Article number	Conductor cross-section (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4600023	16	10.3	177.0	275
4600024	25	12.7	267.0	396
4600025	35	14.3	384.0	542
4600026	50	16.9	537.0	752
4600027	70	18.7	763.0	1004
4600028	95	21.7	1,012.0	1368
4600029	120	24.7	1,264.0	1719

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- ÖLFLEX® FD 90 CY refer to page 111

### Accessories

- KS 20 cable shears refer to page 908



ROHS

VDE-Reg.-Nr. 6584

2629 - S/25

- LAPP KABEL STUTTGART

ÖLF

ÖLFLEX CLASSIC 110

12 G 1,5

VDE-Reg.-Nr. 7030

ÖLFLEX®

SERVO FD 796 CP



**NYM-J**

**Standard cable for plaster, brickwork and immovable concrete**



**Info**

- 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
- PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000043  
ETIM 5.0 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 mm<sup>2</sup>: multi-wire

**Minimum bending radius**  
Fixed installation: 4 x outer diameter

**Nominal voltage**  
U<sub>c</sub>/U: 300/500 V

**Test voltage**  
2000 V

**Protective conductor**  
"J" in NYM-J/Dimension with "G": With protection earth PE conductor  
"O" in NYM-O/Dimension with "X": No protection earth PE conductor

**Temperature range**  
During installation: +5°C to +60°C  
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1600008	1 G 2.5	6.0	24.0	60
1600009	1 G 4	6.7	38.0	85
1600010	1 G 6	7.2	58.0	105
1600011	1 G 10	8.6	96.0	160
1600012	1 G 16	9.6	154.0	220
16000003	3 G 1.5	8.4	43.0	120
16000013	4 G 1.5	9.2	58.0	150
16000023	5 G 1.5	9.9	72.0	175
16000003	7 G 1.5	11.6	101.0	235
16000023	3 G 2.5	9.6	72.0	170
16000053	4 G 2.5	10.6	96.0	210
16000063	5 G 2.5	11.5	120.0	290
1600071	7 G 2.5	13.7	168.0	380
16010223	3 G 4	11.3	115.0	250
16000313	4 G 4	12.7	154.0	315
16000513	5 G 4	14.0	192.0	370
16010233	3 G 6	12.8	173.0	335
16000323	4 G 6	13.8	230.0	410
16000523	5 G 6	15.5	288.0	500
16000333	4 G 10	18.0	384.0	680
16000533	5 G 10	19.5	480.0	810
16000543	5 G 16	23.0	768.0	1200
16000353	4 G 25	26.0	960.0	1500
16000553	5 G 25	28.0	1,200.0	1800

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- NYJ, NYO refer to page 211
- (N)HXMH refer to page 210

**Accessories**

- STAR STRIP stripping tool refer to page 910
- KS 20 cable shears refer to page 908



## (N)HXMH

Halogen-free; for plaster, bricks, concrete; at high density of people and valuable assets



**Info**

- 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

- Based on 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 5.0 Class-ID: EC000043  
ETIM 5.0 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
16020003	3 G 1.5	8.5	43.0	120
16020013	4 G 1.5	9.3	58.0	145
16020023	5 G 1.5	10.0	72.0	170
1602003	7 G 1.5	10.8	101.0	210
16020103	3 G 2.5	9.4	72.0	160
16020123	5 G 2.5	11.0	120.0	230

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- NYM-J refer to page 209
- ÖLFLEX® CLASSIC 130 H refer to page 60

### Accessories

- STAR STRIP stripping tool refer to page 910



## NYY-J, NYY-O

Fixed installation, direct burial; PVC cable with different application areas



**Info**

- 1. re = round conductor, single-wire;
- 2. rm = round conductor, multi-wire;
- 3. sm = sector-shaped 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

### 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 (wire = conductor)/braided conductor class 1 according to IEC 60228/VDE 0295 for fixed, static applications; m = multi-wire conductor/braided conductor class 2 according to IEC 60228/VDE 0295 for fixed, static applications, but with a slightly lower minimum bending factor
- Core insulation: Based on PVC
- Filling compound over the core assembly
- PVC-based outer sheath

### Technical data

	<b>Classification</b> ETIM 5.0 Class-ID: EC000057 ETIM 5.0 Class-Description: Low voltage power cable
	<b>Core identification code</b> Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9 From 6 cores: black with white numbers
	<b>Conductor stranding</b> Single or multi-wire
	<b>Minimum bending radius</b> Single-core: 15 x outer diameter Multi-core: 12 x outer diameter
	<b>Nominal voltage</b> U <sub>0</sub> /U: 0.6/1.0 kV
	<b>Test voltage</b> 4000 V
	<b>Temperature range</b> During installation: -5°C to +50°C Fixed installation: -40°C to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>NYY-J</b>				
1550030	1 x 25rm	13.0	240.0	380
1550038	1 x 35rm	14.0	336.0	447
1550032	1 x 50rm	15.0	480.0	650
1550033	1 x 70rm	17.0	672.0	864
1550037	1 x 185rm	25.0	1,776.0	2080
15500013	3 x 1,5re	12.0	43.0	223
15500023	4 x 1,5re	13.0	58.0	256
15500033	5 x 1,5re	14.0	72.0	293
1550004	7 x 1,5re	15.0	101.0	360
1550005	10 x 1,5re	18.0	144.0	520
1550006	12 x 1,5re	19.0	173.0	560
1550084	14 x 1,5re	20.0	202.0	620
1550007	16 x 1,5re	21.0	230.0	680
1550008	19 x 1,5re	22.0	274.0	760
1550009	24 x 1,5re	24.0	346.0	900
1550086	30 x 1,5re	26.0	432.0	1100
15500103	3 x 2,5re	13.0	72.0	272
15500113	4 x 2,5re	14.0	96.0	316
15500123	5 x 2,5re	15.0	120.0	323
1550013	7 x 2,5re	16.0	168.0	450
1550090	10 x 2,5re	20.0	240.0	630

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1550091	12 x 2,5re	20.0	288.0	680
1550092	14 x 2,5re	21.0	336.0	790
1550094	19 x 2,5re	23.0	456.0	990
1550096	24 x 2,5re	26.0	576.0	1300
1550097	30 x 2,5re	28.0	720.0	1400
15500583	3 x 4re	15.0	115.0	373
15500203	4 x 4re	16.0	154.0	439
15500263	5 x 4re	17.0	192.0	510
15500593	3 x 6re	16.0	173.0	466
15500213	4 x 6re	17.0	230.0	547
15500273	5 x 6re	19.0	288.0	640
15500603	3 x 10re	18.0	288.0	629
15500223	4 x 10re	19.0	384.0	743
15500823	5 x 10re	21.0	480.0	899
15500613	3 x 16re	20.0	461.0	850
15500233	4 x 16re	22.0	614.0	1039
15500833	5 x 16re	23.0	768.0	1240
15500713	3 x 25rm/16re	25.0	874.0	1595
15500243	4 x 25rm	27.0	960.0	1620
15500153	3 x 35sm/16re	27.0	1,162.0	1718
15500753	4 x 35sm	27.0	1,344.0	1916
15500163	3 x 50sm/25rm	31.0	1,680.0	2383
15500253	4 x 50sm	31.0	1,920.0	2639
15500173	3 x 70sm/35sm	33.0	2,352.0	3196
15500763	4 x 70sm	35.0	2,688.0	3576
15500183	3 x 95sm/50sm	38.0	3,216.0	4271
15500773	4 x 95sm	40.0	3,648.0	4746
15500723	3 x 120sm/70sm	41.0	4,128.0	5281
15500783	4 x 120sm	43.0	4,608.0	5813
15500733	3 x 150sm/70sm	46.0	4,992.0	6408
15500793	4 x 150sm	48.0	5,760.0	7263
15500743	3 x 185sm/95sm	50.0	6,240.0	7909
15500803	4 x 185sm	53.0	7,104.0	8905
15500193	3 x 240sm/120sm	57.0	8,064.0	10162
15500813	4 x 240sm	60.0	9,216.0	11430
<b>NY-Y-O</b>				
1550205	1 x 10re	10.0	96.0	176
1550206	1 x 16re	11.0	154.0	239
1550207	1 x 25rm	13.0	240.0	380
1550208	1 x 35rm	14.0	336.0	447
1550209	1 x 50rm	15.0	480.0	650
1550210	1 x 70rm	17.0	672.0	864
1550211	1 x 95rm	19.0	912.0	1132
1550212	1 x 120rm	21.0	1,152.0	1405
1550213	1 x 150rm	22.0	1,440.0	1710
1550214	1 x 185rm	25.0	1,776.0	2080
1550215	1 x 240rm	27.0	2,304.0	2669
1550216	1 x 300rm	30.0	2,880.0	3305
1550218	1 x 500rm	39.0	4,800.0	5400
15502003	2 x 1,5re	11.0	29.0	210
15502193	2 x 2,5re	12.0	48.0	250
15502203	2 x 4re	14.0	77.0	360
15502213	2 x 6re	15.0	115.0	400
15502223	2 x 10re	17.0	192.0	500
15502533	4 x 16re	22.0	614.0	1039
15502543	4 x 25rm	27.0	960.0	1620
15502563	4 x 50sm	31.0	1,920.0	2639
15502573	4 x 70sm	35.0	2,688.0	3576
15502583	4 x 95sm	40.0	3,648.0	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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

■ **Similar products**

- NYCY refer to page 213
- NYCWY refer to page 214
- NAYY-J refer to page 215

■ **Accessories**

- V 1311 pressing pliers, hydraulic refer to page 934
- STAR STRIP stripping tool refer to page 910
- KT cable shears refer to page 908





**NYCY**

**Fixed installation, direct burial; PVC cable with concentric, helical copper conductor and cross-conductive spiral**

**Info**

- 1. re = round conductor, single-wire;
- 2. rm = round conductor, multi-wire;
- 3. sm = sector-shaped 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

**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 T 12) 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 (wire = conductor)/braided conductor class 1 according to IEC 60228/VDE 0295 for fixed, static applications; m = multi-wire conductor/braided conductor class 2 according to IEC 60228/VDE 0295 for fixed, static applications, but with a slightly lower minimum bending factor
- 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
- PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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**  
U<sub>c</sub>/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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
15503003	2 x 1,5re/1,5	14.0	52.0	245
15503103	3 x 1,5re/1,5	14.0	66.0	280
15503203	4 x 1,5re/1,5	15.0	81.0	302
1550330	7 x 1,5re/2,5	17.0	133.0	450
1550332	12 x 1,5re/2,5	20.0	205.0	580
1550337	24 x 1,5re/6	26.0	413.0	1100
15503113	3 x 2,5re/2,5	15.0	104.0	316
15503213	4 x 2,5re/2,5	16.0	128.0	360
1550350	7 x 2,5re/2,5	18.0	200.0	530
1550355	16 x 2,5re/6	23.0	451.0	950
15503223	4 x 4re/4	18.0	200.0	485
15503233	4 x 6re/6	19.0	297.0	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 T 17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- NYJ, NYJ-O refer to page 211



## NYCWY

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral



**Info**

- 1. re = round conductor, single-wire;
- 2. rm = round conductor, multi-wire;
- 3. sm = sector-shaped 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

**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 (wire = conductor)/braided conductor class 1 according to IEC 60228/VDE 0295 for fixed, static applications; m = multi-wire conductor/braided conductor class 2 according to IEC 60228/VDE 0295 for fixed, static applications, but with a slightly lower minimum bending factor

**Technical data**



**Classification**

ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 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**

U<sub>0</sub>/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

- 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
- PVC-based outer sheath

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
15505003	2 x 10re/10	19.0	312.0	610
15505263	3 x 10re/10	20.0	408.0	775
15505403	4 x 10re/10	21.0	504.0	897
15505273	3 x 16re/16	22.0	643.0	1066
15505413	4 x 16re/16	24.0	796.0	1250
15505283	3 x 25rm/25	26.0	1,003.0	1584
15505423	4 x 25rm/16	28.0	1,142.0	1822
15505303	3 x 35sm/35	26.0	1,402.0	1710
15505433	4 x 35sm/16	29.0	1,526.0	2146
15505163	3 x 50sm/50	30.0	2,000.0	2368
15505443	4 x 50sm/25	33.0	2,203.0	3031
15505453	4 x 70sm/35	38.0	3,082.0	4056
15505143	3 x 95sm/50	38.0	3,296.0	4256
15505323	3 x 95sm/95	39.0	3,791.0	4600
15505463	4 x 95sm/50	43.0	4,208.0	5364
15505153	3 x 120sm/70	41.0	4,236.0	5314
15505473	4 x 120sm/70	46.0	5,388.0	6748
15505353	3 x 150sm/70	45.0	5,100.0	6344
15505483	4 x 150sm/70	51.0	6,540.0	8159
15505173	3 x 185sm/95	50.0	6,383.0	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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- NYY-J, NYY-O refer to page 211

**Accessories**

- V 1311 pressing pliers, hydraulic refer to page 934
- KT cable shears refer to page 908



**NAYY-J**

**Fixed installation, direct burial; PVC cable with solid aluminium conductors**



**Info**

- 1. re = round conductor, single-wire;
- 2. rm = round conductor, multi-wire;
- 3. sm = sector-shaped 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

**Product features**

- Flame-retardant according IEC 60332-1-2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm<sup>2</sup> 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 T 12) for installation in and on buildings

**Norm references / Approvals**

- HD 603/VDE 0276-603

**Product make-up**

- Aluminium conductor
- Abbreviations "re", "rm", "se", "sm": r = round conductor form; s = sectorial conductor form; e = single-wire conductor (wire = conductor)/braided conductor class 1 according to IEC 60228/VDE 0295 for fixed, static applications; m = multi-wire conductor/braided conductor class 2 according to IEC 60228/VDE 0295 for fixed, static applications, but with a slightly lower minimum bending factor
- Core insulation: Based on PVC
- Filling compound over the core assembly
- PVC-based outer sheath

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000057  
ETIM 5.0 Class-Description: Low voltage power cable

**Core identification code**  
According to VDE 0293-308 (table T9)

**Conductor stranding**  
Single-wire

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

**Nominal voltage**  
U<sub>0</sub>/U: 0.6/1.0 kV

**Test voltage**  
4000 V

**Temperature range**  
During installation: -5°C to +50°C  
Fixed installation: -30°C to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Alu index (kg/km)	Weight (kg/km)
1552010	4 x 35re	29.0	406.0	1170
1552011	4 x 50se	30.0	580.0	1305
1552012	4 x 70se	35.0	812.0	1730
1552013	4 x 95se	39.0	1,102.0	2205
1552014	4 x 120se	42.0	1,392.0	2655
1552015	4 x 150se	46.0	1,740.0	3150
1552016	4 x 185se	51.0	2,146.0	3925
1552017	4 x 240se	60.0	2,784.0	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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- NYY-J, NYY-O refer to page 211

**Accessories**

- V 1311 pressing pliers, hydraulic refer to page 934
- STAR STRIP stripping tool refer to page 910
- Cable lugs and other connectors made of aluminium or bi-metal Al-Cu are available upon request

**Assembled cables**

Servo applications - power drive systems



**Servo harnessing according to SIEMENS® 6FX5002-**



**Benefits**

- This cable is designed according to SIEMENS® standard. 6FX5002 is the high-quality, yet more economical, version of the highly flexible 6FX8002 version.
- 100% compatible with SIEMENS® systems
- The oil-resistant PVC sheath enables usage in industrial environments
- Fixed installation

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Product make-up**

- Design according to SIEMENS® standard 6FX 5002
- Outer sheath: special PVC compound, flame-retardant according to IEC 332.1,

**Note**

- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

**Product make-up**

- Other versions and lengths can be delivered upon request.

**Technical data**



**Approvals**

Power cable:  
VDE-registered  
UL/CSA AWM Style 2570  
Signal cables:  
UL/CSA AWM style 2502



**Conductor stranding**

Extra-fine wire strand made of bare copper wires according to VDE 0295 class 6/IEC 60228 class 6



**Minimum bending radius**

Fixed installation: 5 x outer diameter  
Flexible use: 12 x outer diameter



**Nominal voltage**

Signal cables:  
- 30 V AC/DC (UL/CSA)  
- 30 V AC (IEC)  
Power cable:  
- Power cores:  
1000 V (UL/CSA)  
600/1000 V (IEC)  
- Control cores:  
750 V (UL/CSA)  
30 V AC (IEC)



**Temperature range**

Fixed installation: -20°C to +80°C  
Flexible use: 0°C to +60°C

Article number	Length (m)	SIEMENS® assembly designation	SIEMENS® cable designation	Copper index kg/1.000 pieces	Other dimensions	PU
<b>Assemblies for signal transmission systems</b>						
74305559	10.0	6FX5002-2AD00-1BA0	6FX5008-1BD41	630.0	Other lengths are available upon request	1
74305659	10.0	6FX5002-2AD04-1BA0	6FX5008-1BD41	630.0	Other lengths are available upon request	1
74305759	10.0	6FX5002-2AH00-1BA0	6FX5008-1BD21	770.0	Other lengths are available upon request	1
74305859	10.0	6FX5002-2CA11-1BA0	6FX5008-1BD21	770.0	Other lengths are available upon request	1
74306059	10.0	6FX5002-2CA31-1BA0	6FX5008-1BD51	690.0	Other lengths are available upon request	1
74306159	10.0	6FX5002-2CA34-1BA0	6FX5008-1BD51	690.0	Other lengths are available upon request	1
74306659	10.0	6FX5002-2CF01-1BA0	6FX5008-1BD41	630.0	Other lengths are available upon request	1
74306759	10.0	6FX5002-2CF02-1BA0	6FX5008-1BD41	630.0	Other lengths are available upon request	1
74306859	10.0	6FX5002-2CH00-1BA0	6FX5008-1BD41	630.0	Other lengths are available upon request	1
74307059	10.0	6FX5002-2EQ10-1BA0	6FX5008-1BD51	690.0	Other lengths are available upon request	1
74307159	10.0	6FX5002-2EQ14-1BA0	6FX5008-1BD51	690.0	Other lengths are available upon request	1
70430150	10.0	6FX5002-2DC00-1BA0	6FX2008-1DC00	370.0	Other lengths are available upon request	1
70430069	10.0	6FX5002-2DC10-1BA0	6FX2008-1DC00	370.0	Other lengths are available upon request	1
70430151	10.0	6FX5002-2DC20-1BA0	6FX2008-1DC00	370.0	Other lengths are available upon request	1
<b>Assemblies for motors without brake</b>						
74307259	10.0	6FX5002-5CA01-1BA0	6FX5008-1BB11	880.0	Other lengths are available upon request	1
74307459	10.0	6FX5002-5CA05-1BA0	6FX5008-1BB11	880.0	Other lengths are available upon request	1
74308259	10.0	6FX5002-5CA31-1BA0	6FX5008-1BB21	1,320.0	Other lengths are available upon request	1
74308559	10.0	6FX5002-5CA41-1BA0	6FX5008-1BB31	1,950.0	Other lengths are available upon request	1
74308659	10.0	6FX5002-5CA51-1BA0	6FX5008-1BB41	2,800.0	Other lengths are available upon request	1
70430003	10.0	6FX5002-5CS01-1BA0	6FX5008-1BB11	880.0	Other lengths are available upon request	1
70430004	10.0	6FX5002-5CS11-1BA0	6FX5008-1BB21	1,940.0	Other lengths are available upon request	1
<b>Assemblies for motors with brake</b>						
74308959	10.0	6FX5002-5DA01-1BA0	6FX5008-1BA11	1,500.0	Other lengths are available upon request	1
74309159	10.0	6FX5002-5DA05-1BA0	6FX5008-1BA11	1,430.0	Other lengths are available upon request	1
74309960	10.0	6FX5002-5DA31-1BA0	6FX5008-1BA21	1,940.0	Other lengths are available upon request	1
74313361	10.0	6FX5002-5DA41-1BA0	6FX5008-1BA31	2,720.0	Other lengths are available upon request	1
74313661	10.0	6FX5002-5DA51-1BA0	6FX5008-1BA41	3,510.0	Other lengths are available upon request	1
70430001	10.0	6FX5002-5DS01-1BA0	6FX5008-1BA11	1,500.0	Other lengths are available upon request	1
70430002	10.0	6FX5002-5DS11-1BA0	6FX5008-1BA21	1,940.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Article numbers refer to genuine Lapp products.

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



## Servo harnessing according to SIEMENS® 6FX 8002-

**Technical data**

**Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable

**Approvals**  
Power cable:  
VDE-registered  
UL AWM Style 21223  
CSA AWM I/II, A/B 1000 V 80° FT 1  
Sensor leads: UL/CSA AWM Style 20236

**Minimum bending radius**  
Power cable:  
Fixed: 4 x D  
Dynamic:  
1.5 mm<sup>2</sup> - 16 mm<sup>2</sup>: 7.5 x D  
25 mm<sup>2</sup> - 50 mm<sup>2</sup>: 10 x D  
Signal cable:  
Fixed: 4 x D  
Dynamic: 8 x D

**Nominal voltage**  
Signal cables:  
- 30 V AC/DC (UL/CSA)  
- 30 V AC (IEC)  
Power cable:  
- Power cores:  
600/1000 V (IEC)  
1000 V (UL/CSA)  
- Control cores:  
250 V AC (IEC)  
1000 V (UL/CSA)

**Temperature range**  
Fixed installation: -50°C to +80°C  
Flexing: -20°C to +60°C



**Benefits**

- Highly flexible servomotor and sensor cables that are designed for use in power chains
- 100% compatible with SIEMENS® systems
- The oil-resistant PUR sheath enables usage in industrial environments

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Product features**

- Abrasion and cut-resistant, halogen-free, oil-resistant

**Product make-up**

- Extra-fine strand made of copper wires:  
> Signal cables: tinned  
> Power cables: bare

- Design according to SIEMENS® standard 6FX 8002
- PUR outer sheath
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)

**Note**

- Please comply with the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

**Product make-up**

- Other versions and lengths can be delivered upon request.

Article number	Length (m)	SIEMENS® assembly designation	SIEMENS® cable designation	Copper index kg/1.000 pieces	Other dimensions	PU
<b>Assemblies for signal transmission systems</b>						
70301549	10.0	6FX8002-2AD00-1BA0	6FX8008-1BD41	660.0	Other lengths are available upon request	1
74303559	10.0	6FX8002-2AD04-1BA0	6FX8008-1BD41	660.0	Other lengths are available upon request	1
70389020	10.0	6FX8002-2AH00-1BA0	6FX8008-1BD41	770.0	Other lengths are available upon request	1
70301550	10.0	6FX8002-2CA11-1BA0	6FX8008-1BD21	770.0	Other lengths are available upon request	1
70301553	10.0	6FX8002-2CA31-1BA0	6FX8008-1BD51	860.0	Other lengths are available upon request	1
70301554	10.0	6FX8002-2CA34-1BA0	6FX8008-1BD51	860.0	Other lengths are available upon request	1
70301563	10.0	6FX8002-2CG00-1BA0	6FX8008-1BD21	770.0	Other lengths are available upon request	1
70301564	10.0	6FX8002-2CH00-1BA0	6FX8008-1BD41	660.0	Other lengths are available upon request	1
70301567	10.0	6FX8002-2EQ10-1BA0	6FX8008-1BD51	860.0	Other lengths are available upon request	1
70391522	10.0	6FX8002-2EQ14-1BA0	6FX8008-1BD51	860.0	Other lengths are available upon request	1
70301568	10.0	6FX8002-2CF01-1BA0	6FX8008-1BD41	660.0	Other lengths are available upon request	1
70301569	10.0	6FX8002-2CF02-1BA0	6FX8008-1BD41	660.0	Other lengths are available upon request	1
70301575	10.0	6FX8002-4AA21-1BA0	6FX8008-1BD61	540.0	Other lengths are available upon request	1
70430149	10.0	6FX8002-2DC00-1BA0	6FX8008-2DC00	410.0	Other lengths are available upon request	1
70431018	10.0	6FX8002-2DC10-1BA0	6FX8008-2DC00	410.0	Other lengths are available upon request	1
70430096	10.0	6FX8002-2DC20-1BA0	6FX8008-2DC00	410.0	Other lengths are available upon request	1
<b>Assemblies for motors without brake</b>						
70301578	10.0	6FX8002-5CA01-1BA0	6FX8008-1BB11	840.0	Other lengths are available upon request	1
70301601	10.0	6FX8002-5CA05-1BA0	6FX8008-1BB11	960.0	Other lengths are available upon request	1
70301583	10.0	6FX8002-5CA31-1BA0	6FX8008-1BB21	1,350.0	Other lengths are available upon request	1
70301585	10.0	6FX8002-5CA41-1BA0	6FX8008-1BB31	2,060.0	Other lengths are available upon request	1
70301586	10.0	6FX8002-5CA51-1BA0	6FX8008-1BB41	2,710.0	Other lengths are available upon request	1
70430007	10.0	6FX8002-5CS01-1BA0	6FX8008-1BB11	960.0	Other lengths are available upon request	1
70430008	10.0	6FX8002-5CS11-1BA0	6FX8008-1BB21	1,280.0	Other lengths are available upon request	1
<b>Assemblies for motors with brake</b>						
70301588	10.0	6FX8002-5DA01-1BA0	6FX8008-1BA11	1,430.0	Other lengths are available upon request	1
70301600	10.0	6FX8002-5DA05-1BA0	6FX8008-1BA11	1,430.0	Other lengths are available upon request	1
70301594	10.0	6FX8002-5DA31-1BA0	6FX8008-1BA21	1,860.0	Other lengths are available upon request	1
70301597	10.0	6FX8002-5DA41-1BA0	6FX8008-1BA31	2,610.0	Other lengths are available upon request	1
70301598	10.0	6FX8002-5DA51-1BA0	6FX8008-1BA41	3,300.0	Other lengths are available upon request	1
70430005	10.0	6FX8002-5DS01-1BA0	6FX8008-1BA11	1,430.0	Other lengths are available upon request	1
70430006	10.0	6FX8002-5DS11-1BA0	6FX8008-1BA21	1,860.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Article numbers refer to genuine Lapp products.

Other designs and lengths are available upon request.

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

**Assembled cables**

Servo applications - power drive systems



**Servo harnessing according to INDRAMAT® IKG / RKL**



**Benefits**

- Highly flexible servomotor cables that are designed for use in power chains.
- 100% compatible with INDRAMAT® systems
- The oil-resistant PUR sheath enables usage in industrial environments

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Product make-up**

- In accordance with INDRAMAT® standard IKG/RKL

**Note**

- Please comply with the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

**Product make-up**

- Other versions and lengths can be delivered upon request.

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Approvals**  
UL/CSA AWM Style 20234
- Minimum bending radius**  
Fixed installation: 6 x outer diameter  
Flexible use: 10 x outer diameter
- Nominal voltage**  
Power cores:  
- 1000 V (UL/CSA)  
- 600/1000 V (IEC)  
Control cores:  
250 V AC (IEC)  
1000 V (UL/CSA)
- Temperature range**  
Fixed installation: -50 °C to +80 °C  
Flexible: -30 °C to +60 °C

Article number	Length (m)	INDRAMAT® ordering designation	Cable designation	Copper index kg/1.000 pieces	Other dimensions	PU
<b>Assemblies to INDRAMAT® standard IKG</b>						
70345476	10.0	IKG4009-010	INK0653	1,700.0	Other lengths are available upon request	1
70345503	10.0	IKG4087-010	INK0603	3,060.0	Other lengths are available upon request	1
70345521	10.0	IKG4163-010	INK0605	5,650.0	Other lengths are available upon request	1
70345522	10.0	IKG4170-010	INK0605	5,650.0	Other lengths are available upon request	1
70345541	10.0	IKG4020-010	INK0653	1,700.0	Other lengths are available upon request	1
70345542	10.0	IKG4018-010	INK0653	1,700.0	Other lengths are available upon request	1
70345543	10.0	IKG4016-010	INK0653	1,700.0	Other lengths are available upon request	1
70345545	10.0	IKG4050-010	INK0650	1,890.0	Other lengths are available upon request	1
<b>Assemblies to INDRAMAT® standard RKL</b>						
70410000	10.0	RKL4330-010	INK0606	6,700.0	Other lengths are available upon request	1
70392839	10.0	RKL4302-010	INK0653	1,700.0	Other lengths are available upon request	1
70410001	10.0	RKL4303-010	INK0653	1,700.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Indramat part designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only.  
 Article numbers refer to genuine Lapp products.  
 Other designs and lengths are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.

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ACCESSORIES  
APPENDIX



## Servo harnessing according to INDRAMAT® IKS / RKG



### Benefits

- Highly flexible feedback cables that are designed for use in power chains
- 100% compatible with INDRAMAT® systems
- The oil-resistant PUR sheath enables usage in industrial environments

### Application range

- Plant engineering
- Servo drives and servo assemblies

### Product make-up

- In accordance with INDRAMAT® standard IKS/RKG

### Note

- Please comply with the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

### Product make-up

- Other versions and lengths can be delivered upon request.

### Technical data

	<b>Classification</b> ETIM 5.0 Class-ID: EC000104 ETIM 5.0 Class-Description: Control cable
	<b>Approvals</b> UL/CSA AWM Style 20236
	<b>Minimum bending radius</b> Fixed installation: 5 x outer diameter Flexible use: 10 x outer diameter
	<b>Nominal voltage</b> 300 V
	<b>Temperature range</b> Fixed installation: -30 °C to +90 °C Flexible: -30 °C to +80 °C

Article number	Length (m)	INDRAMAT® ordering designation	Cable designation	Copper index kg/1.000 pieces	Other dimensions	PU
<b>Assemblies to INDRAMAT® standard IKS</b>						
70335583	10.0	IKS4374-010	INK0448	600.0	Other lengths are available upon request	1
70335584	10.0	IKS4376-010	INK0448	700.0	Other lengths are available upon request	1
70335595	10.0	IKS4103-010	INK0448	700.0	Other lengths are available upon request	1
70335596	10.0	IKS4153-010	INK0448	700.0	Other lengths are available upon request	1
<b>Assemblies to INDRAMAT® standard RKG</b>						
70392984	10.0	RKG4200-010	INK0448	600.0	Other lengths are available upon request	1
70410002	10.0	RKG4201-010	INK0448	600.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Indramat part designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only.  
 Article numbers refer to genuine Lapp products.  
 Other designs and lengths are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Assembled cables**

Servo applications - power drive systems



**Servo harnessing according to LENZE®**



**Benefits**

- Servomotors, resolvers and encoder cables for fixed installation or application in power supply chains
- 100% compatible with specific drive systems
- Outer sheath makes them particularly suitable for use in industrial areas

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Product make-up**

- Design according to specific drive systems:
- Designs for fixed installation: PVC outer sheath, flame-retardant in accordance with IEC 332.1, UL/CSA-approved PP core insulation.
- Designs for highly flexible use: oil-resistant PUR sheath in accordance with VDE472-803 Part B, flame-retardant in accordance with IEC 60332.1-2, TPE core insulation.

**Note**

- For the highly flexible version, please observe the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

**Product make-up**

- Other versions and lengths can be delivered upon request.

**Technical data**



**Classification**

ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable



**Approvals**

Resolver and encoder cable:  
UL AWM Style 2464 for fixed installation versions, Style 21165 for highly flexible applications.  
Motor cable:  
UL AWM Style 2570 for fixed installation version; Style 20940 for high flexibility use.



**Minimum bending radius**

Fixed installation: 7.5 x outer diameter  
Flexible use: 10 x outer diameter



**Nominal voltage**

Resolver and encoder cable:  
30 V (VDE), 300 V (UL/CSA)



**Test voltage**

Resolver and encoder cable:  
1.5 kV  
Motor cable:  
- Power cores: 4 kV  
- Control cores: 2 kV



**Temperature range**

Fixed installation: -25°C to +80°C  
Flexible use: -5°C to +70°C

Article number	Length (m)	LENZE® item designation	Static	Highly flexible	Number of cores and mm² per conductor	Copper index kg/ 1.000 pieces	Other dimensions	PU
<b>Servo cables</b>								
74320320	10.0	EWLM-010GM-015	•		4 G 1,5+(2x0,5)	1,060.0	Other lengths are available upon request	1
74320499	10.0	EWLM-010GM-025	•		4 G 2,5+(2x0,5)	1,560.0	Other lengths are available upon request	1
74321272	10.0	EWLM-010GMS-015		•	4 G 1,5+(2x0,5)	1,060.0	Other lengths are available upon request	1
74321426	10.0	EWLM-010GMS-025		•	4 G 2,5+(2x0,5)	1,530.0	Other lengths are available upon request	1
70415002	10.0	EYP-0003-A-0100-M01-A00	•		4 G 1.5	1,060.0	Other lengths are available upon request	1
<b>Fan cables</b>								
74322480	10.0	EWLL-010GM	•		5 G 0.5	240.0	Other lengths are available upon request	1
74322629	10.0	EWLL-010GMS		•	5 G 0.5	240.0	Other lengths are available upon request	1
70415005	10.0	EYL-0001-V-0100L02-J02		•	5 G 0.75	360.0	Other lengths are available upon request	1
<b>Resolver cables</b>								
74320540	10.0	EWLR-010GM-T	•		3x (2x0,14) + 1x (2x0,5)	430.0	Other lengths are available upon request	1
74323073	10.0	EWLR-010GMS-T		•	3x (2x0,14) + 1x (2x0,5)	430.0	Other lengths are available upon request	1
70415005	10.0	EYF-0020-A-0100-F01-S04		•	3x (2x0,14) + 3x 0,14	370.0	Other lengths are available upon request	1
<b>Encoder cables</b>								
74323522	10.0	EWLE-010GM-T	•		4x (2x0,14) + 1x (2x1,0)	650.0	Other lengths are available upon request	1
74323672	10.0	EWLE-010GMS-T		•	4x (2x0,14) + 1x (2x1,0)	650.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Lenze® part designations (EWLM\_, EWLR\_, EWLE\_, EWLL\_, EYL und EYP) are registered trademarks of Lenze® AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Article numbers refer to genuine Lapp products.

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





**Servo harnessing according to SEW®**



**Benefits**

- Servomotors, resolvers and encoder cables for fixed installation or application in power supply chains
- Outer sheath makes them particularly suitable for use in industrial areas

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Product make-up**

- Design according to specific drive systems:
- Flame-retardant according IEC 60332-1-2

**Note**

- For the highly flexible version, please observe the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

**Product make-up**

- Other versions and lengths can be delivered upon request.

**Technical data**

- Classification**  
ETIM 5.0 Class-ID: EC000104  
ETIM 5.0 Class-Description: Control cable
- Approvals**  
Power cable: UL AWM Style 2587
- Minimum bending radius**  
Power cable occasional flexing: 15 x cable diameter  
Signal cable for flexible installation: 15 x outer diameter
- Nominal voltage**  
Power cable: power cores: IEC 750 V, UL 600 V  
Signal cores: IEC 350 V, UL 600 V  
Signal cable: 250 V
- Test voltage**  
Power cable: 2 KV  
Signal cable: 1.5 KV
- Temperature range**  
Flexing power cable: -10 °C to +80 °C  
Signal cable flexing: -5°C to +70°C

Article number	Length (m)	SEW item designation	Static	Highly flexible	Number of cores and mm <sup>2</sup> per conductor	Copper index kg/1.000 pieces	Other dimensions	PU
<b>Motor cables</b>								
70430251	10.0	05904544	•		4G 1,5	880.0	Other lengths are available upon request	1
70430250	10.0	13324853	•		4G 1,5+3x1	1,510.0	Other lengths are available upon request	1
<b>Assemblies for signal transmission systems</b>								
70430249	10.0	13324535	•		6x2x0,25	695.0	Other lengths are available upon request	1
70430252	10.0	1995405		•	6x2x0,25	718.0	Other lengths are available upon request	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal  
 Article numbers refer to genuine Lapp products.  
 Photographs are not to scale and do not represent detailed images of the respective products.

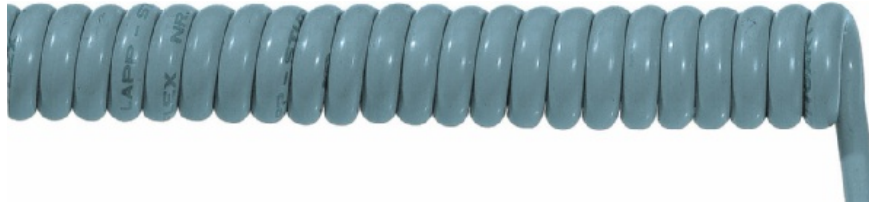
Assembled cables

Spiralised



# ÖLFLEX® SPIRAL 400 P

PUR spiral cable with increased chemical resistance



**Info**

- High resistance to benzols, benzines and other substances listed in Appendix T1

**Benefits**

- High restoring forces and extension lengths up to 3 times the unextended spiral length

**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

**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**

- Core identification code**  
Black with white numbers acc. to VDE 0293-1
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Nominal voltage**  
U<sub>n</sub>/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 mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/1.000 pieces
70002622	2 X 0.75	1,500	500	5.4	19.5	64.8
70002623	2 X 0.75	3,000	1,000	5.4	19.5	123.8
70002624	2 X 0.75	4,500	1,500	5.4	19.5	170.6
70002625	2 X 0.75	6,000	2,000	5.4	19.5	234.7
70002628	3 G 0.75	1,500	500	5.7	20.0	101.5
70002629	3 G 0.75	3,000	1,000	5.7	20.0	172.8
70002630	3 G 0.75	4,500	1,500	5.7	20.0	261.3
70002631	3 G 0.75	6,000	2,000	5.7	20.0	326.1
70002634	4 G 0.75	1,500	500	6.2	21.0	123.8
70002635	4 G 0.75	3,000	1,000	6.2	21.0	221.7
70002636	4 G 0.75	4,500	1,500	6.2	21.0	129.6
70002637	4 G 0.75	6,000	2,000	6.2	21.0	453.6
70002640	5 G 0.75	1,500	500	6.7	24.0	154.8
70002641	5 G 0.75	3,000	1,000	6.7	24.0	306.0
70002642	5 G 0.75	4,500	1,500	6.7	24.0	439.2
70002643	5 G 0.75	6,000	2,000	6.7	24.0	594.0
70002726	7 G 0.75	1,500	500	7.3	27.0	245.0
70002727	7 G 0.75	3,000	1,000	7.3	27.0	525.0
70002728	7 G 0.75	4,500	1,500	7.3	27.0	660.0
70002729	7 G 0.75	6,000	2,000	7.3	27.0	1,025.0
70002731	12 G 0.75	1,500	500	9.9	35.0	371.5
70002732	12 G 0.75	3,000	1,000	9.9	35.0	682.5
70002734	18 G 0.75	1,500	500	11.7	40.0	699.8
70002735	18 G 0.75	3,000	1,000	11.7	40.0	1,127.5
70002646	2 X 1	1,500	500	5.7	20.0	88.3
70002647	2 X 1	3,000	1,000	5.7	20.0	161.2
70002648	2 X 1	4,500	1,500	5.7	20.0	230.4
70002649	2 X 1	6,000	2,000	5.7	20.0	272.6
70002651	3 G 1	1,500	500	6.0	21.0	129.6
70002652	3 G 1	3,000	1,000	6.0	21.0	244.8
70002653	3 G 1	4,500	1,500	6.0	21.0	350.5
70002654	3 G 1	6,000	2,000	6.0	21.0	417.6
70002656	4 G 1	1,500	500	6.5	24.0	176.6
70002657	4 G 1	3,000	1,000	6.5	24.0	322.5
70002658	4 G 1	4,500	1,500	6.5	24.0	503.0
70002659	4 G 1	6,000	2,000	6.5	24.0	587.5
70002661	5 G 1	1,500	500	7.1	25.0	220.8
70002662	5 G 1	3,000	1,000	7.1	25.0	408.0
70002663	5 G 1	4,500	1,500	7.1	25.0	600.0
70002664	5 G 1	6,000	2,000	7.1	25.0	744.0
70002666	7 G 1	1,250	500	8.0	30.0	328.3
70002667	7 G 1	2,500	1,000	8.0	30.0	562.8
70002668	7 G 1	3,750	1,500	8.0	30.0	770.5
70002669	7 G 1	5,000	2,000	8.0	30.0	1,175.1

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SILVYN® SKINTOP® FLEXIMARK® ACCESSORIES APPENDIX

Article number	Number of cores and mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/1.000 pieces
70002670	12 G 1	1,500	500	10.5	37.0	598.0
70002671	12 G 1	3,000	1,000	10.5	37.0	1,012.0
70002672	18 G 1	1,500	500	12.7	45.0	891.0
70002673	18 G 1	3,000	1,000	12.7	45.0	1,402.5
70002681	2 X 1.5	1,500	500	6.3	23.0	142.1
70002682	2 X 1.5	3,000	1,000	6.3	23.0	266.8
70002683	2 X 1.5	4,500	1,500	6.3	23.0	379.9
70002684	2 X 1.5	6,000	2,000	6.3	23.0	493.0
70002687	3 G 1.5	1,500	500	6.7	24.0	210.7
70002688	3 G 1.5	3,000	1,000	6.7	24.0	365.5
70002689	3 G 1.5	4,500	1,500	6.7	24.0	498.8
70002690	3 G 1.5	6,000	2,000	6.7	24.0	662.2
70002699	5 G 1.5	1,250	500	8.1	30.0	338.4
70002700	5 G 1.5	2,500	1,000	8.1	30.0	597.6
70002701	5 G 1.5	3,750	1,500	8.1	30.0	864.0
70002702	5 G 1.5	5,000	2,000	8.1	30.0	1,173.6
70002705	7 G 1.5	1,250	500	8.9	31.0	454.5
70002706	7 G 1.5	2,500	1,000	8.9	31.0	808.0
70002707	7 G 1.5	3,750	1,500	8.9	31.0	1,111.0
70002708	7 G 1.5	5,000	2,000	8.9	31.0	1,504.9
70002709	12 G 1.5	1,500	500	12.0	46.0	968.8
70002710	12 G 1.5	3,000	1,000	12.0	46.0	1,660.8
70002711	18 G 1.5	1,500	500	13.4	52.0	1,261.4
70002712	18 G 1.5	3,000	1,000	13.4	52.0	2,261.0
70002716	3 G 2.5	1,250	500	8.1	28.5	338.4
70002717	3 G 2.5	2,500	1,000	8.1	28.5	640.8
70002718	3 G 2.5	3,750	1,500	8.1	28.5	885.6
70002719	3 G 2.5	5,000	2,000	8.1	28.5	1,072.8
70002721	5 G 2.5	1,250	500	10.0	37.0	624.0
70002722	5 G 2.5	2,500	1,000	10.0	37.0	1,068.0
70002723	5 G 2.5	3,750	1,500	10.0	37.0	1,489.2
70002724	5 G 2.5	5,000	2,000	10.0	37.0	1,980.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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.  
 Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

**■ Similar products**

- ÖLFLEX® SPIRAL 540 P refer to page 225

**■ Accessories**

- SKINTOP® CLICK System refer to page 657

Assembled cables

Spiralised



## SPIRAL H07BQ-F BLACK

Black, robust PUR spiral cable with high recoiling forces



Info

- Heavy construction type
- Outer sheath: PUR, with high recoiling forces

### Benefits

- Robust
- Wide application range
- Cost-effective

### 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
- Increased tensile and abrasion requirements, can be used in damp and wet environments (but no submersion)

### Product features

- Black, robust outer PUR sheath
- High tensile strength and abrasion-resistance
- High restoring forces
- Resistant to microbes, solvents and certain fuels
- Hydrolysis-resistant

### Norm references / Approvals

- Based on EN 50525-2-21 H07BQ-F
- The spiralling modifies the properties of the longish, <HAR>-certified H07BQ-F cable (sold by the metre) such 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 longish 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 natural, 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

- 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**  
U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/1.000 pieces
70002750	3 G 1.5	1,500	500	9.0	31.0	207.3
70002751	3 G 1.5	3,000	1,000	9.0	31.0	371.5
70002752	3 G 1.5	4,500	1,500	9.0	31.0	535.6
70002753	3 G 1.5	6,000	2,000	9.0	31.0	699.8
70002754	4 G 1.5	1,500	500	10.0	38.0	305.2
70002755	4 G 1.5	3,000	1,000	10.0	38.0	547.2
70002756	4 G 1.5	4,500	1,500	10.0	38.0	789.1
70002757	4 G 1.5	6,000	2,000	10.0	38.0	1,031.0
70002758	5 G 1.5	1,500	500	11.0	40.0	367.2
70002759	5 G 1.5	3,000	1,000	11.0	40.0	655.2
70002760	5 G 1.5	4,500	1,500	11.0	40.0	936.0
70002761	5 G 1.5	6,000	2,000	11.0	40.0	1,231.2

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. 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.  
Each item is packed separately in a plastic bag  
Versions with other solid lengths, end lengths and end forms available on request

### Similar products

- ÖLFLEX® SPIRAL 400 P refer to page 222
- ÖLFLEX® SPIRAL 540 P refer to page 225

### Accessories

- SKINTOP® CLICK System refer to page 657
- SKINTOP® BS refer to page 729
- SKINTOP® BS-M refer to page 661
- SKINTOP® BT refer to page 730
- SKINTOP® CLICK BS refer to page 662



## ÖLFLEX® SPIRAL 540 P

Robust, halogen-free, flame-retardant PUR spiral cable with high restoring forces



**Info**

- High restoring forces
- Halogen-free

**Benefits**

- Extension lengths of up to 3.5 times the unextended spiral length, high recoiling forces
- Safety colour: yellow

**Application range**

- Harsh conditions
- Mechanical engineering
- Construction industry
- Medical equipment
- In damp interiors or outdoors

**Product features**

- Halogen-free
- Good resistance of the outer sheath to cutting and abrasion
- High resistance to oil, low temperatures, microbes and hydrolysis
- Special, flame-retardant polyurethane sheath compound

**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**

- 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
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Nominal voltage**  
0.75 - 1 mm<sup>2</sup>: U<sub>0</sub>/U: 300/500 Vac  
As from 1.5 mm<sup>2</sup>: U<sub>0</sub>/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 mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/1.000 pieces
<b>U<sub>0</sub>/U: 300/500 V</b>						
73220107	2 X 0.75	1,000	300	6.6	23.0	46.0
73220108	2 X 0.75	2,000	600	6.6	23.0	73.4
73220109	2 X 0.75	3,500	1,000	6.6	23.0	116.6
73220110	2 X 0.75	5,000	1,500	6.6	23.0	158.4
73220111	3 G 0.75	1,000	300	7.0	24.0	60.4
73220112	3 G 0.75	2,000	600	7.0	24.0	103.6
73220113	3 G 0.75	3,500	1,000	7.0	24.0	159.8
73220114	3 G 0.75	5,000	1,500	7.0	24.0	220.3
71220115	4 G 0.75	1,000	300	7.6	29.0	100.8
71220116	4 G 0.75	2,000	600	7.6	29.0	177.1
71220117	4 G 0.75	3,500	1,000	7.6	29.0	270.7
71220118	4 G 0.75	5,000	1,500	7.6	29.0	368.6
71220119	5 G 0.75	1,000	300	8.5	31.0	118.8
71220120	5 G 0.75	2,000	600	8.5	31.0	210.9
71220121	5 G 0.75	3,500	1,000	8.5	31.0	298.8
71220122	5 G 0.75	5,000	1,500	8.5	31.0	439.2
73220123	2 X 1	1,000	300	7.0	24.0	59.5
73220124	2 X 1	2,000	600	7.0	24.0	101.9
73220125	2 X 1	3,500	1,000	7.0	24.0	156.6
73220126	2 X 1	5,000	1,500	7.0	24.0	218.8
73220127	3 G 1	1,000	300	7.4	29.0	104.4
73220128	3 G 1	2,000	600	7.4	29.0	182.7
73220129	3 G 1	3,500	1,000	7.4	29.0	275.5
73220130	3 G 1	5,000	1,500	7.4	29.0	391.5
71220131	4 G 1	1,000	300	8.2	30.0	135.9
71220132	4 G 1	2,000	600	8.2	30.0	222.7
71220133	4 G 1	3,500	1,000	8.2	30.0	349.4
71220134	4 G 1	5,000	1,500	8.2	30.0	491.5
71220135	5 G 1	1,000	300	9.0	32.0	161.2
71220136	5 G 1	2,000	600	9.0	32.0	268.8
71220137	5 G 1	3,500	1,000	9.0	32.0	419.5
71220138	5 G 1	5,000	1,500	9.0	32.0	556.8
73220139	7 G 1	1,000	350	10.9	40.0	238.0
73220140	7 G 1	2,000	700	10.9	40.0	435.2
73220141	7 G 1	3,500	1,200	10.9	40.0	700.4
73220142	7 G 1	5,000	1,700	10.9	40.0	918.0
<b>U<sub>0</sub>/U: 450/750 V</b>						
73220143	2 X 1.5	1,000	300	8.4	31.0	100.3
73220144	2 X 1.5	2,000	600	8.4	31.0	169.9
73220145	2 X 1.5	3,500	1,000	8.4	31.0	262.7
73220146	2 X 1.5	5,000	1,500	8.4	31.0	378.7
73220147	3 G 1.5	1,000	300	8.9	32.0	145.3
73220148	3 G 1.5	2,000	600	8.9	32.0	232.2
73220149	3 G 1.5	3,500	1,000	8.9	32.0	365.5
73220150	3 G 1.5	5,000	1,500	8.9	32.0	516.0
71220151	5 G 1.5	1,000	350	10.9	40.0	281.5
71220152	5 G 1.5	2,000	700	10.9	40.0	446.4
71220153	5 G 1.5	3,500	1,200	10.9	40.0	779.0
71220154	5 G 1.5	5,000	1,700	10.9	40.0	1,072.0
73220155	7 G 1.5	1,000	350	13.5	52.0	383.8
73220156	7 G 1.5	2,000	700	13.5	52.0	676.7

**Assembled cables**

Spiralised

Article number	Number of cores and mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/ 1.000 pieces
73220157	7 G 1.5	3,500	1,200	13.5	52.0	1,153.4
73220158	7 G 1.5	5,000	1,700	13.5	52.0	1,588.7
73220159	3 G 2.5	1,000	350	10.6	40.0	273.6
73220160	3 G 2.5	2,000	700	10.6	40.0	460.8
73220161	3 G 2.5	3,500	1,200	10.6	40.0	770.4
73220162	3 G 2.5	5,000	1,700	10.6	40.0	1,022.4
71220163	5 G 2.5	1,000	350	13.4	51.0	498.0
71220164	5 G 2.5	2,000	700	13.4	51.0	867.6
71220165	5 G 2.5	3,500	1,200	13.4	51.0	1,380.0
71220166	5 G 2.5	5,000	1,700	13.4	51.0	1,884.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. 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. Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

**Similar products**

- ÖLFLEX® SPIRAL 400 P refer to page 222
- ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug refer to page 226

**Accessories**

- SKINTOP® CLICK System refer to page 657



## 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
  - Safety colour: yellow

- Application range**
- Harsh conditions
  - Mechanical engineering
  - Construction industry
  - Medical equipment
  - In damp interiors or outdoors

- Product features**
- Good resistance of the outer sheath to cutting and abrasion
  - High resistance to oil, low temperatures, microbes and hydrolysis
  - Special, flame-retardant polyurethane sheath compound
  - 16-A connector with protection rating IP 20

- Norm references / Approvals**
- Plug: DIN VDE 620-1/standard sheet DIN 49441 R2
  - The VDE marking approval (VDE type certification) refers to the connector

- 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**

- Core identification code**  
HD 308/VDE 0293-308: 3-core with protective conductor
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Nominal voltage**  
U<sub>0</sub>: 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 mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/ 1.000 pieces
73220852	3 G 0.75	1,000	300	7.0	24.0	70.1
73220853	3 G 0.75	2,000	600	7.0	24.0	122.8
73220854	3 G 0.75	3,500	1,000	7.0	24.0	193.2
73220855	3 G 1	1,000	300	7.4	29.0	110.0
73220856	3 G 1	2,000	600	7.4	29.0	196.7
73220863	3 G 1	3,500	1,000	7.4	29.0	312.3
73220860	3 G 1.5	1,000	300	8.9	32.0	148.6
73220861	3 G 1.5	2,000	600	8.9	32.0	262.8
73220862	3 G 1.5	3,500	1,000	8.9	32.0	415.1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. 1 piece in each polyester bag. Photographs 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!"

**Similar products**

- ÖLFLEX® SPIRAL 540 P refer to page 225



**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

**Product features**

- Abrasion and cut-resistant
- Very high flexibility

**Product make-up**

- Strands of bare copper wires
- Core insulation: Based on PVC
- Screening: wrapped with braided copper wires
- Outer sheath: PUR compound
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

**Technical data**

- Core identification code**  
DIN 47100
- Peak operating voltage**  
250 V (not for power transmission)
- Specific insulation resistance**  
> 10 GOhm x cm
- 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 mm <sup>2</sup> per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Copper index kg/1.000 pieces	Pieces / PU
73220200	2 x 0.14	400	100	4.1	15.0	16.5	5
73220201	2 x 0.14	800	200	4.1	15.0	23.8	5
73220202	2 x 0.14	1,200	300	4.1	15.0	29.7	5
73220203	2 x 0.14	1,600	400	4.1	15.0	36.9	5
73220204	2 x 0.14	2,000	500	4.1	15.0	48.0	5
73220205	3 x 0.14	400	100	4.3	18.0	21.0	5
73220206	3 x 0.14	800	200	4.3	18.0	30.8	5
73220207	3 x 0.14	1,200	300	4.3	18.0	43.5	5
73220208	3 x 0.14	1,600	400	4.3	18.0	54.8	5
73220209	3 x 0.14	2,000	500	4.3	18.0	63.8	5
73220210	4 x 0.14	400	100	4.5	19.0	23.4	5
73220211	4 x 0.14	800	200	4.5	19.0	33.6	5
73220212	4 x 0.14	1,200	300	4.5	19.0	45.8	5
73220213	4 x 0.14	1,600	400	4.5	19.0	58.6	5
73220214	4 x 0.14	2,000	500	4.5	19.0	67.2	5
73220215	5 x 0.14	400	100	4.8	20.0	24.4	5
73220216	5 x 0.14	800	200	4.8	20.0	38.1	5
73220217	5 x 0.14	1,200	300	4.8	20.0	50.4	5
73220218	5 x 0.14	1,600	400	4.8	20.0	60.4	5
73220219	5 x 0.14	2,000	500	4.8	20.0	72.0	5
73220220	6 x 0.14	400	100	5.5	21.0	31.1	5
73220221	6 x 0.14	800	200	5.5	21.0	44.8	5
73220222	6 x 0.14	1,200	300	5.5	21.0	56.3	5
73220223	6 x 0.14	1,600	400	5.5	21.0	77.9	5
73220224	6 x 0.14	2,000	500	5.5	21.0	73.9	5
73220230	12 x 0.14	400	100	7.2	27.0	56.4	1
73220231	12 x 0.14	800	200	7.2	27.0	95.2	1
73220232	12 x 0.14	1,200	300	7.2	27.0	118.1	1
73220233	12 x 0.14	1,600	400	7.2	27.0	161.0	1
73220234	12 x 0.14	2,000	500	7.2	27.0	179.2	1
73220235	18 x 0.14	400	100	8.0	29.0	75.1	1
73220236	18 x 0.14	800	200	8.0	29.0	110.5	1
73220237	18 x 0.14	1,200	300	8.0	29.0	150.2	1
73220238	18 x 0.14	1,600	400	8.0	29.0	198.9	1
73220239	18 x 0.14	2,000	500	8.0	29.0	221.0	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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.  
 Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

**Accessories**

- SKINTOP® CLICK System refer to page 657



## ÖLFLEX® PLUG H03VV-F Net Connection Cable\*

PVC net connection cable for electrical devices and machines



**Info**

- Other colours and designs are available upon request

**Application range**

- Electrical devices
- Appliances and machinery

**Product features**

- For additional information regarding international plugs, please refer to our cable configurator at [www.lappkabel.de](http://www.lappkabel.de)
- Apart from the cable related application restrictions to be paid attention to according to the application standard HD 516/VDE 0298-300 for this PVC cable H03VV-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 has to be respected, too

**Product make-up**

- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- 2nd end: 30 mm dismantled, with protection sleeves for the ends of the conductor
- Alternatively, on request: 1st end with moulded angular earthing-type plug with twin earthed contact, 2nd end with moulded, straight IEC coupling (see image)

**Technical data**

- 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**  
U<sub>0</sub>: 250 V AC
- Test voltage**  
2000 V
- Protective conductor**  
G = with GN-YE protective conductor
- Temperature range**  
Flexible use: -5 °C to +70 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Länge in m	Outer sheath colour	Copper index kg/ 1.000 pieces
<b>1st end: moulded angular earthing-type plug with double earthed contact</b>					
<b>2nd end: 30 mm stripped, with conductor end sleeves</b>					
70261130	3 G 0.75	5.4 - 6.8	1.5	black	32.4
70261131	3 G 0.75	5.4 - 6.8	2.0	black	43.2
70261132	3 G 0.75	5.4 - 6.8	3.0	black	64.8
70261136	3 G 0.75	5.4 - 6.8	1.5	grey	32.4
70261137	3 G 0.75	5.4 - 6.8	2.0	grey	43.2
70261138	3 G 0.75	5.4 - 6.8	3.0	grey	64.8
70261133	3 G 0.75	5.4 - 6.8	1.5	white	32.4
70261134	3 G 0.75	5.4 - 6.8	2.0	white	43.2
70261135	3 G 0.75	5.4 - 6.8	3.0	white	64.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

\* Trade product, no Lapp product

Photographs 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 H05VV-F Net Connection Cable\* PVC net connection cable for electrical devices and machines



**Info**

- Other colours and designs are available upon request



**Application range**

- Electrical devices
- Appliances and machinery

**Product features**

- For additional information regarding international plugs, please refer to our cable configurator at [www.lappkabel.de](http://www.lappkabel.de)
- Apart from the cable related application restrictions to be paid attention to according to the application standard HD 516/ VDE 0298-300 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: 30 mm dismantled, with protection sleeves for the ends of the conductor
- Alternatively
- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- 2nd end: straight, 3-pin IEC coupling, moulded

**Technical data**

- 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<sub>0</sub>: 250 V AC
- Test voltage**  
2000 V
- Protective conductor**  
G = with GN-YE protective conductor
- Temperature range**  
Flexible use: -5°C to +70°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Länge in m	Outer sheath colour	Copper index kg/1.000 pieces
<b>1st end: moulded angular earthing-type plug with double earthed contact</b>					
<b>2nd end: straight, 3-pin C13 IEC coupling, moulded</b>					
73222334	3 G 1	6.3 - 8.0	2.5	black	72.0
73222336	3 G 1	6.3 - 8.0	2.5	grey	72.0
73222381	3 G 1.5	7.4 - 9.4	5.0	grey	216.0
73222335	3 G 1	6.3 - 8.0	2.5	white	72.0
<b>2nd end: rectangular, 3-pin C13 IEC coupling, moulded</b>					
74320106	3 G 1.5	7.4 - 9.4	3.5	black	151.2
74320092	3 G 1.5	7.4 - 9.4	7.5	black	324.0
<b>1st end: moulded angular earthing-type plug with double earthed contact</b>					
<b>2nd end: 30 mm stripped, with conductor end sleeves</b>					
70261139	3 G 1	6.3 - 8.0	1.5	black	43.2
70261140	3 G 1	6.3 - 8.0	2.0	black	57.6
70261141	3 G 1	6.3 - 8.0	3.0	black	86.4
70261166	3 G 1	6.3 - 8.0	5.0	black	144.0
70261145	3 G 1	6.3 - 8.0	1.5	grey	43.2
70261146	3 G 1	6.3 - 8.0	2.0	grey	57.6
70261147	3 G 1	6.3 - 8.0	3.0	grey	86.4
70261143	3 G 1	6.3 - 8.0	2.0	white	57.6
70261144	3 G 1	6.3 - 8.0	3.0	white	86.4
70261148	3 G 1.5	7.4 - 9.4	1.5	black	64.5
70261149	3 G 1.5	7.4 - 9.4	2.0	black	86.0
70261150	3 G 1.5	7.4 - 9.4	3.0	black	129.0
70261160	3 G 1.5	7.4 - 9.4	5.0	black	215.0
70261185	3 G 1.5	7.4 - 9.4	1.0	grey	43.2
70261154	3 G 1.5	7.4 - 9.4	1.5	grey	64.5
70261155	3 G 1.5	7.4 - 9.4	2.0	grey	86.0
70261156	3 G 1.5	7.4 - 9.4	3.0	grey	129.0
70362272	3 G 1.5	7.4 - 9.4	4.0	grey	172.0
70261151	3 G 1.5	7.4 - 9.4	1.5	white	64.5
70261152	3 G 1.5	7.4 - 9.4	2.0	white	86.0
70261153	3 G 1.5	7.4 - 9.4	3.0	white	129.0
70261163	3 G 2.5	9.2 - 11.4	3.0	black	216.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

\* Trade product, no Lapp product

Photographs 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!"

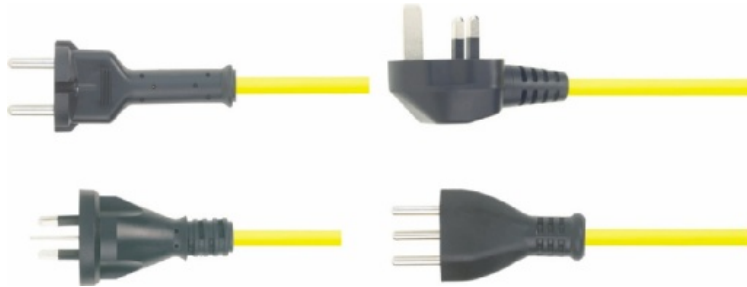
Assembled cables

Connection and extension cables



# ÖLFLEX® PLUG 540 P Connection Cable

Robust, VDE-registered connecting cable with DIN/VDE or international plugs



**Info**

- Available with international plugs
- Safety colour: yellow
- Images are for illustration purposes only



**Benefits**

- VDE cable registration: LAPP ÖLFLEX® 540 P, sold by the metre and assembled to size
- Safety colour: yellow
- VDE marking approval/VDE type certification for the straight central plug according to DIN/VDE in the item numbers table

**Application range**

- Harsh conditions
- Mechanical engineering
- Construction industry
- Medical equipment
- In damp interiors or outdoors

**Product features**

- Good resistance of the outer sheath to cutting and abrasion
- High resistance to oil, low temperatures, microbes and hydrolysis
- Special, flame-retardant polyurethane sheath compound
- The products shown are also available for Switzerland, Australia, Denmark, Italy and the UK without the LAPP/ÖLFLEX name or LAPP certification on request. Please refer to our cable configuration tool, available online at [www.lappkabel.de](http://www.lappkabel.de), for more details

**Norm references / Approvals**

- Cable ÖLFLEX® 540 P: VDE reg. no. 6583 - 300/500 VAC up to 1.0 mm<sup>2</sup>; VDE reg. no. 6584 - 450/750 VAC as from 1.5 mm<sup>2</sup>

- Harnessed 2-pole cable with straight, moulded, central contour plug without protective/earthing contact/pins: Plug type certification and marking licence DIN VDE 0620-1/DIN 49406-R; Harnessed 3-pole cable with straight, moulded, splash water protected, central isolated ground plug with double/outline protection/earthing contact by means of ground pins: Plug type certification and marking licence DIN VDE 0620-1/DIN 49441-R2/DIN 49441-2-AR2 in conjunction with plug protection type/category IP 44

**Product make-up**

- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- 1st end: Gated, straight contour or earthing-type plug
- 1st option for DIN/VDE connector with type certification: 2-core ÖLFLEX(R) 540 P cable in conjunction with 2-pin, straight, extruded, 16 A/250 Vac-to-ground DIN/VDE central contour plug without earthed contact according to DIN VDE 0620-1/DIN 49406-R and with plug protection rating IP 20
- 2nd alternative of DIN/VDE type certified plug: 3-core ÖLFLEX(R) 540 P cable in conjunction with 2-pole, straight, moulded, splash water protected, central, 16A/250Vac-to-ground, isolated ground DIN/VDE plug with double protection/earthing contact/pin system according to DIN VDE 0620-1/DIN 49441-R2/DIN 49441-2-AR2 and with plug protection type/category IP 44
- 2nd end: 30 mm dismantled, with protection sleeves for the ends of the conductor

**Technical data**

- Core identification code**  
According to VDE 0293-308 (table T9)
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
U<sub>0</sub>: 250 V AC
- Test voltage**  
Assembly: 2000 V  
ÖLFLEX® 540 P: 3000 V
- Protective conductor**  
G = with GN-YE protective conductor  
X = without protective conductor
- Temperature range**  
Occasional flexing and fixed installation: -40 °C to +80 °C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Länge in m	Copper index kg/1.000 pieces
<b>1st option for DIN/VDE connector with type certification: 2-core ÖLFLEX(R) 540 P cable in conjunction with 2-pin, straight, extruded, 16 A/250 Vac-to-ground DIN/VDE central contour plug without earthed contact according to DIN VDE 0620-1/DIN 49406-R and with plug protection rating IP 20</b>				
73220842	2 X 1	7,0	2,0	38,4
73220843	2 X 1	7,0	3,5	67,2
73220844	2 X 1	7,0	5,0	96,0
73221558	2 X 1,5	8,4	2,0	57,6
73221559	2 X 1,5	8,4	3,5	86,4
73221560	2 X 1,5	8,4	5,0	144,0
<b>2nd alternative of DIN/VDE type certified plug: 3-core ÖLFLEX(R) 540 P cable in conjunction with 2-pole, straight, moulded, splash water protected, central, 16A/250Vac-to-ground, isolated ground DIN/VDE plug with double protection/earthing contact/pin system according to DIN VDE 0620-1/DIN 49441-R2/DIN 49441-2-AR2 and with plug protection type/category IP 44</b>				
73220846	3 G 0,75	7,0	2,0	43,2
73220847	3 G 0,75	7,0	3,5	75,6
73220848	3 G 0,75	7,0	5,0	108,0
73221561	3 G 1	7,4	2,0	57,6
73221562	3 G 1	7,4	3,5	100,8
73221563	3 G 1	7,4	5,0	144,0
73220849	3 G 1,5	8,9	2,0	86,0
73220850	3 G 1,5	8,9	3,5	150,6
73220851	3 G 1,5	8,9	5,0	215,0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

1 piece in each polyester bag

Photographs 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!"

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**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
- Customised printing is 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**

 **Nominal voltage**  
 U<sub>0</sub>: 250 V AC

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Länge in m	Copper index kg/1.000 pieces
73222337	3 G 1.5	8.9	5.0	215.0
73222322	3 G 1.5	8.9	10.0	430.0
73222375	3 G 1.5	8.9	15.0	645.0
73222323	3 G 1.5	8.9	25.0	1,075.0
73222324	3 G 1.5	8.9	50.0	2,150.0
73222385	3 G 2.5	10.6	5.0	360.0
73222325	3 G 2.5	10.6	10.0	720.0
73222386	3 G 2.5	10.6	15.0	1,080.0
73222326	3 G 2.5	10.6	25.0	1,800.0
73222327	3 G 2.5	10.6	50.0	3,600.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

\* Trade product, no Lapp product

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

**Assembled cables**

Connection and extension cables



## 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
- Dry or damp rooms as well as outdoors taking into account HD 516/VDE 0298-300

**Product features**

- Also available with phase shifter (engine direction can be changed)
- Other dimensions, lengths, connectors, designs and customised versions are available upon request
- Customised printing is available upon request

**Norm references / Approvals**

- <HAR> H07RN-F cable type approval according to EN 50525-2-21
- Based on VDE 0285

**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
- 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**

- Core identification code**  
According to VDE 0293-308 (table T9)
- Specific insulation resistance**  
1 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Minimum bending radius**  
Flexible use: 15 x cable diameter
- Nominal voltage**  
U<sub>0</sub>/U: 450/750 V
- Test voltage**  
2500 V
- Temperature range**  
Flexible use: -25°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Länge in m	Copper index kg/1.000 pieces	Plug amps
<b>ÖLFLEX® PLUG CEE connection cable</b>					
71222231	5 G 1.5	11.2 - 14.4	2.5	180.0	16.0
71222239	5 G 1.5	11.2 - 14.4	5.0	360.0	16.0
71222232	5 G 2.5	13.3 - 17.0	2.5	300.0	16.0
71222240	5 G 2.5	13.3 - 17.0	5.0	600.0	16.0
71222241	5 G 2.5	13.3 - 17.0	5.0	600.0	32.0
71222234	5 G 4	15.6 - 19.9	2.5	480.0	32.0
71222242	5 G 4	15.6 - 19.9	5.0	960.0	32.0
71222243	5 G 6	17.5 - 22.2	5.0	1,440.0	32.0
<b>ÖLFLEX® PLUG CEE extension cable</b>					
71222292	5 G 1.5	11.2 - 14.4	10.0	720.0	16.0
71222295	5 G 2.5	13.3 - 17.0	10.0	1,200.0	16.0
71222296	5 G 2.5	13.3 - 17.0	25.0	3,000.0	16.0
71222298	5 G 2.5	13.3 - 17.0	10.0	1,200.0	32.0
71222299	5 G 2.5	13.3 - 17.0	25.0	3,000.0	32.0
71222301	5 G 4	15.6 - 19.9	10.0	1,920.0	32.0
71222302	5 G 4	15.6 - 19.9	25.0	4,800.0	32.0
71222304	5 G 6	17.5 - 22.2	10.0	2,880.0	32.0
71222305	5 G 6	17.5 - 22.2	25.0	7,200.0	32.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

\* Trade product, no Lapp product

Photographs 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!"

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## ÖLFLEX® PLUG CEE Connection/ Extension Cable with 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
- Dry or damp rooms as well as outdoors taking into account HD 516/VDE 0298-300

### Product features

- Also available with phase shifter (engine direction can be changed)
- Other dimensions, lengths, connectors, designs and customised versions are available upon request
- Customised printing is available upon request

### Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21
- Based on VDE 0285

### 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
- 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

- Core identification code**  
According to VDE 0293-308 (table T9)
- Specific insulation resistance**  
1 GOhm x cm
- Conductor stranding**  
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Minimum bending radius**  
Flexible use: 15 x cable diameter
- Nominal voltage**  
U<sub>0</sub>/U: 450/750 V
- Test voltage**  
2500 V
- Temperature range**  
Flexible use: -25°C to +60°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Article designation	Outer diameter (mm)	Länge in m	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	Plug amps
71222373	5 G 1.5	H07RN-F	11.2 - 14.4	3.5	252.0	984	16.0
71222374	5 G 2.5	H07RN-F	13.3 - 17.0	3.5	420.0	1331.5	16.0
71002843	5 G 1.5	H07RN-F	11.2 - 14.4	3.5	252.0	990	16.0
71002844	5 G 1.5	H07RN-F	11.2 - 14.4	5.0	360.0	1350	16.0
71002846	5 G 2.5	H07RN-F	13.3 - 17.0	3.5	420.0	1360	16.0
71002847	5 G 2.5	H07RN-F	13.3 - 17.0	5.0	600.0	1880	16.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

\* Trade product, no Lapp product

Photographs 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!"

Assembled cables

eMobility - Assembled charging line



### CHARGE M3 —/T2C S



**Info**

- For charging stations

### CHARGE M3 —/T1C S



**Info**

- For charging stations

### CHARGE M3 —/T2C C



**Info**

- For charging stations

**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 3-phase charging up to 16 A: ÖLFLEX® Charge 5G2.5mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

**Technical data**



**Approvals**  
according to VDE-AR-E2283-5  
according to EN 61851-1



**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1,000 pieces	Weight (kg/ 1000 pieces)	PU
<b>Cut off clean, charging cable, vehicle connector type 2 (Total length: effective length +1m straight)</b>					
74880054	Charging: 1 phase 16A	4,000	421.0	1778	1
74880062	Charging: 3 phase 16A	4,000	667.0	1815	1
74880066	Charging: 3 phase 32A	4,000	1,529.0	2985	1
<b>Cut off clean, charging cable, vehicle connector type 1 (Total length: effective length +1m straight)</b>					
74880058	Charging: 1 phase 16A	4,000	421.0	1733	1
74880100	Charging: 1 phase 32A	4,000	784.0	1900	1
<b>Cut off clean, charging cable spiralized, vehicle connector type 2 (Total length: effective length +1m straight)</b>					
74880102	Charging: 1 phase 16A	4,000	705.0	2800	1
74880103	Charging: 3 phase 16A	4,000	1,105.0	3600	1
74880104	Charging: 3 phase 32A	4,000	2,533.0	5800	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. 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.

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**Info**

- For charging stations

**CHARGE M3 —/T1C C**



**CHARGE M3 T2P/— S**



**CHARGE M3 T2P/— C**



**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product make-up**

**CHARGE M3 —/T1C C**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

**CHARGE M3 T2P/— S**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 3-phase charging up to 16 A: ÖLFLEX® Charge 5G2.5mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- 16 A charging: every connector has a built-in 680 ohm resistor
- 32 A charging: every connector has a built-in 220 ohm resistor

**CHARGE M3 T2P/— C**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 3-phase charging up to 16 A: ÖLFLEX® Charge 5G2.5mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- 16 A charging: every connector has a built-in 680 ohm resistor
- 32 A charging: every connector has a built-in 220 ohm resistor

**Technical data**



**Approvals**  
according to VDE-AR-E2283-5  
according to EN 61851-1



**Nennspannung**  
**CHARGE M3 T2P/— S**  
400 V  
**CHARGE M3 T2P/— C**  
400 V



**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
<b>Cut off clean, charging cable spiralized, vehicle connector type 1 (Total length: effective length + 1m straight)</b>					
74880090	Charging: 1 phase 16A	4,000	812.0	2950	1
74880101	Charging: 1 phase 32A	4,000	1,549.0	2200	1
<b>Type 2 plug, orange cable, cut off clean (Total length: effective length + 1m straight)</b>					
74880037	Charging: 1 phase 16A	4,000	335.0	1300	1
74880041	Charging: 3 phase 16A	4,000	531.0	1600	1
74880045	Charging: 3 phase 32A	4,000	1,216.0	2500	1
<b>Type 2 connector, spiral-cable, cut off clean (Total length: effective length + 1m straight)</b>					
74880039	Charging: 1 phase 16A	4,000	738.0	2200	1
74880043	Charging: 3 phase 16A	4,000	1,170.0	2900	1
74880047	Charging: 3 phase 32A	4,000	2,390.0	4500	1

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Assembled cables

eMobility - Assembled charging line



**CHARGE M3 T2P/T2C S**



**Info**

- For electric vehicles with type 2 vehicle inlet

**CHARGE M3 T2P/T2C C**



**Info**

- For electric vehicles with type 2 vehicle inlet

**CHARGE M3 T2P/T2C H**



**Info**

- For electric vehicles with type 2 vehicle inlet

**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 3-phase charging up to 16 A: ÖLFLEX® Charge 5G2.5mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

**Technical data**



**Approvals**  
according to VDE-AR-E2283-5 according to EN 61851-1



**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
<b>Plug type 2, charging cable, vehicle connector type 2</b>					
74880055	Charging: 1 phase 16A	4,000	349.0	2026	1
74880063	Charging: 3 phase 16A	4,000	554.0	2004	1
74880067	Charging: 3 phase 32A	4,000	1,529.0	3410	1
<b>Plug type 2, Charging cable spiralsised, Vehicle connector type 2</b>					
74880056	Charging: 1 phase 16A	4,000	8,120.0	3375	1
74880064	Charging: 3 phase 16A	4,000	1,365.0	3696	1
74880068	Charging: 3 phase 32A	4,000	2,205.0	4543	1
<b>Plug type 2, charging cable Helix, vehicle connector type 2</b>					
74880065	Charging: 3 phase 16A	4,000	619.0	619	1
74880069	Charging: 3 phase 32A	4,000	1,529.0	1529	1

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**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T2P/T1C S**



**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T2P/T1C C**



**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T2P/T1C H**



**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 1-phase charging up to 32A: Lapp Kabel Charge 3G6mm<sup>2</sup> + 1x0.5mm<sup>2</sup>
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

**Technical data**

- Approvals** according to VDE-AR-E2283-5 according to EN 61851-1
- Temperature range** -25°C to +80°C

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
<b>Plug type 2, charging cable, vehicle connector type 1</b>					
74880059	Charging: 1 phase 16A	4,000	349.0	2026	1
74880087	Charging: 1 phase 32A	4,000	758.0	2060	1
<b>Plug type 2, charging cable spiralised, vehicle connector type 1</b>					
74880060	Charging: 1 phase 16A	4,000	812.0	3337	1
<b>Plug type 2, charging cable Helix, vehicle connector type 1</b>					
74880089	Charging: 1 phase 32A	4,000	554.0	2004	1

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Assembled cables

eMobility - Assembled charging line



### CHARGE M3 T3P/T2C S



**Info**

- For electric vehicles with type 2 vehicle inlet

### CHARGE M3 T3P/T2C C



**Info**

- For electric vehicles with type 2 vehicle inlet

### CHARGE M3 T3P/T2C H



**Info**

- For electric vehicles with type 2 vehicle inlet

**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 3-phase charging up to 16 A: ÖLFLEX® Charge 5G2.5mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm<sup>2</sup>+1x0.5mm<sup>2</sup>
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

**Technical data**



**Approvals**  
according to VDE-AR-E2283-5  
according to EN 61851-1



**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/ 1000 pieces)	PU
<b>Plug type 3, charging cable, vehicle connector type 2</b>					
74880070	Charging: 1 phase 16A	4,000	349.0	2026	1
74880073	Charging: 3 phase 16A	4,000	554.0	2004	1
74880076	Charging: 3 phase 32A	4,000	1,529.0	3410	1
<b>Plug type 3, charging cable spiralsised, vehicle connector type 2</b>					
74880071	Charging: 1 phase 16A	4,000	812.0	3375	1
74880074	Charging: 3 phase 16A	4,000	1,463.0	3899	1
74880077	Charging: 3 phase 32A	4,000	2,205.0	4543	1
<b>Plug type 3, charging cable Helix, vehicle connector type 2</b>					
74880075	Charging: 3 phase 16A	4,000	619.0	2140	1
74880078	Charging: 3 phase 32A	4,000	1,529.0	3410	1

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**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T3P/T1C S**



**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T3P/T1C C**



**Info**

- For electric vehicles with type 1 vehicle inlet

**CHARGE M3 T3P/T1C H**



**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- Cable for 1-phase charging up to 32A: Lapp Kabel Charge 3G6mm<sup>2</sup> + 1x0.5mm<sup>2</sup>

**Technical data**

**Approvals**  
according to VDE-AR-E2283-5  
according to EN 61851-1

**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
<b>Plug type 3, charging cable, vehicle connector type 1</b>					
74880079	Charging: 1 phase 16A	4,000	349.0	2026	1
74880082	Charging: 1 phase 32A	4,000	554.0	3410	1
<b>Plug type 3, charging cable spiralised, vehicle connector type 1</b>					
74880080	Charging: 1 phase 16A	4,000	812.0	3375	1
74880083	Charging: 1 phase 32A	4,000	1,463.0	4543	1
<b>Plug type 3, charging cable Helix, vehicle connector type 1</b>					
74880084	Charging: 1 phase 32A	4,000	554.0	3410	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges. Photographs are not to scale and do not represent detailed images of the respective products.

**Assembled cables**

eMobility - Assembled charging line



**CHARGE M2 TFP/T2C S**



**Info**

- Harnessing with In-Cable Control Box for charging mode 2 for electric vehicles with type 2 vehicle inlet

**CHARGE M2 TFP/T1C S**



**Info**

- Harnessing with In-Cable Control Box for charging mode 2 for electric vehicles with type 1 vehicle inlet

**Benefits**

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

**Application range**

- For charging stations, electric and plug-in hybrid vehicles

**Product features**

- Charging current from 6-16A in 5 steps
- Monitoring of protective earth conductor
- PUR outer sheath
- Suitable for all weather conditions

**Product make-up**

- Cable for 1-phase charging up to 16 A: ÖLFLEX® Charge 3G2.5 mm<sup>2</sup>+1x0.5 mm<sup>2</sup>
- H07BQ-F: Cable from Typ F plug up to ICCB
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics
- Type F cable connectors are injection moulded

**Technical data**



**Approvals**  
according to VDE-AR-E2283-5  
according to EN 61851-1



**Temperature range**  
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
<b>Plug type F, charging cable with ICCB, vehicle connector type 2</b>					
74880085	Charging: 1 phase 16A	4,000	344.0	2570	1
<b>Plug type F, charging cable with ICCB, vehicle connector type 1</b>					
74880086	Charging: 1 phase 16A	4,000	344.0	2570	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. 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.

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



<b>Low frequency data transmission cables</b>	
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<b>Cables for bus systems PROFIBUS-DP/FMS/FIP</b>	
Characteristic impedance: 135 - 165 ohm	288
<b>Connectors (D-Sub) for PROFIBUS /-DP</b>	
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<b>Cables for bus system ISOBUS</b>	
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<b>Cables for bus system INTERBUS (IBS)</b>	
Characteristic impedance: 100 ohm	323
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<b>UNITRONIC® Fieldbus</b>	
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### Low frequency data transmission cables

UNITRONIC® colour codes		UNITRONIC® BUS PB Y 7-W FC BK	New	294
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UNITRONIC® EB CY (TP)	252	UNITRONIC® BUS PB TORSION		300
UNITRONIC® LiYCY-CY	253	UNITRONIC® BUS PB FESTOON		301
UNITRONIC® LiFYCY (TP)	254	<b>Connectors (D-Sub) for PROFIBUS /-DP</b>		
UNITRONIC® CY PiDY (TP)	255	<b>EPIC® Data Connectors</b>		
UNITRONIC® ST	256	EPIC® Data PROFIBUS Connectors with Screw Terminals		302
UNITRONIC® LiYD 11Y	257	EPIC® Data PROFIBUS Connectors Fast Connect		303
UNITRONIC® PUR CP	258	EPIC® Data PROFIBUS Connectors 90° Spring type		304
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<b>Low capacitance</b>		EPIC® Data PROFIBUS Connectors REPEATER		306
UNITRONIC® Li2YCY (TP)	260	EPIC® Data PROFIBUS Connectors M12		307
UNITRONIC® Li2YCY (TP) fine-wire	260	EPIC® Data PROFIBUS Connector (full-metal)	New	308
UNITRONIC® Li2YCYv (TP)	260	EPIC® Data PROFIBUS Connector (Optical Link Modul)	New	309
UNITRONIC® Li2YCY PiMF	262	<b>Cables for bus systems RS485/RS422</b>		
<b>Halogen-free</b>		Characteristic impedance: 100 - 120 ohm		
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UNITRONIC® LiHCH	264	UNITRONIC® BUS LD FD P		311
UNITRONIC® LiHCH (TP)	265	<b>Cables for bus system PROFIBUS-PA</b>		
<b>UL/CSA-approved</b>		Characteristic impedance: 100 ohm		
UNITRONIC® LiYY A	266	UNITRONIC® BUS PA		312
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UNITRONIC® LiYCY (TP) A	268	Characteristic impedance: 120 ohm		
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<b>Highly flexible application</b>		UNITRONIC® DeviceNet FD THICK+THIN		314
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UNITRONIC® FD CY	271	UNITRONIC® BUS CAN		315
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<b>Highly flexible and UL/CSA-approved</b>		UNITRONIC® BUS CAN BURIAL	New	316
UNITRONIC® FD CP plus	273	<b>Connectors(D-Sub) for CAN /-CANopen</b>		
UNITRONIC® FD CP (TP) plus	274	<b>EPIC® Data Connectors</b>		
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<b>Process control cables (RD)</b>		Characteristic impedance: 75 ohm		
RD-Y(ST)Y	278	UNITRONIC® BUS IS	New	319
<b>Installation cable for industrial electronics</b>		<b>Cables for bus system Foundation Fieldbus</b>		
JE-Y(ST)Y...BD	279	Characteristic impedance: 100 ohm		
JE-Y(ST)Y...BD EB	279	UNITRONIC® BUS FF		320
JE-LiYCY...BD	280	<b>Cables for bus system CC-Link</b>		
JE-LiYCY...BD EB	280	Impedance: 110 ohm		
<b>Telephone cables</b>		UNITRONIC® BUS CC		321
<b>Indoor cables</b>		UNITRONIC® BUS CC FD P FRNC		321
J-Y(ST)Y...LG Indoor Cable	281	<b>Cables for bus system SAFETY BUS</b>		
J-Y(ST)Y...LG Fire Alarm Cable	282	Characteristic impedance: 120 ohm		
J-2Y(ST)Y...ST III BD	283	UNITRONIC® BUS SAFETY		322
<b>Halogen-free installation and fire alarm cables</b>		<b>Cables for bus system INTERBUS (IBS)</b>		
J-H(ST)H...BD	284	Characteristic impedance: 100 ohm		
J-H(ST)H...BD Fire Alarm Cable	284	UNITRONIC® BUS IBS		323
<b>Outdoor cables</b>		UNITRONIC® BUS IBS FD P		324
A-2Y(L)2Y...ST III BD Outdoor Cable	285	UNITRONIC® BUS IBS Yv		325
A-2YF(L)2Y...ST III BD Outdoor Cable	285	<b>Cables for bus system EIB</b>		
<b>Cables for bus system AS-INTERFACE</b>		Characteristic impedance: 75 ohm		
<b>Sensor/actuator communication</b>		UNITRONIC® BUS EIB / KNX		326
UNITRONIC® BUS ASI	New 286	<b>UNITRONIC® Fieldbus</b>		
UNITRONIC® BUS ASI FD	New 287	3-pin sensor/actuator cordsets		
<b>Cables for bus systems PROFIBUS-DP/FMS/FIP</b>		S/A cable: M12 connector/socket on free conductor end		327
Characteristic impedance: 135 - 165 ohm		S/A cable: M12 connector on M12 socket		328
UNITRONIC® BUS PB	288	S/A cable: M12 connector on M8 socket		329
UNITRONIC® BUS PB ROBUST	289	S/A cable: M8 connector/socket on free conductor end		330
UNITRONIC® BUS PB 105	290	S/A cable: M8 connector on M8 socket		331
UNITRONIC® BUS PB HEAT 180	New 290	S/A cable: M8 connector on M12 socket		332
UNITRONIC® BUS PB FRNC FC	291	<b>4-pin sensor/actuator cordsets</b>		
UNITRONIC® BUS PB ARM	292	S/A cable: M12 connector/socket on free conductor end		333
UNITRONIC® BUS PB Yv	292	S/A cable: M12 connector on M12 socket		334
UNITRONIC® BUS PB YY	293	S/A cable: M12 connector on M8 socket		335
UNITRONIC® BUS PB BURIAL FC	293			

S/A cable: M8 connector/socket on free conductor end	336	<b>Active Sensor/Actuator Components</b>	
S/A cable: M8 connector on M8 socket	337	AS-Interface Modules (IP67)	365
<b>5-pin sensor/actuator cordsets</b>		AS-Interface Modules (IP30)	366
S/A cable: M12 connector/socket on free conductor end	338	PROFIBUS Modules	367
S/A cable: M12 connector on M12 socket	339	CANopen Modules	368
<b>8-pin sensor/actuator cables</b>		<b>Accessories for AS-Interface modules</b>	
S/A cable: M12 connector/socket on free conductor end	340	AS-Interface Distributor	369
S/A cable: M12 connector on M12 socket	341	AS-Interface counter module	370
<b>Screened sensor/actuator cordsets</b>		AS-Interface power supply	370
S/A cable: shielded, M12 connector/socket on free conductor end	342	AS-Interface network extension	371
<b>Sensor-/Actuator cabling for Food&amp;Beverage</b>		AS-Interface plug terminals	372
S/A cable: Hygenic Design for Food&Beverage <b>New</b>	343	<b>BUS System Components</b>	
Field mountable S/A connectors M12 for Food&Beverage <b>New</b>	344	PROFIBUS cable: M12 connector on free conductor end	373
<b>Y connectors</b>		PROFIBUS Cable: M12 connector on M12 socket	374
S/A cable: straight M12 Y plug on 2x free conductor end	345	DeviceNet/CANopen Cable, M12 connector on free conductor end	375
S/A cable: straight M12 Y plug on 2x M12 socket	346	S/A DeviceNet/CANopen cable, M12 connector on M12 socket	376
S/A cable: straight M12 Y plug on 2x M8 socket	347	BUS M12 connectors that can be assembled	377
Y distributor	348	Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS	378
<b>Valve connectors</b>		M12 T distributor for PROFIBUS	379
S/A cable: valve connector on free conductor end	349	S/A T-connector M12 as parallel distributor	380
S/A cable: valve connector on straight M12 plug	350	<b>Power cable M12 (A-coded)</b>	
Field mountable valve connectors <b>New</b>	351	Power cable: M12 connector on free conductor	381
<b>Passive sensor/actuator boxes</b>		Power cable: straight M12 connector on straight M12 socket	382
S/A box with M8 slots and master cable	352	<b>M12 POWER-Connector (T-coded)</b>	
S/A box, M8 slots and master cable connection M16/M12	353	Field mountable M12 POWER connectors <b>New</b>	383
S/A box with M12 slots and master cable	354	M12 POWER panel mount connectors for front mounting <b>New</b>	384
S/A box with M12 slots and master cable connection	355	<b>Coaxial cables</b>	
<b>Accessories for Sensor/Actuator Boxes</b>		<b>High frequencies</b>	
UNITRONIC® SENSOR master cable bulk stock <b>New</b>	356	Coaxial - RG	385
M16 socket with connected master cable	357	Multi coaxial cables RG 59 B/U	386
M12 socket with connected master cable	358	Coaxial cables RGB	386
<b>Field mountable connectors and wall ducts</b>			
Field mountable S/A connectors M12	359		
Field mountable S/A connectors M8	360		
UNITRONIC® SENSOR	361		
S/A M12 flush-type connectors	362		
S/A M12 control cabinet feed-through <b>New</b>	363		
S/A M8 flush-type connectors	364		
Fitting nut for flush-type connectors	364		



## UNITRONIC® 100

Control and signal cable with small cross-sections

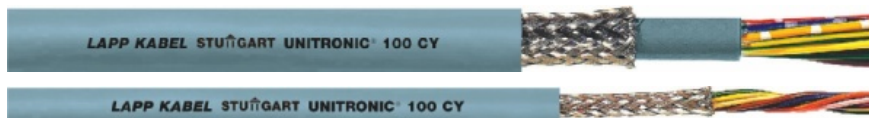


**Info**

- 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 mm<sup>2</sup>) 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 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Inner sheath made of PVC
- For the cross section of 0.14 mm<sup>2</sup>, 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

- Core identification code**  
Refer to Appendix T7 for the UNITRONIC® colour codes
- Mutual capacitance**  
Approx. 120 nF/km
- Peak operating voltage**  
(not for power applications)  
500 V
- Specific insulation resistance**  
> 10 GOhm x cm
- Inductivity**  
approx. 0.7 mH/km
- Conductor stranding**  
Stranded, fine-wire  
0.34 mm<sup>2</sup>: 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
- Test voltage**  
Core/core: 1500 V rms  
Core/screen: 1500 V
- 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® 100</b>				
0028009	2 x 0,14	3,0	2,8	12
0028010	3 x 0,14	3,2	4,2	17
0028011	4 x 0,14	3,4	5,4	19
0028012	5 x 0,14	3,7	7,0	22
0028014	7 x 0,14	4,0	9,8	27
0028015	10 x 0,14	5,0	14,0	41
0028019	24 x 0,14	7,2	33,6	94
0028020	27 x 0,14	7,4	36,5	107
0028023	40 x 0,14	8,9	54,0	152
0028025	52 x 0,14	10,0	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	25,0	77
0028033	14 x 0,25	6,9	35,0	95
0028034	16 x 0,25	7,3	40,0	112
0028035	21 x 0,25	8,5	52,5	139
0028036	24 x 0,25	9,0	60,0	163



Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028037	27 x 0,25	9.2	67.5	171
0028038	30 x 0,25	9.9	75.0	187
0028039	36 x 0,25	10.7	90.0	235
0028040	40 x 0,25	11.6	100.0	266
0028041	44 x 0,25	12.0	110.0	290
0028042	52 x 0,25	12.5	130.0	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
0028050	14 x 0,34	7.8	47.6	118
0028051	16 x 0,34	8.3	54.4	131
0028054	27 x 0,34	10.8	88.0	208
0028056	36 x 0,34	12.1	118.0	292
0028057	40 x 0,34	13.1	131.0	330
0028059	52 x 0,34	14.6	170.0	424
<b>UNITRONIC® 100 CY</b>				
0034006	2 x 0,14	3.7	12.0	20
0034007	3 x 0,14	3.9	13.0	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	32.0	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	24.0	61
0031067	5 x 0,25	6.3	29.0	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	20.0	45
0031048	3 x 0,34	5.8	24.1	62
0031069	4 x 0,34	6.4	29.0	65
0031070	5 x 0,34	6.9	42.0	95
0031049	7 x 0,34	7.3	50.0	106
0031050	10 x 0,34	9.0	67.7	167
0031052	16 x 0,34	10.5	95.0	219

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**■ Similar products**

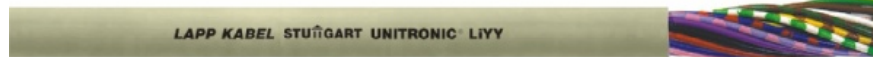
- UNITRONIC® LiYY refer to page 246
- UNITRONIC® LiYCY refer to page 248

**■ Accessories**

- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- STAR STRIP stripping tool refer to page 910

# UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100



**Info**

- The classic for multi-functional use

**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 mm<sup>2</sup>) 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**

- Core identification code**  
DIN 47100 without colour repetition, refer to Appendix T9
- Mutual capacitance**  
Approx. 120 nF/km
- Peak operating voltage**  
(not for power applications)  
at 0.14 mm<sup>2</sup>: 350 V  
at ≥ 0.25 mm<sup>2</sup>: 500 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire
- Minimum bending radius**  
Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x outer diameter
- Test voltage**  
At 0.14 mm<sup>2</sup>: 1200 V  
≥ 0.25 mm<sup>2</sup>: 1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYY</b>				
0028202	2 x 0.14	3.2	2.7	13.2
0028203	3 x 0.14	3.4	4.0	16
0028204	4 x 0.14	3.6	5.4	18.9
0028205	5 x 0.14	3.9	6.7	22.2
0028207	7 x 0.14	4.2	9.4	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	7.0	27.0	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	54.0	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	4.0	7.2	22
0028304	4 x 0.25	4.3	9.6	26.2
0028305	5 x 0.25	4.7	12.0	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	24.0	58
0028312	12 x 0.25	7.0	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	48.0	102
0028325	25 x 0.25	9.6	60.0	134
0028330	30 x 0.25	10.3	72.0	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	12.0	96.1	200
0028350	50 x 0.25	12.9	120.0	257.1

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

Article number	Number of cores and mm <sup>2</sup> 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	52.0	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	98.0	226
0028436	36 x 0.34	12.5	118.0	284
0028440	40 x 0.34	13.5	131.0	317
0028450	50 x 0.34	15.0	163.0	407
0028502	2 x 0.50	4.7	9.6	40
0028503	3 x 0.50	5.0	14.4	47
0028504	4 x 0.50	5.6	19.2	56
0028505	5 x 0.50	6.1	24.0	65
0028507	7 x 0.50	6.9	33.6	82
0028508	8 x 0.50	8.0	38.4	90
0028510	10 x 0.50	8.6	48.0	117
0028512	12 x 0.50	8.9	58.0	133
0028516	16 x 0.50	10.2	77.0	170
0028520	20 x 0.50	11.4	96.0	214
0028525	25 x 0.50	12.7	120.0	265
0028530	30 x 0.50	13.2	144.0	304
0028540	40 x 0.50	15.8	192.0	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	36.0	78
0028607	7 x 0.75	7.5	50.0	112
0028608	8 x 0.75	8.7	58.0	126
0028610	10 x 0.75	9.4	72.0	149
0028612	12 x 0.75	10.1	86.0	176
0028616	16 x 0.75	11.2	115.0	218
0028620	20 x 0.75	12.4	144.0	274
0028625	25 x 0.75	14.0	180.0	285
0028702	2 x 1.00	5.6	19.2	55
0028703	3 x 1.00	5.9	29.0	70
0028704	4 x 1.00	6.4	38.4	79
0028705	5 x 1.00	7.3	48.0	98
0028802	2 x 1.50	6.2	29.0	74
0028803	3 x 1.50	6.8	43.0	89
0028804	4 x 1.50	7.4	58.0	105

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- UNITRONIC® LiYY (TP) refer to page 250
- UNITRONIC® LiYY A refer to page 266

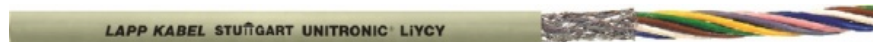
**Accessories**

- SKINTOP® ST-M refer to page 654
- STAR STRIP stripping tool refer to page 910
- SENSOR STRIP stripping tool refer to page 912



## UNITRONIC® LiYCY

Screened data transmission cable with colour code acc. to DIN 47100



### Benefits

- Overall braid minimises electrical interference
- Multifunctional application possibilities

### Application range

- Screened cables with small dimensions are suitable for use in computer systems, instrumentation 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 mm<sup>2</sup>) 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



#### 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



#### Peak operating voltage

(not for power applications)  
at 0.14 mm<sup>2</sup>: 350 V  
at ≥ 0.25 mm<sup>2</sup>: 500 V



#### Specific insulation resistance

> 20 GOhm x cm



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Test voltage

At 0.14 mm<sup>2</sup>: 1200 V  
≥ 0.25 mm<sup>2</sup>: 1500 V



#### Temperature range

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

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYCY</b>				
0034302	2 x 0.14	3.9	12.0	20
0034303	3 x 0.14	4.1	13.0	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	19.0	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	32.0	80
0034315	15 x 0.14	6.9	37.8	86
0034316	16 x 0.14	7.0	43.0	90
0034318	18 x 0.14	7.3	48.8	104
0034320	20 x 0.14	7.7	53.9	116
0034321	21 x 0.14	7.9	55.5	121
0034324	24 x 0.14	8.4	61.0	132
0034325	25 x 0.14	8.5	63.0	149
0034328	28 x 0.14	8.5	66.1	153
0034330	30 x 0.14	8.7	69.0	158
0034332	32 x 0.14	9.0	73.6	164
0034336	36 x 0.14	9.3	83.0	183
0034340	40 x 0.14	10.4	87.5	210
0034344	44 x 0.14	10.7	110.5	225
0034350	50 x 0.14	11.1	122.5	253
0034402	2 x 0.25	4.5	16.0	32
0034403	3 x 0.25	4.7	21.0	37
0034404	4 x 0.25	5.0	24.0	41.3
0034405	5 x 0.25	5.6	29.0	51.2
0034406	6 x 0.25	6.0	30.0	58
0034407	7 x 0.25	6.0	37.0	65
0034408	8 x 0.25	7.1	42.0	73
0034410	10 x 0.25	7.5	46.0	82
0034412	12 x 0.25	7.7	53.0	98
0034414	14 x 0.25	8.0	59.0	99
0034415	15 x 0.25	8.3	61.0	111
0034416	16 x 0.25	8.4	64.0	124
0034418	18 x 0.25	8.8	83.0	143
0034420	20 x 0.25	9.3	88.0	152.3

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0034421	21 x 0.25	9.6	93.0	161
0034425	25 x 0.25	10.7	114.0	172
0034428	28 x 0.25	10.8	126.0	181.1
0034430	30 x 0.25	11.0	132.0	189
0034432	32 x 0.25	11.4	138.0	203
0034436	36 x 0.25	11.8	148.0	220
0034440	40 x 0.25	12.7	157.0	248
0034450	50 x 0.25	13.8	178.0	318
0034461	61 x 0.25	15.0	205.0	365.2
0034502	2 x 0.34	4.9	21.0	37
0034503	3 x 0.34	5.1	27.0	49
0034504	4 x 0.34	5.7	28.0	59
0034505	5 x 0.34	6.2	30.0	66
0034506	6 x 0.34	6.8	45.0	79
0034507	7 x 0.34	6.8	48.0	83
0034508	8 x 0.34	7.8	52.0	94
0034510	10 x 0.34	8.3	74.0	129.2
0034512	12 x 0.34	8.5	80.0	142
0034514	14 x 0.34	8.9	86.0	154
0034515	15 x 0.34	9.2	90.0	155
0034516	16 x 0.34	9.4	94.0	160
0034518	18 x 0.34	10.2	103.0	173
0034520	20 x 0.34	10.7	112.0	192
0034521	21 x 0.34	11.1	116.0	199.2
0034525	25 x 0.34	11.9	135.0	259
0034528	28 x 0.34	12.0	153.0	280
0034530	30 x 0.34	12.3	159.0	291.1
0034532	32 x 0.34	13.0	165.0	305
0034536	36 x 0.34	13.4	179.0	331
0034540	40 x 0.34	14.8	200.0	365
0034550	50 x 0.34	15.9	235.0	431
0034602	2 x 0.50	5.6	29.0	54
0034603	3 x 0.50	5.9	38.0	67
0034604	4 x 0.50	6.3	43.0	77
0034605	5 x 0.50	7.0	51.0	90
0034606	6 x 0.50	7.6	59.0	104
0034607	7 x 0.50	7.6	65.0	112
0034608	8 x 0.50	8.7	70.0	135
0034610	10 x 0.50	9.3	88.0	160
0034612	12 x 0.50	9.6	99.0	177
0034618	18 x 0.50	11.8	134.0	239
0034620	20 x 0.50	12.1	149.0	276
0034625	25 x 0.50	13.7	211.0	352
0034630	30 x 0.50	14.5	230.0	397
0034702	2 x 0.75	6.0	38.0	64
0034703	3 x 0.75	6.3	49.0	76
0034704	4 x 0.75	7.0	58.0	92
0034705	5 x 0.75	7.6	67.0	109
0034707	7 x 0.75	8.2	100.0	156
0034710	10 x 0.75	10.5	130.0	187
0034712	12 x 0.75	10.8	154.0	218
0034718	18 x 0.75	13.0	195.0	327
0034725	25 x 0.75	15.3	280.0	454
0034730	30 x 0.75	15.8	312.0	486
0034802	2 x 1.00	6.3	43.0	72
0034803	3 x 1.00	6.8	56.0	90
0034804	4 x 1.00	7.3	68.0	109
0034805	5 x 1.00	8.0	79.0	126
0034807	7 x 1.00	8.6	118.0	171
0034810	10 x 1.00	11.1	140.0	228
0034812	12 x 1.00	11.4	168.0	259
0034818	18 x 1.00	13.4	252.0	389
0034825	25 x 1.00	16.2	335.0	517
0034902	2 x 1.50	7.1	58.0	90
0034903	3 x 1.50	7.5	74.0	115
0034904	4 x 1.50	8.1	108.0	153
0034905	5 x 1.50	8.8	129.0	176
0034907	7 x 1.50	9.5	164.0	220
0034912	12 x 1.50	12.7	254.0	376
0034918	18 x 1.50	15.3	350.0	519
0034925	25 x 1.50	17.9	550.0	901

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- UNITRONIC® LiYCY (TP) refer to page 251
- UNITRONIC® PUR CP refer to page 258
- UNITRONIC® LiYCY A refer to page 267

**Accessories**

- SKINTOP® MS-SC refer to page 733
- Multipurpose shears A and B refer to page 907
- UNIVERSAL STRIP stripping and cutting tool refer to page 910



## UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs



Info

- TP = twisted pair

### 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



#### Core identification code

DIN 47100, refer to Appendix T9



#### Mutual capacitance

Approx. 120 nF/km



#### Peak operating voltage

(not for power applications)  
at 0.14 mm<sup>2</sup>: 350 V  
at ≥ 0.25 mm<sup>2</sup>: 500 V



#### Specific insulation resistance

> 20 GOhm x cm



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

Fine copper wire strands



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 5 x outer diameter



#### Test voltage

At 0.14 mm<sup>2</sup>: 1200 V  
≥ 0.25 mm<sup>2</sup>: 1500 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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYY (TP)</b>				
0035101	2 x 2 x 0.14	4.8	5.4	25.5
0035102	3 x 2 x 0.14	4.9	8.0	32
0035103	4 x 2 x 0.14	5.5	10.7	38.5
0035104	5 x 2 x 0.14	5.7	13.4	45.5
0035105	6 x 2 x 0.14	6.2	16.1	51
0035108	10 x 2 x 0.14	8.0	26.9	77.5
0035110	12 x 2 x 0.14	8.2	32.3	94.5
0035113	16 x 2 x 0.14	9.1	43.0	110.5
0035160	2 x 2 x 0.25	6.1	9.6	38
0035161	3 x 2 x 0.25	6.2	14.4	48
0035162	4 x 2 x 0.25	6.9	19.2	59
0035163	6 x 2 x 0.25	7.8	28.8	80
0035164	8 x 2 x 0.25	9.2	38.4	98
0035165	10 x 2 x 0.25	10.3	48.0	115
0035170	2 x 2 x 0.5	7.9	19.2	72
0035171	3 x 2 x 0.5	8.0	28.8	83
0035172	4 x 2 x 0.5	8.7	38.4	115
0035174	8 x 2 x 0.5	12.2	76.8	206
0035175	10 x 2 x 0.5	13.2	96.0	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- UNITRONIC® LiYCY (TP) refer to page 251
- UNITRONIC® LiYCY (TP) A refer to page 268

### Accessories

- SKINTOP® CLICK refer to page 657
- KS 15 cable shears refer to page 908



## UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs

**Info**

- TP = twisted pair

**Technical data**

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C: approx. 120 nF/km  
C/S: approx. 160 nF/km
- Peak operating voltage**  
(not for power applications)  
at 0.14 mm<sup>2</sup>: 350 V  
at ≥ 0.25 mm<sup>2</sup>: 500 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Inductivity**  
Approx. 0.50 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**  
At 0.14 mm<sup>2</sup>: 1200 V  
≥ 0.25 mm<sup>2</sup>: 1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C



### 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)

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYCY (TP)</b>				
0035131	2 x 2 x 0.14	5.3	18.5	39
0035141	3 x 2 x 0.14	5.8	23.0	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	59.0	110
0035135	12 x 2 x 0.14	8.9	66.0	142
0035136	16 x 2 x 0.14	10.2	79.0	154
0035142	20 x 2 x 0.14	11.3	97.0	184
0035137	25 x 2 x 0.14	12.5	113.0	238
0035800	2 x 2 x 0.25	6.3	28.0	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	11.0	102.0	158
0035806	12 x 2 x 0.25	11.3	120.0	190
0035807	16 x 2 x 0.25	12.5	146.5	238
0035808	25 x 2 x 0.25	16.1	205.0	344
0035810	2 x 2 x 0.5	7.9	48.1	93
0035811	3 x 2 x 0.5	8.7	73.7	129
0035812	4 x 2 x 0.5	9.4	82.0	146
0035813	6 x 2 x 0.5	11.1	110.0	198
0035814	8 x 2 x 0.5	13.1	139.0	259
0035816	12 x 2 x 0.5	14.9	198.3	354
0035817	16 x 2 x 0.5	16.5	240.0	459
0035820	2 x 2 x 0.75	8.5	58.0	106
0035821	3 x 2 x 0.75	9.4	84.0	140
0035822	4 x 2 x 0.75	10.7	108.0	179
0035827	5 x 2 x 0.75	11.1	126.0	215
0035823	6 x 2 x 0.75	12.1	146.0	246
0035824	8 x 2 x 0.75	14.7	180.0	305
0035825	12 x 2 x 0.75	16.2	261.0	456
0035830	2 x 2 x 1	9.0	84.0	142
0035831	3 x 2 x 1	10.4	96.0	173
0035832	4 x 2 x 1	11.3	121.0	212
0035836	5 x 2 x 1	11.8	161.0	266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- UNITRONIC® CY PiDY (TP) refer to page 255
- UNITRONIC® PUR CP (TP) refer to page 259
- UNITRONIC® Li2YCY (TP) fine-wire refer to page 260
- UNITRONIC® LiYCY (TP) A refer to page 268

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907
- STAR STRIP stripping tool refer to page 910



## 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

**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**

- Complies with VDE 0165 Section 12.2.2.6. Marking of cables for hazard type -i- (intrinsically safe) is specified
- 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**

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C approx. 100 nF/km  
C/S approx. 140 nF/km
- Peak operating voltage**  
(not for power applications)  
900 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® EB CY (TP)</b>				
0012620	2 x 2 x 0.75	8.7	58.0	106
0012621	3 x 2 x 0.75	9.6	84.0	140
0012622	4 x 2 x 0.75	10.9	108.0	179
0012624	6 x 2 x 0.75	12.3	146.0	246
0012626	10 x 2 x 0.75	16.1	220.0	392

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- JE-LiYCY...BD EB refer to page 280

**Accessories**

- Multipurpose shears A and B refer to page 907
- SKINTOP® K-M ATEX plus blue refer to page 665

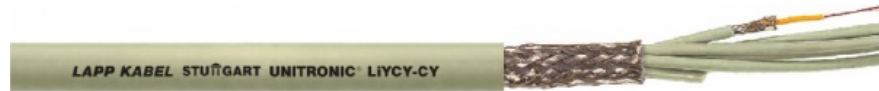
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## UNITRONIC® LIYCY-CY

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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
Approx. 230 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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
- Test voltage**  
1200 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LIYCY-CY</b>				
0032302	2 x 0.25	6.9	41.5	69
0032303	3 x 0.25	7.2	53.0	106
0032304	4 x 0.25	7.8	65.0	130
0032305	5 x 0.25	8.5	78.0	161
0032307	7 x 0.25	9.2	94.0	196

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® CY PiDY (TP) refer to page 255

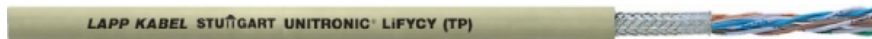
### Accessories

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- DATA STRIP stripping tool refer to page 911



## UNITRONIC® LiFYCY (TP)

### Screened miniature data transmission cable



**Info**  
 • For requirements of microelectronics

#### ■ Benefits

- Space-saving installation due to small cable diameters
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

#### ■ Application range

- For protection against high-frequency interference, screened, fine-wire cables are used in many devices.
- Wherever screened cables with smallest dimensions are required
- Examples: microelectronics, hearing aids etc.

#### ■ Product features

- Very small dimensions
- Flame-retardant according IEC 60332-1-2

#### ■ Product make-up

- Extra-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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C approx. 80 nF/km  
C/S approx. 120 nF/km
- Peak operating voltage**  
(not for power applications) 150 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Coupling**  
At 1 kHz: approx. 300 pF/100 m
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Stranded, extra-fine wire, cross-section 0.08 mm<sup>2</sup>
- Minimum bending radius**  
Occasional flexing: 7.5 x outer diameter  
Fixed installation: 4 x outer diameter
- Test voltage**  
800 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiFYCY (TP)</b>				
0034231	4 x 2 x 0.08	5.1	19.4	37
0034233	8 x 2 x 0.08	6.7	23.7	76

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

#### ■ Accessories

- SKINTOP® MS-SC-M refer to page 674
- EASY STRIP stripping and cutting tool refer to page 909
- Multipurpose shears A and B refer to page 907
- DATA STRIP stripping tool refer to page 911

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**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**

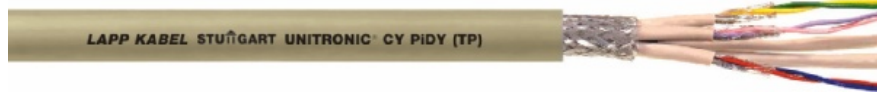
- Based on VDE 0812

**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**

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C: approx. 120 nF/km  
C/S: approx. 160 nF/km
- Peak operating voltage**  
(not for power applications)  
350 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Stranded conductor, fine-wire
- Minimum bending radius**  
Fixed installation: 6 x outer diameter
- Test voltage**  
1200 V
- Loop resistance**  
< 160 Ohm/km
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
Approx. 65 Ohm



Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® CY PiDY (TP)</b>				
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	11.1	88.2	168
0034253	5 x 2 x 0.25	11.8	103.8	201
0034254	6 x 2 x 0.25	12.8	125.7	244
0034255	7 x 2 x 0.25	14.1	143.6	274
0034256	8 x 2 x 0.25	15.4	161.0	325
0034257	10 x 2 x 0.25	17.1	186.8	342
0034258	12 x 2 x 0.25	18.3	239.5	416
0034259	16 x 2 x 0.25	20.3	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® Li2YCY PiMF refer to page 262

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- STAR STRIP stripping tool refer to page 910



## 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, electro-magnetic 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  
Outer sheath colour: pebble grey (RAL 7032)

### Technical data

- 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
- Peak operating voltage**  
(not for power applications)  
500 V
- Specific insulation resistance**  
> 5 GOhm x km
- Inductivity**  
approx. 0.65 mH/km
- Minimum bending radius**  
Occasional flexing: 10 x outer diameter  
Fixed installation: 6 x outer diameter
- Test voltage**  
1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
Approx. 95 Ohm

Article number	Number of conductors and AWG size	Conductor cross-section (mm <sup>2</sup> )	Core insulation material	Outer sheath material	Outer diameter (mm)	Copper index (kg/km)	Type no.
<b>UNITRONIC® ST</b>							
0033000	2 x AWG 20/7	0.52	PE	PVC	5.2	17.2	Belden 8762
0033001	3 x AWG 20/7	0.52	PE	PVC	5.3	23.0	Belden 8772

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- DATA STRIP stripping tool refer to page 911



## UNITRONIC® LiYD11Y

Data transmission cable with copper wrapping and PUR outer sheath

LAPP KABEL STUÏGART UNITRONIC LiYD11Y

### ■ 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
- Overall screening which prevents external electrical interference and guarantees precise pulse transmission

### ■ 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, instrumentation 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 IEC 60332-1-2
- Spiral versions are also available except for the 7-core version

### ■ Norm references / Approvals

- Based on VDE 0812

### ■ Product make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Screening: wrapped with bare copper wires
- Outer sheath made of PUR  
Outer sheath colour: black (RAL 9005)

### ■ Technical data

- 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
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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
- Test voltage**  
1200 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYD11Y</b>				
0033202	2 x 0.14	4.1	9.6	20
0033203	3 x 0.14	4.3	11.0	25
0033204	4 x 0.14	4.5	12.0	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	8.0	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	6.0	21.4	42
0033306	6 x 0.25	6.8	26.1	49
0033312	12 x 0.25	8.4	48.1	81

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### ■ Similar products

- UNITRONIC® SPIRAL refer to page 227

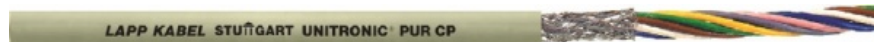
### ■ Accessories

- Multipurpose shears A and B refer to page 907
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- DATA STRIP stripping tool refer to page 911



## 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 oils and 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 mm<sup>2</sup>) 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

	<b>Core identification code</b> DIN 47100, refer to Appendix T9
	<b>Mutual capacitance</b> C/C: approx. 120 nF/km C/S: approx. 160 nF/km
	<b>Peak operating voltage</b> (not for power applications) at 0.14 mm <sup>2</sup> : 350 V at ≥ 0.25 mm <sup>2</sup> : 500 V
	<b>Specific insulation resistance</b> > 20 GOhm x cm
	<b>Inductivity</b> approx. 0.65 mH/km
	<b>Conductor stranding</b> Stranded, fine-wire 0.34 mm <sup>2</sup> : 7-wire
	<b>Minimum bending radius</b> Occasional flexing: 15 x outer diameter Fixed installation: 6 x outer diameter
	<b>Test voltage</b> At 0.14 mm <sup>2</sup> : 1200 V ≥ 0.25 mm <sup>2</sup> : 1500 V
	<b>Temperature range</b> Occasional flexing: -5°C to +70°C Fixed installation: -40°C to +80°C

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® PUR CP</b>				
0032801	3 x 0.25	4.7	21.0	40
0032802	4 x 0.25	5.0	24.0	44
0032803	5 x 0.25	5.6	29.0	55
0032804	7 x 0.25	6.0	37.0	68
0032805	10 x 0.25	7.5	46.0	85
0032806	12 x 0.25	7.7	59.0	91
0032810	2 x 0.34	4.9	21.0	40
0032812	4 x 0.34	5.7	28.0	63
0032813	5 x 0.34	6.2	30.0	69
0032814	7 x 0.34	6.8	48.0	86
0032821	3 x 0.50	5.9	38.0	70
0032822	4 x 0.50	6.3	43.0	80
0032823	5 x 0.50	7.0	51.0	94
0032824	7 x 0.50	7.6	65.0	115
0032825	10 x 0.50	9.3	88.0	140
0032830	2 x 0.75	6.0	38.0	67
0032831	3 x 0.75	6.3	49.0	79
0032834	7 x 0.75	8.2	100.0	160
0032836	12 x 0.75	10.8	154.0	225

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® PUR CP (TP) refer to page 259
- UNITRONIC® FD CP plus refer to page 273
- UNITRONIC® FD CP (TP) plus refer to page 274

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SMART STRIP stripping tool refer to page 911

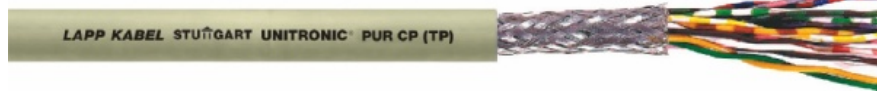


## UNITRONIC® PUR CP (TP)

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 oils and 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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C: approx. 120 nF/km  
C/S: approx. 160 nF/km
- Peak operating voltage**  
(not for power applications)  
at 0.14 mm<sup>2</sup>: 350 V  
at ≥ 0.25 mm<sup>2</sup>: 500 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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**  
At 0.14 mm<sup>2</sup>: 1200 V  
≥ 0.25 mm<sup>2</sup>: 1500 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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® PUR CP (TP)</b>				
0032850	2 x 2 x 0.25	6.3	28.0	54
0032851	3 x 2 x 0.25	7.1	40.0	66
0032852	4 x 2 x 0.25	7.6	45.0	81
0032854	6 x 2 x 0.25	8.5	70.0	115
0032860	2 x 2 x 0.5	8.6	48.0	93
0032861	3 x 2 x 0.5	8.7	74.0	129
0032862	4 x 2 x 0.5	9.4	82.0	146
0032864	6 x 2 x 0.5	11.1	110.0	198
0032872	4 x 2 x 0.75	10.7	108.0	179
0032873	5 x 2 x 0.75	11.1	126.0	215

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD CP (TP) plus refer to page 274

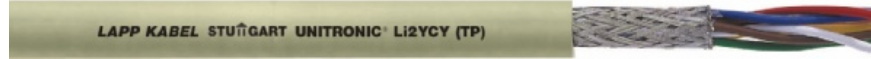
### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SMART STRIP stripping tool refer to page 911



## UNITRONIC® Li2YCY (TP)

Screened data transmission cable mit PE core insulation, 7-wire strands and twisted pairs

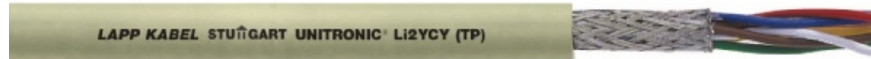


Info

- Cables for RS485/RS422

## UNITRONIC® Li2YCY (TP) fine-wire

Screened data transmission cable mit PE core insulation, fine wire strands and twisted pairs



Info

- Cables for RS485/RS422

## UNITRONIC® Li2YCYv (TP)

Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs



Info

- Cables for RS485/RS422

### ■ Benefits

- 7-wire stranded conductor (UNITRONIC® Li2YCY (TP) and UNITRONIC® Li2YCYv (TP) can be used for Maxi TERMI-POINT® wiring
- 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 reinforced black outer sheath (Yv) is suitable for indoors and outdoors, as well as direct burial in the ground

### ■ 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

- Similar to UNITRONIC® Li2YCY (TP), but with fine-wire conductor design

#### UNITRONIC® Li2YCYv (TP)

- Similar to UNITRONIC® Li2YCY (TP), but with reinforced outer sheath made of PVC (Yv)
- Outer sheath colour: black (RAL 9005)

### ■ Technical data



**Core identification code**  
DIN 47100, refer to Appendix T9



**Mutual capacitance**  
At 800 Hz: max. 60 nF/km



**Peak operating voltage**  
(not for power applications) 250 V



**Specific insulation resistance**  
> 5 GOhm x 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



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



**Characteristic impedance**  
100 ± 15 Ohm (> 1 MHz)

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® Li2YCY (TP)</b>				
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	70.0	125
0031324	10 x 2 x 0,22	10.4	76.0	143
0031335	1 x 2 x 0,34	5.8	20.0	44



Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0031325	2 x 2 x 0,34	7.7	34.1	79
0031326	3 x 2 x 0,34	8.4	43.0	89
0031327	4 x 2 x 0,34	8.7	47.0	101
0031328	8 x 2 x 0,34	11.0	85.8	176
0031336	1 x 2 x 0,5	6.3	29.0	53
0031330	2 x 2 x 0,5	8.5	37.0	85
0031331	3 x 2 x 0,5	9.3	55.0	105
0031332	4 x 2 x 0,5	9.6	60.0	122
0031333	8 x 2 x 0,5	12.7	113.3	213
0031334	10 x 2 x 0,5	14.8	154.0	261
<b>UNITRONIC® Li2YCY (TP) fine-wire</b>				
0031370	1 x 2 x 0,25	5.7	14.0	38
0031371	2 x 2 x 0,25	6.9	28.0	56
0031372	3 x 2 x 0,25	7.5	39.6	64
0031373	5 x 2 x 0,25	8.3	50.0	93
<b>UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial, 7-wire</b>				
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	70.0	156
0031354	10 x 2 x 0,22	12.0	76.0	185
0031365	1 x 2 x 0,34	7.4	20.0	69
0031355	2 x 2 x 0,34	9.3	34.1	102
0031356	3 x 2 x 0,34	10.0	43.0	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	29.0	79
0031360	2 x 2 x 0,5	10.1	37.0	120
0031361	3 x 2 x 0,5	10.9	55.0	142
0031362	4 x 2 x 0,5	11.2	60.0	160
0031363	8 x 2 x 0,5	13.9	113.3	251
0031364	10 x 2 x 0,5	16.0	148.0	303

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- UNITRONIC® BUS LD refer to page 310

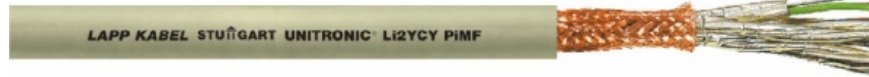
**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907
- STAR STRIP stripping tool refer to page 910
- STEEL GUN HT-338 cable tie pliers refer to page 964
- LS steel cable ties refer to page 963



## UNITRONIC® Li2YCY PiMF

Screened data transmission cable with PE core insulation and pairs in metal foil



Info

- Metal foil screened pairs

### Technical data

- Core identification code**  
0.22 mm<sup>2</sup>-0.5 mm<sup>2</sup>: according to DIN 47100, see table T9  
1.0 mm<sup>2</sup>: a-core: white, b-core: black
- Mutual capacitance**  
At 800 Hz:  
0.22 mm<sup>2</sup>: max. 70 nF/km  
0.34 mm<sup>2</sup>: max. 70 nF/km  
0.5 mm<sup>2</sup>: max. 75 nF/km  
1.0 mm<sup>2</sup>: max. 85 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Insulation resistance**  
> 5 GOhm x 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
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
approx. 85 Ohm (> 1 MHz)

### 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
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring
- 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 (1mm<sup>2</sup>) tinned stranded copper conductor
- 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)

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® Li2YCY PiMF</b>				
<b>7-wire</b>				
0034040	2 x 2 x 0,22	7,7	33,0	75,4
0034041	3 x 2 x 0,22	8,1	42,0	86
0034042	4 x 2 x 0,22	8,7	50,0	99
0034043	8 x 2 x 0,22	10,9	85,0	161,4
0034044	10 x 2 x 0,22	12,5	100,0	186,4
0034045	2 x 2 x 0,34	9,0	43,0	70
0034046	3 x 2 x 0,34	9,4	55,0	85
0034047	4 x 2 x 0,34	9,8	64,0	103
0034048	8 x 2 x 0,34	12,9	127,0	191
0034049	10 x 2 x 0,34	14,9	150,0	230
<b>7-wire</b>				
0034060	2 x 2 x 0,5	8,5	51,0	96
0034061	3 x 2 x 0,5	10,4	66,0	116
0034062	4 x 2 x 0,5	11,3	71,0	141
0034063	5 x 2 x 0,5	11,8	92,0	180
0034064	8 x 2 x 0,5	14,5	153,0	271
0034065	10 x 2 x 0,5	16,6	182,0	327
<b>Fine wire</b>				
0034070	2 x 2 x 1	9,9	82,0	126
0034071	3 x 2 x 1	11,8	109,0	156
0034072	4 x 2 x 1	12,7	133,0	193
0034073	10 x 2 x 1	19,7	326,0	492

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- RE-2Y(ST)Yv PiMF refer to page 277

### Accessories

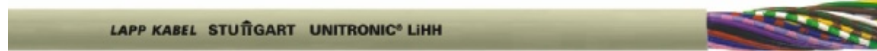
- SKINTOP® MS-SC-M refer to page 674
- STAR STRIP stripping tool refer to page 910
- KS 20 cable shears refer to page 908



**Info**

- For use within public buildings and industrial plants

**UNITRONIC® LIHH**  
**Halogen-free data transmission cable with colour code acc. to DIN 47100**



**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
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring (for this product the 0,34mm² version only)
- Dry or damp rooms

**Product features**

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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**

- Core identification code**  
DIN 47100 without colour repetition, refer to Appendix T9
- Mutual capacitance**  
Approx. 80 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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)
<b>UNITRONIC® LIHH</b>				
0037100	2 x 0.14	3.4	2.7	12
0037101	3 x 0.14	3.6	4.0	15
0037102	4 x 0.14	3.8	5.4	17
0037103	5 x 0.14	4.1	6.7	22
0037104	6 x 0.14	4.4	8.1	25
0037105	7 x 0.14	4.4	9.4	26
0037106	8 x 0.14	5.1	10.8	29
0037107	10 x 0.14	5.4	13.4	35
0037108	12 x 0.14	5.8	16.1	43
0037109	20 x 0.14	7.2	26.8	73
0037110	25 x 0.14	8.0	34.6	91
0037120	2 x 0.25	4.0	4.8	22
0037121	3 x 0.25	4.2	7.2	25
0037122	4 x 0.25	4.5	9.6	28
0037123	5 x 0.25	4.9	12.0	34
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
0037127	10 x 0.25	7.0	24.0	60
0037128	12 x 0.25	7.2	28.8	67
0037129	16 x 0.25	7.9	38.4	85

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	5.0	13.1	40
0037143	5 x 0.34	5.7	16.3	44
0037144	7 x 0.34	6.1	22.8	60
0037146	10 x 0.34	7.8	32.6	80
0037147	12 x 0.34	8.0	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	24.0	58
0037154	7 x 0.5	7.0	33.6	72
0037155	12 x 0.5	9.1	57.6	117
0037160	2 x 0.75	5.3	14.4	41
0037162	4 x 0.75	6.3	28.8	60
0037163	5 x 0.75	7.1	36.0	70
0037164	7 x 0.75	7.7	50.4	85
0037165	12 x 0.75	10.4	86.4	165
0037171	3 x 1	6.1	28.8	57
0037172	4 x 1	6.6	38.4	67
0037181	3 x 1.5	7.4	43.2	72
0037182	4 x 1.5	8.0	57.6	87

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® LIHCH refer to page 264

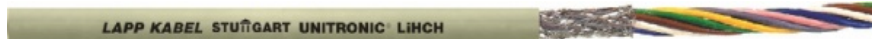
**Accessories**

- SKINTOP® ST-HF-M refer to page 660
- KT 11 cable shears refer to page 907
- DATA STRIP stripping tool refer to page 911



## UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100



**Info**

- For use within public buildings and industrial plants

### 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.
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring (for this product the 0,34mm<sup>2</sup> version only)

### Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)  
Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- Low smoke density according to IEC 61034-2

### Norm references / Approvals

- Based on VDE 0812

### Product make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) 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

- 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
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Stranded, fine-wire  
0.34 mm<sup>2</sup>: 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiHCH</b>				
0037302	2 x 0.14	4.1	12.0	22
0037303	3 x 0.14	4.3	14.1	25
0037304	4 x 0.14	4.5	15.9	29
0037306	6 x 0.14	5.1	22.0	35
0037307	7 x 0.14	5.1	24.0	38
0037308	8 x 0.14	6.0	26.0	41
0037312	12 x 0.14	6.5	30.4	78
0037316	16 x 0.14	7.2	43.0	90
0037325	25 x 0.14	8.7	63.0	149
0037402	2 x 0.25	4.7	15.0	25
0037403	3 x 0.25	4.9	18.0	30
0037404	4 x 0.25	5.2	22.0	35
0037406	6 x 0.25	6.2	30.0	49
0037407	7 x 0.25	6.2	32.0	52
0037408	8 x 0.25	7.3	35.0	58
0037410	10 x 0.25	7.7	42.0	81
0037425	25 x 0.25	10.9	114.0	172
0037502	2 x 0.34	5.1	17.0	30
0037503	3 x 0.34	5.3	21.0	35
0037504	4 x 0.34	5.9	25.0	42
0037505	5 x 0.34	6.4	30.0	53
0037507	7 x 0.34	7.0	42.0	73
0037508	8 x 0.34	8.0	45.0	84
0037510	10 x 0.34	8.5	63.0	101

Article number	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0037516	16 x 0.34	9.6	94.0	160
0037525	25 x 0.34	12.1	144.0	259
0037602	2 x 0.5	5.8	29.0	38
0037603	3 x 0.5	6.1	35.0	47
0037604	4 x 0.5	6.5	45.0	67
0037605	5 x 0.5	7.2	50.0	76
0037606	6 x 0.5	7.8	59.0	84
0037607	7 x 0.5	7.8	68.0	91
0037608	8 x 0.5	8.9	75.0	135
0037610	10 x 0.5	9.5	93.0	131
0037612	12 x 0.5	9.8	99.0	177
0037618	18 x 0.5	11.7	134.0	239
0037625	25 x 0.5	13.9	211.0	352
0037702	2 x 0.75	6.2	35.0	45
0037703	3 x 0.75	6.5	46.0	69
0037704	4 x 0.75	7.2	56.0	80
0037705	5 x 0.75	7.8	70.0	99
0037707	7 x 0.75	8.3	90.0	120
0037802	2 x 1	6.5	43.0	72
0037803	3 x 1	7.0	56.0	90
0037804	4 x 1	7.5	68.0	109
0037807	7 x 1	8.8	118.0	171
0037902	2 x 1.5	7.7	58.0	90
0037903	3 x 1.5	8.1	74.0	115
0037905	5 x 1.5	9.5	129.0	176

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® LiHCH (TP) refer to page 265

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907

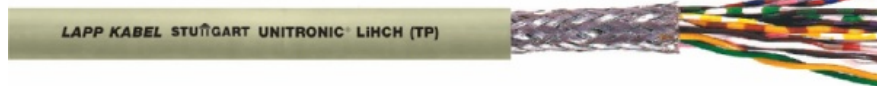


## UNITRONIC® LIHCH (TP)

Screened halogen-free data transmission cable with colour code acc. to DIN 47100 and twisted pairs

**Info**

- TP = twisted pair



### 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 according to IEC 60754-1 (amount of halogen acid gas)  
Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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

- 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
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LIHCH (TP)</b>				
0038302	2 x 2 x 0.14	5.9	18.5	39
0038303	3 x 2 x 0.14	6.0	23.0	48
0038304	4 x 2 x 0.14	6.4	26.6	54
0038306	6 x 2 x 0.14	7.3	48.5	85
0038308	8 x 2 x 0.14	8.4	53.7	97
0038310	10 x 2 x 0.14	8.9	59.0	110
0038312	12 x 2 x 0.14	9.1	66.0	142
0038316	16 x 2 x 0.14	10.4	79.0	154
0038320	20 x 2 x 0.14	11.5	97.0	184
0038325	25 x 2 x 0.14	12.7	113.0	238
0038402	2 x 2 x 0.25	6.5	28.0	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	120.0	190

Article number	Number of cores and mm <sup>2</sup> 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	8.8	48.1	93
0038603	3 x 2 x 0.5	8.9	73.7	129
0038604	4 x 2 x 0.5	9.6	82.0	146
0038606	6 x 2 x 0.5	11.3	110.0	198
0038608	8 x 2 x 0.5	13.3	139.0	259
0038612	12 x 2 x 0.5	15.1	198.3	354
0038616	16 x 2 x 0.5	16.7	240.0	459
0038702	2 x 2 x 0.75	9.5	58.0	106
0038703	3 x 2 x 0.75	9.6	84.0	140
0038704	4 x 2 x 0.75	10.9	108.0	179
0038708	8 x 2 x 0.75	14.9	180.0	305
0038802	2 x 2 x 1	10.5	84.0	142
0038803	3 x 2 x 1	10.6	96.0	173
0038804	4 x 2 x 1	11.5	121.0	212
0038805	5 x 2 x 1	12.0	161.0	266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907



## UNITRONIC® LiYY A

Data transmission cable with colour code acc. to DIN 47100 - UL/CSA recognized



**Info**

- A for Advanced here: UL and CSA approvals

### 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 approved 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 Nr. 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 (RAL 7005)

### Technical data

- Core identification code**  
DIN 47100 without colour repetition, refer to Appendix T9
- Peak operating voltage**  
(not for power applications)  
300 V  
UL/CSA: 300 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
AWG conductor sizes, 7 or 19 wires
- Minimum bending radius**  
Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter
- Test voltage**  
1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and AWG per conductor	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYY A</b>					
0022403	3 x AWG26/7	3 x 0.14	3.8	4.2	19.7
0022404	4 x AWG26/7	4 x 0.14	4.0	5.6	23
0022405	5 x AWG26/7	5 x 0.14	4.3	7.0	25
0022408	8 x AWG26/7	8 x 0.14	5.1	11.2	34
0022412	12 x AWG26/7	12 x 0.14	5.8	16.8	47
0022416	16 x AWG26/7	16 x 0.14	6.3	22.4	58
0022421	21 x AWG26/7	21 x 0.14	7.0	29.4	63
0022502	2 x AWG24/7	2 x 0.23	4.0	4.6	26.2
0022505	5 x AWG24/7	5 x 0.23	4.8	11.5	39.4
0022508	8 x AWG24/7	8 x 0.23	5.7	18.4	52.5
0022512	12 x AWG24/7	12 x 0.23	6.6	27.6	72.2
0022602	2 x AWG22/7	2 x 0.34	4.8	6.8	32.8
0022603	3 x AWG22/7	3 x 0.34	5.0	10.2	35
0022604	4 x AWG22/7	4 x 0.34	5.4	13.6	45.9
0022605	5 x AWG22/7	5 x 0.34	5.9	17.0	55.8
0022607	7 x AWG22/7	7 x 0.34	6.4	23.3	68.9
0022608	8 x AWG22/7	8 x 0.34	6.9	27.2	75.5
0022612	12 x AWG22/7	12 x 0.34	8.2	40.8	103
0022616	16 x AWG22/7	16 x 0.34	9.1	54.4	131.2
0022624	24 x AWG22/7	24 x 0.34	11.6	81.6	190
0022632	2 x AWG20/7	2 x 0.50	5.3	11.2	29
0022642	2 x AWG19/19	2 x 0.75	5.6	15.0	48

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: Coil 152 m; Drum 305 m  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® LiYCY A refer to page 267
- UNITRONIC® 300 / UNITRONIC® 300 S refer to page 269

### Accessories

- SKINTOP® CLICK refer to page 657
- KT 11 cable shears refer to page 907
- DATA STRIP stripping tool refer to page 911



**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 approvals



**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 approved 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 Nr. 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 (RAL 7005)

**Technical data**

- Core identification code**  
DIN 47100 without colour repetition, refer to Appendix T9
- Peak operating voltage**  
(not for power applications)  
300 V  
UL/CSA: 300 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Conductor stranding**  
AWG conductor sizes, 7 or 19 wires
- Minimum bending radius**  
Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter
- Test voltage**  
1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and AWG per conductor	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYCY A</b>					
0044602	2 x AWG26/7	2 x 0.14	4.3	15.6	29.5
0044604	4 x AWG26/7	4 x 0.14	4.7	18.0	33
0044652	2 x AWG24/7	2 x 0.23	4.7	17.6	36.1
0044655	5 x AWG24/7	5 x 0.23	5.5	28.5	51
0044658	8 x AWG24/7	8 x 0.23	6.4	31.1	72.2
0044662	12 x AWG24/7	12 x 0.23	7.3	51.8	96
0044702	2 x AWG22/7	2 x 0.34	5.5	17.6	32
0044703	3 x AWG22/7	3 x 0.34	5.7	21.2	36
0044704	4 x AWG22/7	4 x 0.34	6.1	27.3	44
0044705	5 x AWG22/7	5 x 0.34	6.6	30.8	53
0044707	7 x AWG22/7	7 x 0.34	7.1	46.4	71
0044712	12 x AWG22/7	12 x 0.34	8.9	66.8	120
0044716	16 x AWG22/7	16 x 0.34	9.8	83.9	145
0044721	21 x AWG22/7	21 x 0.34	11.3	109.4	170
0044732	2 x AWG20/7	2 x 0.50	6.0	24.4	41
0044733	3 x AWG20/7	3 x 0.50	6.3	29.9	47
0044735	5 x AWG20/7	5 x 0.50	7.3	49.2	72
0044738	8 x AWG20/7	8 x 0.50	8.5	70.8	102
0044850	7 x AWG18/19	7 x 1.00	8.9	93.2	160.8
0044851	10 x AWG18/19	10 x 1.00	11.5	130.9	200
0044912	12 x AWG16/19	12 x 1.50	13.7	248.6	375

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: Coil 152 m; Drum 305 m  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® LiYCY (TP) A refer to page 268

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- KS 15 cable shears refer to page 908
- DATA STRIP stripping tool refer to page 911



## 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 approvals

### 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 approved 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 Nr. 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 (RAL 7005)

### Technical data

- Core identification code**  
DIN 47100 without colour repetition, refer to Appendix T9
- Peak operating voltage**  
(not for power applications)  
300 V  
UL/CSA: 300 V
- Specific insulation resistance**  
> 20 GOhm x cm
- Minimum bending radius**  
Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter
- Test voltage**  
1500 V
- Temperature range**  
Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

Article number	Number of cores and AWG per conductor	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® LiYCY (TP) A</b>					
0066202	2 x 2 x AWG26/7	2 x 2 x 0.14	5.5	18.0	45.9
0066204	4 x 2 x AWG26/7	4 x 2 x 0.14	6.4	24.0	58
0066205	5 x 2 x AWG26/7	5 x 2 x 0.14	6.6	30.0	58
0066208	8 x 2 x AWG26/7	8 x 2 x 0.14	7.9	53.0	85
0066210	10 x 2 x AWG26/7	10 x 2 x 0.14	8.7	55.0	106
0066212	12 x 2 x AWG26/7	12 x 2 x 0.14	8.9	64.0	113
0066216	16 x 2 x AWG26/7	16 x 2 x 0.14	10.2	87.0	149
0066232	2 x 2 x AWG24/7	2 x 2 x 0.23	6.1	24.5	57
0066233	3 x 2 x AWG24/7	3 x 2 x 0.23	6.7	28.9	62
0066234	4 x 2 x AWG24/7	4 x 2 x 0.23	7.2	33.5	70
0066235	5 x 2 x AWG24/7	5 x 2 x 0.23	7.5	46.3	91
0066238	2 x 2 x AWG22/7	2 x 2 x 0.34	7.4	38.0	45
0066239	3 x 2 x AWG22/7	3 x 2 x 0.34	8.1	45.1	64
0066240	4 x 2 x AWG22/7	4 x 2 x 0.34	8.8	54.6	75
0066242	2 x 2 x AWG20/7	2 x 2 x 0.5	8.2	49.7	93
0066243	3 x 2 x AWG20/7	3 x 2 x 0.5	9.1	60.1	102
0066244	4 x 2 x AWG20/7	4 x 2 x 0.5	10.2	78.7	120
0066262	2 x 2 x AWG19/19	2 x 2 x 0.75	8.7	65.2	140

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 152 m; Drum 305 m  
Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD CP (TP) plus refer to page 274

### Accessories

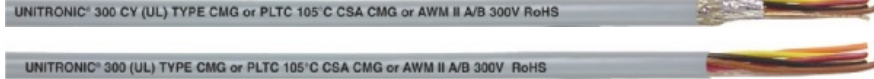
- SKINTOP® MS-SC-M refer to page 674
- DATA STRIP stripping tool refer to page 911





## UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed



**Info**

- Shielded Version: Formerly UNITRONIC® 300 CY, now UNITRONIC® 300 S

**Benefits**

- Wide application range due to multiple approvals
- 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
- Process control; electrical equipment; industrial machinery; low-voltage control interconnect
- For the North American market
- Suitable for outdoor use and direct burial

**Product features**

- PLTC for trays (24 AWG has no PLTC approval)
- PLTC-ER & ITC-ER (Exposed run) for AWG 18 & AWG 16
- UV-resistant UL SUN RES
- Direct Burial for AWG 18 & 16
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

**Norm references / Approvals**

- UL: CMG per UL 444; PLTC-ER per UL 13; ITC-ER per UL 2250; AWM 2464
- NEC: meets NEC Art. 725 & 800, Class 1 Division 2 (PLTC only)
- Canada: c(UL) CMG FT4, CSA AWM I/II A/B FT1
- Oil-resistant according to UL OIL RES I

**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 sheath made of special PVC compound  
Outer sheath colour: dark grey (RAL 7005)

**Technical data**

- Core identification code**  
refer to Appendix T9
- Conductor stranding**  
Fine wire
- Torsion movement in WTG**  
TW-0 & TW-1, 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: -25°C to +105°C  
Fixed installation: -40°C to +105°C

Article number	Article designation	Number of cores and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® 300</b>					
301602	UNITRONIC® 300	2 x AWG16	6.7	25.0	83
301802	UNITRONIC® 300	2 x AWG18	6.1	18.3	61
302006	UNITRONIC® 300	6 x AWG20	7.5	29.5	97
302204	UNITRONIC® 300	4 x AWG22	5.0	13.7	33
302210	UNITRONIC® 300	10 x AWG22	7.0	34.8	67
302220	UNITRONIC® 300	20 x AWG22	9.0	68.5	116
302225	UNITRONIC® 300	25 x AWG22	10.5	85.6	142
<b>UNITRONIC® 300 S</b>					
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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: Coil 152 m; Drum 305 m  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ÖLFLEX® TRAY II refer to page 52
- ÖLFLEX® TRAY II CY refer to page 53

**Accessories**

- SKINTOP® ST-M refer to page 654
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- STAR STRIP stripping tool refer to page 910



## UNITRONIC® FD

Highly flexible data transmission cable with PVC outer sheath for power chain use

LAPP KABEL STUIGART UNITRONIC® FD

### Benefits

- Well-proven and reliable
- Optimized cable construction for power 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 2 up to 8 million bending/unbending cycles in power chain applications.

### Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in 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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C: approx. 100 nF/km
- Peak operating voltage**  
(not for power applications)  
350 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® FD</b>				
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	7.0	35
0027844	7 x 0.14	5.1	9.8	50
0027845	10 x 0.14	6.1	14.0	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	35.0	125
0027855	2 x 0.25	4.3	5.0	27
0027856	3 x 0.25	4.5	7.5	33
0027857	4 x 0.25	4.9	10.0	40
0027858	5 x 0.25	5.3	12.5	51
0027859	7 x 0.25	6.1	17.5	51
0027860	10 x 0.25	7.4	25.0	84
0027861	14 x 0.25	7.5	35.0	108
0027863	18 x 0.25	8.5	45.0	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	5.0	10.2	43
0027872	4 x 0.34	5.4	13.6	57
0027873	5 x 0.34	5.9	17.0	65
0027874	7 x 0.34	6.8	23.8	85
0027875	10 x 0.34	8.5	34.0	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	85.0	250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC FD 810 refer to page 107
- UNITRONIC® FD CY refer to page 271
- UNITRONIC® FD P plus refer to page 272

### Accessories

- SILVYN® CHAIN
- DATA STRIP stripping tool refer to page 911



## UNITRONIC® FD CY

Screened highly flexible data transmission cable with PVC outer sheath for power chain use



### Benefits

- Well-proven and reliable
- Optimized cable construction for power 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 2 up to 8 million bending/unbending cycles in power chain applications.

### Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m.
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

### Product make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Non-woven wrapping
- Outer sheath made of PVC  
Outer sheath colour: grey (RAL 7001)

### Technical data

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C approx. 110 nF/km  
C/S: approx. 110 nF/km
- Peak operating voltage**  
(not for power applications)  
350 V
- Specific insulation resistance**  
> 20 GOhm x cm
- 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® FD CY</b>				
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	70
0027416	10 x 0.14	6.7	39.3	90
0027418	14 x 0.14	6.8	45.3	106
0027420	18 x 0.14	7.4	54.1	123
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	31.0	71
0027429	7 x 0.25	6.7	39.6	75
0027431	10 x 0.25	8.2	53.9	114
0027434	14 x 0.25	8.3	64.2	141
0027436	18 x 0.25	9.1	78.4	167
0027438	25 x 0.25	11.0	101.0	221
0027440	2 x 0.34	5.3	16.1	47
0027441	3 x 0.34	5.6	28.7	63
0027442	4 x 0.34	6.0	35.7	81
0027443	5 x 0.34	6.5	39.1	89
0027444	7 x 0.34	7.4	52.7	117
0027446	10 x 0.34	9.1	67.4	155
0027448	14 x 0.34	9.2	85.3	194
0027450	18 x 0.34	10.3	99.7	225
0027452	25 x 0.34	12.5	155.0	327

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- ÖLFLEX® CLASSIC FD 810 CY refer to page 108
- UNITRONIC® FD CP plus refer to page 273

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 910



## UNITRONIC® FD P plus

Highly flexible data transmission cable with PUR outer sheath

LAPP KABEL STUÏGART UNITRONIC® FD P plus



Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

### Benefits

- Well-proven and reliable
- Optimized cable construction for power chain use
- Wide temperature range for applications in harsh climatic environments

### Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions.
- Multifunctional-use, e.g. for packaging industry and storage and retrieval units
- Suitable for use in measuring, control and regulating circuits

### Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Flame-retardant according IEC 60332-1-2
- 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
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

### 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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C approx. 60 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 5 GOhm x 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

Article number	Number of cores and mm <sup>2</sup> per conductor	AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® FD P plus</b>					
0028650	3 x 0.14	26 AWG	3.9	4.1	25
0028651	4 x 0.14	26 AWG	4.2	5.6	30
0028652	5 x 0.14	26 AWG	4.5	7.0	34
0028653	7 x 0.14	26 AWG	5.1	9.8	48
0028654	10 x 0.14	26 AWG	6.1	14.0	60
0028655	14 x 0.14	26 AWG	6.2	19.6	74
0028656	18 x 0.14	26 AWG	6.8	25.2	87
0028657	25 x 0.14	26 AWG	8.3	35.0	120
0028658	2 x 0.25	24 AWG	4.3	5.0	27
0028659	3 x 0.25	24 AWG	4.5	7.5	32
0028660	4 x 0.25	24 AWG	4.9	10.0	39
0028661	5 x 0.25	24 AWG	5.3	12.5	49
0028662	7 x 0.25	24 AWG	6.3	17.5	61
0028663	10 x 0.25	24 AWG	7.4	25.0	80
0028664	14 x 0.25	24 AWG	7.5	35.0	103
0028665	18 x 0.25	24 AWG	8.5	45.0	125
0028666	25 x 0.25	24 AWG	10.4	62.5	171
0028667	2 x 0.34	22 AWG	4.7	6.8	33
0028668	3 x 0.34	22 AWG	5.0	10.2	41
0028669	4 x 0.34	22 AWG	5.4	13.6	55
0028670	5 x 0.34	22 AWG	5.9	17.0	62
0028671	7 x 0.34	22 AWG	6.8	23.8	80
0028672	10 x 0.34	22 AWG	8.5	34.0	110
0028673	14 x 0.34	22 AWG	8.6	47.6	144
0028674	18 x 0.34	22 AWG	9.7	61.2	175
0028675	25 x 0.34	22 AWG	11.9	85.0	239

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC FD 810 P refer to page 118
- UNITRONIC® FD CP plus refer to page 273

### Accessories

- SILVYN® CHAIN
- SMART STRIP stripping tool refer to page 911

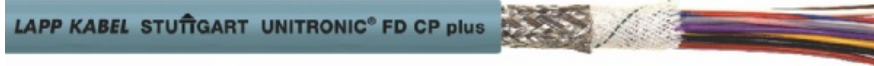


**UNITRONIC® FD CP plus**

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-listed

**Info**

- Flexible at low temperatures
- Low capacitance
- Halogen-free



**Benefits**

- Wide temperature range for applications in harsh climatic environments
- Ideal for export-oriented machinery and equipment manufacturers
- Optimized cable construction for power chain use
- Overall braid minimises electrical interference

**Application range**

- Multifunctional-use, e.g. for packaging industry and storage and retrieval units
- Suitable for use in measuring, control and regulating circuits
- In power chains or moving machine parts
- For the North American market
- 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 power chains

- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame-retardant according to IEC 60332-1-2 and VW-1 acc. to UL-1581
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

**Norm references / Approvals**

- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

**Product make-up**

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Tinned-copper braiding
- Non-woven wrapping
- Outer sheath made of special PUR compound
- Outer sheath colour: grey (RAL 7001)

**Technical data**

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
C/C approx. 60 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 5 GOhm x 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  
UL/CSA: up to +75°C

Article number	Number of cores and mm <sup>2</sup> per conductor	AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® FD CP plus</b>					
0028880	2 x 0.14	26 AWG	4.3	11.2	33
0028881	3 x 0.14	26 AWG	4.5	14.1	36
0028882	4 x 0.14	26 AWG	4.8	15.5	40
0028883	5 x 0.14	26 AWG	5.1	18.3	45
0028884	7 x 0.14	26 AWG	5.7	27.8	67
0028885	10 x 0.14	26 AWG	6.7	39.3	87
0028886	14 x 0.14	26 AWG	6.8	45.3	102
0028887	18 x 0.14	26 AWG	7.4	54.1	118
0028888	25 x 0.14	26 AWG	8.9	68.4	157
0028889	2 x 0.25	24 AWG	4.9	14.9	38
0028890	3 x 0.25	24 AWG	5.1	18.8	45
0028891	4 x 0.25	24 AWG	5.5	21.3	52
0028892	5 x 0.25	24 AWG	5.9	31.0	69
0028893	7 x 0.25	24 AWG	6.7	39.6	84
0028894	10 x 0.25	24 AWG	8.2	53.9	109
0028895	14 x 0.25	24 AWG	8.3	64.2	136
0028896	18 x 0.25	24 AWG	9.1	78.4	161
0028897	25 x 0.25	24 AWG	11.0	101.0	213
0028898	2 x 0.34	22 AWG	5.3	18.1	45
0028899	3 x 0.34	22 AWG	5.6	28.7	61
0028900	4 x 0.34	22 AWG	6.0	35.7	77
0028901	5 x 0.34	22 AWG	6.5	39.1	83
0028902	7 x 0.34	22 AWG	7.4	52.7	109
0028903	10 x 0.34	22 AWG	9.1	67.4	147
0028904	14 x 0.34	22 AWG	9.2	85.8	186
0028905	18 x 0.34	22 AWG	10.3	99.7	216
0028906	25 x 0.34	22 AWG	12.5	155.0	314

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Similar products**

- UNITRONIC® FD CP (TP) plus refer to page 274

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 910



## UNITRONIC® FD CP (TP) plus

Screened highly flexible data transmission cable with PUR outer sheath and twisted pairs - UL/CSA-listed



**Info**

- Flexible at low temperatures
- Low capacitance
- Halogen-free

### Benefits

- Wide temperature range for applications in harsh climatic environments
- Optimized cable construction for power chain use
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

### Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- For the North American market
- 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 power chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame-retardant according to IEC 60332-1-2 and VW-1 acc. to UL-1581
- Designed for 5 up to 10 million bending/unbending cycles in the power chain.

### Norm references / Approvals

- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- For travel distances up to 100 m (horizontal)
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

### 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

- Core identification code**  
DIN 47100, refer to Appendix T9
- Mutual capacitance**  
Up to 0.5 mm<sup>2</sup>: 60 nF/km  
Up to 1.0 mm<sup>2</sup>: 70 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Specific insulation resistance**  
> 5 GOhm x km
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Stranded, extra-fine wire  
From 0.5 mm<sup>2</sup>: 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  
UL/CSA: up to +75°C

Article number	Number of pairs and mm <sup>2</sup> per conductor	AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>UNITRONIC® FD CP (TP) plus</b>					
0030910	2 x 2 x 0.14	26 AWG	5.9	19.4	42
0030911	3 x 2 x 0.14	26 AWG	6.2	23.4	53
0030912	4 x 2 x 0.14	26 AWG	6.7	27.1	59
0030913	5 x 2 x 0.14	26 AWG	7.3	37.4	75
0030914	6 x 2 x 0.14	26 AWG	7.5	49.4	91
0030915	8 x 2 x 0.14	26 AWG	8.8	54.8	109
0030916	10 x 2 x 0.14	26 AWG	10.1	60.1	120
0030962	1 x 2 x 0.25	24 AWG	4.9	14.0	27
0030919	2 x 2 x 0.25	24 AWG	7.0	32.0	60
0030920	3 x 2 x 0.25	24 AWG	7.4	38.4	72
0030921	4 x 2 x 0.25	24 AWG	8.3	43.2	85
0030922	5 x 2 x 0.25	24 AWG	9.0	51.5	103
0030923	6 x 2 x 0.25	24 AWG	9.3	71.8	131
0030924	8 x 2 x 0.25	24 AWG	10.9	74.4	155
0030925	10 x 2 x 0.25	24 AWG	12.6	90.0	186
0030926	14 x 2 x 0.25	24 AWG	12.8	111.2	219
0030963	1 x 2 x 0.34	22 AWG	5.3	20.0	36
0030928	2 x 2 x 0.34	22 AWG	7.9	41.0	81
0030929	3 x 2 x 0.34	22 AWG	8.4	52.0	101
0030930	4 x 2 x 0.34	22 AWG	9.2	59.0	119
0030932	6 x 2 x 0.34	22 AWG	10.6	86.2	165
0030933	8 x 2 x 0.34	22 AWG	12.4	107.3	221
0030934	10 x 2 x 0.34	22 AWG	14.5	131.1	274
0030964	1 x 2 x 0.5	20 AWG	5.9	22.0	47
0030937	2 x 2 x 0.5	20 AWG	9.0	50.0	99
0030938	3 x 2 x 0.5	20 AWG	9.8	71.8	130
0030939	4 x 2 x 0.5	20 AWG	10.7	74.4	148
0030940	5 x 2 x 0.5	20 AWG	11.9	84.5	168

Article number	Number of pairs and mm <sup>2</sup> per conductor	AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0030941	6 x 2 x 0.5	20 AWG	12.3	99.6	194
0030942	8 x 2 x 0.5	20 AWG	14.7	144.3	284
0030943	10 x 2 x 0.5	20 AWG	16.7	176.0	343
0030944	14 x 2 x 0.5	20 AWG	17.0	215.4	401
0030965	1 x 2 x 0.75	19 AWG	6.3	34.0	61
0030946	2 x 2 x 0.75	19 AWG	9.9	60.0	112
0030947	3 x 2 x 0.75	19 AWG	10.5	85.7	157
0030948	4 x 2 x 0.75	19 AWG	11.8	93.6	172
0030950	6 x 2 x 0.75	19 AWG	13.8	130.4	231
0030951	8 x 2 x 0.75	19 AWG	15.9	192.2	342
0030952	10 x 2 x 0.75	19 AWG	18.8	258.0	466
0030953	14 x 2 x 0.75	19 AWG	19.3	316.6	545
0030955	1 x 2 x 1	18 AWG	6.7	42.0	71
0030956	2 x 2 x 1	18 AWG	10.6	73.0	129
0030957	3 x 2 x 1	18 AWG	11.5	93.6	169
0030958	4 x 2 x 1	18 AWG	12.7	117.8	204
0030959	5 x 2 x 1	18 AWG	14.3	139.0	237

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

#### ■ Accessories

- SKINTOP® MS-SC-M refer to page 674
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 910



## RE-2Y(ST)Yv

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
- 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 the version with a black outer sheath can also be used outdoors or for direct burial

### 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

- Based on 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)

### Technical data



#### 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 mm<sup>2</sup>: max. 75 nF/km (guideline values at 800 Hz): C/C: 1.3 mm<sup>2</sup>: max. 100 nF/km



#### Peak operating voltage

(not for power applications) 300 V



#### Insulation resistance

> 5 GOhm x km



#### Conductor resistance

0.5 mm<sup>2</sup>: max. 39.2 ohm/km  
1.3 mm<sup>2</sup>: 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



#### Temperature range

Occasional flexing: -5°C to +50°C  
Fixed installation: -40°C to +80°C



#### Characteristic impedance

approx. 100 ohms

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>RE-2Y(ST)Yv</b>				
<b>0.5 mm<sup>2</sup> blue</b>				
0032400	1 x 2 x 0.5	7.2	15.0	74
0032401	2 x 2 x 0.5	9.5	30.0	117
0032402	4 x 2 x 0.5	11.1	50.0	140
0032403	8 x 2 x 0.5	13.4	90.0	180
0032405	12 x 2 x 0.5	15.5	130.0	280
0032407	20 x 2 x 0.5	17.9	210.0	385
<b>0.5 mm<sup>2</sup> black</b>				
0032411	1 x 2 x 0.5	7.2	15.0	74
0032412	2 x 2 x 0.5	9.5	30.0	117
0032413	4 x 2 x 0.5	11.1	50.0	140
0032414	8 x 2 x 0.5	13.4	90.0	180
0032415	10 x 2 x 0.5	14.5	110.0	220
0032417	16 x 2 x 0.5	17.0	170.0	352
0032418	20 x 2 x 0.5	17.9	210.0	385
0032420	36 x 2 x 0.5	22.6	370.0	656
0032421	48 x 2 x 0.5	27.1	490.0	854
<b>1.3 mm<sup>2</sup> blue</b>				
0032422	1 x 2 x 1.3	8.6	31.0	102
0032423	2 x 2 x 1.3	11.5	62.0	161
0032424	4 x 2 x 1.3	13.8	114.0	230
0032425	8 x 2 x 1.3	16.9	218.0	377
0032426	12 x 2 x 1.3	19.3	322.0	520
0032427	16 x 2 x 1.3	22.8	426.0	656
0032428	24 x 2 x 1.3	27.5	684.0	952
0032429	1 x 3 x 1.3	9.1	44.0	116
<b>1.3 mm<sup>2</sup> black</b>				
0032430	1 x 2 x 1.3	8.6	31.0	102
0032431	2 x 2 x 1.3	11.5	62.0	161
0032432	4 x 2 x 1.3	13.8	114.0	230
0032433	8 x 2 x 1.3	16.9	218.0	377
0032434	12 x 2 x 1.3	19.3	322.0	520
0032435	16 x 2 x 1.3	22.8	426.0	656
0032436	24 x 2 x 1.3	27.5	684.0	952

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- RE-2Y(ST)Yv PiMF refer to page 277

### Accessories

- KS 20 cable shears refer to page 908
- KT cable shears refer to page 908















## RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil



### Technical data

-  **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 mm<sup>2</sup>: 75 nF/km  
(at 800 Hz max):  
C/C: 1.3 mm<sup>2</sup>: 100 nF/km
-  **Peak operating voltage**  
(not for power applications)  
300 V
-  **Insulation resistance**  
> 5 GOhm x km
-  **Inductivity**  
max. 0.75 mH/km
-  **Conductor resistance**  
0.5 mm<sup>2</sup>: max. 39.2 ohm/km  
1.3 mm<sup>2</sup>: 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
-  **Temperature range**  
Occasional flexing: -5°C to +50°C  
Fixed installation: -40°C to +80°C
-  **Characteristic impedance**  
approx. 100 ohms

### 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
- 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 the version with a black outer sheath can also be used outdoors or for direct burial

### 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

- Based on 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)

Article number	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>RE-2Y(ST)Yv PiMF</b>				
<b>0.5 mm<sup>2</sup> blue</b>				
0032438	2 x 2 x 0.5	10.0	35.0	128
0032439	4 x 2 x 0.5	11.6	60.0	170
0032441	10 x 2 x 0.5	15.9	136.0	270
0032442	12 x 2 x 0.5	16.7	161.0	325
0032443	16 x 2 x 0.5	19.1	212.0	430
0032444	20 x 2 x 0.5	19.9	262.0	496
0032446	36 x 2 x 0.5	25.5	465.0	850
<b>0.5 mm<sup>2</sup> black</b>				
0032448	2 x 2 x 0.5	10.0	35.0	128
0032449	4 x 2 x 0.5	11.6	60.0	170
0032450	8 x 2 x 0.5	14.4	121.0	230
0032451	10 x 2 x 0.5	15.9	136.0	270
0032452	12 x 2 x 0.5	16.7	161.0	325
0032453	16 x 2 x 0.5	19.1	212.0	430
0032456	36 x 2 x 0.5	25.5	465.0	850
<b>1.3 mm<sup>2</sup> blue</b>				
0032458	2 x 2 x 1.3	12.4	68.0	184
<b>1.3 mm<sup>2</sup> black</b>				
0032464	2 x 2 x 1.3	12.4	68.0	184
0032465	4 x 2 x 1.3	14.2	124.0	269
0032466	8 x 2 x 1.3	18.5	239.0	442
0032467	12 x 2 x 1.3	22.2	353.0	593
0032469	24 x 2 x 1.3	29.0	697.0	1104

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- KT cable shears refer to page 908



## RD-Y(ST)Y

Static screened data transmission cable for control technology



### Benefits

- In order to reduce costs, the multi-wire stranded copper cable has been provided for Maxi TERMI-POINT® connecting technology. This wiring method (semi-automatic) considerably reduces the time and the costs required for installation.
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- RD-Y(ST)Y is used as a data transmission cable for applications such as monitoring systems and control units
- Measurement, control and regulation technology and also in control rooms of power plants and industrial facilities.
- Suitable for transmission of analog and digital signals up to a frequency of about 10 kHz
- Designed for fixed installations in enclosed rooms.

### Product features

- Outer sheath colour: grey or blue for intrinsically safe systems
- Variant with 2 double cores twisted as star quad

### Norm references / Approvals

- Based on DIN VDE 0815

### Product make-up

- 7-wire bare stranded copper conductor, core insulation made of PVC
- Cores twisted into pairs, 4 pairs twisted into a bundle, bundles in layers, bundles labelled using numbered foil
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

### Technical data



#### Core identification code

- Pair no. 1: a-conductor: blue  
b-conductor: red  
Pair no. 2: a-conductor: grey  
b-conductor: yellow  
Pair no. 3: a-core: green  
b-core brown  
Pair no. 4: a-core: white  
b-core black



#### Mutual capacitance

- At 800 Hz: ≤ 100 nF/km  
The values may be exceeded by 20 % on cables with up to 4 double cores.



#### Peak operating voltage

- (not for power applications) 225 V



#### Insulation resistance

- ≥ 100 MOhm x km



#### Conductor resistance

- (loop): ≤ 73.6 Ohm/km

#### Cable attenuation/attenuation

- At 1 kHz: approx. 1.2 dB/km  
At 10 kHz: approx. 2.8 dB/km



#### Minimum bending radius

- Occasional flexing: 15 x outer diameter  
Fixed installation: 7.5 x outer diameter

#### Short-range crosstalk attenuation

- At 10 kHz and 500 m cable length:  
min. 60 dB



#### Test voltage

- C/C: 2000 V  
C/S: 2000 V



#### Temperature range

- Occasional flexing: -5°C to +50°C  
Fixed installation: -40°C to +80°C



#### Characteristic impedance

- At 1 kHz: approx. 370 ohm  
At 10 kHz: approx. 130 ohm

Article number	Number of pairs and mm <sup>2</sup> per conductor	Number of bundles	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>RD-Y(ST)Y grey</b>					
0032470	2 x 2 x 0.5		6.5	25.0	65
0032471	4 x 2 x 0.5	1	9.0	45.0	110
0032472	8 x 2 x 0.5	2	11.5	85.0	180
0032474	16 x 2 x 0.5	4	15.5	165.0	310
0032475	24 x 2 x 0.5	6	19.0	245.0	450
0032476	32 x 2 x 0.5	8	21.0	325.0	560
0032477	48 x 2 x 0.5	12	25.5	485.0	810
<b>RD-Y(ST)Y blue</b>					
0032479	2 x 2 x 0.5		6.5	25.0	65

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- STAR STRIP stripping tool refer to page 910
- KS 20 cable shears refer to page 908
- KT cable shears refer to page 908



**Info**

- In accordance with DIN VDE 0815

**Info**

- Blue version: Hazard protection type -i- is required where there is a risk of explosion

## JE-Y(ST)Y...BD

Static screened installation cable for industrial electronics



## JE-Y(ST)Y...BD EB

Static screened installation cable for industrial electronics



### 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
- For outdoor use this cable should be installed under plaster only

### 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**  
Blue version for intrinsically safe circuits: Complies with VDE 0165 Section 12.2.2.6. Marking of cables for hazard type -i- (intrinsically safe) is specified

### 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

- Core identification code**  
according to VDE 0815, refer to Appendix T 10
- Mutual capacitance**  
max. 100 nF/km
- Peak operating voltage**  
(not for power applications) 225 V
- Insulation resistance**  
> 100 MOhm x km
- Coupling**  
approx. 200 pF/100 m
- Inductivity**  
approx. 0.65 mH/km
- Conductor stranding**  
Single-wire (solid conductor)  
0.8 mm: 0.50 mm<sup>2</sup>
- Minimum bending radius**  
Fixed installation: 6 x outer diameter
- Test voltage**  
Core/core: 500 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)
<b>JE-Y(ST)Y...BD</b>				
0034190	2 x 2 x 0.8	6.0	25.0	60
0034191	4 x 2 x 0.8	8.5	45.0	96
0034192	8 x 2 x 0.8	11.0	85.0	158
0034193	12 x 2 x 0.8	13.0	126.0	225
0034194	16 x 2 x 0.8	14.5	166.0	290
0034195	20 x 2 x 0.8	16.0	206.0	350
0034197	40 x 2 x 0.8	22.0	407.0	660
<b>JE-Y(ST)Y...BD EB, blue outer sheath</b>				
0034120	2 x 2 x 0.8	6.0	25.0	60
0034121	4 x 2 x 0.8	8.5	45.0	100
0034122	8 x 2 x 0.8	11.0	85.0	165
0034123	12 x 2 x 0.8	13.0	126.0	240
0034125	20 x 2 x 0.8	16.0	206.0	360
0034126	32 x 2 x 0.8	20.0	327.0	555

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 100/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- STAR STRIP stripping tool refer to page 910



## JE-LiYCY...BD

Screened data transmission cable for industrial electronics



**Info**

- In accordance with DIN VDE 0815



**Info**

- **Blue version:**  
Hazard protection type -i- is required where there is a risk of explosion

## JE-LiYCY...BD EB

Screened data transmission cable for industrial electronics



**Benefits**

- Can be used for Maxi TERMI-POINT® wiring
- 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
- For outdoor use this cable should be installed under plaster only

**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**  
Blue version for intrinsically safe circuits: Complies with VDE 0165 Section 12.2.2.6. Marking of cables for hazard type -i- (intrinsically safe) is specified

**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**



**Core identification code**  
according to VDE 0815, refer to Appendix T10



**Mutual capacitance**  
max. 100 nF/km



**Peak operating voltage**  
(not for power applications) 225 V



**Insulation resistance**  
> 100 MOhm x 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**  
Core/core: 500 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 (mm <sup>2</sup> )	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>JE-LiYCY...BD</b>				
0034200	2 x 2 x 0.5	7.5	51.0	70
0034201	4 x 2 x 0.5	10.0	87.0	155
0034202	8 x 2 x 0.5	13.0	144.0	260
0034208	12 x 2 x 0.5	15.5	195.0	340
0034203	16 x 2 x 0.5	17.0	249.0	430
0034210	20 x 2 x 0.5	18.5	298.0	495
0034204	24 x 2 x 0.5	20.5	348.0	605
0034212	32 x 2 x 0.5	22.5	441.0	738
<b>JE-LiYCY...BD EB, blue outer sheath</b>				
0034220	2 x 2 x 0.5	7.5	51.0	95
0034221	4 x 2 x 0.5	10.0	87.0	155
0034222	8 x 2 x 0.5	13.0	144.0	260
0034223	12 x 2 x 0.5	15.5	193.0	340
0034224	16 x 2 x 0.5	17.0	249.0	430
0034225	20 x 2 x 0.5	18.5	298.0	495
0034226	24 x 2 x 0.5	20.5	348.0	605
0034227	32 x 2 x 0.5	22.5	441.0	738
0034228	40 x 2 x 0.5	24.0	531.0	845

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Accessories**

- SKINTOP® MS-SC-M refer to page 674
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- STAR STRIP stripping tool refer to page 910



## 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, electro-magnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- 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

- Core identification code**  
according to VDE 0815, refer to Appendix T10
- Peak operating voltage**  
(not for power applications)  
300 V
- Insulation resistance**  
> 100 MΩm x km
- Coupling**  
(800 Hz): K1: 80% ≤ 300 pF/100m
- Conductor cross-section in**  
0.6 mm: 0.28 mm<sup>2</sup>  
0.8 mm: 0.50 mm<sup>2</sup>
- 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)
<b>J-Y(ST)Y...LG copper conductor 0.6 mm</b>				
1591300	1	5.0	6.9	30
1591301	2	5.5	13.0	40
1591302	3	6.3	18.0	50
1591303	4	6.7	24.0	60
1591304	5	7.2	30.0	70
1591305	6	7.5	35.0	80
1591306	8	8.0	46.0	90
1591307	10	9.0	58.0	110
1591308	12	9.5	71.0	130
1591310	16	10.5	93.0	160
1591311	20	11.0	116.0	190
1591312	24	11.5	139.0	220
1591313	30	13.0	172.0	280
1591314	40	15.0	229.0	350
1591315	50	17.0	286.0	430
1591316	60	18.0	342.0	500

Article number	Number of double cores	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1591318	100	23.0	568.0	850
<b>J-Y(ST)Y...LG copper conductor 0.8 mm</b>				
1591500	1	6.0	11.0	40
1591501	2	7.0	21.0	60
1591502	3	8.5	31.0	80
1591503	4	9.0	41.0	100
1591504	5	9.5	52.0	120
1591505	6	10.5	62.0	140
1591506	8	11.5	82.0	170
1591507	10	13.0	102.0	220
1591508	12	14.0	123.0	250
1591510	16	15.5	164.0	320
1591511	20	16.5	204.0	380
1591512	24	19.0	244.0	460
1591513	30	20.0	304.0	560
1591514	40	22.5	405.0	710

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 100/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

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

### Similar products

- J-2Y(ST)Y...ST III BD refer to page 283

### Accessories

- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- STAR STRIP stripping tool refer to page 910

Telephone cables

Indoor cables



## J-Y(ST)Y...LG Fire Alarm Cable

Installation cable in accordance with DIN VDE 0815 with red outer sheath



### Benefits

- The cable is marked with the phrase “Fire alarm cable” at regular intervals on the sheath. It is therefore used especially for installation in fire alarm systems.
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electro-magnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- This installation cable is used to transmit signals.
- For fixed installation on and under plaster, in dry and damp rooms
- For outdoor use this cable should be installed under plaster only

### Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on 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: flame red (RAL 3000)

### Technical data

- Core identification code**  
according to VDE 0815, refer to Appendix T10
- Peak operating voltage**  
(not for power applications)  
300 V
- Insulation resistance**  
> 100 MOhm x km
- Coupling**  
(800 Hz): K1: 80% ≤ 300 pF/100m
- Conductor cross-section in**  
0.8 mm: 0.50 mm<sup>2</sup>  
**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**  
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 conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>J-Y(ST)Y...LG Fire Alarm Cable</b>				
1708001	1 x 2 x 0.8	6.0	11.0	40
1708002	2 x 2 x 0.8	7.0	21.0	60
1708004	4 x 2 x 0.8	9.0	41.0	100
1708006	6 x 2 x 0.8	10.5	62.0	140
1708010	10 x 2 x 0.8	13.5	102.0	220
1708020	20 x 2 x 0.8	16.5	204.0	380

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 100/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- STAR STRIP stripping tool refer to page 910
- KS 20 cable shears refer to page 908

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## J-2Y(ST)Y...ST III BD

Installation cable in accordance with DIN VDE 0815 with PE core insulation

J-2Y(ST)Y...STIII BD

### Benefits

- Suitable for data transmission rates of up to 16 Mbits/s
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electro-magnetic fields

### Application range

- Examples of use: for connecting EDP system units or for circuits for airfield lighting, ISDN private branch exchanges, operating data acquisition, operating data entry, access control and time recording systems, industrial electronics, all designed for maximum security and speed
- Can be used in dry and wet interiors for fixed installation on and under plaster

### Product features

- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on DIN VDE 0815

### Product make-up

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- 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)

### Technical data

- Core identification code**  
according to VDE 0815, refer to Appendix T10
- Mutual capacitance**  
(800 Hz) max. 52 nF/km
- Peak operating voltage**  
(not for power applications) 300 V
- Insulation resistance**  
> 5 GOhm x km
- Coupling**  
K1: 98 % < 400 pF/300 m  
K9-12: 98 % < 100 pF/300 m
- Conductor cross-section in**  
0.6 mm: 0.28 mm<sup>2</sup>
- Cable attenuation/attenuation**  
At 16 MHz: < 8 dB/100 m
- Minimum bending radius**  
Fixed installation: 10 x outer diameter
- Short-range crosstalk attenuation**  
4-16 MHz: 2-pair ≥ 45 dB  
4-16 MHz: >2-pair ≥ 20 dB
- Test voltage**  
Core/core: 500 V  
Core/screen: 2000 V
- Loop resistance**  
max. 130 ohm/km
- Temperature range**  
Occasional flexing: -5°C to +50°C  
Fixed installation: -30°C to +70°C
- Characteristic impedance**  
100 Ohm +- 15 %

Article number	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>J-2Y(ST)Y...ST III BD</b>				
0034171	2 x 2 x 0.6	5.5	13.0	40
0034173	4 x 2 x 0.6	7.5	24.0	60
0034175	8 x 2 x 0.6	8.5	46.0	90
0034176	10 x 2 x 0.6	9.5	58.0	110
0034178	20 x 2 x 0.6	13.5	116.0	190
30017810	50 x 2 x 0.6	18.0	288.0	412
30017811	100 x 2 x 0.6	25.8	570.0	800

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 100/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® Li2YCY (TP) refer to page 260

### Accessories

- STAR STRIP stripping tool refer to page 910

**Telephone cables**

Halogen-free installation and fire alarm cables



## J-H(ST)H...BD

Halogen-free installation cable in accordance with DIN VDE 0815



Info

- In accordance with DIN VDE 0815

## J-H(ST)H...BD Fire Alarm Cable

Halogen-free installation cable in accordance with DIN VDE 0815 with red outer sheath



### Benefits

- Used to meet enhanced fire protection requirements concerning protection of people and high-value property
- Does not emit any toxic or corrosive gases in the event of fire and resists the spread of fire
- 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)
- **J-H(ST)H...BD Fire Alarm Cable** is marked with the phrase "Fire alarm cable" at regular intervals on the sheath. It is therefore used especially for installation in fire alarm systems.

### Application range

- This halogen-free, flame-retardant installation cable with static screen is used for telephone, data and signal transmission in subscriber stations and private branch exchange construction for telephone systems
- For fixed installation on and under plaster, in dry and damp rooms

### Product features

- Flame-retardant according IEC 60332-1-2
- 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 EN 50267-2-1/-2

### Norm references / Approvals

#### J-H(ST)H...BD

- In accordance with DIN VDE 0815 type J-H(ST)H...BD

#### J-H(ST)H...BD Fire Alarm Cable

- Based on DIN VDE 0815

### Product make-up

#### J-H(ST)H...BD

- Solid bare copper conductor
- Core insulation made of special halogen-free compound
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of special halogen-free compound  
Outer sheath colour: grey (RAL 7001)

#### J-H(ST)H...BD Fire Alarm Cable

- Solid bare copper conductor
- Core insulation made of special halogen-free compound
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of special halogen-free compound  
Outer sheath colour: flame red (RAL 3000)

### Technical data



**Core identification code**  
according to VDE 0815, refer to Appendix T 10



**Mutual capacitance**  
max. 120 nF/km



**Peak operating voltage**  
(not for power applications)  
300 V



**Insulation resistance**  
>100 MOhm x km



**Coupling**  
K1: approx. 300 pF/100 m  
K9-12: approx. 100 pF/100 m



**Minimum bending radius**  
Fixed installation: 6 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



**Conductor cross-section**  
0.6 mm: 0.28 mm<sup>2</sup>  
0.8 mm: 0.50 mm<sup>2</sup>

Article number	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>J-H(ST)H-BD</b>				
3022220	2 x 2 x 0,6	5.5	14.1	65
3022221	4 x 2 x 0,6	7.5	25.4	100
3022222	6 x 2 x 0,6	7.8	37.0	117
3022223	10 x 2 x 0,6	9.2	59.0	155
30017787	2 x 2 x 0,8	7.0	25.0	77
30017788	4 x 2 x 0,8	9.2	45.0	135
<b>J-H(ST)H...BD Fire Alarm Cable</b>				
30017798	2 x 2 x 0,8	7.0	25.0	77
30017801	10 x 2 x 0,8	11.3	106.0	250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 100/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Photographs are not to scale and do not represent detailed images of the respective products.





## A-2Y(L)2Y...ST III BD 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 additionally longitudinal watertight

### Norm references / Approvals

- In accordance with DIN VDE 0816

### Product make-up

#### A-2Y(L)2Y...ST III BD 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



**Core identification code**  
According to VDE 0816, refer to Appendix T10



**Mutual capacitance**  
At 800 Hz: max. 52 nF/km



**Peak operating voltage**  
(not for power applications) 225 V



**Impedance**  
At 800 Hz 0.6 mm: approx. 720 Ohm  
At 800 Hz 0.8 mm: approx. 520 Ohm



**Insulation resistance**  
**A-2Y(L)2Y...ST III BD Telephone Outdoor Cable**  
> 5.0 Gohm-km  
**A-2YF(L)2Y...ST III BD Outdoor Cable**  
> 1.5 Gohm-km



**Coupling**  
K1: 98 % < 400 pF/300 m  
K9-12: 98 % < 100 pF/300 m



**Conductor cross-section in**  
0.6 mm: 0.28 mm<sup>2</sup>  
0.8 mm: 0.50 mm<sup>2</sup>

#### Cable attenuation/attenuation

**A-2Y(L)2Y...ST III BD 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)
<b>A-2Y(L)2Y...ST III BD copper conductor 0.6 mm</b>				
1591050	2	8.1	11.0	65
1591051	4	10.0	23.0	90
1591052	6	10.5	34.0	110
1591053	10	11.5	57.0	140
1591054	20	15.5	113.0	230
1591055	30	16.6	170.0	320
1591056	40	18.0	226.0	400
1591057	50	19.5	283.0	470
1591058	70	23.0	396.0	610
1591061	200	36.5	1,131.0	1600
1591063	300	44.0	1,696.0	2300
<b>A-2Y(L)2Y...ST III BD copper conductor 0.8 mm</b>				
1591150	2	8.6	20.0	75
1591151	4	10.9	40.0	120
1591152	6	11.5	60.0	145
1591153	10	13.5	101.0	200
1591163	14	16.5	141.0	270
1591154	20	17.3	201.0	340
1591155	30	19.0	302.0	480
1591156	40	20.7	402.0	610
1591157	50	23.7	503.0	750
<b>A-2YF(L)2Y...ST III BD copper conductor 0.6 mm</b>				
1591028	2	8.3	11.0	67
1591029	4	10.4	23.0	104
1591030	6	11.0	34.0	130
1591031	10	12.5	57.0	180
1591032	20	16.0	113.0	300
1591033	30	19.0	170.0	420
1591035	50	22.3	283.0	620
1591037	100	30.5	565.0	1225
<b>A-2YF(L)2Y...ST III BD copper conductor 0.8 mm</b>				
1591217	2	8.8	20.0	83
1591218	4	11.2	40.0	134
1591221	6	12.0	60.0	180
1591222	10	14.0	101.0	250
1591223	20	19.1	201.0	460
1591224	30	22.0	302.0	630
1591225	40	24.0	402.0	800
1591226	50	26.0	503.0	975
1591228	100	36.0	1,005.0	1900

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

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

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- Multipurpose shears A and B refer to page 907
- STAR STRIP stripping tool refer to page 910



New

## UNITRONIC® BUS ASI



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
- UNITRONIC® Fieldbus 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 version has UL/CSA (CMG) approval.
- UL/CSA version: CMGc(UL)us or (UL)CL2 or AWM 300V FT4 approval

### Product make-up

- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath made of rubber (G), thermoplastic elastomers (TPE) or PVC
- Colour: yellow (RAL 1023) or black (RAL 9005)
- Colour: red (RAL 3000)

### Technical data



#### Peak operating voltage

Yellow: 300 V (not for power applications)  
Black: 300 V (not for power applications)  
Red: 300 V



#### Conductor resistance

1.5 mm<sup>2</sup>: max. 13.7 Ohm/km  
2.5 mm<sup>2</sup>: 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 material	Outer sheath colour	Application	Number of cores and mm <sup>2</sup> per conductor	Copper index (kg/km)	Weight (kg/km)
<b>For fixed and flexible applications (19-wire stranded conductor)</b>							
2170228	UNITRONIC® BUS ASI (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 1,5	29,0	85
2170229	UNITRONIC® BUS ASI (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29,0	85
2170371	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 2,5	48,0	85
2170372	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48,0	85
2170230	UNITRONIC® BUS ASI (TPE)	TPE	yellow	Data and power transmission	2 x 1,5	29,0	64
2170231	UNITRONIC® BUS ASI (TPE)	TPE	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29,0	64
2170232	UNITRONIC® BUS ASI (TPE)	TPE	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29,0	64
2170842	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	yellow	Data and power transmission	2 x 1,5	29,0	70
2170843	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29,0	70
2170844	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29,0	70

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Lapp Kabel is a member of the AS-International Association Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 681
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- AS-I clip clamp / AS-I end sealing refer to page 968
- AS-I STRIP special stripping tool refer to page 912
- AS-I STRIP special
- SKINTOP® DIX ASI

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



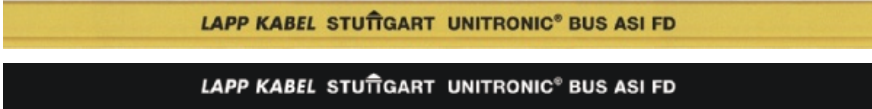
**New**

## UNITRONIC® BUS ASI FD

Highly flexible application

**Info**

- "FD" = suitable for power 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 (power chains, moving machine parts)
- High oil-resistance

**Application range**

- Communication at sensor/actuator level
- UNITRONIC® Fieldbus 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 un-screened, 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

**Product make-up**

- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath: TPE or PUR
- Colour: yellow (RAL 1023) or black (RAL 9005)

**Technical data**

- Peak operating voltage**  
300 V (not for power applications)
- Conductor resistance**  
1.5 mm<sup>2</sup>: max. 13.7 Ohm/km  
2.5 mm<sup>2</sup>: 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 material	Outer sheath colour	Application	Number of cores and mm <sup>2</sup> per conductor	Copper index (kg/km)	Weight (kg/km)
<b>For highly flexible applications (power chains, moving machine parts)</b>							
2170357	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170358	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170317	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 2,5	48.0	74
2170318	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	74
2170830	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Lapp Kabel is a member of the AS-International Association Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® DIX-M AUTOMATION refer to page 681
- UNIVERSAL STRIP stripping and cutting tool refer to page 910
- AS-I clip clamp / AS-I end sealing refer to page 968
- AS-I STRIP special stripping tool refer to page 912
- AS-I STRIP special
- SKINTOP® DIX ASI



## UNITRONIC® BUS PB

### Fixed installation



**Info**

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA approvals

#### 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 approval type

#### Product make-up

- FC: "Fast Connect" cable design
- P: Polyurethane
- H: Halogen-free
- PE: polyethylene, black Outer sheath, e.g. for the food and beverage industry
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

#### Technical data

- Mutual capacitance**  
(800 Hz): max. 30 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Conductor resistance**  
(loop): max. 133 ohm/km
- 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)
<b>For fixed installation - conventional cable assembly</b>					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8.0	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8.0	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8.0	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0,64 Ø + 3 x 1,0 mm <sup>2</sup>	9.8	59.0	92
<b>For fixed installation - UL/CSA CMX approval</b>					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8.0	30.1	57
<b>For fixed installation - UL/CSA CMG approval</b>					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8.0	30.1	55
<b>For fixed installation - "Fast Connect" cable assembly</b>					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8.0	26.0	67
<b>For fixed installation - UL/CSA CMX approval</b>					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8.0	26.0	71
<b>For fixed installation - "Fast Connect" cable assembly - UL/CSA CMG approval</b>					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8.0	26.0	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8.0	26.0	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8.0	26.0	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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)

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#### Similar products

- UNITRONIC® BUS PB ROBUST refer to page 289
- UNITRONIC® BUS PB 105 refer to page 290

#### Accessories

- EPIC® Data Connectors refer to page 302
- FC STRIP stripping tool refer to page 912
- SENSOR STRIP stripping tool refer to page 912

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## UNITRONIC® BUS PB ROBUST

Fixed installation

LAPP KABEL STUTTGART UNITRONIC® BUS PB ROBUST



### ■ 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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- With conventional cable design, but with an outer sheath made of special TPE

### ■ Technical data

- 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
- Temperature range**  
-40°C to +80°C
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>for fixed installation</b>					
2170620	UNITRONIC® BUS PB ROBUST	1 x 2 x 0.64	8.0	26.0	55

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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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### ■ Accessories

- EPIC® Data Connectors refer to page 302



## UNITRONIC® BUS PB 105

### Fixed installation

LAPP KABEL STUÏTGART UNITRONIC® BUS PB 105

#### ■ Benefits

- A standard PROFIBUS cable can only be used up to a max. temperature of 80°C
- This enables an extended area of application

#### ■ Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

#### ■ Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant

#### ■ Product make-up

- Stranded conductor, 7-wire, bare
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath for use up to 105°C

#### ■ Suitable connectors

- EPIC® Data Connectors Page 302

#### ■ Technical data

- 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
- Temperature range**  
-30°C to +105°C
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170630	UNITRONIC® BUS PB 105	1 x 2 x 0.64	8.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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#### ■ Accessories

- Multipurpose shears A and B refer to page 907



New

## UNITRONIC® BUS PB HEAT 180

LAPP KABEL STUÏTGART UNITRONIC® BUS PB HEAT 180

#### ■ 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
- Screening: wrapped with braided tinned-copper wires
- Outer Sheath: Perfluorethylenpropylen, FEP, violet

#### ■ Suitable connectors

- EPIC® Data Connectors Page 302

#### ■ Technical data

- 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.)
- Temperature range**  
-50 to +180°C
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Copper index (kg/km)	Weight (kg/km)
3031981	UNITRONIC® BUS PB HEAT 180 1X(2X0,64)	1 x 2 x 0,64	21.7	0.064

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
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## UNITRONIC® BUS PB FRNC FC

Fixed installation

LAPP KABEL STUTTGART UNITRONIC® BUS PB FRNC FC



**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**

- Halogen-free and highly flame-retardant
- 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**

- The cable is UL/CSA-approved (CMG)
- Halogen-free
- High flame retardancy in accordance with IEC 60332-3 and FT4
- 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**

- Solid, bare, single-wire copper conductor
- PE core insulation
- Inner sheath, screening foil and braiding
- Thermoplastic outer sheath
- Colour: violet (RAL 4001)

**Technical data**

- Approvals**  
UL/CSA (CMG)
- Mutual capacitance**  
Approx. 28.5 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Minimum bending radius**  
80mm
- Test voltage**  
Core/core: 1500 V rms  
Core/screen: 1500 V
- Temperature range**  
-30°C to +80°C
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170853	UNITRONIC® BUS PB FRNC FC	1 x 2 x 0.64	8.0	30.1	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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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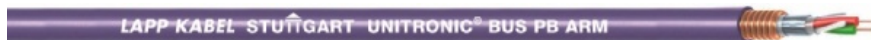
**Accessories**

- EPIC® Data Connectors refer to page 302
- FC STRIP stripping tool refer to page 912



## UNITRONIC® BUS PB ARM

Fixed installation



### Benefits

- EMC-optimised

### Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS® (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

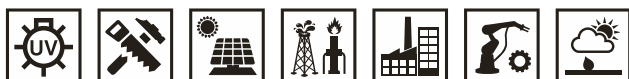
- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally
- Outer sheath: PVC

### Technical data

	<b>Mutual capacitance</b> (800 Hz): max. 30 nF/km
	<b>Peak operating voltage</b> (not for power applications) 100 V
	<b>Minimum bending radius</b> Fixed installation: 7.5 x outer diameter Fixed installation: 3.5 x cable diameter once
	<b>Test voltage</b> 3600 V DC (3 sec.)
	<b>Temperature range</b> -40°C to +70°C
	<b>Characteristic impedance</b> 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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

Suitable for outdoor use and direct burial, UV-resistant



### Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS® (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
- Tin-plated copper wire braiding
- Outer sheath: reinforced PVC, black

### Technical data

	<b>Mutual capacitance</b> (800 Hz): max. 30 nF/km
	<b>Peak operating voltage</b> (not for power applications) 250 V
	<b>Minimum bending radius</b> Fixed installation: 75 mm once Fixed installation: 150 mm
	<b>Test voltage</b> Core/core: 1500 V rms Core/screen: 1500 V
	<b>Temperature range</b> Flexing: -5°C to +50°C Fixed installation: -40°C to +80°C
	<b>Characteristic impedance</b> 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for outdoor use and direct burial</b>					
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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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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**Technical data**

- 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
- Temperature range**  
Flexing: -5 °C to +50 °C  
Fixed installation: -40 °C to +80 °C
- Characteristic impedance**  
150 ± 15 Ohm

**UNITRONIC® BUS PB YY**

Suitable for outdoor use and direct burial, UV-resistant



- Benefits**
  - Rugged, UV-resistant and weatherproof
  - Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- Application range**
  - PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- Product features**
  - Dual PVC outer sheath
- Product make-up**
  - Solid and bare copper conductor
  - PE core insulation
  - Overall screening with copper braid and plastic-laminated aluminium foil
  - Tin-plated copper wire braiding
  - PVC outer sheath, violet, OD 7.5 mm
  - PVC outer sheath, black, OD 9.5 mm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for outdoor use and direct burial</b>					
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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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- Accessories**
- EPIC® Data Connectors refer to page 302
  - Multipurpose shears A and B refer to page 907

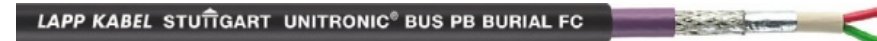


**Technical data**

- 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 cable diameter
- Test voltage**  
3600 V DC (3 sec.)
- Temperature range**  
-40 °C to +60 °C
- Characteristic impedance**  
150 ± 15 Ohm

**UNITRONIC® BUS PB BURIAL FC**

Suitable for outdoor use and direct burial, UV-resistant



- 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® (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
  - Foam Skin - core isolation (O2YS)
  - Overall screening with copper braid and plastic-laminated aluminium foil
  - Tin-plated copper wire braiding
  - PVC outer sheath, violet, OD 8 mm
  - PE outer sheath, black, OD 10.8 mm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for outdoor use and direct burial</b>					
2170323	UNITRONIC® BUS PB BURIAL FC	1 x 2 x 0.64	10.8	26.0	115

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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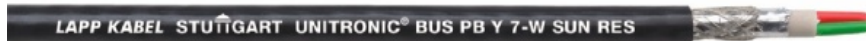
- Accessories**
- EPIC® Data Connectors refer to page 302
  - FC STRIP stripping tool refer to page 912



**New**

**UNITRONIC® BUS PB Y 7-W FC BK**

Suitable for outdoor use, UV-resistant



**Benefits**

- UV and weather-resistant in black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

**Application range**

- PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

**Product features**

- PVC compound TM2 acc. to EN 50363-4-1
- Resistant to acids, alkalis and certain oils at room temperature

**Product make-up**

- Stranded conductor, 7-wire, bare
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, black

**Suitable tools**

- FC STRIP stripping tool refer to page 912

**Technical data**

- 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
- Temperature range**  
Flexing: -10°C to +70°C  
Fixed installation: -40°C to +80°C
- 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)
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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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**Accessories**

- EPIC® Data Connectors refer to page 302
- FC STRIP stripping tool refer to page 912

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## UNITRONIC® BUS PB FD P

Highly flexible application

LAPP KABEL STUIGART UNITRONIC® BUS PB FD P

### 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 (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- 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

- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- Outer sheath: PUR compound

### Technical data

- Mutual capacitance**  
(800 Hz): max. 30 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Torsion movement in WTG**  
TW-0 & TW-2, refer to Appendix T0
- Minimum bending radius**  
65mm
- Test voltage**  
Core/core: 1500 V rms
- Temperature range**  
Flexing: -30°C to +70°C  
Fixed installation: -40°C to +80°C
- 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)
<b>For highly flexible applications (e.g. power chains) - conventional cable assembly</b>					
2170222	UNITRONIC® BUS PB FD P 1x2x0,64	1 x 2 x 0.64	8.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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### Accessories

- EPIC® Data Connectors refer to page 302



## UNITRONIC® BUS PB FD P A

Highly flexible application

LAPP KABEL STUÏGART UNITRONIC® BUS PB FD P A



### Info

- A for Advanced here: UL and CSA approvals

### 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
- For highly flexible applications (power chains, moving machine parts)

### Application range

- PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- 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

- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### Product make-up

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

### Technical data

- Mutual capacitance**  
(800 Hz): max. 30 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Torsion movement in WTG**  
TW-0 & TW-2, refer to Appendix T0
- Minimum bending radius**  
65mm
- Test voltage**  
Core/core: 1500 V rms
- Temperature range**  
Flexing: -30°C to +70°C  
Fixed installation: -40°C to +80°C
- 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)
<b>Highly flexible application</b>					
2170822	UNITRONIC® BUS PB FD P A	1 x 2 x 0.64	8.0	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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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### Accessories

- EPIC® Data Connectors refer to page 302



## UNITRONIC® BUS PB FD P FC

Highly flexible application



### Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For highly flexible applications (power chains, moving machine parts)

### Application range

- PROFIBUS® (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
- 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

- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### Product make-up

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

### Technical data

- 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.)
- Temperature range**  
Flexing: -30°C to +70°C  
Fixed installation: -40°C to +80°C
- 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)
2170322	UNITRONIC® BUS PB FD P FC	1 x 2 x 0.64	8.0	26.0	79

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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### Accessories

- EPIC® Data Connectors refer to page 302
- FC STRIP stripping tool refer to page 912



## UNITRONIC® BUS PB FD FRNC FC

Highly flexible application



### 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
- For highly flexible applications (power chains, moving machine parts)
- 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

- The cable is UL/CSA-approved (CMG)
- Halogen-free
- High flame retardancy in accordance with IEC 60332-3 and FT4
- 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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

### Technical data

- 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
- Temperature range**  
Flexing: -30°C to +70°C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170854	UNITRONIC® BUS PB FD FRNC FC	1x2x0,64	8.0	26.0	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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### Accessories

- EPIC® Data Connectors refer to page 302
- FC STRIP stripping tool refer to page 912

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## UNITRONIC® BUS PB FD P COMBI

Highly flexible application

Technical data	
	<b>Mutual capacitance</b> (800 Hz): max. 30 nF/km
	<b>Peak operating voltage</b> (not for power applications) 100 V
	<b>Minimum bending radius</b> Flexing: 145 mm
	<b>Test voltage</b> Core/core: 600 V
	<b>Temperature range</b> Flexing: -5 °C to +50 °C Fixed installation: -40 °C to +80 °C
	<b>Characteristic impedance</b> 150 ± 15 Ohm

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P COMBI	
<b>Benefits</b>	<ul style="list-style-type: none"> <li>For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required</li> <li>For highly flexible applications (power chains, moving machine parts)</li> <li>Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP</li> </ul>
<b>Product features</b>	<ul style="list-style-type: none"> <li>HYBRID: cable for data transmission + power supply</li> <li>Flame-retardant according to IEC 60332.1.2</li> </ul>
<b>Product make-up</b>	<ul style="list-style-type: none"> <li>Cores for Power Supply 3 x 1.0 mm<sup>2</sup> (AWG 18)</li> <li>Core insulation: Based on Polyolefin</li> <li>PUR-based outer sheath</li> </ul>
<b>Application range</b>	<ul style="list-style-type: none"> <li>PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).</li> </ul>

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Highly flexible application</b>					
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm <sup>2</sup>	10.1	59.0	125

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 HYBRID

Highly flexible application

Technical data	
	<b>Mutual capacitance</b> (800 Hz): max. 30 nF/km
	<b>Peak operating voltage</b> (not for power applications) 100 V
	<b>Minimum bending radius</b> Flexing: 15 x outer diameter
	<b>Test voltage</b> Core/core: 600 V Core/screen: 600 V
	<b>Temperature range</b> Flexing: -30 °C to +60 °C Fixed installation: -40 °C to +70 °C
	<b>Characteristic impedance</b> 150 ± 15 Ohm

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P HYBRID	
<b>Benefits</b>	<ul style="list-style-type: none"> <li>For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required</li> <li>For highly flexible applications (power chains, moving machine parts)</li> <li>Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP</li> </ul>
<b>Product features</b>	<ul style="list-style-type: none"> <li>HYBRID: cable for data transmission + power supply</li> <li>Flame-retardant according to IEC 60332-1-2</li> <li>Oil-resistant</li> </ul>
<b>Product make-up</b>	<ul style="list-style-type: none"> <li>Cores for Power Supply 4 x 1.5 mm<sup>2</sup> (AWG 16)</li> </ul>
<b>Application range</b>	<ul style="list-style-type: none"> <li>PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).</li> </ul>

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Highly flexible application</b>					
2170495	UNITRONIC® BUS PB FD P HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm <sup>2</sup>	11.3	89.0	148

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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**Cables for bus systems PROFIBUS-DP/FMS/FIP**

Characteristic impedance: 135 - 165 ohm



## UNITRONIC® BUS PB FD Y HYBRID

Highly flexible application



**Benefits**

- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

**Application range**

- PROFIBUS® (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

**Norm references / Approvals**

- With UL/CSA approval (CMG, 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
- Cores for Power Supply  
4 x 1.5 mm<sup>2</sup> (AWG16)

**Technical data**

- Peak operating voltage**  
600 V (not for power applications)
- Minimum bending radius**  
Fixed installation:  
10 x cable diameter  
Flexing: 15 x outer diameter
- Test voltage**  
Core/core: 2000 V  
Core/screen: 2000 V
- Temperature range**  
-5°C to +80°C
- Characteristic impedance**  
150 ± 15 Ohm

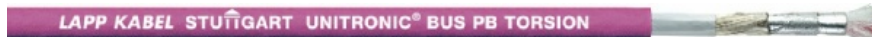
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Highly flexible application</b>					
2170875	UNITRONIC® BUS PB FD Y HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm <sup>2</sup>	11.3	89.0	155

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 TORSION

Highly flexible application



**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® (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**

- Approval: UL type CMX in accordance with UL 444

**Product make-up**

- PE core insulation

**Technical data**

- Mutual capacitance**  
(800 Hz): max. 30 nF/km
- Peak operating voltage**  
(not for power applications)  
300 V
- Torsion movement in WTG**  
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.)
- Temperature range**  
Operating temperature: -25°C to 75°C  
Storage temp.: -40°C to 80°C
- 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)
<b>Highly flexible application</b>					
2170332	UNITRONIC® BUS PB TORSION	1 x 2 x 0.8	8.0	31.0	66

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FESTOON

### ■ Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

### ■ Application range

- PROFIBUS® (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 approval (CMG, 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

- 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
- Temperature range**  
Flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C
- 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)
<b>Highly flexible application</b>					
2170331	UNITRONIC® BUS PB Festoon	1 x 2 x 0.64	8.0	26.0	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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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### ■ Accessories

- EPIC® Data Connectors refer to page 302



## EPIC® Data PROFIBUS Connectors with Screw Terminals



**Info**

- Fully compatible with market standard
- Optional LED diagnostics

### Benefits

- Small design
- Secure PROFIBUS network connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- Easy connection of PROFIBUS cable by proven screw clamp connection
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

### Product features

- Screw termination
- Switchable bus termination is integrated
- Switch can also be operated when the connector is plugged and setting is clearly visible
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected

### Norm references / Approvals

- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784
- UL File: E331560

### Product make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- Cable outlet: 35° / 90° / 180°
- For cable outer diameter: 5 ... 8 mm
- Status LEDs indicate: bus operation - (green) station transmission - (blue) terminating resistance - (orange)

### Suitable cables

- Cables for bus systems PROFIBUS-DP/ FMS/FIP Page 288
- Cables for bus system PROFIBUS-PA Page 312

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

### Technical data



#### 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°  
(LxWxH)

#### Connection type

Screwing

#### Degree of soiling

2



#### Weight

Approx. 40 g



#### Protection rating

IP20

#### Terminating resistor

Integrated resistor integrated

#### Transmission rate

max. 12 MBit/s

#### Interfaces

PROFIBUS station:

D-Sub socket, 9-pin

PROFIBUS cable:

4 terminal blocks for wires up to 1.0 mm<sup>2</sup> (solid / flexible)

#### Current consumption

max. 12,5 mA (35 mA - LED version)



#### Permissible ambient conditions

Operating temperature:

-25 °C to +85 °C

Relative humidity:

max. 75 % at +25 °C

#### Supply voltage

4.75 to 5.25 V DC

(supplied from terminal)

Article number	Article designation	Cable outlet	PG	Diagnostic LEDs	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors with 35° cable outlet</b>					
21700507	ED-PB-35	35°	no	no	1
21700506	ED-PB-35-PG	35°	yes	no	1
<b>EPIC® Data PROFIBUS Connectors with 90° cable outlet</b>					
21700504	ED-PB-90	90°	no	no	1
21700503	ED-PB-90-PG	90°	yes	no	1
<b>EPIC® Data PROFIBUS Connectors with 90° cable outlet and LED diagnostic</b>					
21700530	ED-PB-90-LED	90°	no	yes	1
21700529	ED-PB-90-PG-LED	90°	yes	yes	1
<b>EPIC® Data PROFIBUS Connectors with 180° (axial) cable outlet</b>					
21700505	ED-PB-AX	180°	no	no	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

PG = programming interface (= 2nd D-Sub)

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



## EPIC® Data PROFIBUS Connectors Fast Connect

**Info**

- Fully compatible with market standard
- Optional LED diagnostics



**Technical data**

- 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
- Degree of soiling**  
2
- Weight**  
Approx. 50 g
- Protection rating**  
IP20
- Terminating resistor**  
Integrated resistor integrated
- Transmission rate**  
max. 12 MBit/s
- Interfaces**  
PROFIBUS station:  
SUB-D socket, 9-pin  
PROFIBUS cable:  
FC standard cable, Ø 0.64 mm
- Current consumption**  
max. 12,5 mA (35 mA - LED version)
- Permissible ambient conditions**  
Operating temperature:  
-25°C to +85°C  
Relative humidity:  
max. 75 % at +25°C
- Supply voltage**  
4.75 to 5.25 V DC  
(supplied from terminal)

**Benefits**

- Cost-saving due to quick installation (Plug & Play)
- Small design
- Secure PROFIBUS network connection
- Simple to use, as compatible with the market standard
- Improved electromagnetic compatibility (EMC) by metallized housing

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

**Product features**

- Visual bus connection control
- Switchable bus termination is integrated
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected
- Type 'FC': for solid conductor or 7-wire stranded conductor  
Type 'FC-FLEX': for 19- or 7-wire stranded conductor

**Norm references / Approvals**

- IEC 61158, IEC 61784
- UL File: E331560
- D-Sub (9 pos) pin assignment in accordance with PROFIBUS

**Product make-up**

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- Cable outlet: 35° / 90° / 180°
- For cable outer diameter: 8 mm
- Status LEDs indicate:  
bus operation - (green)  
station transmission - (blue)  
terminating resistance - (orange)

**Suitable cables**

- Cables for bus systems PROFIBUS-DP / FMS / FIP Page 288
- Cables for bus system PROFIBUS-PA Page 312

**Suitable tools**

- FC STRIP stripping tool refer to page 912
- Kraftform® adjustable torque screwdriver / Kraftform Kompakt® Set refer to page 976

Article number	Article designation	Cable outlet	PG	Diagnostic LEDs	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors with 35° cable outlet</b>					
21700511	ED-PB-35-FC	35°	no	no	1
21700513	ED-PB-35-PG-FC	35°	yes	no	1
21700514	ED-PB-35-FC-FLEX	35°	no	no	1
21700515	ED-PB-35-PG-FC-FLEX	35°	yes	no	1
<b>EPIC® Data PROFIBUS Connectors with 90° cable outlet</b>					
21700502	ED-PB-90-FC	90°	no	no	1
21700501	ED-PB-90-PG-FC	90°	yes	no	1
21700528	ED-PB-90-FC-FLEX	90°	no	no	1
21700527	ED-PB-90-PG-FC-FLEX	90°	yes	no	1
<b>EPIC® Data PROFIBUS Connectors with 90° cable outlet and LED diagnostic</b>					
21700547	ED-PB-90-LED-FC	90°	no	yes	1
21700546	ED-PB-90-PG-LED-FC	90°	yes	yes	1
21700549	ED-PB-90-LED-FC-FLEX	90°	no	yes	1
21700539	ED-PB-90-PG-LED-FC-FLEX	90°	yes	yes	1
<b>EPIC® Data PROFIBUS Connectors with 180° (axial) cable outlet</b>					
21700544	ED-PB-AX-FC	180° axial	no	no	1
21700545	ED-PB-AX-FC-FLEX	180° axial	no	no	1

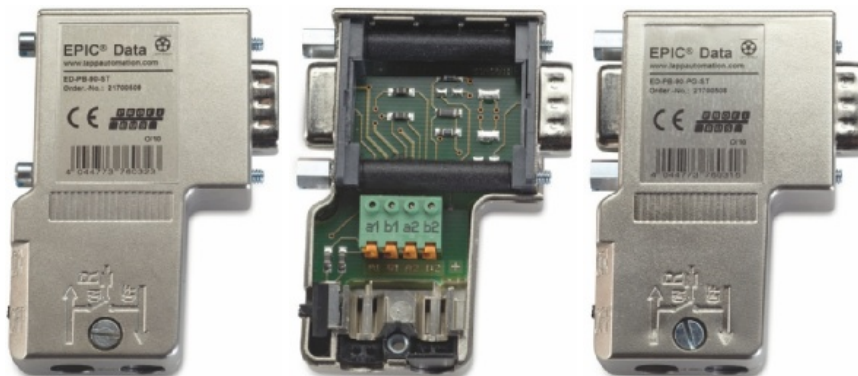
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

PG = programming interface (= 2nd D-Sub)

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



## EPIC® Data PROFIBUS Connectors 90° Spring type



**Info**

- Fully compatible with market standard

### Benefits

- Secure PROFIBUS network connection
- Easy to connect
- Small design
- Standardised interfaces
- Improved electromagnetic compatibility (EMC) by metallized housing

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

### Product features

- Spring-type terminal
- Switchable bus termination is integrated
- Switch can also be operated when the connector is plugged and setting is clearly visible
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected

### Norm references / Approvals

- IEC 61158, IEC 61784
- UL File: E331560
- D-Sub (9 pos) pin assignment in accordance with PROFIBUS

### Product make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- Cable outlet 90°
- For cable outer diameter: max. 8 mm
- (-PG) With additional programming/ diagnostic interface: D-Sub socket, 9-pin

### Suitable cables

- Cables for bus systems PROFIBUS-DP/ FMS/FIP Page 288
- Cables for bus system PROFIBUS-PA Page 312

### Suitable tools

- Kraffform® adjustable torque screwdriver/ Kraffform Kompakt® Set refer to page 976

### Technical data

**Dimensions**  
65 mm x 48 mm x 16 mm (LxWxH)

**Connection type**  
Spring-type (ST)  
Contact is automatically created when the stripped conductor is inserted into the spring terminal. The orange lever must be pressed to break the connection.

**Weight**  
Approx. 40 g

**Protection rating**  
IP20

**Cable outlet**  
90°

**Terminating resistor**  
Integrated resistor combination that is connected by a sliding switch

**Transmission rate**  
max. 12 MBit/s

**Interfaces**  
PROFIBUS station:  
D-Sub socket, 9-pin  
PROFIBUS cable:  
4 spring-type terminals for wires up to 0.5 mm<sup>2</sup>  
(Solid conductor)

**Current consumption**  
max. 12.5 mA

**Permissible ambient conditions**  
Operating temperature:  
0°C to +60°C  
Transport and storage temperature:  
-25°C to +80°C  
Relative humidity:  
max. 75 % at +25°C

**Supply voltage**  
4.75 to 5.25 V DC  
(supplied from terminal)

Article number	Article designation	Cable outlet	PG	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors</b>				
21700509	ED-PB-90-ST	90°	no	1
21700508	ED-PB-90-PG-ST	90°	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
PG = programming interface (= 2nd D-Sub)  
Photographs are not to scale and do not represent detailed images of the respective products.



## EPIC® Data PROFIBUS Connectors ATEX Screw Terminals

**Info**

- Fully compatible with market standard



### Benefits

- For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)
- Standardised interfaces
- Improved electromagnetic compatibility (EMC) by metallized housing
- Easy connection of bus cables by proven screw clamp connection
- Secure PROFIBUS network connection

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

### Product features

- Screw termination
- Switchable bus termination is integrated
- Switch can also be operated when the connector is plugged and setting is clearly visible
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected

### Norm references / Approvals

- UL File: E331560
- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- 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
- Metallised housing
- Cable outlet 90°
- For cable outer diameter: 5 ... 8 mm
- (-PG) With additional programming / diagnostic interface: D-Sub socket, 9-pin

### Suitable cables

- Cables for bus system PROFIBUS-PA Page 312

### Suitable tools

- Kraftform® adjustable torque screwdriver / Kraftform Kompakt® Set refer to page 976

### Technical data

- Dimensions**  
64 mm x 40 mm x 17 mm (LxWxH)
- Connection type**  
Screwing
- Degree of soiling**  
2
- Weight**  
Approx. 40 g
- Protection rating**  
IP20
- Cable outlet**  
90°
- Terminating resistor**  
Integrated resistor combination that is connected by a sliding switch
- Transmission rate**  
max. 12 MBit/s
- Interfaces**  
PROFIBUS station:  
D-Sub socket, 9-pin  
PROFIBUS cable:  
4 terminal blocks for wires up to 1.0 mm² (solid / flexible)
- Current consumption**  
max. 12.5 mA
- Permissible ambient conditions**  
Operating temperature:  
-20°C to +60°C  
Transport and storage temperature:  
-25°C to +80°C  
Relative humidity:  
max. 75 % at +25°C
- Supply voltage**  
4.75 to 5.25 V DC  
(supplied from terminal)

Article number	Article designation	Cable outlet	PG	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors</b>				
21700543	ED-PB-90-ATEX	90°	no	1
21700542	ED-PB-90-PG-ATEX	90°	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

PG = programming interface (= 2nd D-Sub)

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

Note: For further important information, see the package insert (ATEX-Information\_ED-PB-90... ATEX.pdf).



## EPIC® Data PROFIBUS Connectors REPEATER



**Info**

- Alternative solution to conventional PROFIBUS repeaters
- No additional space needed in the cabinet

### Benefits

- Easy extensions of the PROFIBUS network topology:
  - up to 3 repeaters
  - 1 additional PROFIBUS segment
  - galvanic isolation
- Regeneration of data signal (slope, power and mark-to-space ratio)
- Cost-saving due to quick installation (Plug & Play)
- Diagnostic LED is integrated
- No additional space needed in the cabinet

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

### Product features

- Can also be used in MPI networks
- Can be used as a bus extension or spur line (can be plugged directly to the PG-port of an existing PROFIBUS connector)
- 5 V power supply from the PROFIBUS connection enables usage on all PROFIBUS devices
- LED diagnostic and status indicators
- Transmission rate → max. segment length:
 

9.6 KBit/s	1000 m
187.5 KBit/s	1000 m
500 KBit/s	400 m
1.5 MBit/s	200 m
3 MBit/s	100 m
12 MBit/s	100 m

### Norm references / Approvals

- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784
- UL File: E331560

### Product make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- An external 24 V supply is not necessary
- Status LEDs (Power, Error, Bus) for diagnostic display
- For cable outer diameter: 5 ... 8 mm

### Suitable cables

- Cables for bus systems PROFIBUS-DP/ FMS/FIP Page 288
- Cables for bus system PROFIBUS-PA Page 312

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

### Technical data

- Dimensions**  
64 mm x 40 mm x 17 mm (LxWxH)
- Connection type**  
Screwing
- Degree of soiling**  
2
- Weight**  
Approx. 40 g
- Protection rating**  
IP20
- Cable outlet**  
90°
- Transmission rate**  
9.6 Kbit/s to 12 MBit/s autodetection
- Interfaces**  
Connection:  
D-Sub socket, 9-pin  
PROFIBUS-cable:  
4 terminal blocks for wires up to 1.0 mm<sup>2</sup>  
Protocol:  
PROFIBUS DP in accordance with EN 50170
- Current consumption**  
typ. 100 mA
- Permissible ambient conditions**  
Operating temperature:  
0°C to +60°C  
Transport and storage temperature:  
-25°C to +75°C
- Supply voltage**  
+5,0 VDC (supplied from terminal)

Article number	Article designation	Cable outlet	PG	Diagnostic LEDs	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors</b>					
21700541	ED-PB-90-RP-PG	90°	yes	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 PG = programming interface (= 2nd D-Sub)  
 For the detailed manual please refer to [www.lappautomation.com](http://www.lappautomation.com)  
 Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
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 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## EPIC® Data PROFIBUS Connectors M 12

**Info**

- Fully compatible with market standard



### Benefits

- Cost-saving due to quick installation (Plug & Play)
- Secure PROFIBUS network connection
- Suitable for assembled M12 PB cables
- Simple to use, as compatible with the market standard
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

### Product features

- No loose parts
- Switchable bus termination is integrated
- Switch can also be operated when the connector is plugged and setting is clearly visible
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected

### Norm references / Approvals

- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784
- UL File: E331560

### Product make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 5-pin connector, M12, B-coded
- Metallised housing
- (-PG) With additional programming/ diagnostic interface: D-Sub socket, 9-pin

### Suitable cables

- PROFIBUS cable: M12 connector on free conductor end Page 373
- PROFIBUS Cable: M12 connector on M12 socket Page 374

### Technical data

	<b>Dimensions</b> 70 mm x 40 mm x 17 mm (L x W x H)
	<b>Connection type</b> M12
	<b>Degree of soiling</b> 2
	<b>Weight</b> approx. 60 g
	<b>Protection rating</b> IP20
	<b>Cable outlet</b> 90°
	<b>Terminating resistor</b> Integrated resistor combination that is connected by a sliding switch
	<b>Transmission rate</b> max. 12 MBit/s
	<b>Interfaces</b> PROFIBUS station: D-Sub socket, 9-pin PROFIBUS cable: M12 PB system cabling
	<b>Current consumption</b> max. 12.5 mA
	<b>Permissible ambient conditions</b> Operating temperature: 0°C to +60°C Transport and storage temperature: -25°C to +80°C Relative humidity: max. 75 % at +25°C
	<b>Supply voltage</b> 4.75 to 5.25 V DC (supplied from terminal)

Article number	Article designation	Cable outlet	Adjustable termination resistance	PG	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors</b>					
21700521	ED-PB-90-M12	90°	yes	no	1
<b>EPIC® Data PROFIBUS Connectors</b>					
21700520	ED-PB-PG-90-M12	90°	yes	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

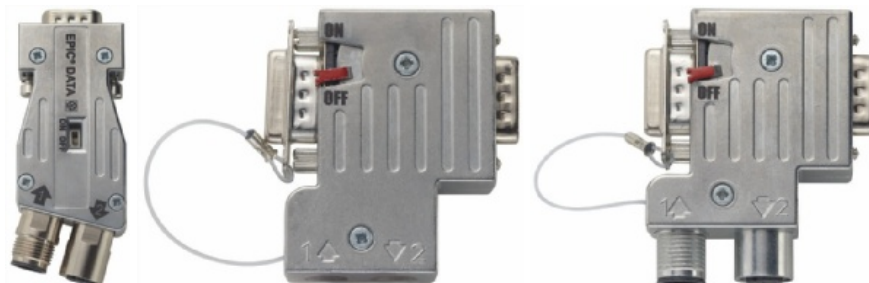
PG = programming interface (= 2nd D-Sub)

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



**New**

## EPIC® Data PROFIBUS Connector (full-metal)



Info

- High EMC protection

### Benefits

- Optimum EMC protection
- Very flexible in use
- Robust and failsafe design in harsh environments.
- Secure PROFIBUS network connection
- Cost-saving due to quick installation (Plug & Play)

### Application range

- Automation technology
- Control engineering
- Mechanical engineering
- Plant engineering
- Tool shop

### Product features

- Extended temperature range
- High mechanical durability (200 contact durability)
- Less transmission loss
- Switchable bus termination is integrated
- No loose parts

### Norm references / Approvals

- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784

### Product make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Full-metal housing (ZnAl)
- With additional programming/diagnostic interface (90° and 35° version): D-Sub socket, 9-pin
- With undetachable EMC connector protection (PG port) at angled variants
- 360° shielding of housing

### Suitable cables

- PROFIBUS cable: M 12 connector on free conductor end Page 373
- PROFIBUS Cable: M 12 connector on M 12 socket Page 374

### Suitable tools

- Kraffform® adjustable torque screwdriver/ Kraffform Kompakt® Set refer to page 976

### Technical data



#### Dimensions

see technical data sheet

#### Connection type

internal cable clamp: cage clamp terminal

#### Degree of soiling

2



#### Weight

Approx. 100 g



#### Protection rating

IP 30

#### Cable outlet

90°, 35° and axial

#### Terminating resistor

Integrated resistor combination that is connected by a sliding switch

#### Transmission rate

max. 12 MBit/s

#### Interfaces

PROFIBUS station:

D-Sub socket, 9-pin

PROFIBUS cable:

- Version: M 12 PROFIBUS system cabling

- Version: Spring type for system cabling

Wire size: 0,08 - 0,5 mm<sup>2</sup>

(AWG 28 - AWG 14)

Cable diameter: 8 - 9 mm



#### Permissible ambient conditions

Operating temperature:

-20°C to +70°C

Relative humidity:

max. 75 % at +25°C

#### Supply voltage

4.75 to 5.25 V DC

(supplied from terminal)

Article number	Article designation	Cable outlet	PG	Pieces / PU
<b>EPIC® Data PROFIBUS Connectors (full-metal) with M 12 connection (B-coded, 5-pin)</b>				
21700563	ED-PB-AX-M12-PRO	axial	no	1
21700561	ED-PB-35-PG-M12-PRO	35°	yes	1
21700562	ED-PB-90-PG-M12-PRO	90°	yes	1
<b>EPIC® Data PROFIBUS Connectors (full-metal) with internal spring type connection</b>				
21700566	ED-PB-AX-M12-PRO	axial	no	1
21700564	ED-PB-35-PG-ST-PRO	35°	yes	1
21700565	ED-PB-90-PG-ST-PRO	90°	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

PG = programming interface (= 2nd D-Sub)

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





**New**

## EPIC® Data PROFIBUS Connector (Optical Link Modul)

**Info**

- Fully functioning PROFIBUS repeater with integrated optical interface



**Benefits**

- Easy covering of large distances
- Cost-saving due to quick installation (Plug & Play)
- Galvanic isolation in case of potential differences within PROFIBUS network
- For EMC critical environments
- Regeneration of data signal (slope, power and mark-to-space ratio)

**Application range**

- Automation technology
- Control engineering
- Mechanical engineering
- Plant engineering
- Tool shop

**Product features**

- Integrated repeater functionality
- Switchable bus termination is integrated
- Diagnostic LEDs (blue, green, red, yellow)
- Max. distance:  
POF fiber: 65 m  
PCF fiber: 250 m

**Norm references / Approvals**

- D-Sub (9 pos) pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784

**Product make-up**

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- With additional programming/diagnostic interface: Sub-D socket, 9-pin
- An external 24 V supply is not necessary
- Connection for optical cable (POF or PCF)

**Suitable cables**

- HITRONIC® POF DUPLEX PE Page 456
- HITRONIC® POF DUPLEX PE-PUR Page 456

**Technical data**

**Dimensions**  
64 mm x 40 mm x 17 mm (LxWxH)

**Degree of soiling**  
2

**Weight**  
Approx. 40 g

**Protection rating**  
IP 20

**Cable outlet**  
90°

**Terminating resistor**  
Integrated resistor combination that is connected by a sliding switch

**Transmission rate**  
max. 12 MBit/s

**Interfaces**  
Connection: Sub-D socket, 9-pin  
FO-cable:  
- Polymeric-optical-fiber (POF), 650 nm  
- Polymer-cladded-fiber (PCF), 650 nm  
applicable types of connectors:  
SMA, BFOC(ST) and HFBR

**Current consumption**  
typ. 100 mA

**Permissible ambient conditions**  
Operating temperature:  
0°C to +60°C  
Transport and storage temperature:  
-25°C to +75°C

**Supply voltage**  
+5,0 VDC  
(supplied from terminal)

Article number	Article designation	Cable outlet	PG	Diagnostic LEDs	Pieces / PU
EPIC® Data PROFIBUS Connectors Fiber Optic Module - HFBR connector 21700568	ED-PB-90-PG-FO-HFBR-650	90°	yes	yes	1
EPIC® Data PROFIBUS Connectors Fiber Optic Module - SMA connector 21700569	ED-PB-90-PG-FO-SMA-650	90°	yes	yes	1
EPIC® Data PROFIBUS Connectors Fiber Optic Module - BFOC(ST) connector 21700570	ED-PB-90-PG-FO-BFOC-650	90°	yes	yes	1

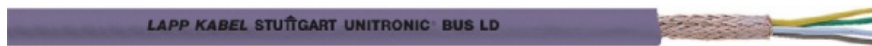
PG = programming interface (= 2nd D-Sub)  
Applicable optical connectors (POF) included  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet or installation instructions (www.lappautomation.com)  
Note: For one optical link 2 modules are required

**Accessories**

- PCF Assembly Sets refer to page 466
- PCF Connector HFBR refer to page 465
- PCF Connector F-SMA and ST(BFOC) refer to page 465
- POF Assembly Sets refer to page 459
- POF Connector F-SMA and ST(BFOC) refer to page 458



## UNITRONIC® BUS LD



**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
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- UL variant has approval:  
UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02

### Product make-up

- Stranded bare 7-wire conductor, colour-coded according to DIN 47100
- Copper braid
- PVC sheath
- Colour: violet (RAL 4001)
- UNITRONIC® BUS LD A as UNITRONIC® BUS LD, but with UL/CSA approval

### Technical data

- Mutual capacitance**  
(800 Hz): max. 60 nF/km
- 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
- Temperature range**  
Fixed installation: -40°C to +80°C  
Flexing: -5°C to +70°C
- Characteristic impedance**  
100 - 120 Ohm

Article number	Article designation	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>for fixed installation</b>					
2170203	UNITRONIC® BUS LD	1 x 2 x 0,22	5.7	18.0	37
2170204	UNITRONIC® BUS LD	2 x 2 x 0,22	7.1	28.0	45
2170205	UNITRONIC® BUS LD	3 x 2 x 0,22	7.2	37.0	72
<b>For fixed installation - UL/CSA CMX approval</b>					
2170803	UNITRONIC® BUS LD A	1 x 2 x 0,22	5.7	18.0	39

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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).

Modbus 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.

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## UNITRONIC® BUS LD FD P



**Info**

- LD is a LAPP abbreviation for long distance

**Benefits**

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- UL variant has approval: UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Suitable for multiple Bus systems based on RS485 / RS422

**Application range**

- For highly flexible applications (power 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
- Flame-retardant according IEC 60332-1-2

**Product make-up**

- Stranded conductor, bare, core identification code in accordance with DIN 47100
- Copper braid
- PUR outer sheath
- Colour: violet (RAL 4001)
- UV-resistant (but colour may change after some time)

**Technical data**

- 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 outer diameter  
One bend at end of core:  
3 x cable diameter  
Flexing: 15 x outer diameter
- Test voltage**  
Core/core: 1500 V rms
- Temperature range**  
Fixed installation: -40°C to +80°C  
Flexing: -30°C to +70°C
- Characteristic impedance**  
100 - 120 Ohm

Article number	Article designation	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>For highly flexible applications (power chains, moving machine parts)</b>					
2170213	UNITRONIC® BUS LD FD P	1 x 2 x 0,25	6.0	18.0	39
2170214	UNITRONIC® BUS LD FD P	2 x 2 x 0,25	7.9	33.0	65
2170215	UNITRONIC® BUS LD FD P	3 x 2 x 0,25	8.0	39.0	77
<b>For highly flexible applications (e.g. power chains) - with UL/CSA (CMX) approval</b>					
2170813	UNITRONIC® BUS LD FD P A	1 x 2 x 0,25	6.2	18.0	39
2170814	UNITRONIC® BUS LD FD P A	2 x 2 x 0,25	8.3	33.0	65
2170815	UNITRONIC® BUS LD FD P A	3 x 2 x 0,25	8.4	39.0	77

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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).

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

**Accessories**

- SILVYN® CHAIN
- SMART STRIP stripping tool refer to page 911



## UNITRONIC® BUS PA



**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 approval (CMG / PLTC)

### Product make-up

- UNITRONIC® BUS PA (BU/BK)  
Stranded conductor, core colours: red and green, copper braiding, PVC sheath, colour: blue (intrinsically safe area), colour: black (non-intrinsically safe area)
- UNITRONIC® BUS PA FC (BU/BK)  
Solid core, UL/CSA CMG approval and "Fast Connect" cable design, which enables rapid connection of the IDC connector (Insulation Displacement Connection).

### Technical data

- 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
- Temperature range**  
Fixed installation:  
-30°C to +80°C  
During installation: -5°C to +50°C
- Characteristic impedance**  
100 ± 20 Ohm

Article number	Article designation	Number of pairs and cable diameter per conductor in mm	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>For fixed installation - conventional cable assembly</b>					
2170234	UNITRONIC® BUS PA (BU)	1 x 2 x 1,3	8.0	45.0	84
2170235	UNITRONIC® BUS PA (BK)	1 x 2 x 1,3	8.0	45.0	84
<b>For fixed installation - "Fast Connect" cable assembly - UL/CSA CMG approval</b>					
2170334	UNITRONIC® BUS PA FC (BU)	1 x 2 x 1.00	8.0	45.5	103
2170335	UNITRONIC® BUS PA FC (BK)	1 x 2 x 1.00	8.0	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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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Armoured

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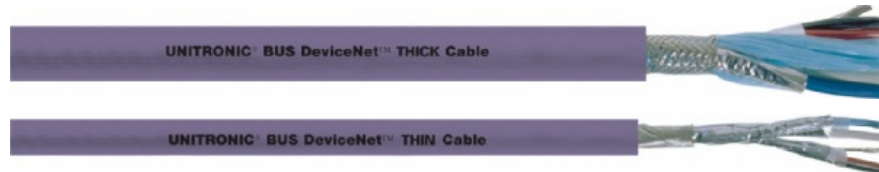
### Accessories

- Multipurpose shears A and B refer to page 907
- STAR STRIP stripping tool refer to page 910
- FC STRIP stripping tool refer to page 912

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## UNITRONIC® DeviceNet THICK + THIN



### 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 approval 75°C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd approval

### Product make-up

- Core insulation made of foam skin
- Outer sheath: Halogene free (FRNC) or Polyvinylchlorid (PVC)

### Technical data

- 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 cable diameter
- Test voltage**  
Core/core: 2000 V
- Temperature range**  
Fixed installation: -25°C to +80°C
- Characteristic impedance**  
120 ohm

Article number	Article designation	Number of pairs and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
<b>Halogen-free</b>					
2170340	UNITRONIC® BUS DN THICK FRNC	1x2xAWG 18 + 1x2xAWG 15	12.2	88.4	195
2170341	UNITRONIC® BUS DN THIN FRNC	1x2xAWG 24 + 1x2xAWG 22	6.9	33.4	69.5
<b>With PVC outer sheath</b>					
2170342	UNITRONIC® BUS DN THICK Y	1x2xAWG 18 + 1x2xAWG 15	12.2	88.4	192
2170343	UNITRONIC® BUS DN THIN Y	1x2xAWG 24 + 1x2xAWG 22	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 150/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

**Cables for bus system DeviceNet**

Characteristic impedance: 120 ohm



## UNITRONIC® DeviceNet FD THICK+THIN

Highly flexible and UL/CSA-approved

LAPP KABEL STUÏGART UNITRONIC® BUS DN THICK FD P

LAPP KABEL STUÏGART UNITRONIC® BUS DN THIN FD P

### ■ 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-approved (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

- 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 cable diameter  
Flexing: 15 x outer diameter
- Test voltage**  
Core/core: 2000 V
- Temperature range**  
PUR: -40°C to +80°C  
PVC: -10°C to +80°C
- Characteristic impedance**  
120 ohm

Article number	Article designation	Number of pairs and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
<b>Version P (PUR)</b>					
2170344	UNITRONIC® BUS DN THICK FD P	1x2xAWG18 + 1x2xAWG15	12.2	94.0	184
2170345	UNITRONIC® BUS DN THIN FD P	1x2xAWG24 + 1x2xAWG22	6.9	33.4	67.7
<b>Version Y (PVC)</b>					
2170346	UNITRONIC® BUS DN THICK FD Y	1x2xAWG18 + 1x2xAWG15	12.2	94.0	195
2170347	UNITRONIC® BUS DN THIN FD Y	1x2xAWG24 + 1x2xAWG22	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
DeviceNet is a registered trademark of ODVA  
Photographs are not to scale and do not represent detailed images of the respective products.

### ■ Accessories

- SILVYN® CHAIN
- SMART STRIP stripping tool refer to page 911

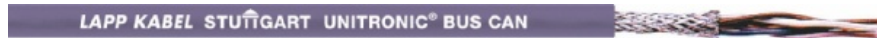


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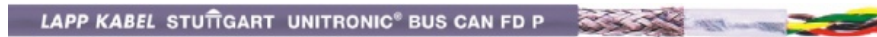
- CAN = Controller Area Network

**Technical data**

- Mutual capacitance**  
UNITRONIC® BUS CAN (800 Hz): max. 40 nF/km  
UNITRONIC® BUS CAN FD P (800 Hz): max. 60 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
- 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
- Characteristic impedance**  
120 ohm



**UNITRONIC® BUS CAN**



**UNITRONIC® BUS CAN FD P**

- 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
  - Colour-coded in accordance with DIN 47100
  - Copper braid
  - PVC sheath
  - Colour: violet (RAL 4001)**UNITRONIC® BUS CAN FD P**
  - Stranded bare conductor
  - Screening: wrapped with braided copper wires
  - PUR outer sheath
  - Colour: violet (RAL 4001)
  - UV-resistant (but colour may change after some time)
- Suitable connectors**  
**UNITRONIC® BUS CAN**
  - EPIC® Data CAN-Bus Connectors Page 317
  - EPIC® Data CAN-Bus Connectors (full-metal) Page 318

Article number	Article designation	Number of pairs/conductor cross section (mm <sup>2</sup> )	Outer diameter (mm)	Conductor resistance	Copper index (kg/km)	Weight (kg/km)
<b>for fixed installation</b>						
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	186.0	16.7	42.0
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	186.0	34.8	68.0
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	115.0	25.0	55.0
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	115.0	46.4	88.0
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	78.0	41.6	90.0
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.6	78.0	59.4	106.0
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52.0	52.7	108.0
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	52.0	80.6	142.0
<b>For highly flexible applications (power chains, moving machine parts)</b>						
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	159.8	24.0	40.0
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	159.8	33.0	65.0
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	122.0	32.8	60.0
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	122.0	52.4	88.0
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8.0	72.8	41.9	74.0
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.8	72.8	59.4	100.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

**UNITRONIC® BUS CAN**

- Multipurpose shears A and B refer to page 907
- SMART STRIP stripping tool refer to page 911
- SENSOR STRIP stripping tool refer to page 912

**UNITRONIC® BUS CAN FD P**

- Multipurpose shears A and B refer to page 907
- SMART STRIP stripping tool refer to page 911
- SENSOR STRIP stripping tool refer to page 912
- SENSOR STRIP stripping tool refer to page 912



**New**

**UNITRONIC® BUS CAN BURIAL**



**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 made of polyethylene (PE)
- Colour-coded in accordance with DIN 47100
- Overall screening of braided tinned-copper strands
- Sheath 1: PVC violet, Outer diameter 7,1 mm
- Sheath 2: PE black, Outer diameter ca. 9 mm

**Technical data**

- 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
- Temperature range**  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
120 ohm

Article number	Number of pairs/conductor cross section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170500	4 x 1 x 0,5	9.0	41.8	91.0

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

- EPIC® Data Connectors refer to page 317

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**EPIC® Data CAN-Bus Connectors**

**Info**

- Fully compatible with market standard



**Benefits**

- Small design
- Proven network connection
- Easy connection of bus cables by proven screw clamp connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- With additional 24 V DC output to supply external devices (90° version only)

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

**Product features**

- Screw termination
- Switchable bus termination is integrated
- The integrated, connectable terminal resistors enable the CAN-Bus to be terminated or connected through
- When used as a through connector, the switch must be in the "OFF" position. If used as a terminating connector, the switch must be in the "ON" position.
- No loose parts

**Norm references / Approvals**

- D-Sub pin assignment in accordance with CiA (CAN in Automation)
- UL File: E331560

**Product make-up**

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- For cable outer diameter: 5 ... 8 mm

**Suitable cables**

- Cables for bus system CAN UL/CSA-approved Page 315
- Cables for bus system DeviceNet Page 313

**Suitable tools**

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

**Technical data**

**Dimensions**  
 65 mm x 48 mm x 16 mm - 90°  
 67,5 mm x 35 mm x 17 mm - 180° (LxWxH)

**Connection type**  
 Screwing

**Degree of soiling**  
 2

**Weight**  
 Approx. 40 g

**Protection rating**  
 IP20

**Cable outlet**  
 90° and axial

**Terminating resistor**  
 120 ohms integrated, and connectable with slide switch

**Transmission rate**  
 max. 1 MBit/s

**Interfaces**  
**CAN bus station:**  
 D-Sub socket, 9-pin  
**CAN bus cable:**  
 6 terminal blocks for wires up to 1.0 mm²  
 D-Sub 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)

**Permissible ambient conditions**  
 Operating temperature:  
 0°C to +60°C  
 Transport and storage temperature:  
 -25°C to +75°C  
 Relative humidity:  
 max. 75 % at +25°C

Article number	Article designation	Cable outlet	PG	Pieces / PU
<b>EPIC® data CAN bus connectors</b>				
21700537	ED-CAN-90	90°	no	1
21700536	ED-CAN-90-PG	90°	yes	1
21700538	ED-CAN-AX	180° axial	no	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

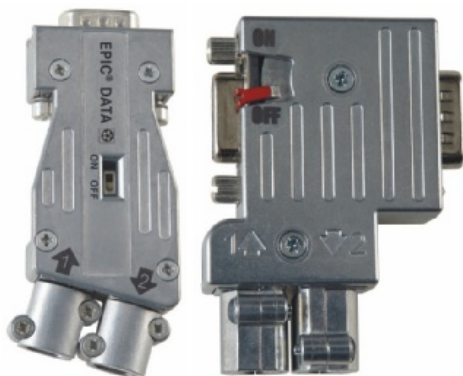
PG = programming interface (= 2nd D-Sub)

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



**New**

**EPIC® Data CAN-Bus Connectors (full-metal)**



**Info**

- High EMC protection
- For cable diameters up to 10 mm

**Benefits**

- High flexibility by extended cable clamping range
- Cost-saving due to quick and easy installation
- Robust and failsafe design in harsh environments.
- For EMC critical environments
- Simple and proven network connection

**Application range**

- Automation technology
- Control engineering
- Mechanical engineering
- Plant engineering
- Tool shop

**Product features**

- Extended temperature range
- High mechanical durability (200 contact durability)
- Less transmission loss
- Switchable bus termination is integrated
- 90° version with additional programming(PG)/diagnostic interface: D-Sub socket, 9-pin

**Norm references / Approvals**

- D-Sub pin assignment in accordance with CiA (CAN in Automation)

**Product make-up**

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Full-metal housing (ZnAl)
- PG port (90° design) with undetachable EMC connector protection
- 360° shielding of housing
- External cable clamp connection (7 - 10 mm)

**Suitable cables**

- UNITRONIC® DeviceNet THICK + THIN Page 313
- UNITRONIC® BUS CAN Page 315
- UNITRONIC® DeviceNet FD THICK+THIN Page 314
- UNITRONIC® BUS CAN FD P Page 315
- UNITRONIC® BUS CAN BURIAL Page 316

**Suitable tools**

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

**Technical data**

**Dimensions**  
see technical data sheet

**Connection type**  
Screwing

**Degree of soiling**  
2

**Weight**  
Approx. 100 g

**Cable outlet**  
90° and axial

**Terminating resistor**  
Integrated resistor combination that is connected by a sliding switch

**Transmission rate**  
max. 12 MBit/s

**Interfaces**  
CAN-Bus station:  
D-SUB socket, 9-pin  
CAN-Bus cable:  
- screw terminals for wires 0.14 - 0.5 mm<sup>2</sup>  
D-Sub pin assignment:  
CAN Low = Pin 2  
CAN High = Pin 7  
CAN Gnd = Pin 3  
CAN V+ = Pin 9  
(shield = housing)

**Permissible ambient conditions**  
Operating temperature:  
-20°C to +70°C  
Relative humidity:  
max. 75 % at +25°C

Article number	Article designation	Cable outlet	PG	Pieces / PU
<b>EPIC® data CAN bus connectors (axial cable outlet)</b>				
21700591	ED-CAN-AX-PRO	axial	no	1
<b>EPIC® data CAN bus connectors (90° cable outlet)</b>				
21700590	ED-CAN-90-PG-PRO	90°	yes	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
PG = programming interface (= 2nd D-Sub)  
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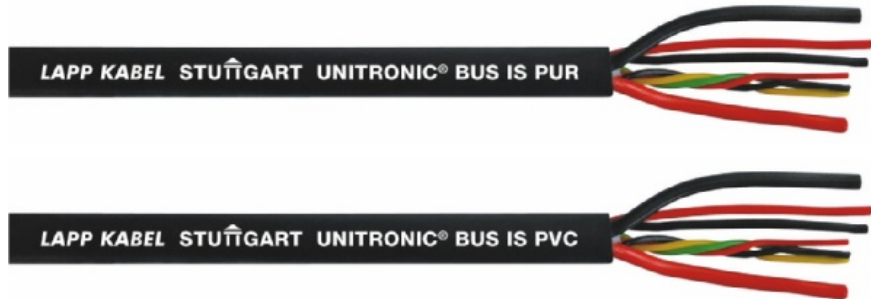


**New**

**UNITRONIC® BUS IS**

**Info**

- ISOBUS is a bus system for agricultural vehicles, which is standardized in the international standard ISO 11783-2
- 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
- Resistant against oil, benzine and diesel
- UV-resistant
- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free

**Norm references / Approvals**

- ISO 11783-2:2012

**Product make-up**

- 4x 0,5 mm<sup>2</sup> (red, yellow, black, green)
- 2x 2,5 mm<sup>2</sup> (red, black)
- 2x 6 mm<sup>2</sup> (red, black)
- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC
- Outer Sheath: Black PVC or PUR special compound

**Technical data**

- Peak operating voltage**  
60 V
- Test voltage**  
0,5 mm - 2,5 mm<sup>2</sup> core / core = 1,5 kV;  
6 - 10 mm<sup>2</sup> core / core = 2,5 kV
- Temperature range**  
PUR: -40°C to +85°C  
PVC: -30°C to +85°C
- Characteristic impedance**  
Characteristic impedance: 75 ohm

Article number	Article designation	Number of pairs and cable diameter	Copper index (kg/km)
2170560	UNITRONIC® BUS IS PVC 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4
2170561	UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

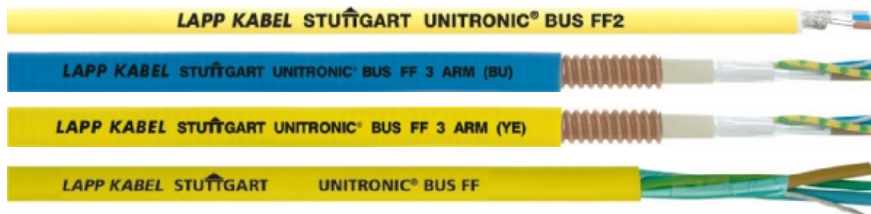
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

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 FF



### 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

- All cables are designed for 105 °C and resistant to sunlight

### Norm references / Approvals

- With UL/CSA approval (CMG/PLTC)

### Product make-up

- Lapp bus cables for FOUNDATION™ field bus are available in 4 versions:
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground  
Yellow and blue version
- 2-core, not armoured, with device ground

### Technical data

	<b>Peak operating voltage</b> 300 V
	<b>Conductor resistance</b> ≤ 24 Ohm/km
	<b>Minimum bending radius</b> 15 x outer diameter
	<b>Test voltage</b> 1500 V
	<b>Temperature range</b> -40 °C or -25 °C to +105 °C, see data sheet
	<b>Characteristic impedance</b> 100 ± 20 Ohm at 31.25 kHz

Article number	Article designation	Number of pairs and cable diameter	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170350	UNITRONIC® BUS FF 3	1x2x1.1 + 1x1.1 Ø	7.9	62.0	93
2170351	UNITRONIC® BUS FF 3 ARM (YE)	1x2x1.1 + 1x1.1 Ø	12.3	125.0	182
2170353	UNITRONIC® BUS FF 3 ARM (BU)	1x2x1.1 + 1x1.1 Ø	12.3	125.0	182
2170352	UNITRONIC® BUS FF 2	1 x 2 x 1.1	7.9	53.3	82

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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**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**

- UV-resistant
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 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

**Norm references / Approvals**

- CM UL/CSA approval 75°C or PLTC Sun Res

**UNITRONIC® BUS CC**

LAPP KABEL STUÏTGART UNITRONIC® BUS CC

**Technical data**

- Peak operating voltage**  
300 V
- Conductor resistance**  
11 ohm/1,000 ft. (305 m) at 20°C
- Minimum bending radius**  
15 x outer diameter
- Test voltage**  
2000 V
- Temperature range**  
-40°C to +70°C
- Characteristic impedance**  
110 ohm at 1 MHz

Article number	Article designation	Number of cores and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA) Photographs are not to scale and do not represent detailed images of the respective products.



**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 (power 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 and flame-retardant (IEC 60332-1-2)

**Norm references / Approvals**

- AWM 20233 80°C 300V

**UNITRONIC® BUS CC FD P FRNC**

LAPP KABEL STUÏTGART UNITRONIC® BUS CC FD P

**Technical data**

- Approvals**  
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  
Flexing: 8 x outer diameter
- Test voltage**  
2000 V
- Temperature range**  
-40°C to +80°C
- Characteristic impedance**  
110 ohm at 1 MHz

Article number	Article designation	Number of cores and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA) Photographs are not to scale and do not represent detailed images of the respective products.



## UNITRONIC® BUS SAFETY



### Benefits

- For serial transmission of safety-oriented data

### Application range

- For fixed installation and 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

### Product make-up

- Stranded conductor, 3 cores twisted, colour-coded in accordance with DIN 47100 (white, brown, green), copper braiding, halogen-free outer sheath
- UNITRONIC® BUS SAFETY FD P is as per UNITRONIC® BUS SAFETY, but also suitable for highly flexible applications
- Flame-retardant according IEC 60332-1-2

### Technical data

	<b>Approvals</b> Version UNITRONIC® BUS SAFETY FC: AWM Style 2464 (80°C 300 V)
	<b>Mutual capacitance</b> (800 Hz): max. 45 nF/km
	<b>Peak operating voltage</b> (not for power applications) 250 V
	<b>Conductor resistance</b> (loop): max. 52 ohm/km
	<b>Minimum bending radius</b> Fixed installation: 10 x cable diameter
	<b>Test voltage</b> Core/core: 3000 V Core/core: 1500 V (FD- version)
	<b>Temperature range</b> UNITRONIC BUS SAFETY: Fixed installation: -30°C to +80°C <b>UNITRONIC BUS SAFETY FD P:</b> Fixed installation -40°C to +80°C Moved: -30 to +80°C
	<b>Characteristic impedance</b> 120 ohm

Article number	Article designation	Number of cores and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>for fixed installation</b>					
2170295	UNITRONIC® BUS SAFETY	3 x 0.75	7.6	49.0	68
<b>For highly flexible applications (e.g. power chains)</b>					
2170885	UNITRONIC® BUS SAFETY FD P	3 x 0.75	7.8	49.0	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- FC STRIP stripping tool refer to page 912

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**UNITRONIC® BUS IBS**

**Info**

- IBS - INTERBUS



**Benefits**

- Certified by INTERBUS CLUB

**Application range**

- Fixed installation

**Product features**

- IBS cable - for fixed installation
- Remote bus cable + installation remote bus cable
- The stated bit rates result in the following cable lengths (maximum) of one bus segment:  
500 kbit/s = max. 400 m
- Flame-retardant according IEC 60332-1-2

**Norm references / Approvals**

- In accordance with DIN 19258 and EN 50254

**Product make-up**

- UNITRONIC® BUS IBS
- Stranded conductor, bare, core identification code in accordance with DIN 47100, braided copper, PVC outer sheath, violet (RAL 4001)
- UNITRONIC® BUS IBS P COMBI
- Stranded conductor, bare, core identification code in accordance with DIN 47100 (data), stranded, bare (power supply), copper braid, PUR outer sheath, violet (RAL 4001), halogen-free
- UNITRONIC® BUS IBS A is as per UNITRONIC BUS IBS, but with UL/CSA approval

**Technical data**

- Mutual capacitance**  
(800 Hz): max. 60 nF/km
- 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
- Temperature range**  
Fixed installation:  
-30°C to +80°C  
Flexing: -5°C to +70°C
- Characteristic impedance**  
100 Ohm

Article number	Cable type	Article designation	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>for fixed installation</b>						
2170206	Remote bus cable (RBC)	UNITRONIC® BUS IBS	3 x 2 x 0.22	7.2	37.0	72
2170208	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS P COMBI	3 x 2 x 0,22 + 3 x 1,0	7.9	60.0	85
<b>For fixed installation - UL/CSA CMX approval</b>						
2170209	Remote bus cable (RBC)	UNITRONIC® BUS IBS A	3 x 2 x 0.22	7.2	37.0	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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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**Accessories**

- SENSOR STRIP stripping tool refer to page 912

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Cables for bus system INTERBUS (IBS)

Characteristic impedance: 100 ohm



## UNITRONIC® BUS IBS FD P



**Info**  

- IBS - INTERBUS

**Benefits**

- Certified by INTERBUS CLUB

**Application range**

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- Dry or damp rooms
- Harsh industrial environment

**Product features**

- IBS cable - for highly flexible application
- Remote bus cable + installation remote bus cable
- 500 kbit/s = max. 400 m (remote bus cable)
- Max. 50 m (installation remote bus cable)
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains

**Norm references / Approvals**

- In accordance with DIN 19258 and EN 50254

**Product make-up**

- **UNITRONIC® BUS IBS FD P**
  - Stranded conductor, bare, core identification code in accordance with DIN 47100, braided copper wire for overall screening, PUR outer sheath, violet (RAL 4001), halogen-free, flame-retardant in accordance with IEC 60332-1-2.
- **UNITRONIC® BUS IBS FD P COMBI**
  - Bare stranded copper wire conductor, cores twisted to pairs, core colours: white/brown / green/yellow / grey/pink (data). Bare copper wire stranded conductor, core colours: red, blue, green/yellow (power supply).
  - Overall screening of braided copper, PUR outer sheath (violet, RAL 4001), halogen-free, flame-retardant according to IEC 60332-1-2.

**Technical data**

- 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**  
Flexing: 15 x outer diameter
- Test voltage**  
Core/core: 1500 V rms
- Temperature range**  
Fixed installation: -40°C to +80°C  
Flexing: -30°C to +70°C
- Characteristic impedance**  
100 Ohm

Article number	Cable type	Article designation	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>For highly flexible applications (power chains, moving machine parts)</b>						
2170216	Remote bus cable (RBC)	UNITRONIC® BUS IBS FD P	3 x 2 x 0,25	7,9	39,0	64
2170218	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS FD P COMBI	3 x 2 x 0,25 + 3 x 1,0	7,9	62,0	92
<b>For highly flexible applications (e.g. power chains) - with UL/CSA (CMX) approval</b>						
2170818	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS FD P COMBI A	3 x 2 x 0,25 + 3 x 1,0	7,9	62,0	92

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Accessories**

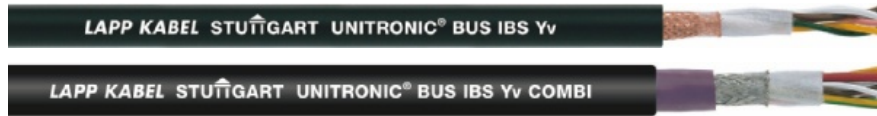
- SILVYN® CHAIN
- Multipurpose shears A and B refer to page 907
- SMART STRIP stripping tool refer to page 911

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## UNITRONIC® BUS IBS Yv



### Benefits

- Certified by INTERBUS CLUB

### Application range

- Suitable for outdoor use and direct burial

### Product features

- IBS cable - for outdoor use or direct burial, UV-resistant (remote bus cable + installation remote bus cable)
- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
  - 500 kBit/s = max. 400 m
  - Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- In accordance with DIN 19258 and EN 50254

### Product make-up

- Data: stranded bare conductor, core colours: white-brown/green-yellow/grey-pink
- Power supply: stranded bare conductor, colours: red, blue, green/yellow
- Overall copper wire braiding
- Reinforced PVC outer sheath
- Colour: black (RAL 9005)

### Technical data

- Mutual capacitance**  
(800 Hz): max. 60 nF/km
- 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
- Temperature range**  
Fixed installation: -40°C to +70°C
- Characteristic impedance**  
100 Ohm

Article number	Cable type	Article designation	Number of pairs and mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for outdoor use and direct burial, UV-resistant</b>						
2170207	Remote bus cable (RBC)	UNITRONIC® BUS IBS Yv	3 x 2 x 0.22	9.3	37.0	94
2170217	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS Yv COMBI	3 x 2 x 0,22 + 3 x 1,0	9.4	60.0	128

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Cables for bus system EIB**

Characteristic impedance: 75 ohm



## UNITRONIC® BUS EIB / KNX



**Info**

- EIB / European Installation Bus
- KNX/communication in building management

**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, solid bare copper conductor, ø 0.8 mm, measurements 2 x 2 x 0.8 ø. 4 solid cores twisted to a star quad; colours of cores: 1st pair red + black, 2nd pair white + yellow.
- Screening: wrapped with aluminium-laminated plastic foil
- PVC-based outer sheath
- Colour: green
- COMBI version with additional power supply cables 3 x 1.5 mm<sup>2</sup>; core colours: blue, black, green-yellow

**Technical data**

- 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:  
10 x cable 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 mm <sup>2</sup> per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
<b>PVC versions</b>					
2170240	UNITRONIC® BUS EIB	2 x 2 x 0.8	6.6	21.0	54
2170242	UNITRONIC® BUS EIB COMBI	2 x 2 x 0,8 mm + 3 x 1,5 mm <sup>2</sup>	12.7	64.0	128
<b>Halogen-free versions</b>					
2170241	UNITRONIC® BUS EIB H	2 x 2 x 0.8	6.6	21.0	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 100/100kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

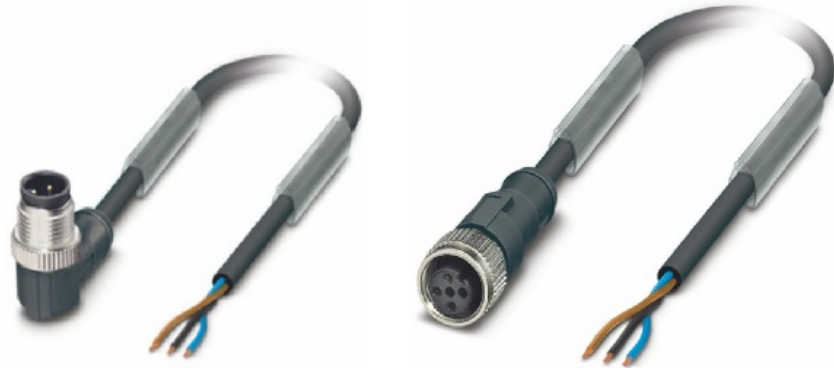
**Accessories**

- SENSOR STRIP stripping tool refer to page 912

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## S/A cable: M12 connector/socket on free conductor end



### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 3-pin connector
- Plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>					
22260221	AB-C3-M12MS-2,0PUR	2	250	4	1
22260222	AB-C3-M12MS-5,0PUR	5	250	4	1
22260249	AB-C3-M12MS-10,0PUR	10	250	4	1
<b>Angled connector</b>					
22260223	AB-C3-M12MA-2,0PUR	2	250	4	1
22260224	AB-C3-M12MA-5,0PUR	5	250	4	1
22260256	AB-C3-M12MA-10,0PUR	10	250	4	1
<b>Straight socket</b>					
22260257	AB-C3-2,0PUR-M12FS	2	250	4	1
22260250	AB-C3-5,0PUR-M12FS	5	250	4	1
22260251	AB-C3-10,0PUR-M12FS	10	250	4	1
22260080	AB-C3-2,0PVC-M12FS	2	250	4	1
22260663	AB-C3-5,0PVC-M12FS	5	250	4	1
22260081	AB-C3-10,0PVC-M12FS	10	250	4	1
<b>Straight socket with LEDs</b>					
22260252	AB-C3-2,0PUR-M12FS-2L	2	24	4	1
22260265	AB-C3-5,0PUR-M12FS-2L	5	24	4	1
22260266	AB-C3-10,0PUR-M12FS-2L	10	24	4	1
<b>Angled socket</b>					
22260258	AB-C3-2,0PUR-M12FA	2	250	4	1
22260259	AB-C3-5,0PUR-M12FA	5	250	4	1
22260260	AB-C3-10,0PUR-M12FA	10	250	4	1
<b>Angled socket with LEDs</b>					
22260253	AB-C3-2,0PUR-M12FA-2L	2	24	4	1
22260254	AB-C3-5,0PUR-M12FA-2L	5	24	4	1
22260255	AB-C3-10,0PUR-M12FA-2L	10	24	4	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector on M12 socket



### ■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 3-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### ■ Product make-up

- Fixed flexible control cable
- Design: 3 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### ■ Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260233	AB-C3-M12MS-0,3PUR-M12FS	0.3	250	4	no	1
22260234	AB-C3-M12MS-0,6PUR-M12FS	0.6	250	4	no	1
22260235	AB-C3-M12MS-1,0PUR-M12FS	1	250	4	no	1
22260236	AB-C3-M12MS-2,0PUR-M12FS	2	250	4	no	1
<b>Straight connector to angled socket</b>						
22260237	AB-C3-M12MS-0,3PUR-M12FA	0.3	250	4	no	1
22260238	AB-C3-M12MS-0,6PUR-M12FA	0.6	250	4	no	1
22260239	AB-C3-M12MS-1,0PUR-M12FA	1	250	4	no	1
22260240	AB-C3-M12MS-2,0PUR-M12FA	2	250	4	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260261	AB-C3-M12MS-0,3PUR-M12FA-2L	0.3	24	4	2 LED	1
22260262	AB-C3-M12MS-0,6PUR-M12FA-2L	0.6	24	4	2 LED	1
22260263	AB-C3-M12MS-1,0PUR-M12FA-2L	1	24	4	2 LED	1
22260264	AB-C3-M12MS-2,0PUR-M12FA-2L	2	24	4	2 LED	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector on M8 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 3-pin connector
- Plug with M12 thread to socket with M8 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0/f</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260225	AB-C3-M12MS-0,3PUR-M8FS	0.3	60	3	no	1
22260226	AB-C3-M12MS-0,6PUR-M8FS	0.6	60	3	no	1
22260227	AB-C3-M12MS-1,0PUR-M8FS	1	60	3	no	1
22260228	AB-C3-M12MS-2,0PUR-M8FS	2	60	3	no	1
<b>Straight connector to angled socket</b>						
22260229	AB-C3-M12MS-0,3PUR-M8FA	0.3	60	3	no	1
22260230	AB-C3-M12MS-0,6PUR-M8FA	0.6	60	3	no	1
22260231	AB-C3-M12MS-1,0PUR-M8FA	1	60	3	no	1
22260232	AB-C3-M12MS-2,0PUR-M8FA	2	60	3	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260267	AB-C3-M12MS-0,3PUR-M8FA-2L	0.3	24	3	2 LED	1
22260268	AB-C3-M12MS-0,6PUR-M8FA-2L	0.6	24	3	2 LED	1
22260269	AB-C3-M12MS-1,0PUR-M8FA-2L	1	24	3	2 LED	1
22260270	AB-C3-M12MS-2,0PUR-M8FA-2L	2	24	3	2 LED	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M8 connector/socket on free conductor end



### ■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 3-pin connector
- Plug/socket with M8 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### ■ Product make-up

- Fixed flexible control cable
- Design: 3 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

### ■ Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0-1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C (PUR/PVC) Cable, fixed installation -40°C to +80°C (PUR) -25°C to +80°C (PVC) Cable, flexible installation -25°C to +80°C (PUR/PVC)
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>					
22260204	AB-C3-M8MS-2,0PUR	2	60	3	1
22260205	AB-C3-M8MS-5,0PUR	5	60	3	1
22260218	AB-C3-M8MS-10,0PUR	10	60	3	1
22260847	AB-C3-M8MS-2,0PVC	2	60	3	1
22260665	AB-C3-M8MS-5,0PVC	5	60	3	1
22260848	AB-C3-M8MS-10,0PVC	10	60	3	1
<b>Angled connector</b>					
22260053	AB-C3-M8MA-2,0PUR	2	60	3	1
22260987	AB-C3-M8MA-5,0PUR	5	60	3	1
22260055	AB-C3-M8MA-10,0PUR	10	60	3	1
<b>Straight socket</b>					
22260202	AB-C3-2,0PUR-M8FS	2	60	3	1
22260200	AB-C3-5,0PUR-M8FS	5	60	3	1
22260219	AB-C3-10,0PUR-M8FS	10	60	3	1
<b>Angled socket</b>					
22260203	AB-C3-2,0PUR-M8FA	2	60	3	1
22260201	AB-C3-5,0PUR-M8FA	5	60	3	1
22260220	AB-C3-10,0PUR-M8FA	10	60	3	1
<b>Angled socket with LEDs</b>					
22260275	AB-C3-2,0PUR-M8FA-2L	2	24	3	1
22260276	AB-C3-5,0PUR-M8FA-2L	5	24	3	1
22260277	AB-C3-10,0PUR-M8FA-2L	10	24	3	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M8 connector on M8 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 3-pin connector
- Plug with M8 thread to socket with M8 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0/f</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260206	AB-C3-M8MS-0,3PUR-M8FS	0.3	60	3	no	1
22260207	AB-C3-M8MS-0,6PUR-M8FS	0.6	60	3	no	1
22260208	AB-C3-M8MS-1,0PUR-M8FS	1	60	3	no	1
22260209	AB-C3-M8MS-2,0PUR-M8FS	2	60	3	no	1
<b>Straight connector to angled socket</b>						
22260210	AB-C3-M8MS-0,3PUR-M8FA	0.3	60	3	no	1
22260211	AB-C3-M8MS-0,6PUR-M8FA	0.6	60	3	no	1
22260212	AB-C3-M8MS-1,0PUR-M8FA	1	60	3	no	1
22260213	AB-C3-M8MS-2,0PUR-M8FA	2	60	3	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260214	AB-C3-M8MS-0,3PUR-M8FA-2L	0.3	24	3	2 LED	1
22260215	AB-C3-M8MS-0,6PUR-M8FA-2L	0.6	24	3	2 LED	1
22260216	AB-C3-M8MS-1,0PUR-M8FA-2L	1	24	3	2 LED	1
22260217	AB-C3-M8MS-2,0PUR-M8FA-2L	2	24	3	2 LED	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 T 17 for the definition and calculation of copper-related surcharges.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T 6

### Accessories

- FLEXIMARK® Label LMB refer to page 882

**UNITRONIC® Fieldbus**

3-pin sensor/actuator cordsets



## S/A cable: M8 connector on M12 socket



**Benefits**

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- 3-pin connector
- Plug with M8 thread to socket with M12 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

**Product make-up**

- Fixed flexible control cable
- Design: 3 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

**Technical data**

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260241	AB-C3-M8MS-0,3PUR-M12FS	0.3	60	3	no	1
22260242	AB-C3-M8MS-0,6PUR-M12FS	0.6	60	3	no	1
22260243	AB-C3-M8MS-1,0PUR-M12FS	1	60	3	no	1
22260244	AB-C3-M8MS-2,0PUR-M12FS	2	60	3	no	1
<b>Straight connector to angled socket</b>						
22260245	AB-C3-M8MS-0,3PUR-M12FA	0.3	60	3	no	1
22260246	AB-C3-M8MS-0,6PUR-M12FA	0.6	60	3	no	1
22260247	AB-C3-M8MS-1,0PUR-M12FA	1	60	3	no	1
22260248	AB-C3-M8MS-2,0PUR-M12FA	2	60	3	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260271	AB-C3-M8MS-0,3PUR-M12FA-2L	0.3	24	3	2 LED	1
22260272	AB-C3-M8MS-0,6PUR-M12FA-2L	0.6	24	3	2 LED	1
22260273	AB-C3-M8MS-1,0PUR-M12FA-2L	1	24	3	2 LED	1
22260274	AB-C3-M8MS-2,0PUR-M12FA-2L	2	24	3	2 LED	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

**Accessories**

- FLEXIMARK® Label LMB refer to page 882

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
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 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX





## S/A cable: M12 connector/socket on free conductor end



### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>Temperature</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin connector
- Plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>					
22260320	AB-C4-M12MS- 2,0PUR	2	250	4	1
22260321	AB-C4-M12MS- 5,0PUR	5	250	4	1
22260342	AB-C4-M12MS-10,0PUR	10	250	4	1
<b>Angled connector</b>					
22260301	AB-C4-M12MA-2,0PUR	2	250	4	1
22260302	AB-C4-M12MA-5,0PUR	5	250	4	1
22260303	AB-C4-M12MA-10,0PUR	10	250	4	1
<b>Straight socket</b>					
22260322	AB-C4- 2,0PUR-M12FS	2	250	4	1
22260323	AB-C4- 5,0PUR-M12FS	5	250	4	1
22260343	AB-C4-10,0PUR-M12FS	10	250	4	1
22260688	AB-C4- 2,0PVC-M12FS	2	250	4	1
22260689	AB-C4-5,0PVC-M12FS	5	250	4	1
22260685	AB-C4-10,0PVC-M12FS	10	250	4	1
<b>Straight socket with LEDs</b>					
22260344	AB-C4- 2,0PUR-M12FS-2L	2	24	4	1
22260345	AB-C4- 5,0PUR-M12FS-2L	5	24	4	1
22260346	AB-C4-10,0PUR-M12FS-2L	10	24	4	1
<b>Angled socket</b>					
22260324	AB-C4- 2,0PUR-M12FA	2	250	4	1
22260325	AB-C4- 5,0PUR-M12FA	5	250	4	1
22260341	AB-C4-10,0PUR-M12FA	10	250	4	1
22260841	AB-C4- 2,0PVC-M12FA	2	250	4	1
22260678	AB-C4-5,0PVC-M12FA	5	250	4	1
22260683	AB-C4-10,0PVC-M12FA	10	250	4	1
<b>Angled socket with LEDs</b>					
22260326	AB-C4- 2,0PUR-M12FA-3L	2	24	4	1
22260327	AB-C4- 5,0PUR-M12FA-3L	5	24	4	1
22260340	AB-C4-10,0PUR-M12FA-3L	10	24	4	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector on M12 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0-1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C (PUR/PVC) Cable, fixed installation -40°C to +80°C (PUR) -25°C to +80°C (PVC) Cable, flexible installation -25°C to +80°C (PUR/PVC)
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260328	AB-C4-M12MS-0,3PUR-M12FS	0.3	250	4	no	1
22260329	AB-C4-M12MS-0,6PUR-M12FS	0.6	250	4	no	1
22260330	AB-C4-M12MS-1,0PUR-M12FS	1	250	4	no	1
22260331	AB-C4-M12MS-2,0PUR-M12FS	2	250	4	no	1
<b>Straight connector to angled socket</b>						
22260332	AB-C4-M12MS-0,3PUR-M12FA	0.3	250	4	no	1
22260333	AB-C4-M12MS-0,6PUR-M12FA	0.6	250	4	no	1
22260334	AB-C4-M12MS-1,0PUR-M12FA	1	250	4	no	1
22260335	AB-C4-M12MS-2,0PUR-M12FA	2	250	4	no	1
22260832	AB-C4-M12MS-2,0PVC-M12FA	2	250	4	no	1
22260705	AB-C4-M12MS-5,0PVC-M12FA	5	250	4	no	1
22260833	AB-C4-M12MS-10,0PVC-M12FA	10	250	4	no	1
<b>Angled connector to straight socket</b>						
22260304	AB-C4-M12MA-0,3PUR-M12FS	0.3	250	4	no	1
22260305	AB-C4-M12MA-0,6PUR-M12FS	0.6	250	4	no	1
22260306	AB-C4-M12MA-1,0PUR-M12FS	1	250	4	no	1
22260307	AB-C4-M12MA-2,0PUR-M12FS	2	250	4	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260336	AB-C4-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260337	AB-C4-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260338	AB-C4-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260339	AB-C4-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector on M8 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin connector
- Plug with M12 thread to socket with M8 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0 ff</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260347	AB-C4-M12MS-0,3PUR-M8FS	0.3	30	3	no	1
22260349	AB-C4-M12MS-0,6PUR-M8FS	0.6	30	3	no	1
22260350	AB-C4-M12MS-1,0PUR-M8FS	1	30	3	no	1
22260348	AB-C4-M12MS-2,0PUR-M8FS	2	30	3	no	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M8 connector/socket on free conductor end



### ■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 4-pin connector
- Plug/socket with M8 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### ■ Product make-up

- Fixed flexible control cable
- Design: 4 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### ■ Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>					
22260300	AB-C4-M8MS-2,0PUR	2	30	3	1
22260308	AB-C4-M8MS-5,0PUR	5	30	3	1
22260318	AB-C4-M8MS-10,0PUR	10	30	3	1
<b>Angled connector</b>					
22260056	AB-C4-M8MA-2,0PUR	2	30	3	1
22260057	AB-C4-M8MA-5,0PUR	5	30	3	1
22260058	AB-C4-M8MA-10,0PUR	10	30	3	1
<b>Straight socket</b>					
22260309	AB-C4- 2,0PUR-M8FS	2	30	3	1
22260310	AB-C4- 5,0PUR-M8FS	5	30	3	1
22260317	AB-C4-10,0PUR-M8FS	10	30	3	1
<b>Angled socket</b>					
22260311	AB-C4- 2,0PUR-M8FA	2	30	3	1
22260312	AB-C4- 5,0PUR-M8FA	5	30	3	1
22260319	AB-C4-10,0PUR-M8FA	10	30	3	1

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 Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M8 connector on M8 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin connector
- Plug with M8 thread to socket with M8 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0/1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260313	AB-C4-M8MS-0,3PUR-M8FS	0.3	30	3	no	1
22260314	AB-C4-M8MS-0,6PUR-M8FS	0.6	30	3	no	1
22260315	AB-C4-M8MS-1,0PUR-M8FS	1	30	3	no	1
22260316	AB-C4-M8MS-2,0PUR-M8FS	2	30	3	no	1
<b>Straight connector to angled socket</b>						
22260059	AB-C4-M8MS-0,3PUR-M8FA	0.3	30	3	no	1
22260060	AB-C4-M8MS-0,6PUR-M8FA	0.6	30	3	no	1
22260061	AB-C4-M8MS-1,0PUR-M8FA	1	30	3	no	1
22260062	AB-C4-M8MS-2,0PUR-M8FA	2	30	3	no	1

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 Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector/socket on free conductor end



### ■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 5-pin connector
- Plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### ■ Product make-up

- Fixed flexible control cable
- Design: 5 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4), green/yellow(5)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### ■ Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>					
22260400	AB-C5-M12MS-2,0PUR	2	60	4	1
22260401	AB-C5-M12MS-5,0PUR	5	60	4	1
22260414	AB-C5-M12MS-10,0PUR	10	60	4	1
<b>Angled connector</b>					
22260402	AB-C5-M12MA-2,0PUR	2	60	4	1
22260403	AB-C5-M12MA-5,0PUR	5	60	4	1
22260417	AB-C5-M12MA-10,0PUR	10	60	4	1
<b>Straight socket</b>					
22260404	AB-C5- 2,0PUR-M12FS	2	60	4	1
22260405	AB-C5- 5,0PUR-M12FS	5	60	4	1
22260415	AB-C5-10,0PUR-M12FS	10	60	4	1
<b>Angled socket</b>					
22260406	AB-C5- 2,0PUR-M12FA	2	60	4	1
22260407	AB-C5- 5,0PUR-M12FA	5	60	4	1
22260418	AB-C5-10,0PUR-M12FA	10	60	4	1
<b>Angled socket with LEDs</b>					
22260408	AB-C5- 2,0PUR-M12FA-3L	2	24	4	1
22260409	AB-C5- 5,0PUR-M12FA-3L	5	24	4	1
22260416	AB-C5-10,0PUR-M12FA-3L	10	24	4	1
22260760	AB-C5-25,0PUR-M12FA-3L	25	24	4	1

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### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## S/A cable: M 12 connector on M 12 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 5-pin connector
- Plug with M 12 thread to socket with M 12 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 5 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4), green/yellow(5)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0/f</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Straight connector to straight socket</b>						
22260410	AB-C5-M12MS-0,3PUR-M12FS	0.3	60	4	no	1
22260411	AB-C5-M12MS-0,6PUR-M12FS	0.6	60	4	no	1
22260412	AB-C5-M12MS-1,0PUR-M12FS	1	60	4	no	1
22260413	AB-C5-M12MS-2,0PUR-M12FS	2	60	4	no	1
<b>Straight connector to angled socket</b>						
22260063	AB-C5-M12MS-0,3PUR-M12FA	0.3	60	4	no	1
22260064	AB-C5-M12MS-0,6PUR-M12FA	0.6	60	4	no	1
22260065	AB-C5-M12MS-1,0PUR-M12FA	1	60	4	no	1
22260066	AB-C5-M12MS-2,0PUR-M12FA	2	60	4	no	1
<b>Straight connector to angled socket with LEDs</b>						
22260067	AB-C5-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260068	AB-C5-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260069	AB-C5-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260070	AB-C5-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	1

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 Copper price basis: inclusive of copper. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 UL approvals can be found in the data sheet  
 For the UNITRONIC® field bus type code, please see table T 6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: M12 connector/socket on free conductor end



### ■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 8-pin connector
- Design: plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### ■ Product make-up

- Fixed flexible control cable
- Design: 8 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: white(1), brown(2), green(3), yellow(4), grey(5), pink(6), blue(7), red(8)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### ■ Technical data



**Protection rating**  
IP65/IP67/IP68/IP69K



**Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-25°C to +80°C

**Contact material**  
CuSn

**Contact surface material**  
Ni/Au

**Coding**  
A - Standard

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> (A)	PU
<b>Straight connector</b>					
22260091	AB-C8-M12MS-2,0PUR	2	30	2	1
22260092	AB-C8-M12MS-5,0PUR	5	30	2	1
22260093	AB-C8-M12MS-10,0PUR	10	30	2	1
<b>Angled connector</b>					
22260094	AB-C8-M12MA-2,0PUR	2	30	2	1
22260095	AB-C8-M12MA-5,0PUR	5	30	2	1
22260096	AB-C8-M12MA-10,0PUR	10	30	2	1
<b>Straight socket</b>					
22260726	AB-C8-2,0PUR-M12FS	2	30	2	1
22260728	AB-C8-5,0PUR-M12FS	5	30	2	1
22260729	AB-C8-10,0PUR-M12FS	10	30	2	1
<b>Angled socket</b>					
22260141	AB-C8-2,0PUR-M12FA	2	30	2	1
<b>8 pole angled socket</b>					
22260615	AB-C8-5,0PUR-M12FA	5	30	2	1
22260616	AB-C8-10,0PUR-M12FA	10	30	2	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.  
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6  
UL approvals can be found in the data sheet

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882





## S/A cable: M 12 connector on M 12 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 8-pin connector
- Plug with M 12 thread to socket with M 12 thread
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 8 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: white(1), brown(2), green(3), yellow(4), grey(5), pink(6), blue(7), red(8)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0/1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +90°C Cable, flexible installation -25°C to 80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector to straight socket</b>					
22260097	AB-C8-M 12MS-0,3PUR-M 12FS	0.3	30	2	1
22260098	AB-C8-M 12MS-0,6PUR-M 12FS	0.6	30	2	1
22260099	AB-C8-M 12MS-1,0PUR-M 12FS	1	30	2	1
22260042	AB-C8-M 12MS- 2,0PUR-M 12FS	2	30	2	1
<b>Straight connector to angled socket</b>					
22260137	AB-C8-M 12MS-0,3PUR-M 12FA	0.3	30	2	1
22260138	AB-C8-M 12MS-0,6PUR-M 12FA	0.6	30	2	1
22260139	AB-C8-M 12MS-1,0PUR-M 12FA	1	30	2	1
22260140	AB-C8-M 12MS-2,0PUR-M 12FA	2	30	2	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 T 17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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

For detailed technical information please refer to the data sheet

For the UNITRONIC® field bus type code, please see table T6

UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: shielded, M 12 connector/socket on free conductor end



**Info**

- Suitable for drag chains

**Benefits**

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- 3, 4 and 5-pin version
- Plug/socket with M 12 thread to free conductor end
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

**Product make-up**

- Fixed flexible control cable
- Design:
  - 3 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
  - 4 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
  - 5 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Outer sheath: PUR, halogen-free, screened
- Outer sheath colour: black
- Shielding is conducted over the knurl

**Technical data**



**Protection rating**  
IP65/IP67



**Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-25°C to +80°C  
Cable, flexible installation  
-25°C to +80°C

**Contact material**  
CuSn

**Contact surface material**  
Ni/Au

**Coding**  
A - Standard

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>3-pin straight connector</b>					
22260453	AB-C3-M12MS- 2,0PUR-SH	2	250	4	1
22260454	AB-C3-M12MS- 5,0PUR-SH	5	250	4	1
22260455	AB-C3-M12MS-10,0PUR-SH	10	250	4	1
<b>3-pin straight socket</b>					
22260450	AB-C3- 2,0PUR-M12FS-SH	2	250	4	1
22260451	AB-C3- 5,0PUR-M12FS-SH	5	250	4	1
22260452	AB-C3-10,0PUR-M12FS-SH	10	250	4	1
<b>3-pin angled socket</b>					
22260071	AB-C3- 2,0PUR-M12FA-SH	2	250	4	1
22260072	AB-C3- 5,0PUR-M12FA-SH	5	250	4	1
22260073	AB-C3-10,0PUR-M12FA-SH	10	250	4	1
<b>4-pin straight connector</b>					
22260459	AB-C4-M12MS- 2,0PUR-SH	2	250	4	1
22260460	AB-C4-M12MS- 5,0PUR-SH	5	250	4	1
22260461	AB-C4-M12MS-10,0PUR-SH	10	250	4	1
<b>4-pin straight socket</b>					
22260456	AB-C4- 2,0PUR-M12FS-SH	2	250	4	1
22260457	AB-C4- 5,0PUR-M12FS-SH	5	250	4	1
22260458	AB-C4-10,0PUR-M12FS-SH	10	250	4	1
22260823	AB-C4-20,0PUR-M12FS-SH	20	250	4	1
<b>4-pin angled socket</b>					
22260074	AB-C4- 2,0PUR-M12FA-SH	2	250	4	1
22260675	AB-C4- 5,0PUR-M12FA-SH	5	250	4	1
22260680	AB-C4-10,0PUR-M12FA-SH	10	250	4	1
<b>5-pin straight connector</b>					
22260465	AB-C5-M12MS- 2,0PUR-SH	2	60	4	1
22260466	AB-C5-M12MS- 5,0PUR-SH	5	60	4	1
22260467	AB-C5-M12MS-10,0PUR-SH	10	60	4	1
<b>5-pin straight socket</b>					
22260462	AB-C5- 2,0PUR-M12FS-SH	2	60	4	1
22260463	AB-C5- 5,0PUR-M12FS-SH	5	60	4	1
22260464	AB-C5-10,0PUR-M12FS-SH	10	60	4	1
<b>5-pin angled socket</b>					
22260946	AB-C5- 2,0PUR-M12FA-SH	2	60	4	1
22260714	AB-C5- 5,0PUR-M12FA-SH	5	60	4	1
22260991	AB-C5-10,0PUR-M12FA-SH	10	60	4	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.  
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6  
UL approvals can be found in the data sheet

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**New**

## S/A cable: Hygienic Design for Food&Beverage



### 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
- Standardised interfaces

### Application range

- Food and beverage industry
- Automation technology
- Mechanical engineering
- Plant engineering

### Product features

- 4-pin connectors with M12 thread to free conductor end
- Hygienic Design
- Stainless steel knurl (V4A)

### Product make-up

- Design: 4 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: TPE, halogen-free
- Outer sheath colour: grey RAL 7035

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+T</b>	<b>Ambient temperature (operation)</b> Plug/socket -40°C to +105°C Cable, fixed installation -40°C to +105°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Stainless steel
	<b>Gripping body material</b> PP

Article number	Article designation	Number of pins	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector</b>						
22262040	AB-C4-M12MS-2,0TPE-HD	4	2	250	4	1
22262041	AB-C4-M12MS-5,0TPE-HD	4	5	250	4	1
22262042	AB-C4-M12MS-10,0TPE-HD	4	10	250	4	1
<b>Straight socket</b>						
22262043	AB-C4-2,0TPE-M12FS-HD	4	2	250	4	1
22262044	AB-C4-5,0TPE-M12FS-HD	4	5	250	4	1
22262045	AB-C4-10,0TPE-M12FS-HD	4	10	250	4	1
<b>Angled socket</b>						
22262046	AB-C4-2,0TPE-M12FA-HD	4	2	250	4	1
22262047	AB-C4-5,0TPE-M12FA-HD	4	5	250	4	1
22262048	AB-C4-10,0TPE-M12FA-HD	4	10	250	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Customised cable lengths are available upon request.

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

For detailed technical information please refer to the data sheet

For the UNITRONIC® field bus type code, please see table T6



**New**

## Field mountable S/A connectors M 12 for Food&Beverage



### ■ Benefits

- Stainless steel knurl to ensure protection against corrosion
- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces

### ■ Application range

- Food and beverage industry
- Mechanical engineering
- Automation technology
- Plant engineering

### ■ Product features

- 4-pin connector
- Stainless steel knurl (V4A)
- Screw termination
- Free of paint-wetting impairment substances

### ■ Technical data

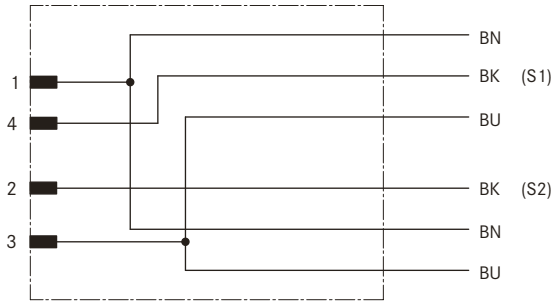
<b>IP</b>	<b>Protection rating</b> IP67
	<b>Ambient temperature (operation)</b> Plug/socket -40°C to +85°C
	<b>Contact material</b> CuZn (brass)
	<b>Contact surface material</b> Au (gold)
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Stainless steel

Article number	Article designation	Number of pins	Nominal voltage $U_N$ (V)	Nominal current $I_N$ in (A)	PU
<b>Angled socket, screw connection</b>					
22262051	AB-C4-M12FA-PG7-VA	4	250	4	1
<b>Straight socket, screw connection</b>					
22262050	AB-C4-M12FS-PG7-VA	4	250	4	1
<b>Straight connector, screw connection</b>					
22262049	AB-C4-M12MS-PG7-VA	4	250	4	1

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.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6



## S/A cable: straight M12 Y plug on 2x free conductor end



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin M12 Y connector
- Straight M12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

- IP Protection rating**  
IP65/IP67/IP68/IP69K
- Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-25°C to +80°C
- Contact material**  
CuSn
- Contact surface material**  
Ni/Au
- Coding**  
A - Standard
- Knurl material**  
Zinc die-cast, nickel-plated
- Gripping body material**  
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I <sub>N</sub> in (A)	PU
<b>Y plug to 2 x free conductor end</b>				
22260500	AB-C3-M12Y-2,0PUR	2	4	1
22260513	AB-C3-M12Y-5,0PUR	5	4	1
22260526	AB-C3-M12Y-10,0PUR	10	4	1

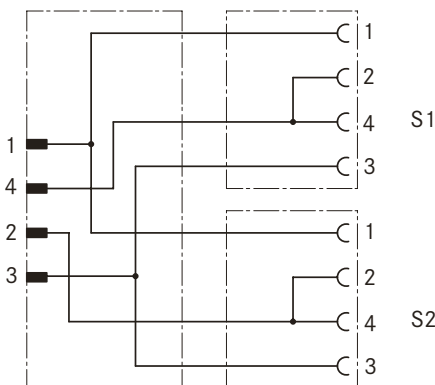
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6  
UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: straight M 12 Y plug on 2x M 12 socket



**Info**

- PIN 2+4 are bridged on M 12 sockets

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin M 12 Y connector on 2 x M 12 socket (4-pin)
- Straight M 12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

**IP Protection rating**  
IP65/IP67/IP68/IP69K

**Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-25°C to +80°C

**Contact material**  
CuSn

**Contact surface material**  
Ni/Au

**Coding**  
A - Standard

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I <sub>n</sub> in (A)	Status display	PU
<b>Y plug to straight socket</b>					
22260501	AB-C3-M 12Y-0,3PUR-M 12FS-B	0.3	4	no	1
22260502	AB-C3-M 12Y-0,6PUR-M 12FS-B	0.6	4	no	1
22260503	AB-C3-M 12Y-1,0PUR-M 12FS-B	1	4	no	1
22260504	AB-C3-M 12Y-2,0PUR-M 12FS-B	2	4	no	1
<b>Y plug to angled socket</b>					
22260505	AB-C3-M 12Y-0,3PUR-M 12FA-B	0.3	4	no	1
22260506	AB-C3-M 12Y-0,6PUR-M 12FA-B	0.6	4	no	1
22260507	AB-C3-M 12Y-1,0PUR-M 12FA-B	1	4	no	1
22260508	AB-C3-M 12Y-2,0PUR-M 12FA-B	2	4	no	1
<b>Y plug to angled socket with LEDs</b>					
22260509	AB-C3-M 12Y-0,3PUR-M 12FA-2L-B	0.3	4	2 LED	1
22260510	AB-C3-M 12Y-0,6PUR-M 12FA-2L-B	0.6	4	2 LED	1
22260511	AB-C3-M 12Y-1,0PUR-M 12FA-2L-B	1	4	2 LED	1
22260512	AB-C3-M 12Y-2,0PUR-M 12FA-2L-B	2	4	2 LED	1

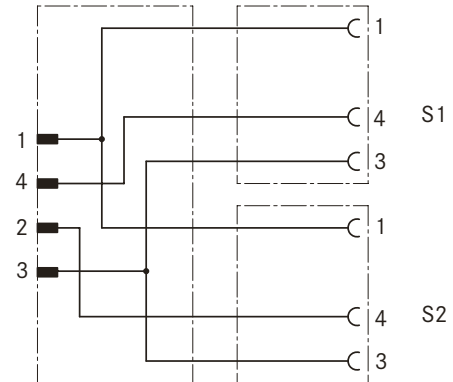
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.  
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For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T 6  
UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: straight M12 Y plug on 2x M8 socket



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin M12 Y connector on 2 x M8 socket (3-pin)
- Straight M12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 3 x 0.25 mm<sup>2</sup> (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Technical data

- IP Protection rating**  
IP65/IP67/IP68/IP69K
- Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-25°C to +80°C
- Contact material**  
CuSn
- Contact surface material**  
Ni/Au
- Coding**  
A - Standard
- Knurl material**  
Zinc die-cast, nickel-plated
- Gripping body material**  
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I <sub>N</sub> in (A)	Status display	PU
<b>Y plug to straight socket</b>					
22260514	AB-C3-M12Y-0,3PUR-M8FS	0.3	3	no	1
22260515	AB-C3-M12Y-0,6PUR-M8FS	0.6	3	no	1
22260516	AB-C3-M12Y-1,0PUR-M8FS	1	3	no	1
22260517	AB-C3-M12Y-2,0PUR-M8FS	2	3	no	1
<b>Y plug to angled socket</b>					
22260518	AB-C3-M12Y-0,3PUR-M8FA	0.3	3	no	1
22260519	AB-C3-M12Y-0,6PUR-M8FA	0.6	3	no	1
22260520	AB-C3-M12Y-1,0PUR-M8FA	1	3	no	1
22260521	AB-C3-M12Y-2,0PUR-M8FA	2	3	no	1
<b>Y plug to angled socket with LEDs</b>					
22260522	AB-C3-M12Y-0,3PUR-M8FA-2L	0.3	3	2 LED	1
22260523	AB-C3-M12Y-0,6PUR-M8FA-2L	0.6	3	2 LED	1
22260524	AB-C3-M12Y-1,0PUR-M8FA-2L	1	3	2 LED	1
22260525	AB-C3-M12Y-2,0PUR-M8FA-2L	2	3	2 LED	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 T 17 for the definition and calculation of copper-related surcharges.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6  
 UL approvals can be found in the data sheet

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## Y distributor



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- M12 and M8 design
- M12 design with screw hole
- Free of paint-wetting impairment substances

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67
<b>0 +</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
M12 Y distributor, 3-pin, +PE, straight M12 connector to 2 x straight M12 socket, PIN 2+4 bridged				
22260600	AB-C3-M12Y-2XM12FS B E	60	4	5
M12 Y distributor, 3-pin, +PE, straight M12 connector to 2 x straight M12 socket				
22260601	AB-C3-M12Y-2XM12FS E	60	4	5
M12 Y distributor, 5-pin, straight M12 connector to 2 x straight M12 socket, parallel distributor				
22260602	AB-C5-M12Y-2XM12FS V	60	4	5
M8 Y distributor, with 4-pin M8 connector to 2 x 3-pin M8 socket				
22260603	AB-C3-M8Y-2XM8FS	30	3	5
M8 Y distributor, with M8 connector to M8 socket, 3-pin parallel distributor				
22260604	AB-C3-M8Y-2XM8FS V	60	3	5

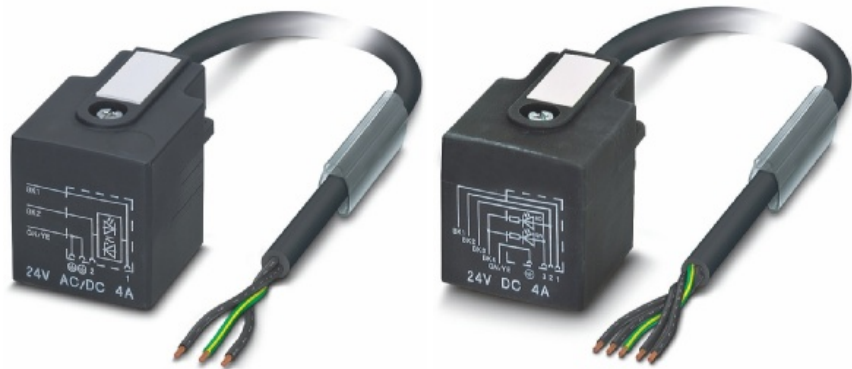
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 Note: the table value 'Number of pins' corresponds to the number of pins for sockets  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

ÖLFLEX®  
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 ACCESSORIES  
 APPENDIX





## S/A cable: 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
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 3- and 5-pin valve connectors
- With protective circuit (Z diode)  
PE-bridged  
Valve connector for pressure switches
- With LED status indicator (yellow)  
With display switch state (2 LEDs, red/green)
- The cables have marker carriers
- Free of paint-wetting impairment substances

### Product make-up

- Cable design:  
3 x 0.5 mm<sup>2</sup> (28 x 0.15 mm)  
5 x 0.5 mm<sup>2</sup> (28 x 0,15mm)
- Core colours:  
black 1, black 2, green/yellow  
black 1, black 2, black 3, black 4, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter:  
4.5 mm  
5.3 mm
- Suitable for drag chains

### Technical data

<b>IP</b>	<b>Protection rating</b> IP 67
<b>⚡</b>	<b>Ambient temperature (operation)</b> Valve connector -20°C to +85°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -15°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ag
	<b>Coding</b> A - Standard

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>n</sub> in (A)	Status display	PU
<b>Valve connector type A (18 mm)</b>						
22260584	AB-C3- 2,0PUR-A-1L-S	2	24	4	1 LED	1
22260576	AB-C3- 5,0PUR-A-1L-S	5	24	4	1 LED	1
22260577	AB-C3-10,0PUR-A-1L-S	10	24	4	1 LED	1
<b>Valve connector type A (18mm) for pressure switch</b>						
22260589	AB-C5-2,0PUR-AD-2L	2	24	4	2 LED	1
22260590	AB-C5-5,0PUR-AD-2L	5	24	4	2 LED	1
22260591	AB-C5-10,0PUR-AD-2L	10	24	4	2 LED	1
<b>Valve connector type B (10 mm)</b>						
22260585	AB-C3- 2,0PUR-B-1L-S	2	24	4	1 LED	1
22260578	AB-C3- 5,0PUR-B-1L-S	5	24	4	1 LED	1
22260579	AB-C3-10,0PUR-B-1L-S	10	24	4	1 LED	1
<b>Valve connector type BI (11 mm)</b>						
22260586	AB-C3- 2,0PUR-BI-1L-S	2	24	4	1 LED	1
22260580	AB-C3- 5,0PUR-BI-1L-S	5	24	4	1 LED	1
22260581	AB-C3-10,0PUR-BI-1L-S	10	24	4	1 LED	1
<b>Valve connector type C (8 mm)</b>						
22260587	AB-C3- 2,0PUR-C-1L-S	2	24	4	1 LED	1
22260582	AB-C3- 5,0PUR-C-1L-S	5	24	4	1 LED	1
22260583	AB-C3-10,0PUR-C-1L-S	10	24	4	1 LED	1
<b>Valve connector type CI (9.4 mm)</b>						
22260588	AB-C3- 2,0PUR-CI-1L-S	2	24	4	1 LED	1
22260574	AB-C3- 5,0PUR-CI-1L-S	5	24	4	1 LED	1
22260575	AB-C3-10,0PUR-CI-1L-S	10	24	4	1 LED	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 are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A cable: 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
- Standardised interfaces

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- 3- and 5-pin valve connectors
- With protective circuit (Z diode)  
PE-bridged  
Valve connector for pressure switches
- With LED status indicator (yellow)  
With display switch state (2 LEDs, red/green)
- The cables have marker carriers
- Free of paint-wetting impairment substances

### ■ Product make-up

- Cable design:  
3 x 0.5 mm<sup>2</sup> (28 x 0.15 mm)  
5 x 0.5 mm<sup>2</sup> (28 x 0.15mm)
- Core colours:  
black 1, black 2, green/yellow  
black 1, black 2, black 3, black 4, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter:  
4.5 mm  
5.3 mm
- Suitable for drag chains

### ■ Technical data

<b>IP</b>	<b>Protection rating</b> IP 67
<b>0</b>	<b>Ambient temperature (operation)</b> Valve connector -20°C to +85°C Connector/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -15°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>n</sub> (V)	Nominal current I <sub>n</sub> in (A)	Status display	PU
<b>Straight connector to valve connector type A (18 mm)</b>						
22260550	AB-C3-M12MS-0,3PUR-A-1L-S	0.3	24	4	1 LED	1
22260551	AB-C3-M12MS-0,6PUR-A-1L-S	0.6	24	4	1 LED	1
22260552	AB-C3-M12MS-1,0PUR-A-1L-S	1	24	4	1 LED	1
22260553	AB-C3-M12MS-2,0PUR-A-1L-S	2	24	4	1 LED	1
<b>Straight connector to valve connector type A (18mm) for pressure switch</b>						
22260573	AB-C5-M12MS-0,3PUR-AD-2L	0.3	24	4	2 LED	1
22260572	AB-C5-M12MS-0,6PUR-AD-2L	0.6	24	4	2 LED	1
22260571	AB-C5-M12MS-1,0PUR-AD-2L	1	24	4	2 LED	1
22260570	AB-C5-M12MS-2,0PUR-AD-2L	2	24	4	2 LED	1
<b>Straight connector to valve connector type B (10 mm)</b>						
22260558	AB-C3-M12MS-0,3PUR-B-1L-S	0.3	24	4	1 LED	1
22260559	AB-C3-M12MS-0,6PUR-B-1L-S	0.6	24	4	1 LED	1
22260560	AB-C3-M12MS-1,0PUR-B-1L-S	1	24	4	1 LED	1
22260561	AB-C3-M12MS-2,0PUR-B-1L-S	2	24	4	1 LED	1
<b>Straight connector to valve connector type Bi (11 mm)</b>						
22260554	AB-C3-M12MS-0,3PUR-Bi-1L-S	0.3	24	4	1 LED	1
22260555	AB-C3-M12MS-0,6PUR-Bi-1L-S	0.6	24	4	1 LED	1
22260556	AB-C3-M12MS-1,0PUR-Bi-1L-S	1	24	4	1 LED	1
22260557	AB-C3-M12MS-2,0PUR-Bi-1L-S	2	24	4	1 LED	1
<b>Straight connector to valve connector type C (8 mm)</b>						
22260566	AB-C3-M12MS-0,3PUR-C-1L-S	0.3	24	4	1 LED	1
22260567	AB-C3-M12MS-0,6PUR-C-1L-S	0.6	24	4	1 LED	1
22260568	AB-C3-M12MS-1,0PUR-C-1L-S	1	24	4	1 LED	1
22260569	AB-C3-M12MS-2,0PUR-C-1L-S	2	24	4	1 LED	1
<b>Straight connector to valve connector type Ci (9.4 mm)</b>						
22260562	AB-C3-M12MS-0,3PUR-Ci-1L-S	0.3	24	4	1 LED	1
22260563	AB-C3-M12MS-0,6PUR-Ci-1L-S	0.6	24	4	1 LED	1
22260564	AB-C3-M12MS-1,0PUR-Ci-1L-S	1	24	4	1 LED	1
22260565	AB-C3-M12MS-2,0PUR-Ci-1L-S	2	24	4	1 LED	1

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For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882

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 ACCESSORIES  
 APPENDIX



New

## Field mountable valve connectors

**Info**

- Type A also in grey housing available



**Benefits**

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- 3 and 5-pin valve connector
- Free of paint-wetting impairment substances
- Connection type: screw connection
- 2 gaskets for bigger cable outer diameter
- Central screw M3

**Suitable cables**

- ÖLFLEX® FD 855 P Page 120

**Technical data**

**IP Protection rating**  
IP 65

**Ambient temperature (operation)**  
Valve connector without protective circuit -25°C to +90°C  
Valve connector with protective circuit -25°C to +60°C

**Standards/stipulations**  
Valve connector according to EN 175301-803

Article number	Article designation	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Status display	Protective circuit	PU
<b>Valve connector type A (18 mm)</b>								
22260161	AB-C3-M16-A-P	6.0	10.0	230	10	Without	Without	1
22261030	AB-C3-M16-A-1L-S-P	6.0	10.0	24	4	1 LED	Z diode	1
22261069	AB-C3-M16-A-GY-1L-S	6.0	10.0	24	4	1 LED	Z diode	1
22261036	AB-C3-M16-A-1L-SV	6.0	10.0	24	1.5	1 LED	Varistor	1
22261037	AB-C3-M16-A-1L-SV-230	6.0	10.0	230	1.5	1 LED	Varistor	1
<b>Valve connector type A (18mm) with commutators</b>								
22261038	AB-C3-M16-A-1L-SVC	6.0	10.0	24	1.5	1 LED	Varistor	1
22261039	AB-C3-M16-A-1L-SVC-230	6.0	10.0	230	1.5	1 LED	Varistor	1
<b>Valve connector type A (18mm) for pressure switch</b>								
22261040	AB-C5-M16-AD-2L-P	6.0	10.0	24	1.5	2 LED	Without	1
<b>Valve connector type B (10 mm)</b>								
22261041	AB-C3-M16-B	4.0	8.0	230	10	Without	Without	1
22261042	AB-C3-M16-B-1L-S-P	4.0	8.0	24	4	1 LED	Z diode	1
22261043	AB-C3-M16-B-1L-SV	4.0	8.0	24	1.5	1 LED	Varistor	1
22261044	AB-C3-M16-B-1L-SV-230	4.0	8.0	230	1.5	1 LED	Varistor	1
<b>Valve connector type BI (11 mm)</b>								
22261045	AB-C3-M16-BI	4.0	8.0	230	10	Without	Without	1
22261046	AB-C3-M16-BI-1L-S-P	4.0	8.0	24	4	1 LED	Z diode	1
22261047	AB-C3-M16-BI-1L-SV	4.0	8.0	24	1.5	1 LED	Varistor	1
22261048	AB-C3-M16-BI-1L-SV-230	4.0	8.0	230	1.5	1 LED	Varistor	1
<b>Valve connector type C (8 mm)</b>								
22261049	AB-C3-M12-C	4.0	6.0	230	6	Without	Without	1
22261050	AB-C3-M12-C-1L-SUP	4.0	6.0	24	1.5	1 LED	Suppressor diode	1
22261051	AB-C3-M12-C-1L-SV-P	4.0	6.0	24	1.5	1 LED	Varistor	1
22261052	AB-C3-M12-C-1L-SV-230	4.0	6.0	230	1.5	1 LED	Varistor	1
<b>Valve connector type CI (9.4 mm)</b>								
22261053	AB-C3-M12-CI	4.0	6.0	230	6	Without	Without	1
22261054	AB-C3-M12-CI-SUP	4.0	6.0	24	1.5	1 LED	Suppressor diode	1
22261055	AB-C3-M12-CI-1L-SV-P	4.0	6.0	24	1.5	1 LED	Varistor	1
22261056	AB-C3-M12-CI-1L-SV-230	4.0	6.0	230	1.5	1 LED	Varistor	1

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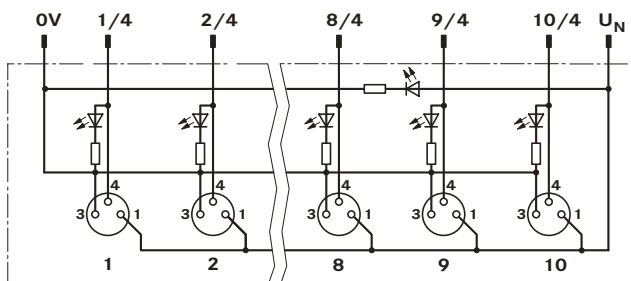
**Accessories**

- Conductor end sleeves AH, not insulated refer to page 919

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## S/A box with M8 slots and master cable



### Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The master cable is designed as a hybrid that transmits signals and power.
- There are no assembly costs as the master cable is already pre-assembled

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- With fixed master cable connection
- Single-occupied sensor/actuator box
- LEDs indicate the operating mode of the distributor and the status of the sensors
- Free of paint-wetting impairment substances

### Norm references / Approvals

- E-File number: E75770

### Product make-up

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black

### Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67
<b>0 +</b>	<b>Ambient temperature (operation)</b> -30°C to +80°C Cable, fixed installation -40°C to +90°C Cable, flexible installation -5°C to 80°C
<b>Amp.</b>	<b>Current rating per slot</b> 2 A

Article number	Article designation	Length (m)	Number of slots	Nominal voltage U <sub>N</sub> (V)	Total current (A)	Status display	PU
<b>With M8 master cable connection</b>							
22260026	AB-B4-M8L-4-5,0PUR	5.0	4	24	6	With LEDs	1
22260027	AB-B4-M8L-4-10,0PUR	10.0	4	24	6	With LEDs	1
22260028	AB-B6-M8L-6-5,0PUR	5.0	6	24	6	With LEDs	1
22260029	AB-B6-M8L-6-10,0PUR	10.0	6	24	6	With LEDs	1
22260030	AB-B8-M8L-8-5,0PUR	5.0	8	24	6	With LEDs	1
22260031	AB-B8-M8L-8-10,0PUR	10.0	8	24	6	With LEDs	1
22260032	AB-B10-M8L-10-5,0PUR	5.0	10	24	6	With LEDs	1
22260033	AB-B10-M8L-10-10,0PUR	10.0	10	24	6	With LEDs	1

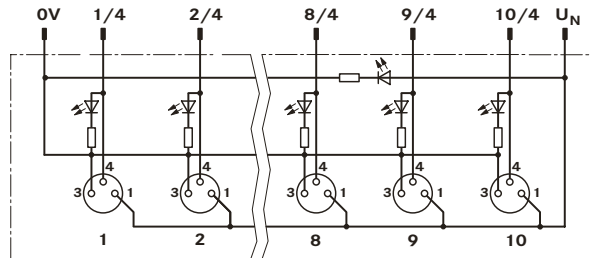
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 Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For the UNITRONIC® field bus type code, please see table T6  
 Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605)  
 For detailed technical information please refer to the data sheet

### Accessories

- Screw plug for unoccupied sockets



## S/A box with M8 slots and master cable connection M 16/M 12



### Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The detachable screw connection ensures universal pluggability and simple on-site assembly

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- With M12/M16 plug-in connection
- Single-occupied sensor/actuator box
- LEDs indicate the operating mode of the distributor and the status of the sensors
- Free of paint-wetting impairment substances

### Norm references / Approvals

- E-File number: E75770

### Suitable cables

- M16 socket with connected master cable Page 357
- M12 socket with connected master cable Page 358

### Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67
<b>0</b>	<b>Ambient temperature (operation)</b> -30°C to +80°C
<b>Amp.</b>	<b>Current rating per slot</b> 2 A

Article number	Article designation	Number of slots	Nominal voltage $U_N$ (V)	Total current (A)	Status display	PU
<b>With M16, 8-pin master cable connection</b>						
22260034	AB-B4-M8L-4-M16	4	24	6	With LEDs	1
<b>With M16, 10-pin master cable connection</b>						
22260035	AB-B6-M8L-6-M16	6	24	6	With LEDs	1
<b>With M16, 12-pin master cable connection</b>						
22260036	AB-B8-M8L-8-M16	8	24	6	With LEDs	1
<b>With M16, 14-pin master cable connection</b>						
22260037	AB-B10-M8L-10-M16	10	24	6	With LEDs	1
<b>With M12, 8-pin master cable connection</b>						
22260038	AB-B4-M8L-4-M12	4	24	4	With LEDs	1
22260039	AB-B6-M8L-6-M12	6	24	4	With LEDs	1

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.

For the UNITRONIC® field bus type code, please see table T6

Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605)

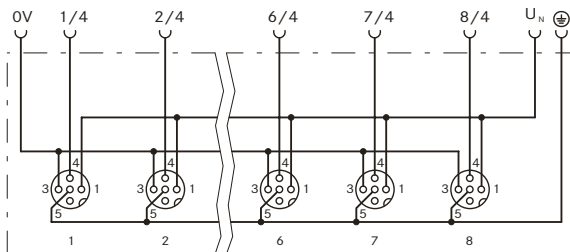
For detailed technical information please refer to the data sheet

### Accessories

- Screw plug for unoccupied sockets



## S/A box with M12 slots and master cable



### Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The master cable is designed as a hybrid that transmits signals and power.
- There are no assembly costs as the master cable is already pre-assembled

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- With fixed master cable connection
- Single or double-occupied sensor/actuator box
- With M12 quick-locking system, metal thread
- With LED diagnostic indicator
- Free of paint-wetting impairment substances

### Norm references / Approvals

- E-File number: E75770

### Product make-up

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black

### Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP69K
<b>Amp.</b>	<b>Max. current rating per path</b> 2 A
<b>Amp.</b>	<b>Current rating per slot</b> 4 A

Article number	Article designation	Length (m)	Number of slots	Nominal voltage $U_N$ (V)	Total current (A)	Status display	PU
<b>Single-occupied boxes, without LEDs</b>							
22260010	AB-B4-M12-4-5,0PUR	5.0	4	120	12	no	1
22260011	AB-B4-M12-4-10,0PUR	10.0	4	120	12	no	1
22260014	AB-B8-M12-8-5,0PUR	5.0	8	120	12	no	1
22260015	AB-B8-M12-8-10,0PUR	10.0	8	120	12	no	1
<b>Single occupied boxes, with LEDs</b>							
22260018	AB-B4-M12L-4-5,0PUR	5.0	4	24	12	With LEDs	1
22260019	AB-B4-M12L-4-10,0PUR	10.0	4	24	12	With LEDs	1
22260970	AB-B6-M12L-6-5,0PUR	5.0	6	24	12	With LEDs	1
22260022	AB-B8-M12L-8-5,0PUR	5.0	8	24	12	With LEDs	1
22260023	AB-B8-M12L-8-10,0PUR	10.0	8	24	12	With LEDs	1
<b>Double-occupied boxes, without LEDs</b>							
22260012	AB-B4-M12-8-5,0PUR	5.0	4	120	12	no	1
22260013	AB-B4-M12-8-10,0PUR	10.0	4	120	12	no	1
22260016	AB-B8-M12-16-5,0PUR	5.0	8	120	12	no	1
22260017	AB-B8-M12-16-10,0PUR	10.0	8	120	12	no	1
<b>Double-occupied boxes, with LEDs</b>							
22260020	AB-B4-M12L-8-5,0PUR	5.0	4	24	12	With LEDs	1
22260021	AB-B4-M12L-8-10,0PUR	10.0	4	24	12	With LEDs	1
22260024	AB-B8-M12L-16-5,0PUR	5.0	8	24	12	With LEDs	1
22260025	AB-B8-M12L-16-10,0PUR	10.0	8	24	12	With LEDs	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 are not to scale and do not represent detailed images of the respective products. Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605) For detailed technical information please refer to the data sheet ([www.lappautomation.com](http://www.lappautomation.com)). For the type code, please refer to table T6. UL approvals can be found in the data sheet

### Accessories

- Screw plug for unoccupied sockets

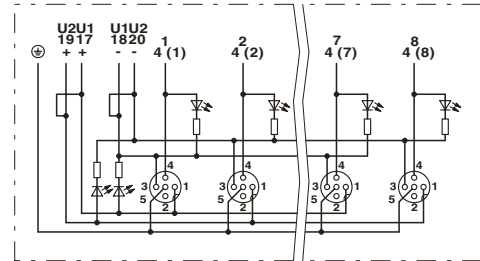
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## S/A box with M12 slots and master cable connection

**Info**

- For individual master cable assembly



**Benefits**

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The detachable screw connection ensures universal pluggability and simple on-site assembly

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- With detachable screw connection
- Single or double-occupied sensor/actuator box
- With M12 quick-locking system, metal thread
- With LED diagnostic indicator
- Free of paint-wetting impairment substances

**Suitable cables**

- UNITRONIC® SENSOR master cable bulk stock Page 356

**Suitable tools**

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976
- Suitable tools are available upon request (e.g. M12 torque screwdriver)

**Technical data**

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP69K
<b>0</b>	<b>Ambient temperature (operation)</b> -30°C to +80°C
<b>Amp.</b>	<b>Max. current rating per path</b> 2 A
<b>Amp.</b>	<b>Current rating per slot</b> 4 A

Article number	Article designation	Number of slots	Nominal voltage U <sub>N</sub> (V)	Total current (A)	Status display	PU
<b>Single-occupied boxes, without LEDs, 4 slots, 1.)</b>						
22260005	AB-B4-M12-4-C	4	120	10	no	1
<b>Single-occupied boxes, without LEDs, 8 slots, 2.)</b>						
22260007	AB-B8-M12-8-C	8	120	10	no	1
<b>Single-occupied boxes, with LEDs, 4 slots, 1.)</b>						
22260001	AB-B4-M12L-4-C	4	24	10	With LEDs	1
<b>Single-occupied boxes, with LEDs, 8 slots, 2.)</b>						
22260003	AB-B8-M12L-8-C	8	24	10	With LEDs	1
<b>Double-occupied boxes, without LEDs, 4 slots, 2.)</b>						
22260006	AB-B4-M12-8-C	4	120	10	no	1
<b>Double-occupied boxes, without LEDs, 8 slots, 3.)</b>						
22260008	AB-B8-M12-16-C	8	120	10	no	1
<b>Double-occupied boxes, with LEDs, 4 slots, 2.)</b>						
22260002	AB-B4-M12L-8-C	4	24	10	With LEDs	1
<b>Double-occupied boxes, with LEDs, 8 slots, 3.)</b>						
22260004	AB-B8-M12L-16-C	8	24	10	With LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Applicable replacement cover with pluggable screw connection: 22260009

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 accessories). (M8: 22260606, M12: 22260605)

For detailed technical information please refer to the data sheet (www.lappautomation.com). For the type code, please refer to table T6.

1.) Compatible master cable: 7038880; 2) Compatible master cable: 7038881; 3.) Compatible master cable: 7038882

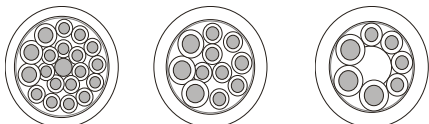
**Accessories**

- Screw plug for unoccupied sockets



**New**

## UNITRONIC® SENSOR master cable bulk stock



Info

- Customised construction can be supported

### Benefits

- Inexpensive and efficient 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 mm<sup>2</sup> and 3 x 1.0 mm<sup>2</sup>
- Cores for Signalling cable: 4 x 0.34 mm<sup>2</sup>, 8 x 0.5 mm<sup>2</sup>, 16 x 0.5 mm<sup>2</sup>
- Suitable for drag chains
- Halogen-free

### Product make-up

- UNITRONIC® SENSOR Li9Y11 COMBI  
Conductor: bare copper strand, single wire diameter: 0.1 mm for 0.34 mm<sup>2</sup>, 0.18 mm for 0.5 mm<sup>2</sup>, 0.205 mm for 0.75 mm<sup>2</sup>, 0.15 mm for 1.0 mm<sup>2</sup>. Core insulation: halogen-free PP, outer sheath: halogen-free PUR acc. to DIN VDE 0250 part 818.
- Outer sheath colour: black (similar to RAL 9005)  
Core colors: see data sheet
- AWM UL Style 21198, 80°C / 300V

Article number	Article designation	Dimensions (mm <sup>2</sup> )	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
<b>UNITRONIC® SENSOR COMBI</b>						
7038880	Li9Y11Y	3 x 0.75 + 4 x 0.34	6.6	PP/PUR	black	34.5
7038881	Li9Y11Y	3 x 1.0 + 8 x 0.5	8.4	PP/PUR	black	67.2
7038882	Li9Y11Y	3 x 1.0 + 16 x 0.5	9.8	PP/PUR	black	105.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.

For detailed technical information please refer to the data sheet

### Accessories

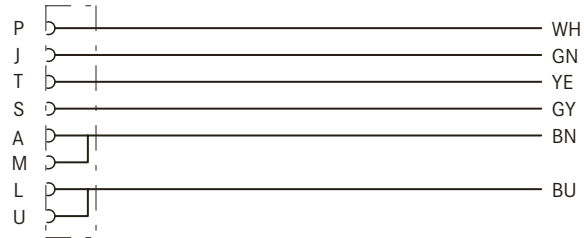
- S/A box with M12 slots and master cable connection refer to page 355

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## M 16 socket with connected master cable



### Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- M 16 connection

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Angled socket with M 16 thread
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black
- Core cross-section for power supply: 0.75 mm<sup>2</sup>
- Core cross-section for signalling cable: 0.34 mm<sup>2</sup>

### Technical data

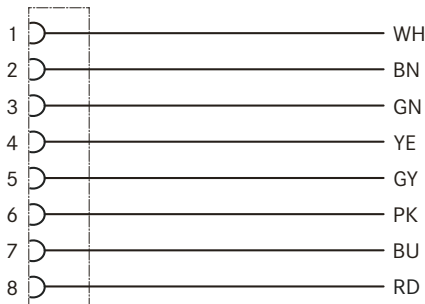
<b>IP</b>	<b>Protection rating</b> IP 67
<b>0/f</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +90°C Cable, flexible installation -5°C to 80°C
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Nickel-plated brass
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>8 pole angled socket, 4 signalling cables, 2 power supply cables</b>					
22260607	AB-C8- 5,0PUR-M 16FA	5	125	4	1
22260608	AB-C8-10,0PUR-M 16FA	10	125	4	1
<b>10-pin angled-socket, 6 signalling cables, 2 power supply cables</b>					
22260609	AB-C10- 5,0PUR-M 16FA	5	125	4	1
22260610	AB-C10-10,0PUR-M 16FA	10	125	4	1
<b>12-pin angled socket, 8 signalling cables, 2 power supply cables</b>					
22260611	AB-C12- 5,0PUR-M 16FA	5	125	4	1
22260612	AB-C12-10,0PUR-M 16FA	10	125	4	1
<b>14-pin angled socket, 10 signalling cables, 2 power supply cables</b>					
22260613	AB-C14- 5,0PUR-M 16FA	5	125	4	1
22260614	AB-C14-10,0PUR-M 16FA	10	125	4	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.  
 Customised cable lengths are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6



## M 12 socket with connected master cable



### Benefits

- Connecting cable for M8 boxes with 4 to 6 slots
- M 12 connection

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Angled socket with M 12 thread
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black
- Core cross section: 0.25 mm<sup>2</sup>

### Technical data

<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP68/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -25°C to +80°C
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>8 pole angled socket</b>					
22260615	AB-C8-5,0PUR-M12FA	5	30	2	1
22260616	AB-C8-10,0PUR-M12FA	10	30	2	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 T 17 for the definition and calculation of copper-related surcharges.  
 Customised cable lengths are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

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## Field mountable S/A connectors M 12



### Benefits

- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces
- No special tools required for connecting the cables (fast-connect designs)

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4, 5 and 8-pin version
- Screened and non-screened version
- Fast-connect and screw connection design
- Free of paint-wetting impairment substances

### Technical data

<b>IP</b>	<b>Protection rating</b> IP 65/IP 67 (IDC) IP 67 (screw)
<b>0-1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +80°C (IDC) -25°C to +85°C (piercing) -40°C to +85°C (screw)
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> CuSnZn
	<b>Coding</b> A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm <sup>2</sup>	Max. conductor cross-section, flexible, in mm <sup>2</sup>	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector, fast-connect (insulation displacement)</b>									
22260132	AB-C4-M12MS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260134	AB-C4-M12MS-F0,75	4	0.34	0.75	4	8	250	4	1
<b>Straight connector, screw connection</b>									
22260649	AB-C4-M12MS-PG7	4	0.25	0.75	4	6	250	4	1
22260995	AB-C4-M12MS-PG9	4	0.25	0.75	6	8	250	4	1
22260129	AB-C5-M12MS-PG7	5	0.25	0.75	4	6	60	4	1
22260651	AB-C5-M12MS-PG9	5	0.25	0.75	6	8	60	4	1
22260996	AB-C5-M12MS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
<b>Straight socket, fast-connect (insulation displacement)</b>									
22260131	AB-C4-M12FS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260133	AB-C4-M12FS-F0,75	4	0.34	0.75	4	8	250	4	1
<b>Straight socket, screw connection</b>									
22260640	AB-C4-M12FS-PG7	4	0.25	0.75	4	6	250	4	1
22260641	AB-C4-M12FS-PG9	4	0.25	0.75	6	8	250	4	1
22260127	AB-C5-M12FS-PG7	5	0.25	0.75	4	6	60	4	1
22260644	AB-C5-M12FS-PG9	5	0.25	0.75	6	8	60	4	1
22260997	AB-C5-M12FS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
<b>Angled connector, screw connection</b>									
22260647	AB-C4-M12MA-PG7	4	0.25	0.75	4	6	250	4	1
22260130	AB-C5-M12MA-PG7	5	0.25	0.75	4	6	60	4	1
22260648	AB-C5-M12MA-PG9	5	0.25	0.75	6	8	60	4	1
22262023	AB-C5-M12MA-PG9-SKINTOP®	5	0.25	0.75	6	8	60	4	1
<b>Angled socket, screw connection</b>									
22260636	AB-C4-M12FA-PG7	4	0.25	0.75	4	6	250	4	1
22260128	AB-C5-M12FA-PG7	5	0.25	0.75	4	6	60	4	1
22260638	AB-C5-M12FA-PG9	5	0.25	0.75	6	8	60	4	1
22262024	AB-C5-M12FA-PG9-SKINTOP®	5	0.25	0.75	6	8	60	4	1
<b>Straight connector, shielded, screw connection</b>									
22260135	AB-C5-M12MS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260825	AB-C8-M12MS-PG9-SH	8	0.25	0.75	6	8	30	2	1
<b>Straight socket, shielded, screw connection</b>									
22260136	AB-C5-M12FS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260826	AB-C8-M12FS-PG9-SH	8	0.25	0.75	6	8	30	2	1

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.  
 For detailed technical information please refer to the data sheet  
 IDC = insulation displacement connector  
 For the UNITRONIC® field bus type code, please see table T6

**UNITRONIC® Fieldbus**

Field mountable connectors and wall ducts



## Field mountable S/A connectors M8



**Benefits**

- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- 3 and 4-pin version
- Fast-connect and screw connection design
- Free of paint-wetting impairment substances

**Suitable cables**

- UNITRONIC® SENSOR Page 361

**Technical data**

<b>IP</b>	<b>Protection rating</b> IP 65/IP 67 (IDC) IP 68 (piercing) IP 67 (screw)
	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +80°C (IDC) -25°C to +85°C (piercing) -40°C to +85°C (screw)
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> Au
	<b>Coding</b> A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm <sup>2</sup>	Max. conductor cross-section, flexible, in mm <sup>2</sup>	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector, fast-connect (insulation displacement)</b>									
22260993	AB-C3-M8MS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260985	AB-C3-M8MS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260043	AB-C4-M8MS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260044	AB-C4-M8MS-F0,5	4	0.25	0.5	2.5	5	30	4	1
<b>Straight connector, fast-connect (piercing)</b>									
22260122	AB-C3-M8MS-P	3	0.14	0.38	3	5	60	4	1
22260123	AB-C4-M8MS-P	4	0.14	0.38	3	5	30	4	1
<b>Straight connector, screw connection</b>									
22260120	AB-C3-M8MS	3	0.14	0.5	3.5	5	60	4	1
22260121	AB-C4-M8MS	4	0.14	0.5	3.5	5	30	4	1
<b>Straight socket, fast-connect (insulation displacement)</b>									
22260994	AB-C3-M8FS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260986	AB-C3-M8FS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260045	AB-C4-M8FS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260046	AB-C4-M8FS-F0,5	4	0.25	0.5	2.5	5	30	4	1
<b>Straight socket, fast-connect (piercing)</b>									
22260124	AB-C3-M8FS-P	3	0.14	0.38	3	5	60	4	1
22260119	AB-C4-M8FS-P	4	0.14	0.38	3	5	30	4	1
<b>Straight socket, screw connection</b>									
22260125	AB-C3-M8FS	3	0.14	0.5	3.5	5	60	4	1
22260126	AB-C4-M8FS	4	0.14	0.5	3.5	5	30	4	1
<b>Straight connector, shielded, screw connection</b>									
22262025	AB-C3-M8MS-M-0,34-SH	3	0.14	0.5	3.5	5.5	60	4	1
22262027	AB-C4-M8MS-M-0,34-SH	4	0.14	0.5	3.5	5.5	30	4	1
<b>Straight socket, shielded, screw connection</b>									
22262026	AB-C3-M8FS-M-0,34-SH	3	0.14	0.5	3.5	5.5	60	4	1
22262028	AB-C4-M8FS-M-0,34-SH	4	0.14	0.5	3.5	5.5	30	4	1

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.

For detailed technical information please refer to the data sheet

IDC = insulation displacement connector

For the UNITRONIC® field bus type code, please see table T6

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## UNITRONIC® SENSOR



### Application range

- Cables for UNITRONIC® field bus sensor/actuator wiring
- Unshielded and shielded data transmission cables to connect to M8, M12 connectors
- Automation technology
- Mechanical engineering
- Plant engineering

### Product features

- Core colour code in accordance with DIN EN 50044
- 3 x 0.25 mm<sup>2</sup> or 0.34mm<sup>2</sup>  
1= brown, 2= blue, 3= black
- 4x 0.25 mm<sup>2</sup> or 0.34 mm<sup>2</sup>  
1= brown, 2= white, 3= blue, 4= black
- 5 x 0.25 mm<sup>2</sup> or 0.34 mm<sup>2</sup>  
1= brown, 2= white, 3= blue, 4= black, 5= grey
- 8x 0.25mm<sup>2</sup>  
1= white, 2=brown, 3= green, 4= yellow, 5= grey, 6= pink, 7=blue, 8= red

### Product make-up

- UNITRONIC® SENSOR LiFY  
Conductor: extra-fine bare copper strand in accordance with DIN VDE 0295 Class 6; core insulation: PVC, outer sheath: PVC
- UNITRONIC® SENSOR DESINA® LiFY11Y  
Stranded bare copper conductor, super-fine. In accordance with VDE 0295 Class 6, special PVC insulation, cores twisted in layers, core identification in accordance with DESINA® (brown, white, blue, black). Outer sheath is made of special polyurethane-based compound; yellow colour in acc. to RAL 1021; flame retardant acc. to IEC 60332-1-2. Operating voltage= 48 V, Peak working voltage= 300 V.
- UNITRONIC® SENSOR FD Li9Y11Y and SENSOR FD Li9YC11Y AWM UL Style 20549, 80 °C/300 V. Conductor: Cu strand, bare, extra-fine wire according to DIN VDE 0295 Class 6, core insulation: modified polypropylene (PP), outer sheath: halogen-free polyurethane (PUR), matt, adhesion-free
- UNITRONIC® SENSOR FD series cables are specially designed for use in power chains

Article number	Article designation	Dimensions (mm <sup>2</sup> )	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
<b>UNITRONIC® SENSOR</b>						
7038859	S-LiFY	3 x 0.34	4.8	PVC/PVC	black	9.8
7038860	S-LiFY	4 x 0.34	4.8	PVC/PVC	black	13.1
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow (RAL 1021)	13.5
7038861	S-LiFY11Y	4 x 0.34	4.8	PVC/PUR	black	13.1
7038862	S-LiFY11Y	5 x 0.25	4.9	PVC/PUR	black	12.0
<b>UNITRONIC SENSOR FD</b>						
7038883	Li9Y11Y	3x0.25	4.4	PP/PUR	black	7.5
7038864	Li9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038884	Li9Y11Y	4x0.25	4.7	PP/PUR	black	10.2
7038865	Li9Y11Y	4 x 0.34	4.7	PP/PUR	black	13.0
7038867	Li9Y11Y	5 x 0.25	4.7	PP/PUR	black	12.0
7038866	Li9Y11Y	5 x 0.34	5.1	PP/PUR	black	16.0
7038868	Li9Y11Y	8 x 0.25	5.9	PP/PUR	black	19.0
<b>UNITRONIC® SENSOR FD screened</b>						
7038885	Li9YC11Y	3 x 0.34	4.6	PP/PUR	black	19.1
7038886	Li9YC11Y	4 x 0.34	4.7	PP/PUR	black	23.5
7038887	Li9YC11Y	5 x 0.34	5.1	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Cables are printed  
 Other types of composition are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- Field mountable S/A connectors M12 refer to page 359
- Field mountable S/A connectors M8 refer to page 360
- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911



## S/A M12 flush-type connectors



### Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- M12 panel feed-throughs with punched-on single litz wires
- Panel feed-throughs with M12, M16 and PG9 fastening thread
- Designs for front and rear wall-mounting
- M12 A-coded with quick-locking system
- Free of paint-wetting impairment substances
- Can be positioned

### Product make-up

- TPE single litz wires, l = 0.5 m
- 0,34 mm<sup>2</sup>

### Technical data

<b>IP</b>	<b>Protection rating</b> IP 67
<b>0 +</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +85°C
	<b>Contact material</b> CuZn
	<b>Contact surface material</b> Au
	<b>Coding</b> A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm <sup>2</sup> )	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>M12 flush-type connector pin for front-mounting, with M16 fastening thread</b>						
22260108	AB-C4-M12MS-M16-0,5	4	0.34	250	4	1
22260106	AB-C5-M12MS-M16-0,5	5	0.34	60	4	1
<b>M12 flush-type connector pin for front mounting, with PG9 fastening thread</b>						
22260113	AB-C4-M12MS-PG9-0,5	4	0.34	250	4	1
22260112	AB-C5-M12MS-PG9-0,5	5	0.34	60	4	1
<b>M12 flush-type connector pin for front-mounting, can be positioned, with M16 fastening thread</b>						
22260083	AB-C4-M12MS-M16-PO-0,5	4	0.34	250	4	1
22260084	AB-C5-M12MS-M16-PO-0,5	5	0.34	60	4	1
<b>M12 flush-type connector pin for front-mounting, can be positioned, with PG9 fastening thread</b>						
22260087	AB-C4-M12MS-PG9-PO-0,5	4	0.34	250	4	1
22260088	AB-C5-M12MS-PG9-PO-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for front-mounting, with M16 fastening thread</b>						
22260107	AB-C4-M12FS-M16-0,5	4	0.34	250	4	1
22260105	AB-C5-M12FS-M16-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for front-mounting, with PG9 fastening thread</b>						
22260114	AB-C4-M12FS-PG9-0,5	4	0.34	250	4	1
22260111	AB-C5-M12FS-PG9-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for front-mounting, can be positioned, with M16 fastening thread</b>						
22260085	AB-C4-M12FS-M16-PO-0,5	4	0.34	250	4	1
22260086	AB-C5-M12FS-M16-PO-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for front-mounting, can be positioned, with PG9 fastening thread</b>						
22260089	AB-C4-M12FS-PG9-PO-0,5	4	0.34	250	4	1
22260090	AB-C5-M12FS-PG9-PO-0,5	5	0.34	60	4	1
<b>M12 flush-type connector pin for rear-mounting (fitting nut included), with PG9 fastening thread</b>						
22260117	AB-C4-DSI-M12MS-PG9-0,5	4	0.34	250	4	1
22260115	AB-C5-DSI-M12MS-PG9-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for rear-mounting (fitting nut included), with PG9 fastening thread</b>						
22260118	AB-C4-DSI-M12FS-PG9-0,5	4	0.34	250	4	1
22260116	AB-C5-DSI-M12FS-PG9-0,5	5	0.34	60	4	1
<b>M12 flush-type connector socket for rear-mounting, with M12 fastening thread</b>						
22260999	AB-C4-DSI-M12MS-M12-0,5	4	0.34	250	4	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 are not to scale and do not represent detailed images of the respective products. For detailed technical information please refer to the data sheet. For the UNITRONIC® field bus type code, please see table T6 1.) with quick-locking system

### Accessories

- Fitting nut for flush-type connectors refer to page 364

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**New**

## S/A M 12 control cabinet feed-through



### Benefits

- Flexible connection solutions
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Screened version
- Bipolar/screw mounting
- For CANopen/DeviceNet applications (A-coded)
- For PROFIBUS applications (B-inverse coded)

### Technical data

<b>IP</b>	<b>Protection rating</b> IP67
<b>0-1</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +85°C
	<b>Contact material</b> CuZn (brass)
	<b>Contact surface material</b> Au (gold)

Article number	Article designation	Number of pins	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>A coded</b>					
22262020	AB-C5-DSI-M12MS-M12FS-M16-SH	5	24	4	1
<b>B coded</b>					
22262021	AB-C5-DSI-M12MSB-M12FSB-M16-SH	5	60	4	1
<b>D coded</b>					
22262022	AB-C4-DSI-M12FSD-M12FSD-M16-SH	4	60	4	1

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. For detailed technical information please refer to the data sheet

**UNITRONIC® Fieldbus**

Field mountable connectors and wall ducts



## S/A M8 flush-type connectors



**Technical data**

- Ambient temperature (operation)**  
Plug/socket  
-25°C to +85°C
- Contact material**  
Copper alloy
- Contact surface material**  
Au
- Coding**  
A - Standard

**Benefits**

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- M8 panel feed-through with punched-on single litz wires
- Panel feed-through with M8 fastening thread
- Front wall-mounting
- Protection rating: IP65/IP67
- Free of paint-wetting impairment substances

**Product make-up**

- TPE single litz wires, l = 0.5 m
- 0,25 mm<sup>2</sup>

Article number	Article designation	Number of pins	Conductor cross-section (mm <sup>2</sup> )	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>M8 flush-type connector pin for front-mounting</b>						
22260100	AB-C3-M8MS-0,5	3	0.25	60	4	1
22260101	AB-C4-M8MS-0,5	4	0.25	30	4	1
<b>M8 flush-type connector socket for front-mounting</b>						
22260102	AB-C3-M8FS-0,5	3	0.25	60	4	1
22260103	AB-C4-M8FS-0,5	4	0.25	30	4	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 are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

**Accessories**

- Fitting nut for flush-type connectors refer to page 364



## Fitting nut for flush-type connectors



**Benefits**

- Flat nut as accessory for flush-type connectors

**Product features**

- Material: nickel-plated brass

Article number	Article designation	PU
<b>M8 thread (M8 x 0.5 - SW 10), h = 2.2 mm</b>		
22260104	AB-C-M8-CN	100
<b>PG9 thread (PG9 - SW 18), h = 2.8 mm</b>		
22260109	AB-C-PG9-CN	100
<b>M16 thread (M16 x 1.5 - SW 19), h = 2.8 mm</b>		
22260110	AB-C-M16-CN	100
<b>M12 thread, EMC version (M12x1-SW 15), h=2.9 mm</b>		
22261062	AB-C-M12-CN-SH	100

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.  
For detailed technical information please refer to the data sheet

**Similar products**

- SKINDICHT® SM refer to page 752

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX





## AS-Interface Modules (IP67)

**Info**

- With M12 quick-locking system, metal thread
- AS-Interface installation without tools



### Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- AS-Interface module slave
- Integration of field bus activation and input/output level
- Digital inputs/outputs with M12 or M8 connection method for sensors/actuators
- Flat cable penetration technique as connection type for M12 module
- M12 connection type for M8 modules
- LED diagnostic and status indicators
- Short circuit/overload protection

### Norm references / Approvals

- UL File: E334317

### Suitable cables

- UNITRONIC® BUS ASI Page 286
- UNITRONIC® BUS ASI FD Page 287

### Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

### Technical data

#### Fieldbus system

AS-Interface

#### Connection type

Flat cable penetration technique/M12 connection type

#### Installation

Panel mounting for M12/M8 modules  
Top-hat rail (35 mm) for M12 modules

#### Number of pins

2



#### Protection rating

IP67

#### Protection class

III



#### Ambient temperature (operation)

-25 °C to +70 °C

#### Temperature (storage/transport)

-25 °C to +85 °C

#### Supply voltage

26.5 V DC PELV to 31.6 V DC PELV

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Slave type	AS-i specification	Master specification	PU
<b>With digital inputs/outputs, M8, total current: 4 A</b>								
22260759	AB-ASI-M12-DI4DO4-M8-1A	2, 3-wire	4	4	Single-Slave	2	>= 2.0	1
<b>With digital inputs/outputs, M12, total current: 4 A</b>								
22260755	AB-ASI-DI2DO2-M12-2A	2, 3, 4-wire	2	2	A/B-Slave	2.1	>= 2.0	1
22260756	AB-ASI-DI4DO3-M12-2A	2, 3, 4-wire	4	3	A/B-Slave	2.1	>= 2.0	1
22260757	AB-ASI-DI4DO4-M12-2A	2, 3, 4-wire	4	4	A/B-Slave	3	>= 3.0	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Details of the clamping force are available upon request, halogen-free.

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

For the UNITRONIC® field bus type code, please see table T6

Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605)

### Accessories

- Power cable M12 (A-coded) refer to page 381
- AS-Interface Distributor refer to page 369
- AS-Interface power supply refer to page 370
- Screw plug for unoccupied sockets



## AS-Interface Modules (IP30)



**Info**

- Fully industrialised
- For panel mounting

### Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- AS-Interface module slave
- Integration of field bus activation and input/output level
- Metal housing
- Connection by optional screw-plug terminals or spring-plug terminals
- Digital inputs/outputs for connecting sensors/actuators
- LED diagnostic and status indicators
- Short circuit/overload protection

### Suitable cables

- UNITRONIC® BUS ASI Page 286
- UNITRONIC® BUS ASI FD Page 287

### Technical data

**Fieldbus system**  
AS-Interface

**Dimensions W x H x D (mm)**  
105 mm x 22.5 mm x 85 mm

**Connection type**  
Plug-in connection for screw-plug terminals or spring-plug terminals

**Installation**  
Top-hat rail (35 mm)

**Protection rating**  
IP30

**Protection class**  
II

**Ambient temperature (operation)**  
-25°C to +60°C

**Temperature (storage/transport)**  
-40°C to +85°C

**Permissible humidity (storage/transport)**  
max. 95 %, not condensing

**Supply voltage**  
26.5 V DC to 31.6 V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Slave type	AS-i specification	Master specification	PU
<b>4 inputs, 4 outputs (230 VAC/3A relays with changeover contacts)</b>								
22260807	AB-ASI-DI4DOR4-3A	2, 3-wire	4	4	Single-Slave	3.01	>= 3.0	1
<b>4 inputs, 4 outputs 2A</b>								
22260808	AB-ASI-DI4DO4-2A	2, 3-wire	4	4	Single-Slave	3.01	>= 3.0	1
<b>8 Inputs, 8 Outputs 2A</b>								
22260809	AB-ASI-DI8DO8-2A	2, 3-wire	8	8	Single-Slave	3.01	>= 3.0	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Plug terminals are not included, but can be purchased as an accessory.

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

Other AS-Interface modules available on request

For the UNITRONIC® field bus type code, please see table T6

### Accessories

- Power cable M12 (A-coded) refer to page 381
- AS-Interface Distributor refer to page 369
- AS-Interface counter module refer to page 370
- AS-Interface power supply refer to page 370
- AS-Interface network extension refer to page 371



## PROFIBUS Modules



**Info**

- With M12 quick-locking system, metal thread

### Technical data

**Fieldbus system**

PROFIBUS-DP

**Transmission speed**

12 MBit/s

Automatic baud rate detection

**Transmission physics**

PROFIBUS-DP-compliant copper cable

**Space allocated for address**

1 ... 99, can be set from front side

**Connection type**

Bus port:

2 x M12 plug connectors, B-coded

**Installation**

Flexible mounting (wall, DIN rail)

**Number of pins**

5



**Protection rating**

IP65/IP67 according to IEC 60529

**Protection class**

Class 3 as per VDE 0106, IEC 61440



**Ambient temperature (operation)**

-25 °C to +60 °C

**Temperature (storage/transport)**

-25 °C to +85 °C

**Permissible humidity (storage/transport)**

95 %

**Transmission rate**

9,64 Kbaud to 12 Mbaud automatic detection

**Supply voltage**

24V DC

### Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- PROFIBUS interface
- Integration of field bus activation and input/output level
- Connection to PROFIBUS DP using M12 connectors (B-coded)
- Digital inputs/outputs with M12 connection method for sensors/actuators
- LED diagnostic and status indicators
- Flexible power supply concept with M12 connection
- Short circuit/overload protection

### Norm references / Approvals

- UL File: E334209; E334210

### Suitable cables

- PROFIBUS cable: M12 connector on free conductor end Page 373
- PROFIBUS Cable: M12 connector on M12 socket Page 374

### Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

### Suitable connectors

- Field mountable S/A connectors M12 Page 359
- BUS M12 connectors that can be assembled

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Maximum output current per channel (A)	PU
<b>With digital inputs/outputs</b>						
22260740	AB-PB-DI4DO4-M12-2A	2, 3, 4-wire	4	4	2	1
22260762	AB-PB-DI8DO8-M12-0,5A	2, 3, 4-wire	8	8	0,5	1
<b>With digital inputs</b>						
22260738	AB-PB-DI8-M12	2, 3, 4-wire	8			1
22260739	AB-PB-DI16-M12	2, 3, 4-wire	16			1
<b>With digital outputs</b>						
22260742	AB-PB-DO8-M12-2A	2, 3-wire		8	2	1

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.

For the UNITRONIC® field bus type code, please see table T6

Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605)

### Accessories

- Power cable M12 (A-coded) refer to page 381
- Screw plug for unoccupied sockets
- BUS M12 connectors that can be assembled
- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 378
- M12 T distributor for PROFIBUS refer to page 379



## CANopen Modules



**Info**

- With M12 quick-locking system, metal thread

### Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- CANopen Interface
- Integration of field bus activation and input/output level
- Connection to CANopen using M12 connectors (A-coded)
- Digital inputs/outputs with M12 connection method for sensors/actuators
- LED diagnostic and status indicators
- Flexible power supply concept with M12 connection
- Short circuit/overload protection

### Norm references / Approvals

- UL File: E334209; E334210

### Suitable cables

- DeviceNet/CANopen Cable, M12 connector on free conductor end Page 375
- S/A DeviceNet/CANopen cable, M12 connector on M12 socket Page 376

### Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

### Suitable connectors

- Field mountable S/A connectors M12 Page 359

### Technical data

#### Fieldbus system

CANopen

#### Transmission speed

10, 20, 50, 125, 250, 500, 1000 kBit/s  
Automatic baud rate detection

#### Transmission physics

Copper cable with optional power supply in acc. with CAN standard

#### Space allocated for address

1 ... 126, can be set

#### Connection type

Bus port:  
2 x M12 connectors, A-coded

#### Installation

Flexible mounting (wall, DIN rail)

#### Number of pins

5



#### Protection rating

IP65/IP67

#### Protection class

Class 3 as per VDE 0106, IEC 61440



#### Ambient temperature (operation)

-25 °C to +60 °C

#### Temperature (storage/transport)

-25 °C to +85 °C

#### Permissible humidity (storage/transport)

95 %

#### Transmission rate

Maximum 1 Mbaud automatic detection

#### Supply voltage

24V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	PU
<b>With digital inputs/outputs</b>					
22260750	AB-CAN-DI4DO4-M12-2A	2, 3, 4-wire	4	4	1
22260764	AB-CAN-DI8DO8-M12-0,5A	2, 3, 4-wire	8	8	1
<b>With digital inputs</b>					
22260748	AB-CAN-DI8-M12	2, 3, 4-wire	8		1
22260749	AB-CAN-DI16-M12	2, 3, 4-wire	16		1
<b>With digital outputs</b>					
22260752	AB-CAN-DO8-M12-2A	2, 3-wire		8	1

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.

For the UNITRONIC® field bus type code, please see table T6

Unused female connectors must be covered with protective caps (see accessories). (M8: 22260606, M12: 22260605)

### Accessories

- Screw plug for unoccupied sockets
- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 378
- S/A T-connector M12 as parallel distributor refer to page 380



## AS-Interface Distributor

**Info**

- AS-Interface Adapter for data and power supply



### Benefits

- Inexpensive and efficient wiring for AS-Interface installations
- Space-saving due to compact dimensions
- Easy to install
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Passive AS-Interface distributor for 1 or 2 AS-Interface flat cables
- Distributor with integrated M12 socket (A-coded)
- H distributor for distribution from 1 to 2 flat cables
- Distributor with round cable and M12 socket (A-coded)
- Colour: black
- Rated current ≤ 4 A (H-distributor: I ≤ 8 A)

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.34 mm<sup>2</sup> (42 x 0.1 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

### Suitable cables

- UNITRONIC® BUS ASI Page 286
- UNITRONIC® BUS ASI FD Page 287

### Technical data

- Fieldbus system**  
AS-Interface
- Connection type**  
Penetration technique for flat cable
- Installation**  
Panel mounting
- Protection rating**  
IP 67  
(H-distributor: IP69k)
- Ambient temperature (operation)**  
-25°C to +75°C

Article number	Article designation	PU
Distributor with 1 flat cable and integrated 2-pin M12 socket 22260800	AB-ASI-J-Y-N-M12FS	1
Distributor with 2 flat cables and integrated 4-pin M12 socket 22260801	AB-ASI-J-Y-B-M12FS	1
H distributor for distribution from 1 to 2 flat cables 22260802	AB-ASI-J-Y-Y-N	1
Distributor with 1 flat cable, and 1 m PUR round cable to straight 2-pin M12 socket 22260803	AB-ASI-J-Y-N-PUR-1,0-M12FS	1
Distributor with 1 flat cable, and 2 m PUR round cable to straight 2-pin M12 socket 22260804	AB-ASI-J-Y-N-PUR-2,0-M12FS	1
Distributor with 2 flat cables, and 1 m PUR round cable to straight 4-pin M12 socket 22260805	AB-ASI-J-Y-B-PUR-1,0-M12FS	1
Distributor with 2 flat cables, and 2 m PUR round cable to straight 4-pin M12 socket 22260806	AB-ASI-J-Y-B-PUR-2,0-M12FS	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 are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### Accessories

- Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set refer to page 976



## AS-Interface counter module



**Info**

- All-purpose counter module

**Benefits**

- Standardised interfaces
- Easy to install
- For fixed installation.
- Compact AS-Interface counter module for counting events, distance and speed measurement

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

**Product features**

- Set-point value of counter reading and pre-switching value can be parameterised via AS-Interface
- Output switching action selectable if pre-set value is reached
- Detect goods to be counted or measured with any 2 or 3-wire binary sensor
- AS-Interface Version 3.0
- Connection by optional screw-plug terminals or spring-plug terminals

**Technical data**

**Fieldbus system**

AS-Interface

**Connection type**

Plug-in connection for screw-plug terminals or spring-plug terminals

**Installation**

Top-hat rail (35 mm)



**Protection rating**

IP 20

**Protection class**

II



**Ambient temperature (operation)**

-25°C to +60°C

**Supply voltage**

according to AS-Interface specification (version 3.0)

Article number	Article designation	PU
22260810	AB-ASI-C	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Plug terminals are not included, but can be purchased as an accessory. Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- AS-Interface power supply refer to page 370



## AS-Interface power supply



**Info**

- Compact design

**Technical data**

**Fieldbus system**

AS-Interface

**Connection type**

Cage clamp termination: 0.3 - 3.5 mm<sup>2</sup>

**Installation**

Top-hat rail (35 mm)



**Protection rating**

IP 20

**Protection class**

II



**Ambient temperature (operation)**

-10°C to +60°C

**Temperature (storage/transport)**

-25 °C to +85 °C

**Supply voltage**

Primary voltage range: 85 to 265 V AC (50/60 Hz)

AS-Interface voltage: 29.5 to 31.6 V DC PELV (acc. to IEC61640), I<sub>N</sub> = 1 A)

**Benefits**

- Easy to install
- Space-saving due to compact dimensions
- Compact AS-Interface power supply for mounting on top-hat rail

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- For small AS-Interface networks

**Product features**

- Supplies a nominal output current of I<sub>N</sub> = 1.0 A
- AS-Interface Specification 3.01
- Short circuit/overload protection

**Suitable cables**

- UNITRONIC® BUS ASI Page 286
- UNITRONIC® BUS ASI FD Page 287

Article number	Article designation	PU
22260812	AB-ASI-PS-1A	1

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. PELV ("protective extra low voltage" according to IEC61640)

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APPENDIX



## AS-Interface network extension

### Benefits

- Extension of AS-Interface network lengths without additional repeaters
- Every topology is possible
- Standardised interfaces
- Easy to install

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- AS-Interface network lengths of 100 m to 200 m without repeaters
- Under-voltage limit detection (voltage threshold: app. 26.5 V) flashes if supply voltage is too low.
  - Alarm indication by flashing LED (Part: 22260813)
  - Alarm indication occurs remotely via the AS-Interface to the master (Part: 22260814)
- AS-Interface Specification 3.01
- Diameter: 20 mm; Height: 45 mm
- Can be screwed directly to AS-Interface distributor (see accessories)

### Product make-up

- Compact design (Z plug)



#### Info

- With integrated under-voltage limit detection

### Technical data

**Fieldbus system**  
AS-Interface

**Connection type**  
M12 A-coded connectors

**Installation**  
Screw termination

**Number of pins**  
4

**IP** Protection rating  
IP 67

**0+** Ambient temperature (operation)  
-25°C to +70°C

**Supply voltage**  
according to AS-Interface specification (version 3.0)



Article number	Article designation	PU
<b>With optical voltage indication by green LED</b>		
22260813	AB-ASI-NE200LED	1
<b>With voltage control via response to the master (without LED)</b>		
22260814	AB-ASI-NE200	1

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.

### Accessories

- AS-Interface Distributor refer to page 369



## AS-Interface plug terminals



### ■ Benefits

- Easy to assemble
- Fast-connect adapter terminals
- Enables individual use as tension or screw plug terminals
- Flexible connection solutions

### ■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### ■ Product features

- Optional plug terminals for AS-Interface module IP20/IP30
- Fast-connect connection type
- 1 packing unit for 12, 16 or 32 contacts
- Black

### ■ Suitable cables

- Power cable: M12 connector on free conductor Page 381
- UNITRONIC® BUS ASI Page 286
- UNITRONIC® BUS ASI FD Page 287

### ■ Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976



### Info

- Fully industrialised

### ■ Technical data

#### Fieldbus system

AS-Interface

#### Connection type

for cable type: solid, flexible  
 - versions as screw plug terminals  
 - versions as tension plug terminals

#### Installation

Plug connection

#### Number of pins

Versions: 3 -, 4 - and 16-pin



#### Protection rating

IP 30



#### Ambient temperature (operation)

-25°C to +60°C

Article number	Article designation	PU
AS-Interface screw plug terminals, 2 x 16-pin, 0.14-2.5 mm 22260815	AB-ASI-XS16	1
AS-Interface screw plug terminals, 4 x 4-pin, 0.14-2.5 mm 22260817	AB-ASI-XS4	1
AS-Interface screw plug terminals, 4 x 3-pin, 0.14-2.5 mm 22260041	AB-ASI-XS3	1
AS-Interface tension plug terminals, 8 x 4-pin, 0.2-2.5 mm 22260816	AB-ASI-XT16	1
AS-Interface tension plug terminals, 4 x 4-pin, 0.2-2.5 mm 22260818	AB-ASI-XT4	1

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.

### ■ Accessories

- AS-Interface counter module refer to page 370
- AS-Interface long distance repeater
- AS-Interface Modules (IP30) refer to page 366

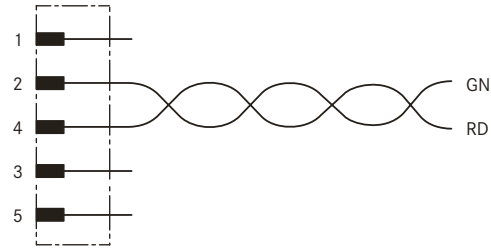




## PROFIBUS cable: M12 connector on free conductor end

**Info**

- Pre-assembled PROFIBUS data network cable



### Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 2-pole PROFIBUS cable, shielded
- 5-pin connector, M12 B-coded (inverse) with quick locking system
- Design: socket or plug to free conductor end
- The cables have marker carriers
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 19 x 0.13 mm
- Core colours: red, green
- Outer sheath: PUR, halogen-free, screened
- Outer sheath colour: violet RAL 4001
- Shielding is conducted over the knurl

### Suitable connectors

- EPIC® Data Connectors Page 302
- BUS M12 connectors that can be assembled

### Technical data

	<b>Number of pins</b>
	2
<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP69K
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -20°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> B - inverse
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing
	<b>Outer cable diameter</b> 7,8 mm
	<b>Conductor cross-section</b> 0,25 mm <sup>2</sup>
	<b>Shielding</b> Tinned-copper braiding

Article number	Article designation	Length (m)	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Number of pins	PU
<b>Straight connector</b>						
22260767	AB-PB-M12MS-2,0PUR	2	4	250	2	1
22260768	AB-PB-M12MS-5,0PUR	5	4	250	2	1
22260769	AB-PB-M12MS-10,0PUR	10	4	250	2	1
<b>Straight socket</b>						
22260770	AB-PB-2,0PUR-M12FS	2	4	250	2	1
22260771	AB-PB-5,0PUR-M12FS	5	4	250	2	1
22260772	AB-PB-10,0PUR-M12FS	10	4	250	2	1
<b>Angled connector</b>						
22260956	AB-PB-M12MA-2,0PUR	2	4	250	2	1

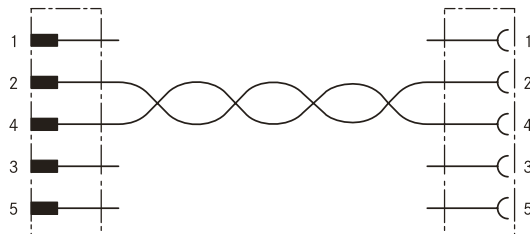
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Customised cable lengths are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## PROFIBUS Cable: M 12 connector on M 12 socket



**Info**

- PROFIBUS data network cable, ready for connection

### Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 2-pole PROFIBUS cable, shielded
- 5-pin connector, M 12 B-coded (inverse) with quick locking system
- Design: plug to socket
- The cables have marker carriers
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 19 x 0.13 mm
- Core colours: red, green
- Outer sheath: PUR, halogen-free, screened
- Outer sheath colour: violet RAL 4001
- Shielding is conducted over the knurl

### Suitable connectors

- EPIC® Data PROFIBUS Connectors M 12 Page 307

### Technical data

**Number of pins**  
2

**IP** **Protection rating**  
IP65/IP67/IP69K

**Temperature** **Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-20°C to +80°C

**Contact material**  
CuSn

**Contact surface material**  
Ni/Au

**Coding**  
B - inverse

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

**Outer cable diameter**  
7,8 mm

**Conductor cross-section**  
0,25 mm<sup>2</sup>

**Shielding**  
Tinned-copper braiding

Article number	Article designation	Length (m)	Nominal current I <sub>n</sub> in (A)	Nominal voltage U <sub>n</sub> (V)	Number of pins	PU
<b>Straight connector to straight socket</b>						
22260955	AB-PB-M 12MS-0,2PUR-M 12FS	0,2	4	250	2	1
22260773	AB-PB-M 12MS-0,3PUR-M 12FS	0,3	4	250	2	1
22260774	AB-PB-M 12MS-1,0PUR-M 12FS	1	4	250	2	1
22260775	AB-PB-M 12MS-2,0PUR-M 12FS	2	4	250	2	1
22260776	AB-PB-M 12MS-5,0PUR-M 12FS	5	4	250	2	1
22260777	AB-PB-M 12MS-10,0PUR-M 12FS	10	4	250	2	1
<b>Angled plug to angled socket</b>						
22260079	AB-PB-M 12MA-5,0PUR-M 12FA	5	4	250	2	1
22260904	AB-PB-M 12MA-10,0PUR-M 12FA	10	4	250	2	1
22260905	AB-PB-M 12MA-15,0PUR-M 12FA	15	4	250	2	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.  
Customised cable lengths are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882

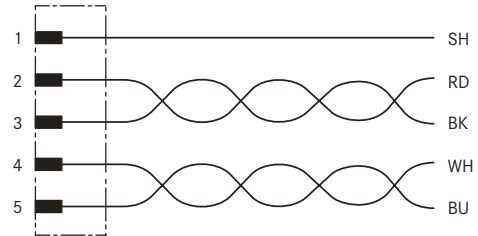
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## DeviceNet/CANopen Cable, M12 connector on free conductor end

**Info**

- Pre-assembled DeviceNet/CANopen data network cable



### Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 5-pin DeviceNet/CANopen cable, shielded
- M12 A-coded with quick-locking system
- Straight socket or straight plug to free conductor end
- The cables have marker carriers
- Suitable for drag chains

### Product make-up

- Outer sheath: PUR, halogen-free, screened
- Fixed flexible control cable
- Design (signal line): 19 x 0.13 mm
- Design (voltage line): 19 x 0.15 mm
- Core colours: red-black, blue-white
- Outer sheath colour: violet RAL 4001

### Suitable connectors

- EPIC® Data Connectors Page 317
- Field mountable S/A connectors M12 Page 359

### Technical data

**IP Protection rating**  
IP65/IP67/IP69K

**Ambient temperature (operation)**  
Plug/socket  
-25°C to +90°C (PUR/PVC)  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-20°C to +80°C

**Contact surface material**  
Ni/Au

**Coding**  
A - Standard

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

**Outer cable diameter**  
6,7 mm

**Conductor cross-section**  
Signal (2 x 0,2 mm<sup>2</sup>)  
Power (2 x 0,34 mm<sup>2</sup>)  
Drain wire (1 x 0,34 mm<sup>2</sup>)

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Number of pins	PU
<b>5-pin straight connector</b>						
22260789	AB-DN-M12MS-2,0PUR	2	60	4	5	1
22260790	AB-DN-M12MS-5,0PUR	5	60	4	5	1
22260791	AB-DN-M12MS-10,0PUR	10	60	4	5	1
<b>5-pin straight socket</b>						
22260792	AB-DN-2,0PUR-M12FS	2	60	4	5	1
22260793	AB-DN-5,0PUR-M12FS	5	60	4	5	1
22260794	AB-DN-10,0PUR-M12FS	10	60	4	5	1

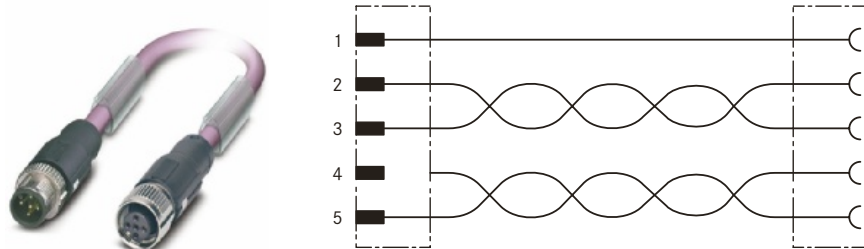
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Customised cable lengths are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
For detailed technical information please refer to the data sheet  
For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## S/A DeviceNet/CANopen cable, M12 connector on M12 socket



**Info**

- DeviceNet/CANopen data network cable, ready for connection

### Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 5-pin DeviceNet/CANopen cable, shielded
- M12 A-coded with quick-locking system
- Straight plug to straight socket
- The cables have marker carriers
- Suitable for drag chains

### Product make-up

- Outer sheath: PUR, halogen-free, screened
- Fixed flexible control cable
- Design (signal line): 19 x 0.13 mm
- Design (voltage line): 19 x 0.15 mm
- Core colours: red-black, blue-white
- Outer sheath colour: violet RAL 4001

### Technical data

**IP** Protection rating  
IP65/IP67/IP69K

**0+T** Ambient temperature (operation)  
Plug/socket  
-25°C to +90°C (PUR/PVC)  
Cable, fixed installation  
-40°C to +80°C  
Cable, flexible installation  
-20°C to +75°C

**Contact surface material**  
Ni/Au

**Coding**  
A - Standard

**Knurl material**  
Zinc die-cast, nickel-plated

**Gripping body material**  
TPU, flame-retardant, self-extinguishing

**Outer cable diameter**  
6,7 mm

**Conductor cross-section**  
Signal (2 x 0,2 mm<sup>2</sup>)  
Power (2 x 0,34 mm<sup>2</sup>)  
Drain wire (1 x 0,34 mm<sup>2</sup>)

Article number	Article designation	Length (m)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	Number of pins	PU
<b>Straight connector to straight socket</b>						
22260795	AB-DN-M12MS-0,3PUR-M12FS	0,3	60	4	5	1
22260796	AB-DN-M12MS-1,0PUR-M12FS	1	60	4	5	1
22260797	AB-DN-M12MS-2,0PUR-M12FS	2	60	4	5	1
22260798	AB-DN-M12MS-5,0PUR-M12FS	5	60	4	5	1
22260799	AB-DN-M12MS-10,0PUR-M12FS	10	60	4	5	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

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Customised cable lengths are available upon request.

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

For detailed technical information please refer to the data sheet

For the UNITRONIC® field bus type code, please see table T6



## BUS M12 connectors that can be assembled

**Info**

- For
  - PROFIBUS
  - CANopen
  - DeviceNet
  - PROFINET
  - ETHERNET



### Benefits

- Quick and easy on-site assembly
- Creating individual cable lengths
- Inexpensive and efficient wiring for BUS installations
- Space-saving due to compact dimensions
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Screened version
- For CANopen/DeviceNet applications (A-coded)
- For PROFIBUS applications (B-inverse coded)
- For PROFINET applications (D-coded)
- For Ethernet applications (D-coded)

### Suitable cables

- Cables for bus systems PROFIBUS-DP/ FMS/FIP Page 288
- Cables for bus system CAN UL/CSA-approved Page 315
- Cables for bus system DeviceNet Page 313
- PROFIBUS cable: M12 connector on free conductor end Page 373
- ETHERLINE® 2-pairs CAT.5/5e

### Technical data

- Number of pins**  
5 (PROFIBUS/CANopen/DeviceNet)  
4 (PROFINET/ETHERNET)
- IP** Protection rating  
IP67
- Ambient temperature (operation)**  
Plug/socket  
-40°C to +85°C
- Contact material**  
CuSn
- Contact surface material**  
Au (PROFIBUS/CANopen/DeviceNet)  
Ni/Au (PROFINET/ETHERNET)
- Coding**  
A - CANopen/DeviceNet  
B - inverse (PROFIBUS)  
D - data (PROFINET/ETHERNET)
- Knurl material**  
Nickel-plated brass
- Gripping body material**  
Zinc die-cast, nickel-plated
- Sealing material**  
NBR (PROFIBUS/CANopen/DeviceNet)  
Neoprene (PROFINET/ETHERNET)
- Contact carrier material**  
PA 66
- Nominal voltage U<sub>N</sub>**  
60 V
- Nominal current I<sub>N</sub>**  
4 A (PROFIBUS/CANopen/DeviceNet)  
1,75 A (PROFINET/ETHERNET)
- PG screw connection**  
PG 9 (PROFIBUS/CANopen/DeviceNet)

Article number	Article designation	Min. conductor cross-section, flexible, in mm <sup>2</sup>	Max. conductor cross-section, flexible, in mm <sup>2</sup>	Min. conductor cross-section AWG/kcmil	Max. conductor cross-section AWG/kcmil	Min. cable diameter (mm)	Max. cable diameter (mm)	PU
<b>PROFIBUS, 5-pin straight connector, screw connection</b>								
22260653	AB-C5-M12MSB-PG9-SH-AU	0,25	0,75	24	18	6	8,5	1
<b>PROFIBUS, 5-pin straight socket, screw connection</b>								
22260646	AB-C5-M12FSB-PG9-SH-AU	0,25	0,75	24	18	6	8,5	1
<b>PROFINET/ETHERNET, 4-pin straight connector, fast-connection</b>								
22260820	AB-C4-M12MSD-SH	0,14	0,34	26	22	4	8	1
<b>PROFINET/ETHERNET, 4-pin straight socket, fast-connection</b>								
22261016	AB-C4-M12FSD-SH	0,14	0,34	26	22	4	8	1
<b>CANopen/DeviceNet, 5-pin straight connector, screw connection</b>								
22260135	AB-C5-M12MS-PG9-SH	0,25	0,75	24	18	6	8	1
<b>CANopen/DeviceNet, 5-pin straight socket, screw connection</b>								
22260136	AB-C5-M12FS-PG9-SH	0,25	0,75	24	18	6	8	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
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Photographs are not to scale and do not represent detailed images of the respective products.



## Terminating resistor M 12 for DeviceNet/CANopen/PROFIBUS



**Info**

- Fully industrialised

### Benefits

- Inexpensive termination of BUS cables
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- For DeviceNet und CANopen applications (A-Standard coded)
- For PROFIBUS applications (B-inverse coded)

### Product make-up

- Straight connector M 12 with integrated termination resistor
- Straight connector M 12 shielded, with integrated termination resistor

### Technical data

**IP Protection rating**  
IP65/IP67/IP69K  
IP 67 (shielded version)

**Ambient temperature (operation)**  
-25°C to +90°C (unshielded version)  
-40°C to +85°C (shielded version)

**Contact material**  
CuSn

**Coding**  
B - inverse (PROFIBUS)  
A - Standard (DeviceNet/CANopen)

Article number	Article designation	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Coding	Number of pins	PU
<b>For PROFIBUS applications (B-inverse coded)</b>						
22260722	AB-C4-M12MS-PB-TR	4	60	B - inverse	4	5
<b>For PROFIBUS applications (B-inverse coded, socket, shielded version)</b>						
22261001	AB-C5-M12FS-PB-TR-SH	4	32	B - inverse	4	1
<b>For DeviceNet und CANopen applications (A-Standard coded)</b>						
22260766	AB-C5-M12MS-DN-TR	4	60	A - Standard	5	5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 DeviceNet is a registered trademark of ODVA  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- M 12 T distributor for PROFIBUS refer to page 379
- S/A T-connector M 12 as parallel distributor refer to page 380

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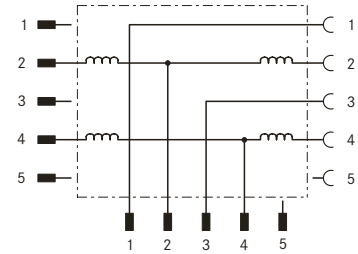


## M 12 T distributor for PROFIBUS



Info

- Fully industrialised



### Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin PROFIBUS T-connector
- M12 B-coded (inverse)
- Screened version
- M12 plug to M12 plug and M12 socket
- For PROFIBUS stubs

### Technical data

<b>IP</b>	<b>Protection rating</b> IP 67
<b>0+</b>	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +80°C
	<b>Contact material</b> Copper alloy
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> B - inverse
	<b>Knurl material</b> Nickel-plated brass
	<b>Gripping body material</b> PUR
	<b>Sealing material</b> VITON®
	<b>Contact carrier material</b> PUR
	<b>Nominal voltage U<sub>N</sub></b> 60 V
	<b>Nominal current I<sub>N</sub></b> 4 A

Article number	Article designation	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Number of pins	PU
22260761	AB-C2-M12T-2XM12FS PB	4	30	4	1

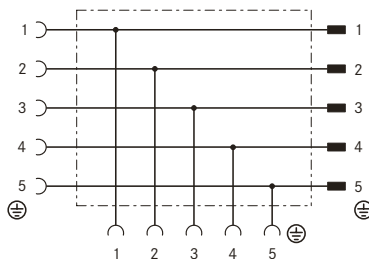
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs are not to scale and do not represent detailed images of the respective products. For detailed technical information please refer to the data sheet. For the UNITRONIC® field bus type code, please see table T6

### Accessories

- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 378



## S/A T-connector M 12 as parallel distributor



**Info**

- For DeviceNet and CANopen!

### Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 5-pin DeviceNet/CANopen T-Connector
- M12 A-coded
- Parallel distributor with M12 socket to M12 plug and M12 socket
- Free of paint-wetting impairment substances

### Technical data

<b>Number of pins</b>	5
<b>Protection rating</b>	IP65/IP67
<b>Ambient temperature (operation)</b>	Plug/socket -25°C to +90°C
<b>Contact material</b>	CuZn
<b>Contact surface material</b>	Ni/Au
<b>Coding</b>	A - Standard
<b>Knurl material</b>	Zinc die-cast, nickel-plated
<b>Gripping body material</b>	TPU, flame-retardant, self-extinguishing
<b>Sealing material</b>	NBR
<b>Contact carrier material</b>	TPU GF
<b>Nominal voltage U<sub>N</sub></b>	60 V
<b>Nominal current I<sub>N</sub></b>	4 A

Article number	Article designation	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Number of pins	PU
22260765	AB-C5-M12T-2XM12FS DN	4	60	5	5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 DeviceNet is a registered trademark of ODVA  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 378

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 APPENDIX





## Power cable: M 12 connector on free conductor

**Info**

- All-purpose



### Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Customise the construction on the free conductor end
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin power cable for field bus applications
- M 12 A-coded with quick-locking system
- Straight plug or straight socket to free conductor end
- The cables have marker carriers
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.75 mm<sup>2</sup> (42 x 0.15 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- PVC core insulation
- PUR outer sheath

### Suitable connectors

- Field mountable S/A connectors M 12  
Page 359

### Technical data

	<b>Protection rating</b> IP65/IP67/IP69K
	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C (PUR/PVC) Cable, fixed installation -25°C to +80°C Cable, flexible installation -5°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing
	<b>Core colour</b> brown (1), white (2), blue (3), black (4)
	<b>Outer cable diameter</b> 5,9 mm
	<b>Conductor cross-section</b> 0,75 mm <sup>2</sup>
	<b>Outer sheath, colour</b> Black, RAL 9005
	<b>Outer sheath, material</b> PUR

Article number	Article designation	Length (m)	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Number of pins	PU
<b>4-pin straight connector</b>						
22260778	AB-PC4-M12MS-2,0PUR	2	4	250	4	1
22260779	AB-PC4-M12MS-5,0PUR	5	4	250	4	1
22260780	AB-PC4-M12MS-10,0PUR	10	4	250	4	1
<b>4-pin straight socket</b>						
22260781	AB-PC4-2,0PUR-M12FS	2	4	250	4	1
22260782	AB-PC4-5,0PUR-M12FS	5	4	250	4	1
22260783	AB-PC4-10,0PUR-M12FS	10	4	250	4	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



## Power cable: straight M12 connector on straight M12 socket

**Info**

- All-purpose



### Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Fast and easy assembly
- Standardised interfaces

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- 4-pin power cable for field bus applications
- M12 A-coded with quick-locking system
- Straight plug to straight socket
- Free of paint-wetting impairment substances
- Suitable for drag chains

### Product make-up

- Fixed flexible control cable
- Design: 4 x 0.75 mm<sup>2</sup> (42 x 0.15 mm)
- Core colours: brown(1), white(2), blue(3), black(4)
- PVC core insulation
- PUR outer sheath

### Technical data

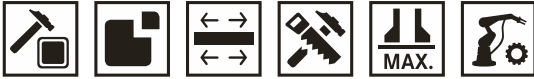
<b>IP</b>	<b>Protection rating</b> IP65/IP67/IP69K
	<b>Ambient temperature (operation)</b> Plug/socket -25°C to +90°C (PUR/PVC) Cable, fixed installation -25°C to +80°C Cable, flexible installation -5°C to +80°C
	<b>Contact material</b> CuSn
	<b>Contact surface material</b> Ni/Au
	<b>Coding</b> A - Standard
	<b>Knurl material</b> Zinc die-cast, nickel-plated
	<b>Gripping body material</b> TPU, flame-retardant, self-extinguishing
	<b>Outer cable diameter</b> 5,9 mm
	<b>Conductor cross-section</b> 0,75 mm <sup>2</sup>
	<b>Outer sheath, colour</b> Black, RAL 9005
	<b>Outer sheath, material</b> PUR

Article number	Article designation	Length (m)	Nominal current I <sub>N</sub> in (A)	Nominal voltage U <sub>N</sub> (V)	Number of pins	PU
<b>Straight connector to straight socket</b>						
22260784	AB-PC4-M12MS-0,3PUR-M12FS	0,3	4	250	4	1
22260785	AB-PC4-M12MS-1,0PUR-M12FS	1	4	250	4	1
22260786	AB-PC4-M12MS-2,0PUR-M12FS	2	4	250	4	1
22260787	AB-PC4-M12MS-5,0PUR-M12FS	5	4	250	4	1
22260788	AB-PC4-M12MS-10,0PUR-M12FS	10	4	250	4	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.  
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 For detailed technical information please refer to the data sheet  
 For the UNITRONIC® field bus type code, please see table T6

### Accessories

- FLEXIMARK® Label LMB refer to page 882



New

## Field mountable M12 POWER connectors

**Info**

- DC high-power connector - 60 VDC / 12 A



### Benefits

- Compact and standardized M12 design saves costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- High flexibility through on-site assembly
- Safety use in field environment by high protection class

### Application range

- Automation technology
- Plant engineering, machinery manufacturing
- 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 screw
- Screw-locking connection, to be connected to different conductor
- For cable outer diameter 8 - 10 mm
- 60 VDC / 12 A
- Contacts: 4

### Suitable cables

- ÖLFLEX® FD 855 P Page 120
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

### Technical data

- IP Protection rating**  
IP67
- Ambient temperature (operation)**  
Plug/socket  
-40°C to +85°C  
(derating must be observed - see data sheet)
- Contact material**  
CuZn (brass)
- Contact surface material**  
Au (gold)
- Coding**  
M12 T - Power
- Knurl material**  
CuZn (brass)
- Gripping body material**  
PA
- Outer cable diameter**  
8 - 10 mm
- Conductor cross-section**  
Conductor cross section  
0.75 mm<sup>2</sup> - 1.5 mm<sup>2</sup>  
(AWG 18 - AWG 16)

Article number	Article designation	Number of pins	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>Straight connector, screw connection, M12 (T-coded)</b>							
22262010	AB-C4-M12MST-PG11	4	8.0	10.0	60	12	1
<b>Angled connector, screw connection, M12 (T-coded)</b>							
22262012	AB-C4-M12MAT-PG11	4	8.0	10.0	60	12	1
<b>Straight socket, screw connection, M12 (T-coded)</b>							
22262011	AB-C4-M12FST-PG11	4	8.0	10.0	60	12	1
<b>Angled socket, screw connection, M12 (T-coded)</b>							
22262013	AB-C4-M12FAT-PG11	4	8.0	10.0	60	12	1

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.

**UNITRONIC® Fieldbus**

M12 POWER-Connector (T-coded)



**New**

## M12 POWER panel mount connectors for front mounting



Info

- DC high-power connector - 60 VDC / 12 A

**Benefits**

- Compact and standardized M12 design saves costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- Individual solutions in the field of M12 power supply
- Safety use in field environment by high protection class

**Application range**

- Automation technology
- Plant engineering, machinery manufacturing
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

**Product features**

- M12 flush-type for front wall-mounting
- 2 various designs:
  - panel mount connector M20 (with screw clamp, position adjustable)
  - panel mount connector M16 (with connected 0.2 m PVC single wire)
- Contacts: 4
- 60 VDC / 12 A
- Contact durability: > 100

**Product make-up**

- Valid for version with connected PVC single wire:
- Tinned-copper litz wires
- Design: 4 x AWG 16 (42 x 0.203 mm)
- Core insulation made of PVC
- No outer sheath

**Suitable cables**

- MULTI-STANDARD SC 2.1 Page 198
- (MULTI-STANDARD SC 2.1.: Example for panel mount connectors with screw terminals)

**Suitable connectors**

- Field mountable M12 POWER connectors Page 383

**Technical data**



**Protection rating**  
IP67



**Ambient temperature (operation)**

Plug/socket  
-40°C to +85°C  
(derating must be observed - see data sheet)  
Cable, fixed installation  
-40°C to +90°C  
(valid for design with connected PVC single wire)

**Contact material**

CuZn (brass)

**Contact surface material**

Au (gold)

**Coding**

M12 T - Power

**Core colour**

brown (1), white (2), blue (3), black (4)  
(for panel mount connectors with connected single wire):

**AWG**

- PVC litz wire: AWG 16



**Conductor cross-section**

For screw clamp:  
0.75 mm<sup>2</sup> - 1.5 mm<sup>2</sup>  
(AWG 18 - AWG 16)

Article number	Article designation	Number of pins	Nominal voltage U <sub>N</sub> (V)	Nominal current I <sub>N</sub> in (A)	PU
<b>M12 panel mount connector (male) with screw clamp, front mounting (thread: M20 x 1,5)</b>					
22262014	AB-C4-M12MST-M20-PO	4	60	12	1
<b>M12 panel mount connector (socket) with screw clamp, front mounting (thread: M20 x 1,5)</b>					
22262015	AB-C4-M12FST-M20-PO	4	60	12	1
<b>M12 panel mount connector (male) with assembled PVC single wires, l = 0.2 m, front mounting (thread: M16 x 1,5)</b>					
22262016	AB-C4-M12MST-M16-0,2	4	60	12	1
<b>M12 panel mount connector (socket) with assembled PVC single wires, l = 0.2 m, front mounting (thread: M16 x 1,5)</b>					
22262017	AB-C4-M12FST-M16-0,2	4	60	12	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Other designs and lengths 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

**Accessories**

- SKINDICHT® SM-M refer to page 704

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 SKINTOP®  
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 APPENDIX



## Coaxial - RG



### 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 according IEC 60332-1-2

### Product make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

### Technical data

- 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
- 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
- Specifications and approvals**  
Similar to MIL-DTL 17 H

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)
<b>Characteristic impedance: 50 ohm</b>																
2170000	RG-58 C/U	50 +/- 2 Ω	101	24 / 33	66	2.0	5.0	CuLivz	0.90	PE	2.95	Cvz	PVC	4.95	19.1	38
2170001	RG-174 A/U	50 +/- 2 Ω	101	40 / 59	66	1.5	2.0	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	2.0	StCuLivs	0.30	PTFE	0.86	Cvs	FEP	1.91	4.4	9
2170003	RG-188 A/U	50 +/- 2 Ω	95	47 / 56	70	1.5	2.0	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	5.0	10.0	CuLibl	2.25	PE	7.25	Cbl	PVC	10.30	75.8	157
2170006	RG-214 /U	50 +/- 2 Ω	101	9 / 14	66	5.0	10.0	CuLivs	2.25	PE	7.25	CvsCvs	PVC	10.80	117.8	207
2170007	RG-223 /U	50 +/- 2 Ω	101	23 / 34	66	2.0	3.0	CuMvs	0.89	PE	2.95	CvsCvs	PVC	5.50	38.5	60
<b>Characteristic impedance: 75 ohm</b>																
2170016	RG-6 A/U	75 +/- 3 Ω	67	14 / 20	66	2.0	5.0	StCuMbl	0.72	PE	4.70	Cbl	PVC	8.40	72.0	120
2170009	RG-11 A/U	75 +/- 3 Ω	67	11 / 16	66	5.0	10.0	CuLivz	1.20	PE	7.30	Cbl	PVC	10.30	55.5	140
2170011	RG-11 A/U outdoor	75 +/- 3 Ω	67	11 / 16	66	5.0	10.0	CuLivz	1.20	PE	7.30	Cbl	PVC	12.10	55.5	170
2170012	RG-59 B/U	75 +/- 3 Ω	67	16.5/23	66	1.7	7.0	StCuMbl	0.60	PE	3.70	Cbl	PVC	6.15	25.0	57
2170010	RG-187 A/U	75 +/- 3 Ω	65	47 / 56	70	1.5	2.0	StCuLivs	0.31	PTFE	1.52	Cvs	PTFE	2.80	7.3	17
<b>Characteristic impedance: 100 Ohm</b>																
2170008	RG-62 A/U	93 +/- 5 Ω	43	15 / 19	75	0.8	2.0	StCuMbl	0.65	PE hollow	3.70	Cbl	PVC	6.15	24.0	52

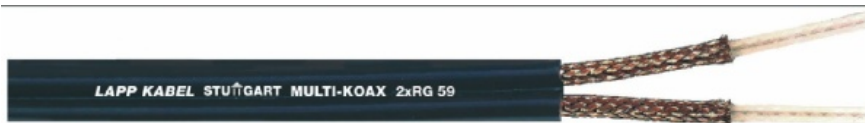
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Photographs are not to scale and do not represent detailed images of the respective products.

**Coaxial cables**

High frequencies



## Multi coaxial cables 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**

- Based on**  
Similar to MIL specification MIL-DTL 17 H
- Minimum bending radius**  
Fixed installation: 15 x cable 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)
<b>Characteristic impedance: 75 ohm</b>				
2170056	2 x RG 59 B/U	6.5 x 13.0	50.0	116

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Photographs are not to scale and do not represent detailed images of the respective products.



## Coaxial cables 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 power 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**

- Mutual capacitance**  
60 nF/km
- Minimum bending radius**  
15 x outer diameter
- Temperature range**  
-10 °C to +80 °C  
Occasional flexing: -5 °C to +70 °C
- Characteristic impedance**  
75 Ohm

Article number	Article designation	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Fixed installation</b>				
0034245	RGB CY 3 x Kx 0,4/1,8 + 3 x 0,25	8.0	51.0	97
0034246	RGB DY 5 x Kx 0,4/1,8	9.7	60.0	132
<b>Flexible and highly flexible applications</b>				
0034247	RGB-FD 3 x Kx 0,6L/2,4	10.8	29.0	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- STAR STRIP stripping tool refer to page 910
- DATA STRIP stripping tool refer to page 911

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**Accessories for INDUSTRIAL networking**

LAN cables for structured industrial cabling 390  
ETHERNET-Connector 423

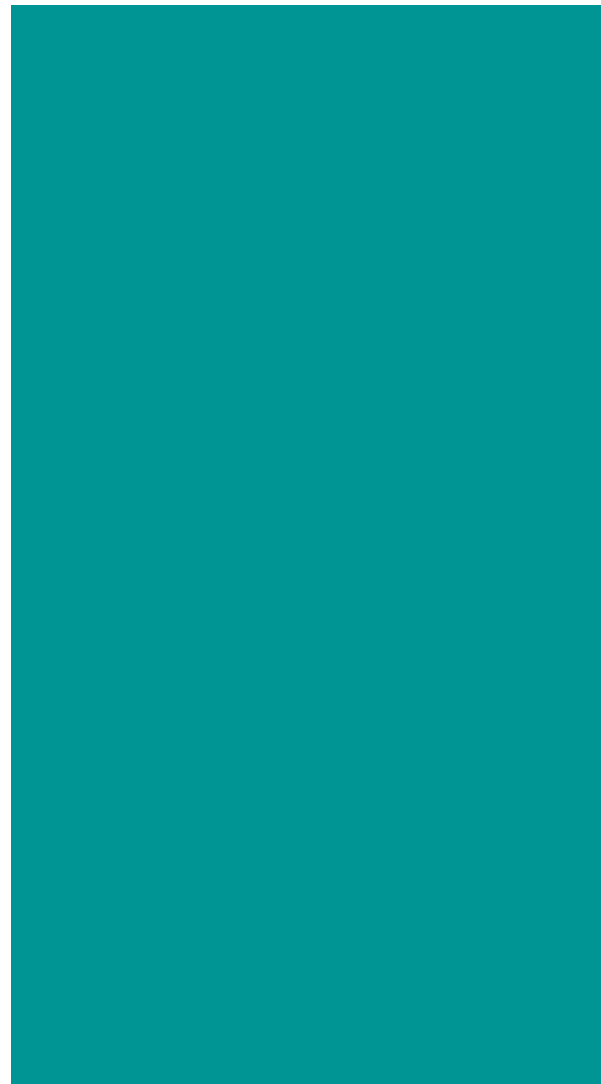
**Components for building-networking**

LAN cables for structured building cabling 426  
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**ETHERLINE®**

Data communication systems  
for ETHERNET-Technology



### Accessories for INDUSTRIAL networking

#### LAN cables for structured industrial cabling

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Connector M12 x-coded Cat.6 <sub>A</sub> 10G fieldmountable	New	425
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## Industrial ethernet articlecode for patchcords

### IE - PN - 5 - M8 - S - 1 - H - 2 - 22 - FD - M8 - S

1 2 3 4 5 6 7 8 9 10 11 12

**1 Type**  
IE = Industrial Ethernet

**2 Bussystem**  
PN = Profinet  
PNA = Profinet Type A  
PNB = Profinet Type B  
PNC = Profinet Type C  
EC = EtherCat  
S3 = Sercos 3

**3 Category**  
5 = Cat.5  
5e = Cat.5e  
6 = Cat.6  
6A = Cat.6<sub>A</sub>  
7 = Cat.7  
7A = Cat.7<sub>A</sub>  
10G = 10 Gbit/s

**4 Connection left**  
M8 = M8  
M12D = M12 D-coded male  
M12DF = M12 D-coded female  
M12X = M12 X-coded male  
M12XF = M12 X-coded female  
RJ45 = RJ45

**5 Cable outlet**  
S = Straight (180°)  
A = Angled (90°)

**6 Cable length**  
1 = 1 m  
2 = 2 m  
3 = 3 m  
5 = 5 m  
10 = 10 m  
15 = 15 m  
20 = 20 m

**7 Outer sheath material**  
H = Halogen free  
P = PUR  
Y = PVC  
FRNC = Flame retardant & halogen free  
PE = PE

**8 Pairs**  
2 = 2x2  
4 = 4x2

**9 AWG (cross section)**  
22 = AWG22  
23 = AWG23  
24 = AWG24  
26 = AWG26  
27 = AWG27

**10 Installation type**  
1 = Fixed installation  
7 = Flexible installation  
FD = Drag chain application  
T = Torsion stressed application

**11 Connection right**  
M8 = M8  
M12D = M12 D-coded male  
M12DF = M12 D-coded female  
M12X = M12 X-coded male  
M12XF = M12 X-coded female  
RJ45 = RJ45  
OE = Open conductor end

**12 Cable outlet**  
S = Straight (180°)  
A = Angled (90°)

## EPIC® DATA Code for Ethernet applications

### ED - IE - 90 - M12 - X - RM - 6A - A - 54 - FD - FC - AC

1 2 3 4 5 6 7 8 9 10 11 12

**1 Type**  
ED = EPIC® DATA

**2 Bussystem**  
IE = Industrial Ethernet

**3 Cable outlet**  
90 = 90°  
45 = 45°  
35 = 35°  
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  
X = X-coded  
A = A-coded

**6 Mounting version**  
RM = Rear-mounting  
FM = Front-mounting

**7 Category**  
5 = Cat.5  
5e = Cat.5e  
6 = Cat.6  
6A = Cat.6<sub>A</sub>  
7 = Cat.7  
7A = Cat.7<sub>A</sub>

**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 = Accessorie  
AC-DC = Accessorie Dust Cap



## ETHERLINE® Cat.5e

### Fixed installation



**Info**

- Industrial Ethernet cable
- Cat.5e

#### Benefits

- Very low installation cost due to the use of Ethernet cables
- Screened against interference
- Seamless communication from the sensor/actuator level to the Internet
- Suitable for fixed installation in dry and damp rooms

#### 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
- Flame-retardant according IEC 60332-1-2
- CAT.5e-Performance

#### Norm references / Approvals

- PUR versions: UL AWM Style 21576

#### Product make-up

- Solid conductor
- Core insulation made of foam skin
- SF/UTP: copper braid and foil screening as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

#### Technical data

- Peak operating voltage** (not for power applications) 125 V
- Minimum bending radius**  
Fixed installation: 7.5 x outer diameter (2 pair cable)  
Fixed installation: 8 x outer diameter (4 pair cable)
- Test voltage**  
Core/core: 1000 V  
Core/screen: 500 V
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -30°C to +80°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>2-pair version</b>					
<b>Halogen-free compound</b>					
2170280	ETHERLINE® H CAT.5e	2 x 2 x AWG24/1	5.8	22.0	45
<b>PUR outer sheath, halogen-free</b>					
2170281	ETHERLINE® P CAT.5e	2 x 2 x AWG24/1	5.8	22.0	53
<b>4-pair version</b>					
<b>Halogen-free compound</b>					
2170296	ETHERLINE® H CAT.5e	4 x 2 x AWG24/1	6.3	32.0	54
2170298	ETHERLINE® H-H CAT.5e	4 x 2 x AWG24/1	6.0 / 7.5	32.0	80
<b>Outer sheath: PUR, halogen-free</b>					
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	6.3	32.0	62

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

#### Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- BUS M12 connectors that can be assembled
- Easy connect rail mount adapter Cat.6A refer to page 437
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425
- SMART STRIP stripping tool refer to page 911
- DATA STRIP stripping tool refer to page 911

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## ETHERLINE® Cat.5e FLEX

Flexible use

**Info**

- Industrial Ethernet cable
- Cat.5e



### Benefits

- For directly connecting two electric components
- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Industrial use

### 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
- Halogen-free outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Flame-retardant according IEC 60332-1-2
- CAT.5e-Performance

### Norm references / Approvals

- PVC version has UL/CSA (CMG) approval.
- PUR versions: UL AWM Style 21576

### Product make-up

- Stranded conductor, 7-wire, bare
- Core insulation made of foam skin
- SF/UTP: copper braid and foil screening as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

### Technical data

- 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
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -20°C to +60°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>2-pair version</b>					
<b>Halogen-free compound</b>					
2170283	ETHERLINE® H Flex CAT.5e	2 x 2 x AWG26/7	5.4	19.0	43
<b>PUR outer sheath, halogen-free</b>					
2170284	ETHERLINE® P Flex CAT.5e	2 x 2 x AWG26/7	5.8	19.0	45
<b>4-pair version</b>					
<b>Halogen-free compound</b>					
2170299	ETHERLINE® H Flex CAT.5e	4 x 2 x AWG26/7	6.1	25.0	48
<b>PUR outer sheath, halogen-free</b>					
2170300	ETHERLINE® P Flex CAT.5e	4 x 2 x AWG26/7	6.1	25.0	54
<b>PVC version</b>					
2170486	ETHERLINE® Y Flex CAT.5e	4 x 2 x AWG26/7	6.4	30.0	54

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424
- Easy connect rail mount adapter Cat.6A refer to page 437
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425
- DATA STRIP stripping tool refer to page 911



## ETHERLINE® Cat.5e FD

Highly flexible application

LAPP KABEL STUTTGART ETHERLINE® FD P Cat.5e 2x2xAWG26/19



**Info**

- Industrial Ethernet cable
- For highly flexible applications

### Benefits

- Very low installation cost due to the use of Ethernet cables
- Screened against interference
- Seamless communication from the sensor/actuator level to the Internet
- Industrial use
- Can be used in dry or damp rooms

### 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
- Power chain applications

### 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
- CAT.5e-Performance

### Norm references / Approvals

- PUR versions: UL AWM Style 21576

### Product make-up

- Braided conductor, 19-wire
- Inner sheath: thermoplastic elastomer, halogen-free
- Screening: wrapped with braided tinned-copper wires
- PUR outer sheath
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

### Technical data

- 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
- Temperature range**  
Flexing: -20 °C to +70 °C  
Fixed installation: -30 °C to +80 °C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>2-pair version</b>					
2170289	ETHERLINE® FD P CAT.5e	2 x 2 x AWG26/19	6.1	20.0	48
<b>4-pair version</b>					
2170489	ETHERLINE® FD P CAT.5e	4 x 2 x AWG26/19	6.3	27.0	54

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 CAT.6 Hirose TM21 refer to page 436
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424
- Connector industry RJ45 Cat.6A 10 IP68 refer to page 424
- SMART STRIP stripping tool refer to page 911
- DATA STRIP stripping tool refer to page 911



**Info**

- For highly flexible industrial applications
- CAT.5-Performance



**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
- Usable on the roads

**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**

- ETHERLINE® CAT.5 FD BK is a highly flexible, halogen-free, CATEGORY 5 high-speed data transmission cable, which specifically developed for road environments.
- Complies with standards EIA/TIA-568, TSB-36 and ISO/IEC IS 11801
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Premium screening against electromagnetic interference
- CAT.5-Performance

**Norm references / Approvals**

- UL AWM Style 21576

**Product make-up**

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm<sup>2</sup>)
- 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**

- Minimum bending radius**  
Flexing: 15 x outer diameter  
Fixed installation: 10 x outer diameter
- Temperature range**  
Flexing: -5°C to +50°C  
Fixed installation: -40°C to +70°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
CE217489	ETHERLINE® FD P BK Cat.5	4x2xAWG26/19	6.3	27.0	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100kg. 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 are not to scale and do not represent detailed images of the respective products.

**Similar products**

- ETHERLINE® FD P CAT.5

**Accessories**

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 CAT.6 Hirose TM21 refer to page 436
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424
- SMART STRIP stripping tool refer to page 911



## ETHERLINE® Cat.5 ARM

Fixed installation

LAPP KABEL STUTTGART ETHERLINE® Y2Y ARM TYPE A CAT.5

### Benefits

- Very low installation cost due to the use of Ethernet cables
- EMC-optimised
- With armouring for improved rodent protection
- Screened against interference

### Application range

- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- Suitable for outdoor use, UV-resistant
- PROFINET application Type C but for fixed installation
- Suitable for direct burial

### Product features

- CAT.5-Performance
- Colour-coded in accordance with PROFINET for Cat.5 applications

### Product make-up

- Solid and bare copper conductor
- Core insulation: PE
- Overlapping plastic tape
- SF/UTP: copper braid and foil screening as overall screening
- Inner sheath made of PVC (green RAL6018)
- 2 layer galvanizid steel tape
- Outer sheath made of black polyethylene (PE)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Fixed installation</b>					
2170496	ETHERLINE® Cat.5 ARM	2 x 2 x AWG22/1	9.3	30.4	124

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Info**

- Industrial Ethernet cable
- CAT.5-Performance

**Technical data**

- 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: 2000 V  
Core/screen: 2000 V
- Temperature range**  
Operation: -40 °C to +70 °C  
During installation: -20 °C to +60 °C
- Characteristic impedance**  
100 Ohm +- 15%



## ETHERLINE® Cat.5 FRNC HYBRID

Flexible use

LAPP KABEL STUTTGART ETHERLINE® FRNC HYBRID

### 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
- PROFINET application Type C Hybrid
- Suitable for EtherCAT and EtherNet/IP applications

### Product features

- Flame-retardant according IEC 60332-1-2
- HYBRID: cable for data transmission + power supply
- Robust, halogen-free outer sheath
- CAT.5-Performance

### Norm references / Approvals

- UL AWM Style 21282

### Product make-up

- Cores for Power Supply  
4 x 1.5 mm2 (AWG16)
- Data transfer: braided conductor, 7-wire, bare
- 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)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Flexible use</b>					
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. Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

**Info**

- HYBRID: cable for data transmission + power supply

**Technical data**

- Minimum bending radius**  
Occasional flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter
- Test voltage**  
See data sheet
- Temperature range**  
Operation: -20 °C to +70 °C
- Characteristic impedance**  
100 Ohm +- 15%



New

## ETHERLINE® EC FLEX Cat.5e

LAPP KABEL STUTTGART ETHERLINE® P EC FLEX Cat.5e

LAPP KABEL STUTTGART ETHERLINE® Y EC FLEX Cat.5e



Info

- For EtherCat applications

### 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

### Product features

- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- CAT.5-Performance

### Norm references / Approvals

- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### Product make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: copper braid and foil screening as overall screening
- PVC or PUR jacket material
- Colour: green (based on RAL 6018)

### Technical data

- Peak operating voltage**  
max. 100 V (not for power applications)
- Minimum bending radius**  
Fixed installation: 4 x outer diameter  
Flexing: 8 x outer diameter
- Temperature range**  
fixed installation  
PVC: -30°C to +80°C  
PUR: -40°C to +80°C  
Flexing  
PVC: -5°C to +50°C  
PUR: -30°C to +50°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC outer sheath</b>					
2170430	ETHERLINE® Y EC FLEX Cat.5e	1 x 4 x AWG26/7	5.0	20.0	35
<b>Outer sheath: PUR, halogen-free</b>					
2170431	ETHERLINE® P EC FLEX Cat.5e	1 x 4 x AWG26/7	5.0	20.0	37

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

### Accessories

- Field mountable S/A connectors M8 refer to page 360
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled



New

## ETHERLINE® EC FD Cat.5e

LAPP KABEL STÜTTGART ETHERLINE® P EC FD Cat.5e



Info

- For EtherCat applications
- For highly flexible industrial applications

### 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 (power 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

### Product features

- PUR outer sheath, halogen-free
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- CAT.5-Performance

### Norm references / Approvals

- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### Product make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: copper braid and foil screening as overall screening
- Outer sheath: PUR compound, halogen-free
- Colour: green (based on RAL 6018)

### Technical data



#### Minimum bending radius

Fixed installation: 4 x Outer diameter  
Flexing: 8 x outer diameter



#### Temperature range

Fixed installation: -40°C to +80°C  
Flexing: -30°C to +50°C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170432	ETHERLINE® P EC FD Cat.5e	1 x 4 x AWG26/7	5.0	20.0	35

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

### Accessories

- Field mountable S/A connectors M8 refer to page 360
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- BUS M12 connectors that can be assembled





## ETHERLINE® PN Cat.5

Fixed installation



**Info**

- For PROFINET applications type A
- CAT.5/5e

### Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Industrial use

### 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
- Fixed installation
- Suitable for EtherCAT and EtherNet/IP applications

### Product features

- Fixed installation
- FC: "Fast Connect" cable design
- Flame-retardant according IEC 60332-1-2
- ETHERLINE® Y FC and ETHERLINE® YY : flame-retardant according to CSA FT-4
- CAT.5-Performance

### Norm references / Approvals

- 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

### Product make-up

- Solid and bare copper conductor
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)

### Technical data

- Peak operating voltage**  
(not for power applications) 125 V
- Minimum bending radius**  
See data sheet
- Test voltage**  
See data sheet
- Temperature range**  
See data sheet
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170891	ETHERLINE® PN Cat.5e Y	2 x 2 x AWG22/1	6.4	30.4	56
<b>FC: "Fast Connect" cable design</b>					
2170893	ETHERLINE® Y FC UL/CSA (CMG) CAT.5	2 x 2 x AWG22/1	6.5	30.4	70
<b>Suitable for outdoor use and direct burial</b>					
2170494	ETHERLINE® PN Cat.5e YY	2 x 2 x AWG22/1	7.8	30.4	62

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- BUS M12 connectors that can be assembled
- Connector industry RJ45 Cat.6A 10 IP68 refer to page 424



New

## ETHERLINE® PN FLEX



Info

- For Profinet applications
- CAT.5-Performance
- Flexible use

### Benefits

- Screened against interference
- For PROFINET applications type B
- Industrial use
- Can be used in dry or damp rooms

### Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- For flexible applications (7-wire stranded conductor)
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### 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-approved (CMG)

### Product make-up

- Stranded 7-wire bare conductor
- Core insulation: PE
- 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)

### Technical data



#### Peak operating voltage

(not for power applications) 125 V



#### Minimum bending radius

Fixed installation: see data sheet



#### Test voltage

Core/core: 2000 V  
Core/screen: 2000 V



#### Temperature range

See data sheet



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC sheath</b>					
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	6.5	31.3	67
<b>FRNC outer sheath</b>					
2170890	ETHERLINE® PN Cat.5 FRNC FLEX FC	2 x 2 x AWG22/7	6.5	31.2	65

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- BUS M12 connectors that can be assembled
- FC STRIP stripping tool refer to page 912



## ETHERLINE® PN Cat.5 FD

**Info**

- Highly flexible application
- For PROFINET applications



### Benefits

- Screened against interference
- For PROFINET applications type C
- Industrial use
- Can be used in dry or damp rooms

### Application range

- Power chain applications
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications

### Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Flame-retardant according IEC 60332-1-2
- CAT.5-Performance
- Broad usages due to halogen-free materials

### Norm references / Approvals

- UL/CSA type CMX (UL 444)

### Product make-up

- Stranded 7-wire bare conductor
- Star quad
- Colour-coded in accordance with PROFINET for Cat.5 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

**Peak operating voltage**  
(not for power applications) 125 V

**Minimum bending radius**  
Flexing: 8 x outer diameter  
Fixed installation: 5 x cable diameter, once

**Test voltage**  
Core/core: 700 V  
Core/screen: 700 V

**Temperature range**  
Fixed installation: -30°C to +70°C  
Flexing: -20°C to +60°C

**Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>For highly flexible applications (7-wire stranded conductor) = type C</b>					
2170894	ETHERLINE® FD P FC CAT.5	2 x 2 x AWG22/7	6.5	31.3	63

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled
- Connector industry RJ45 Cat.6A 10 IP68 refer to page 424



New

## ETHERLINE® Y Cat.5e BK 2x2AWG22/7



Info

- For PROFINET applications
- CAT.5-Performance

### Benefits

- UV and weather-resistant in black
- For PROFINET applications type B
- Can be used in dry or damp rooms

### Application range

- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Suitable for EtherCAT and EtherNet/IP applications
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### 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
- CAT.5-Performance

### 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



#### 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



#### Temperature range

Flexing: -10°C to +70°C  
Fixed installation: -40°C to +80°C



#### Characteristic impedance

100 ± 15 Ohm (> 1 MHz)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170901	ETHERLINE® Y CAT.5e BK 2x2xAWG22/7	2 x 2 x AWG22/7	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Similar products

- ETHERLINE® PN FLEX refer to page 398

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled
- Easy connect rail mount adapter Cat.6A refer to page 437
- DATA STRIP stripping tool refer to page 911



## ETHERLINE® TORSION Cat. 5

**Info**

- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- For PROFINET applications



### Benefits

- For PROFINET applications type C
- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- Industrial use
- Can be used in dry or damp rooms

### Application range

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- Plant engineering, machinery manufacturing
- 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
- CAT.5-Performance

### 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

- Peak operating voltage**  
max. 100 V (not for power applications)
- Minimum bending radius**  
Installation: 5 x outer diameter
- Test voltage**  
700 V
- Temperature range**  
-40°C to +80°C
- Characteristic impedance**  
100 ± 15 Ohm (> 1 MHz)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170888	ETHERLINE® TORSION CAT.5	2 x 2 x AWG22/19	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled
- Easy connect rail mount adapter Cat.6A refer to page 437
- Multipurpose shears A and B refer to page 907
- SMART STRIP stripping tool refer to page 911



New

## ETHERLINE® Cat.5e 105 plus



Info

- For PROFINET applications
- Extended temperature range

### Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance
- Industrial use
- Premium screening against electromagnetic interference

### 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
- For PROFINET applications type B
- Suitable for EtherCAT and EtherNet/IP applications

### 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

### Product make-up

- Stranded conductor, 7-wire, bare
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 applications
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based
- Colour: green (based on RAL 6018)

### Technical data



#### Minimum bending radius

Fixed installation: 10 x outer diameter  
Flexing: 15 x outer diameter



#### Temperature range

Fixed installation: -40°C to +105°C  
occasionally flexing: -30°C to +105°C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
2170636	ETHERLINE Cat.5e 105 plus	2x2xAWG22/7	6.2	30.4

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- BUS M12 connectors that can be assembled



**Info**

- Certified for maritime applications

**Benefits**

- Can be used for Industrial Ethernet in harsh industrial environments
- For use in dry, damp and wet rooms

**Application range**

- Shipbuilding
- For PROFINET applications type B
- Suitable for EtherCAT and EtherNet/IP applications
- Onshore and offshore applications

**Product features**

- High flame retardancy in accordance with IEC 60332-3 and FT4
- CAT.5-Performance
- Fast Connect (FC) cable design

**Norm references / Approvals**

- CMG UL/CSA approval 75°C or PLTC, Sun Res

**Product make-up**

- Fine-wire strand made of tinned-copper wires
- Colour-coded in accordance with PROFINET for Cat.5 applications
- Star quad
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: copper braid and foil screening as overall screening
- Halogen-free and flame-retardant FRNC outer sheath
- Colour: green (based on RAL 6018)

**Technical data**

- Peak operating voltage**  
(not for power applications) 125 V
- Minimum bending radius**  
Fixed installation: 3 x outer diameter  
Flexing: 7.5 x outer diameter
- Temperature range**  
Operating temperature: -25°C to +70°C  
During installation: 0 °C to +50 °C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170889	ETHERLINE® MARINE FRNC FC CAT.5	2 x 2 x AWG22/7	6.5	32.0	68

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

**Accessories**

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled
- FC STRIP stripping tool refer to page 912



**Info**

- System integrity for at least 60 minutes in the event of fire



**ETHERLINE® FIRE Cat.5e PH60**



**Benefits**

- Ensures that the cable can still transmit data during and after a fire (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); 60 min
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D

**Product make-up**

- Solid, bare, single-wire 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

**Technical data**

- Peak operating voltage**  
(not for power applications) 125 V
- Minimum bending radius**  
Fixed installation: 15 x cable diameter
- Temperature range**  
Operation: -20 °C to +70 °C
- Characteristic impedance**  
100 Ohm +/- 15%

- SF/UTP: copper braid and foil screening as overall screening
- Halogen-free and flame-retardant FRNC outer sheath, colour: red (similar to RAL3000)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170904	ETHERLINE® FIRE Cat.5e PH60	4 x 2 x AWG23/1	8.3	24.0	75

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



## ETHERLINE® CAT.6 FD



### Info

- CAT.6 for drag chain!

### 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 power chains 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

- Flame-retardant according IEC 60332-1-2
- PUR outer sheath is resistant to most oils and hydraulic fluids
- CAT.6 for drag chain!
- LAN Cat.6 cables are specified up to 350 MHz
- Designed for 1...2 million bending/unbending cycles in the power chain

### Norm references / Approvals

- UL/CSA type CMX (UL 444)

### Product make-up

- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: copper braid and foil screening as overall screening
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

### Technical data

- 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
- Temperature range**  
Fixed installation: -40°C to +80°C  
Flexing: -30°C to +80°C
- Characteristic impedance**  
At 1 - 100 MHz: 100 ± 15 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170488	ETHERLINE® FD P CAT.6	4 x 2 x AWG26/19	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 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425
- DATA STRIP stripping tool refer to page 911





## ETHERLINE® Cat.6<sub>A</sub> + Cat.7 Fixed installation



**Info**

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- CAT.6<sub>A</sub> and Cat.7 qualified for 10Gbit/s

### Benefits

- Screened against interference
- Industrial use
- 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
- Fixed installation
- Can be used in dry or damp rooms
- For PROFINET applications type A

### Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free outer sheath
- PVC sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

### Product make-up

- Solid bare copper wire AWG22
- Core insulation made of polyethylene (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: see data sheet
- Temperature range**  
See data sheet
- Characteristic impedance**  
100 ohm at 1 - 100 MHz

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Outer sheath: halogen-free, flame-retardant compound</b>					
2170466	ETHERLINE® Cat.6 <sub>A</sub> H	4 x 2 x AWG22/1	8.7	53.0	99
2170476	ETHERLINE® CAT.7 H	4 x 2 x AWG22/1	8.7	53.0	99
<b>Outer sheath: PUR, halogen-free</b>					
2170465	ETHERLINE®CAT.6 <sub>A</sub> P	4 x 2 x AWG22/1	8.7	53.0	91
2170475	ETHERLINE® Cat.7 P	4 x 2 x AWG22/1	8.7	53.0	91
<b>Outer sheath: PVC</b>					
2170464	ETHERLINE® Cat.6 <sub>A</sub> Y	4 x 2 x AWG22/1	8.7	53.0	98
2170474	ETHERLINE® Cat.7 Y	4 x 2 x AWG22/1	8.7	53.0	98

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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

### Accessories

- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- Connector RJ45 Cat.6A fieldmountable refer to page 423
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425
- DATA STRIP stripping tool refer to page 911



New

## ETHERLINE® PN Cat.6<sub>A</sub> FLEX



Info

- For PROFINET applications with 4 pairs

### Benefits

- For PROFINET applications type B
- Screened against interference
- Industrial use
- Can be used in dry or damp rooms

### Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- For flexible applications (7-wire stranded conductor)
- Plant engineering, machinery manufacturing
- Suitable for EtherCAT and EtherNet/IP applications

### Product features

- CAT.6<sub>A</sub> for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6<sub>A</sub>, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

### Norm references / Approvals

- The cable is UL/CSA-approved (CMG)

### Product make-up

- Stranded 7-wire bare conductor
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- 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**  
Fixed installation: see data sheet



**Temperature range**  
Operation: see data sheet



**Characteristic impedance**  
100 ± 15 Ohm (> 1 MHz)

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC outer sheath</b>					
2170930	ETHERLINE PN Cat.6 <sub>A</sub> Y FLEX	4 x 2 x AWG23/7	9.0	48.0	92
<b>FRNC outer sheath</b>					
2170931	ETHERLINE PN Cat.6 <sub>A</sub> FRNC FLEX	4 x 2 x AWG23/7	9.0	48.0	87

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

### Accessories

- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- Connector RJ45 Cat.6A fieldmountable refer to page 423
- Connector industry RJ45 Cat.6A 10 IP68 refer to page 424
- DATA STRIP stripping tool refer to page 911



New

## ETHERLINE® FD CAT.6<sub>A</sub>



**Info**

- CAT.6<sub>A</sub> for drag chain, qualified for 10Gbit/s
- For PROFINET applications with 4 pairs

### Benefits

- For use in power chains and moving machinery parts in dry or damp rooms
- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible and highly flexible use
- Premium screening against electromagnetic interference

### Application range

- For highly flexible applications (e.g. power chains)
- Can be used for Industrial Ethernet in harsh industrial environments
- Suitable for EtherCAT and EtherNet/IP applications
- For PROFINET applications type C

### Product features

- PUR version is halogen-free according to IEC 60754
- Oil-resistant
- CAT.6<sub>A</sub> for drag chain, qualified for 10Gbit/s
- Meets the requirements according to CAT.6<sub>A</sub>, ISO/IEC 11801 and EN 50173
- Designed for 1...2 million bending/unbending cycles in the power chain

### Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### 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, halogen-free/PVC
- Colour: green (based on RAL 6018)

### Technical data

- Minimum bending radius**  
Flexing: 15 x outer diameter
- Temperature range**  
Fixed installation: -40°C to +80°C  
Flexing: -10°C to +70°C
- Characteristic impedance**  
100 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
<b>PVC sheath</b>				
2170485	ETHERLINE® FD CAT.6 <sub>A</sub>	4x2xAWG24/7	9.0	44.0
<b>Outer sheath: PUR, halogen-free</b>				
2170484	ETHERLINE® FD P.CAT.6 <sub>A</sub>	4x2xAWG24/7	9.0	44.0

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



New

## ETHERLINE® TORSION CAT.6<sub>A</sub>



**Info**

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- CAT.6<sub>A</sub> qualified for 10Gbit/s
- For PROFINET applications

### Benefits

- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- Premium screening against electromagnetic interference

### 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
- For PROFINET applications type C

### Product features

- Oil-resistant acc. EN 60811-2-1
- PUR outer sheath, halogen-free

### Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

### 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, halogen-free/PVC
- Colour: green (based on RAL 6018)

### Technical data



**Minimum bending radius**

Flexing: 15 x outer diameter



**Temperature range**

Fixed installation: -40°C to +80°C  
Flexing: -10°C to +70°C



**Characteristic impedance**

100 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
<b>PVC sheath</b>				
2170482	ETHERLINE® TORSION Y CAT6 <sub>A</sub>	4 x 2 x AWG24/7	9.0	44.0
<b>Outer sheath: PUR, halogen-free</b>				
2170483	ETHERLINE® TORSION P CAT6 <sub>A</sub>	4 x 2 x AWG24/7	9.0	44.0

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



**New**

## Industrial Ethernet PN A patchcord M12



Info

- For PROFINET applications (D-coded)

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

### Application range

- For PROFINET applications type A
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

### Product features

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet





### Norm references / Approvals

- The cable is UL/CSA-approved (CMG)
- UL File Number: E249137

### Product make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- 4 pole M12 connector with vibration protection

### Technical data

- 
**Minimum bending radius**  
 During installation: 15 x outer diameter  
 Fixed installation: 10 x outer diameter
- 
**Protection rating**  
 IP 67
- 
**Temperature range**  
 During installation: -20°C to +60°C  
 Fixed installation: -40°C to +80°C
- 
**Characteristic impedance**  
 100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Straight connector on straight connector</b>			
2171001	IE-PNA-5-M12D-S-1-Y-2-22-1-M12D-S	2x2xAWG22	1.0
2171002	IE-PNA-5-M12D-S-2-Y-2-22-1-M12D-S	2x2xAWG22	2.0
2171003	IE-PNA-5-M12D-S-3-Y-2-22-1-M12D-S	2x2xAWG22	3.0
2171004	IE-PNA-5-M12D-S-5-Y-2-22-1-M12D-S	2x2xAWG22	5.0
2171005	IE-PNA-5-M12D-S-10-Y-2-22-1-M12D-S	2x2xAWG22	10.0
2171006	IE-PNA-5-M12D-S-20-Y-2-22-1-M12D-S	2x2xAWG22	20.0
<b>Angled connector on straight connector</b>			
2171013	IE-PNA-5-M12D-A-1-Y-2-22-1-M12D-S	2x2xAWG22	1.0
2171014	IE-PNA-5-M12D-A-2-Y-2-22-1-M12D-S	2x2xAWG22	2.0
2171015	IE-PNA-5-M12D-A-3-Y-2-22-1-M12D-S	2x2xAWG22	3.0
2171016	IE-PNA-5-M12D-A-5-Y-2-22-1-M12D-S	2x2xAWG22	5.0
2171017	IE-PNA-5-M12D-A-10-Y-2-22-1-M12D-S	2x2xAWG22	10.0
2171018	IE-PNA-5-M12D-A-20-Y-2-22-1-M12D-S	2x2xAWG22	20.0

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



**New**

## Industrial Ethernet PN A Patchcord M12 on free conductor end



Info

- For PROFINET applications (D-coded)

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

### Application range

- For PROFINET applications type A
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

### Product features

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Norm references / Approvals

- The cable is UL/CSA-approved (CMG)
- UL File Number: E249137

### Product make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 connector on free conductor end
- 4 pole M12 connector with vibration protection

### Technical data



#### Minimum bending radius

During installation: 15 x outer diameter  
Fixed installation: 10 x outer diameter



#### Protection rating

IP 67



#### Temperature range

During installation: -20°C to +60°C  
Fixed installation: -40°C to +80°C



#### Characteristic impedance

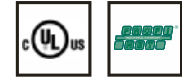
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>straight connector on free conductor end</b>			
2171007	IE-PNA-5-M12D-S-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171008	IE-PNA-5-M12D-S-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171009	IE-PNA-5-M12D-S-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171010	IE-PNA-5-M12D-S-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171011	IE-PNA-5-M12D-S-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171012	IE-PNA-5-M12D-S-20-Y-2-22-1-OE	2x2xAWG22	20.0
<b>Angled connector on free conductor end</b>			
2171019	IE-PNA-5-M12D-A-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171020	IE-PNA-5-M12D-A-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171021	IE-PNA-5-M12D-A-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171022	IE-PNA-5-M12D-A-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171023	IE-PNA-5-M12D-A-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171024	IE-PNA-5-M12D-A-20-Y-2-22-1-OE	2x2xAWG22	20.0

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled



**New**

## Industrial Ethernet PN B patchcord M12



**Info**

- For PROFINET applications (D-coded)

**Benefits**

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

**Application range**

- For PROFINET applications type B
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

**Product features**

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet

**Norm references / Approvals**

- The cable is UL/CSA-approved (CMG)
- UL File Number: E249137

**Product make-up**

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- 4 pole M12 connector with vibration protection

**Technical data**

- Minimum bending radius**  
Flexing: 15 x outer diameter  
Fixed installation: 10 x outer diameter
- Protection rating**  
IP 67
- Temperature range**  
Flexing: -20°C to +60°C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Angled connector on straight connector</b>			
2171037	IE-PNB-5-M12D-A-1-Y-2-22-7-M12D-S	2x2xAWG22	1.0
2171038	IE-PNB-5-M12D-A-2-Y-2-22-7-M12D-S	2x2xAWG22	2.0
2171039	IE-PNB-5-M12D-A-3-Y-2-22-7-M12D-S	2x2xAWG22	3.0
2171040	IE-PNB-5-M12D-A-5-Y-2-22-7-M12D-S	2x2xAWG22	5.0
2171041	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2xAWG22	10.0
2171042	IE-PNB-5-M12D-A-20-Y-2-22-7-M12D-S	2x2xAWG22	20.0
<b>Straight connector on straight connector</b>			
2171025	IE-PNB-5-M12D-S-1-Y-2-22-7-M12D-S	2x2xAWG22	1.0
2171026	IE-PNB-5-M12D-S-2-Y-2-22-7-M12D-S	2x2xAWG22	2.0
2171027	IE-PNB-5-M12D-S-3-Y-2-22-7-M12D-S	2x2xAWG22	3.0
2171028	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2xAWG22	5.0
2171029	IE-PNB-5-M12D-S-10-Y-2-22-7-M12D-S	2x2xAWG22	10.0
2171030	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2xAWG22	20.0

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

New

## Industrial Ethernet PN B Patchcord M12 on free conductor end



Info

- For PROFINET applications (D-coded)

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For PROFINET applications type B

### Product features

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Norm references / Approvals

- The cable is UL/CSA-approved (CMG)
- UL File Number: E249137

### Product make-up

- Fine-wire, tinned-copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 connector on free conductor end
- 4 pole M12 connector with vibration protection

### Technical data



#### Minimum bending radius

Flexing: 15 x outer diameter  
Fixed installation: 10 x outer diameter



#### Protection rating

IP 67



#### Temperature range

Flexing: -20°C to +60°C  
Fixed installation: -40°C to +80°C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Angled connector on free conductor end</b>			
2171043	IE-PNB-5-M12D-A-1-Y-2-22-7-OE	2x2xAWG22	1.0
2171044	IE-PNB-5-M12D-A-2-Y-2-22-7-OE	2x2xAWG22	2.0
2171045	IE-PNB-5-M12D-A-3-Y-2-22-7-OE	2x2xAWG22	3.0
2171046	IE-PNB-5-M12D-A-5-Y-2-22-7-OE	2x2xAWG22	5.0
2171047	IE-PNB-5-M12D-A-10-Y-2-22-7-OE	2x2xAWG22	10.0
2171048	IE-PNB-5-M12D-A-20-Y-2-22-7-OE	2x2xAWG22	20.0
<b>straight connector on free conductor end</b>			
2171031	IE-PNB-5-M12D-S-1-Y-2-22-7-OE	2x2xAWG22	1.0
2171032	IE-PNB-5-M12D-S-2-Y-2-22-7-OE	2x2xAWG22	2.0
2171033	IE-PNB-5-M12D-S-3-Y-2-22-7-OE	2x2xAWG22	3.0
2171034	IE-PNB-5-M12D-S-5-Y-2-22-7-OE	2x2xAWG22	5.0
2171035	IE-PNB-5-M12D-S-10-Y-2-22-7-OE	2x2xAWG22	10.0
2171036	IE-PNB-5-M12D-S-20-Y-2-22-7-OE	2x2xAWG22	20.0

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled





**New**

## Industrial Ethernet PN C patchcord M12



**Info**

- For PROFINET applications (D-coded)

**Benefits**

- For directly connecting two electric components
- Non-permanent connections allow for easy change of equipment
- CAT.5-Performance

**Application range**

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For PROFINET applications type C

**Product features**

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet

**Norm references / Approvals**

- The cable is UL/CSA-approved (CMX)

**Product make-up**

- Extra-fine wire, tinned braided conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- 4 pole M12 connector with vibration protection

**Technical data**

- Minimum bending radius**  
Flexing: 8 x outer diameter
- Protection rating**  
IP 67
- Temperature range**  
Flexing: -20°C to +60°C  
Fixed installation: -30°C to +70°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Angled connector on straight connector</b>			
2171061	IE-PNC-5-M12D-A-1-P-2-22-FD-M12D-S	2x2xAWG22	1.0
2171062	IE-PNC-5-M12D-A-2-P-2-22-FD-M12D-S	2x2xAWG22	2.0
2171063	IE-PNC-5-M12D-A-3-P-2-22-FD-M12D-S	2x2xAWG22	3.0
2171064	IE-PNC-5-M12D-A-5-P-2-22-FD-M12D-S	2x2xAWG22	5.0
2171065	IE-PNC-5-M12D-A-10-P-2-22-FD-M12D-S	2x2xAWG22	10.0
2171066	IE-PNC-5-M12D-A-20-P-2-22-FD-M12D-S	2x2xAWG22	20.0
<b>Straight connector on straight connector</b>			
2171049	IE-PNC-5-M12D-S-1-P-2-22-FD-M12D-S	2x2xAWG22	1.0
2171050	IE-PNC-5-M12D-S-2-P-2-22-FD-M12D-S	2x2xAWG22	2.0
2171051	IE-PNC-5-M12D-S-3-P-2-22-FD-M12D-S	2x2xAWG22	3.0
2171052	IE-PNC-5-M12D-S-5-P-2-22-FD-M12D-S	2x2xAWG22	5.0
2171053	IE-PNC-5-M12D-S-10-P-2-22-FD-M12D-S	2x2xAWG22	10.0
2171054	IE-PNC-5-M12D-S-20-P-2-22-FD-M12D-S	2x2xAWG22	20.0

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

**New**

## Industrial Ethernet PN C Patchcord M12 on free conductor end



Info

- For PROFINET applications (D-coded)

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

### Application range

- For PROFINET applications type C
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

### Product features

- CAT.5-Performance
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Norm references / Approvals

- The cable is UL/CSA-approved (CMX)
- UL File Number: E249137

### Product make-up

- Extra-fine wire, tinned copper strands
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with a M12 connector on free conductor end
- 4 pole M12 connector with vibration protection

### Technical data



#### Minimum bending radius

Flexing: 8 x outer diameter



#### Protection rating

IP 67



#### Temperature range

Flexing: -20°C to +60°C  
Fixed installation: -30°C to +70°C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>straight connector on free conductor end</b>			
2171055	IE-PNC-5-M12D-A-5-P-2-22-FD-OE	2x2xAWG22	1.0
2171056	IE-PNC-5-M12D-S-2-P-2-22-FD-OE	2x2xAWG22	2.0
2171057	IE-PNC-5-M12D-S-3-P-2-22-FD-OE	2x2xAWG22	3.0
2171058	IE-PNC-5-M12D-S-5-P-2-22-FD-OE	2x2xAWG22	5.0
2171059	IE-PNC-5-M12D-S-10-P-2-22-FD-OE	2x2xAWG22	10.0
2171060	IE-PNC-5-M12D-S-20-P-2-22-FD-OE	2x2xAWG22	20.0
<b>Angled connector on free conductor end</b>			
2171067	IE-PNC-5-M12D-A-1-P-2-22-FD-OE	2x2xAWG22	1.0
2171068	IE-PNC-5-M12D-A-2-P-2-22-FD-OE	2x2xAWG22	2.0
2171069	IE-PNC-5-M12D-A-3-P-2-22-FD-OE	2x2xAWG22	3.0
2171070	IE-PNC-5-M12D-A-5-P-2-22-FD-OE	2x2xAWG22	5.0
2171071	IE-PNC-5-M12D-A-10-P-2-22-FD-OE	2x2xAWG22	10.0
2171072	IE-PNC-5-M12D-A-20-P-2-22-FD-OE	2x2xAWG22	20.0

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

### Accessories

- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled



**New**

## Industrial Ethernet patchcord P M12-M12



Info

• Industrial Ethernet cable

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- 4 pole M12 connector with vibration protection

### Technical data

- Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter
- Protection rating**  
IP 67
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171097	IE-5-M12D-S-1-P-2-26-7-M12D-S	2x2xAWG26	1.0
2171098	IE-5-M12D-S-2-P-2-26-7-M12D-S	2x2xAWG26	2.0
2171099	IE-5-M12D-S-3-P-2-26-7-M12D-S	2x2xAWG26	3.0
2171100	IE-5-M12D-S-5-P-2-26-7-M12D-S	2x2xAWG26	5.0
2171101	IE-5-M12D-S-10-P-2-26-7-M12D-S	2x2xAWG26	10.0
2171102	IE-5-M12D-S-20-P-2-26-7-M12D-S	2x2xAWG26	20.0

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



## Industrial Ethernet Patchcord P M12 on free conductor end



Info

• Industrial Ethernet cable

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a M12 connector on free conductor end
- 4 pole M12 connector with vibration protection

### Technical data

- Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter
- Protection rating**  
IP 67
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -40°C to +80°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171103	IE-5-M12D-S-1-P-2-26-7-OE	2x2xAWG26	1.0
2171104	IE-5-M12D-S-2-P-2-26-7-OE	2x2xAWG26	2.0
2171105	IE-5-M12D-S-3-P-2-26-7-OE	2x2xAWG26	3.0
2171106	IE-5-M12D-S-5-P-2-26-7-OE	2x2xAWG26	5.0
2171107	IE-5-M12D-S-10-P-2-26-7-OE	2x2xAWG26	10.0
2171108	IE-5-M12D-S-20-P-2-26-7-OE	2x2xAWG26	20.0

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

### Accessories

- Field mountable S/A connectors M8 refer to page 360
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled

## Industrial Ethernet Patchcord M12-RJ45 P



### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled connection cable with M12 connector, "D" coded and RJ45-connector
- 4 pole M12 connector with vibration protection



### Info

- Industrial Ethernet cable

### Technical data



#### Minimum bending radius

Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter



#### Protection rating

M12 - IP 67  
RJ45 - IP 20



#### Temperature range

During installation: -5 °C to +60 °C  
Fixed installation: -40 °C to +80 °C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171109	IE-5-M12D-S-1-P-2-26-7-RJ45	2x2XAWG26	1.0
2171110	IE-5-M12D-S-2-P-2-26-7-RJ45	2x2XAWG26	2.0
2171111	IE-5-M12D-S-3-P-2-26-7-RJ45	2x2XAWG26	3.0
2171112	IE-5-M12D-S-5-P-2-26-7-RJ45	2x2XAWG26	5.0
2171113	IE-5-M12D-S-10-P-2-26-7-RJ45	2x2XAWG26	10.0
2171114	IE-5-M12D-S-20-P-2-26-7-RJ45	2x2XAWG26	20.0

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



New

## Industrial Ethernet Patchcord RJ45-RJ45 P



### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a RJ45 connector on both sides



### Info

- Industrial Ethernet cable

### Technical data



#### Minimum bending radius

Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter



#### Protection rating

IP 20



#### Temperature range

During installation: -5 °C to +60 °C  
Fixed installation: -40 °C to +80 °C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>2-pair version</b>			
2171115	IE-5-RJ45-1-P-2-26-7-RJ45	2x2xAWG26	1.0
2171116	IE-5-RJ45-2-P-2-26-7-RJ45	2x2xAWG26	2.0
2171117	IE-5-RJ45-3-P-2-26-7-RJ45	2x2xAWG26	3.0
2171118	IE-5-RJ45-5-P-2-26-7-RJ45	2x2xAWG26	5.0
2171119	IE-5-RJ45-10-P-2-26-7-RJ45	2x2xAWG26	10.0
2171120	IE-5-RJ45-20-P-2-26-7-RJ45	2x2xAWG26	20.0
<b>4-pair version</b>			
2171501	IE-5-RJ45-1-P-4-26-7-RJ45	4x2xAWG26	1.0
2171502	IE-5-RJ45-2-P-4-26-7-RJ45	4x2xAWG26	2.0
2171503	IE-5-RJ45-3-P-4-26-7-RJ45	4x2xAWG26	3.0
2171504	IE-5-RJ45-5-P-4-26-7-RJ45	4x2xAWG26	5.0
2171505	IE-5-RJ45-10-P-4-26-7-RJ45	4x2xAWG26	10.0
2171506	IE-5-RJ45-20-P-4-26-7-RJ45	4x2xAWG26	20.0

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

## Industrial Ethernet Patchcord P RJ45 on free conductor end



Info

● **Industrial Ethernet cable**

■ **Benefits**

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

■ **Application range**

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology



■ **Product features**

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

■ **Product make-up**

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a RJ45 connector on free conductor end

■ **Technical data**

- Minimum bending radius**  
 Flexing: 10 x outer diameter  
 Fixed installation: 5 x outer diameter
- Protection rating**  
 IP 20
- Temperature range**  
 During installation: -5 °C to +60 °C  
 Fixed installation: -40°C to +80°C
- Characteristic impedance**  
 100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171507	IE-5-RJ45-1-P-4-26-7-OE	4x2xAWG26	1.0
2171508	IE-5-RJ45-2-P-4-26-7-OE	4x2xAWG26	2.0
2171509	IE-5-RJ45-3-P-4-26-7-OE	4x2xAWG26	3.0
2171510	IE-5-RJ45-5-P-4-26-7-OE	4x2xAWG26	5.0
2171511	IE-5-RJ45-10-P-4-26-7-OE	4x2xAWG26	10.0
2171512	IE-5-RJ45-20-P-4-26-7-OE	4x2xAWG26	20.0

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

■ **Accessories**

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Connector RJ45 Cat.6A fieldmountable refer to page 423
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425



## Industrial Ethernet Patchcord H M12-M12



Info

● **Industrial Ethernet cable**

■ **Benefits**

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

■ **Application range**

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology



■ **Product features**

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

■ **Product make-up**

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- 4 pole M12 connector with vibration protection

■ **Technical data**

- Minimum bending radius**  
 Flexing: 10 x outer diameter  
 Fixed installation: 5 x cable diameter, once
- Protection rating**  
 IP 67
- Temperature range**  
 During installation: -5 °C to +60 °C  
 Fixed installation: -30°C to +80°C
- Characteristic impedance**  
 100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171073	IE-5-M12D-S-1-H-2-26-7-M12D-S	2x2xAWG26	1.0
2171074	IE-5-M12D-S-2-H-2-26-7-M12D-S	2x2xAWG26	2.0
2171075	IE-5-M12D-S-3-H-2-26-7-M12D-S	2x2xAWG26	3.0
2171076	IE-5-M12D-S-5-H-2-26-7-M12D-S	2x2xAWG26	5.0
2171077	IE-5-M12D-S-10-H-2-26-7-M12D-S	2x2xAWG26	10.0
2171078	IE-5-M12D-S-20-H-2-26-7-M12D-S	2x2xAWG26	20.0

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



## Industrial Ethernet Patchcord H M12 on free conductor end



**Info**

- Industrial Ethernet cable

**Technical data**

**Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 x cable diameter, once

**Protection rating**  
IP 67

**Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -30°C to +80°C

**Characteristic impedance**  
100 Ohm +/- 15%

**Benefits**

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

**Application range**

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

**Product features**

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet

**Product make-up**

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a M12 connector on free conductor end
- 4 pole M12 connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171079	IE-5-M12D-S-1-H-2-26-7-OE	2x2xAWG26	1.0
2171080	IE-5-M12D-S-2-H-2-26-7-OE	2x2xAWG26	2.0
2171081	IE-5-M12D-S-3-H-2-26-7-OE	2x2xAWG26	3.0
2171082	IE-5-M12D-S-5-H-2-26-7-OE	2x2xAWG26	5.0
2171083	IE-5-M12D-S-10-H-2-26-7-OE	2x2xAWG26	10.0
2171084	IE-5-M12D-S-20-H-2-26-7-OE	2x2xAWG26	20.0

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

**Accessories**

- Field mountable S/A connectors M8 refer to page 360
- Connector RJ45 Cat.5e for Profinet refer to page 423
- BUS M12 connectors that can be assembled
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424



## Industrial Ethernet patchcord H M12-RJ45



**Info**

- Industrial Ethernet cable

**Technical data**

**Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 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

**Characteristic impedance**  
100 Ohm +/- 15%

**Benefits**

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

**Application range**

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

**Product features**

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet

**Product make-up**

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171085	IE-5-M12D-S-1-H-2-26-7-RJ45	2x2xAWG26	1.0
2171086	IE-5-M12D-S-2-H-2-26-7-RJ45	2x2xAWG26	2.0
2171087	IE-5-M12D-S-3-H-2-26-7-RJ45	2x2xAWG26	3.0
2171088	IE-5-M12D-S-5-H-2-26-7-RJ45	2x2xAWG26	5.0
2171089	IE-5-M12D-S-10-H-2-26-7-RJ45	2x2xAWG26	10.0
2171090	IE-5-M12D-S-20-H-2-26-7-RJ45	2x2xAWG26	20.0

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

- Pre-assembled connection cable with M12 connector, "D" coded and RJ45-connector
- 4 pole M12 connector with vibration protection

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 APPENDIX



## Industrial Ethernet patchcord H RJ45-RJ45



**Info**

- Industrial Ethernet cable

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Automation technology
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/ 100 Mbit/s for Industrial Ethernet
- 4pair: 10/ 100/ 1000 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a RJ45 connector on both sides

### Technical data

- Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter
- Protection rating**  
IP 20
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -30°C to +80°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>4-pair version</b>			
2171513	IE-5-RJ45-1-H-4-26-7-RJ45	4x2xAWG26	1.0
2171514	IE-5-RJ45-2-H-4-26-7-RJ45	4x2xAWG26	2.0
2171515	IE-5-RJ45-3-H-4-26-7-RJ45	4x2xAWG26	3.0
2171516	IE-5-RJ45-5-H-4-26-7-RJ45	4x2xAWG26	5.0
2171517	IE-5-RJ45-10-H-4-26-7-RJ45	4x2xAWG26	10.0
2171518	IE-5-RJ45-20-H-4-26-7-RJ45	4x2xAWG26	20.0
<b>2-pair version</b>			
2171091	IE-5-RJ45-1-H-2-26-7-RJ45	2x2xAWG26	1.0
2171092	IE-5-RJ45-2-H-2-26-7-RJ45	2x2xAWG26	2.0
2171093	IE-5-RJ45-3-H-2-26-7-RJ45	2x2xAWG26	3.0
2171095	IE-5-RJ45-10-H-2-26-7-RJ45	2x2xAWG26	10.0
2171096	IE-5-RJ45-20-H-2-26-7-RJ45	2x2xAWG26	20.0
2171094	IE-5-RJ45-5-H-2-26-7-RJ45	2x2xAWG26	5.0

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



## Industrial Ethernet Patchcord H RJ45 on free conductor end



Info

- Industrial Ethernet cable

### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance
- Suitable for direct connector assembly

### Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Automation technology
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

### Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

### Product make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with a RJ45 connector on free conductor end

### Technical data

- Minimum bending radius**  
Flexing: 10 x outer diameter  
Fixed installation: 5 x outer diameter
- Protection rating**  
IP 20
- Temperature range**  
During installation: -5 °C to +60 °C  
Fixed installation: -30 °C to +80 °C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171519	IE-5-RJ45-1-H-4-26-7-OE	4x2xAWG26	1.0
2171520	IE-5-RJ45-2-H-4-26-7-OE	4x2xAWG26	2.0
2171521	IE-5-RJ45-3-H-4-26-7-OE	4x2xAWG26	3.0
2171522	IE-5-RJ45-5-H-4-26-7-OE	4x2xAWG26	5.0
2171523	IE-5-RJ45-10-H-4-26-7-OE	4x2xAWG26	10.0
2171524	IE-5-RJ45-20-H-4-26-7-OE	4x2xAWG26	20.0

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

### Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437
- Connector M12 x-coded Cat.6A 10G fieldmountable refer to page 425





**New**

## Industrial Ethernet EC Patchcord M8



Info

- For EtherCat applications



### Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

### Application range

- Suitable for use in industrial applications
- Especially for EtherCat applications
- For indoor use

### Product make-up

- Stranded conductor, 7-wire, 2x2x-AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a M8 connector on both sides
- Colour: green (based on RAL 6018)

### Technical data

- Peak operating voltage**  
max. 100 V (not for power applications)
- Minimum bending radius**  
Fixed installation: 4 x outer diameter  
Flexing: 8 x outer diameter
- Temperature range**  
Fixed installation: -30°C to +80°C  
Flexing: -5°C to +50°C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Angled connector on straight connector</b>			
2171350	IE-EC-5-M8D-A-0,5-Y-2-26-7-M8D-S	2x2xAWG26	0,5
2171351	IE-EC-5-M8D-A-1-Y-2-26-7-M8D-S	2x2xAWG26	1,0
2171352	IE-EC-5-M8D-A-2-Y-2-26-7-M8D-S	2x2xAWG26	2,0
2171353	IE-EC-5-M8D-A-3-Y-2-26-7-M8D-S	2x2xAWG26	3,0
2171354	IE-EC-5-M8D-A-5-Y-2-26-7-M8D-S	2x2xAWG26	5,0
2171355	IE-EC-5-M8D-A-7-Y-2-26-7-M8D-S	2x2xAWG26	7,0
2171356	IE-EC-5-M8D-A-10-Y-2-26-7-M8D-S	2x2xAWG26	10,0
2171357	IE-EC-5-M8D-A-15-Y-2-26-7-M8D-S	2x2xAWG26	15,0
2171358	IE-EC-5-M8D-A-20-Y-2-26-7-M8D-S	2x2xAWG26	20,0
<b>Straight connector on straight connector</b>			
2171300	IE-EC-5-M8D-S-0,5-Y-2-26-7-M8D-S	2x2xAWG26	0,5
2171301	IE-EC-5-M8D-S-1-Y-2-26-7-M8D-S	2x2xAWG26	1,0
2171302	IE-EC-5-M8D-S-2-Y-2-26-7-M8D-S	2x2xAWG26	2,0
2171303	IE-EC-5-M8D-S-3-Y-2-26-7-M8D-S	2x2xAWG26	3,0
2171306	IE-EC-5-M8D-S-10-Y-2-26-7-M8D-S	2x2xAWG26	10,0
2171304	IE-EC-5-M8D-S-5-Y-2-26-7-M8D-S	2x2xAWG26	5,0
2171305	IE-EC-5-M8D-S-7-Y-2-26-7-M8D-S	2x2xAWG26	7,0
2171307	IE-EC-5-M8D-S-15-Y-2-26-7-M8D-S	2x2xAWG26	15,0
2171308	IE-EC-5-M8D-S-20-Y-2-26-7-M8D-S	2x2xAWG26	20,0

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



**New**

## Industrial Ethernet EC Patchcord M8 on open conductor end



Info

- For EtherCat applications

### ■ Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

### ■ Application range

- Suitable for use in industrial applications
- For indoor use
- Especially for EtherCat applications

### ■ Product make-up

- Stranded conductor, 7-wire, 2x2x-AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a M8 connector on free conductor end
- Colour: green (based on RAL 6018)

### ■ Technical data



#### Minimum bending radius

Fixed installation: 4 x outer diameter  
Flexing: 8 x outer diameter



#### Temperature range

Fixed installation: -30°C to +80°C  
Flexing: -5°C to +50°C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
<b>Angled connector on free conductor end</b>			
2171370	IE-EC-5-M8-A-0,5-Y-2-26-7-OE	2x2xAWG26	0,5
2171371	IE-EC-5-M8-A-1-Y-2-26-7-OE	2x2xAWG26	1,0
2171372	IE-EC-5-M8-A-2-Y-2-26-7-OE	2x2xAWG26	2,0
2171373	IE-EC-5-M8-A-3-Y-2-26-7-OE	2x2xAWG26	3,0
2171374	IE-EC-5-M8-A-5-Y-2-26-7-OE	2x2xAWG26	5,0
2171375	IE-EC-5-M8-A-7-Y-2-26-7-OE	2x2xAWG26	7,0
2171376	IE-EC-5-M8-A-10-Y-2-26-7-OE	2x2xAWG26	10,0
2171377	IE-EC-5-M8-A-15-Y-2-26-7-OE	2x2xAWG26	15,0
2171378	IE-EC-5-M8-A-20-Y-2-26-7-OE	2x2xAWG26	20,0
<b>straight connector on free conductor end</b>			
2171320	IE-EC-5-M8-S-0,5-Y-2-26-7-OE	2x2xAWG26	0,5
2171321	IE-EC-5-M8-S-1-Y-2-26-7-OE	2x2xAWG26	1,0
2171322	IE-EC-5-M8-S-2-Y-2-26-7-OE	2x2xAWG26	2,0
2171323	IE-EC-5-M8-S-3-Y-2-26-7-OE	2x2xAWG26	3,0
2171324	IE-EC-5-M8-S-5-Y-2-26-7-OE	2x2xAWG26	5,0
2171325	IE-EC-5-M8-S-7-Y-2-26-7-OE	2x2xAWG26	7,0
2171326	IE-EC-5-M8-S-10-Y-2-26-7-OE	2x2xAWG26	10,0
2171327	IE-EC-5-M8-S-15-Y-2-26-7-OE	2x2xAWG26	15,0
2171328	IE-EC-5-M8-S-20-Y-2-26-7-OE	2x2xAWG26	20,0

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

### ■ Accessories

- Field mountable S/A connectors M8 refer to page 360
- BUS M12 connectors that can be assembled
- Connector RJ45 Cat.6A FM for FD-cables refer to page 424



New

## Connector RJ45 Cat.5e for Profinet

**Info**

- For PROFINET applications
- Installation without tools



**Product features**

- For PROFINET applications
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Colour-coded in accordance with PROFINET for Cat.5 applications

**Norm references / Approvals**

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

**Technical data**

- IP Protection rating**  
IP 20
- Ambient temperature (operation)**  
-40°C to +70°C

Article number	Article designation
21700605	ED-IE-AX-5-PN-20-FC

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



New

## Connector RJ45 Cat.6<sub>A</sub> fieldmountable

**Info**

- CAT.6<sub>A</sub> qualified for 10Gbit/s
- Installation without tools



**Product features**

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

**Norm references / Approvals**

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

**Technical data**

- IP Protection rating**  
IP 20
- Ambient temperature (operation)**  
-40°C to +70°C

Article number	Article designation
<b>RJ45 connector acc. to T568A</b>	
21700600	EPIC® DATA ED-IE-AX-6A-A-20-FC
<b>RJ45 connector acc. to T568B</b>	
21700601	EPIC® DATA ED-IE-AX-6A-B-20-FC

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



**New**

## Connector RJ45 Cat.6<sub>A</sub> FM for FD-cables



**Info**

- CAT.6<sub>A</sub> qualified for 10Gbit/s
- Specifically for cables for drag chain applications with 19-wire cores

**Product features**

- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -24/7 and for solid conductors with AWG24/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

**Norm references / Approvals**

- UL-listed (E-File E353543)
- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51

**Technical data**



**Protection rating**  
IP 20



**Ambient temperature (operation)**  
Plug -40°C to +70°C

Article number	Article designation
<b>RJ45 connector acc. to T568A</b> 21700615	EPIC DATA ED-IE-AX-6,-A-20-FD-FC
<b>RJ45 connector acc. to T568B</b> 21700616	EPIC DATA ED-IE-AX-6,-B-20-FD-FC

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

**New**

## Connector industry RJ45 Cat.6<sub>A</sub> 10 IP68



**Info**

- CAT.6<sub>A</sub> qualified for 10Gbit/s
- Installation without tools

**Product features**

- Housing: brass nickel plated
- Qualified for 10 Gigabit Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1-22/1
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm

**Norm references / Approvals**

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

**Technical data**



**Protection rating**  
IP 68



**Ambient temperature (operation)**  
Plug/socket -40°C to +70°C  
circular housing: -40°C to +85°C

Article number	Article designation
<b>Inclusive RJ45 connector</b> 21700630	ED-IE-AX-RJ45-6A-B-68-FC
<b>dust cap for RJ45 connector</b> 21700631	ED-IE-AX-RJ45-AC-DC
<b>Inclusive RJ45 Modul acc. to T568B</b> 21700632	ED-IE-RJ45F-6A-B-68-FC
<b>dust cap for RJ45 Modul</b> 21700633	ED-IE-RJ45F-AC-DC

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

**New**

## Connector M12 x-coded Cat.6<sub>A</sub> 10G fieldmountable



**Info**

- CAT.6<sub>A</sub> qualified for 10Gbit/s
- Installation without tools



**Product features**

- Field assembly Industrial Ethernet connector, M12 "X"-coded according to IEC 61076-2-109
- Qualified for 10 Gigabit Ethernet
- Suitable for use in industrial applications
- Robust and vibrations-resistant
- Housing: zinc die-casting, grey
- Piercing contacts for conductor diameter of AWG27/7 - AWG22/7 and AWG24/1 - AWG22/1; max. outer diameter 10 mm
- Toolfree installation, small and compact design

**Norm references / Approvals**

- Acc. to standard IEC 61076-2-109
- Data transmission is conform to category Cat.6<sub>A</sub> acc. to ISO/IEC 11801:2010

**Technical data**

- IP** Protection rating  
IP 67
- 0+T** Ambient temperature (operation)  
Plug/socket  
-25°C to +80°C

Article number	Article designation
<b>M12 x-coded male connector straight</b> 21700602	ED-IE-AX-M12X-6A-67-FC
<b>M12 x-coded female connector straight</b> 21700621	ED-IE-AX-M12XF-6 <sub>A</sub> -67-FC
<b>M12 x-coded female connector straight for wall mounting</b> 21700622	ED-IE-AX-M12XF-RM-6 <sub>A</sub> -67-FC

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

**New**

## IE flush-type connector M12 X-coded Cat.6<sub>A</sub>



**Info**

- CAT.6<sub>A</sub> qualified for 10Gbit/s



**Product features**

- Field assembly Industrial Ethernet flange, M12 "X"-coded according to IEC 61076-2-109
- Designs for front and rear wall-mounting

**Norm references / Approvals**

- M12 panel feed-throughs for direct connecting with PCB
- Can be used for Industrial Ethernet in harsh industrial environments
- Housing: zinc die-casting, grey
- Acc. to standard IEC 61076-2-109
- Meets the requirements according to CAT.6<sub>A</sub>, ISO/IEC 11801 and EN 50173

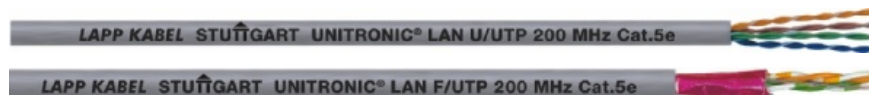
Article number	Article designation
<b>M12 flush-type connector socket for front-mounting</b> 21700617	ED-IE-M12F-X-FM
<b>M12 flush-type connector socket for rear-mounting (fitting nut included)</b> 21700618	ED-IE-M12F-X-RM

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



New

## UNITRONIC® LAN 200 - Cat.5e



### 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).
- 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

### 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

- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC or LSZH (color grey RAL 7035)

### Technical data

- Minimum bending radius**  
during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter
- Temperature range**  
Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC version</b>					
2170125	200 U/UTP Cat.5e	4 x 2 x AWG24/1	5.6	17.0	33
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	6.4	18.0	39
2170128	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	6.7	32.0	49
<b>Halogen-free versions</b>					
2170173	200 U/UTP Cat.5e LSZH	4 x 2 x AWG24/1	5.6	17.0	33
2170138	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	6.7	32.0	49

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- Connector RJ45 CAT.5 Hirose TM11 refer to page 436
- Connector RJ45 CAT.5 Stewart SS37 refer to page 436
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 436
- DATA STRIP stripping tool refer to page 911



New

## UNITRONIC® LAN 250 - Cat.6



### 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).

### Product features

- Transfer of digital and analogue data signals
- LAN Cat.6 cables are specified up to 350 MHz
- IEEE 802.3: 10/100/1000Base-T  
IEEE 802.5: ISDN; FDDI; ATM

### Norm references / Approvals

- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6
- 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).

### Product make-up

- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC (color grey RAL1015) or LSZH (color orange RAL2003)

### Technical data

- Minimum bending radius**  
during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter
- Temperature range**  
Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C
- Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC versions</b>					
2170186	250 U/UTP Cat.6	4 x 2 x AWG24/1	6.5	18.0	46
<b>Halogen-free versions</b>					
2170171	250 U/UTP Cat.6 LSZH	4 x 2 x AWG24/1	6.5	18.0	46
2170170	250 F/UTP Cat.6 LSZH	4 x 2 x AWG24/1	7.5	19.0	54

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



New

## UNITRONIC® LAN 500 - Cat.6<sub>A</sub>

LAPP KABEL STUÏGART UNITRONIC® LAN 500 S/FTP Cat.6<sub>A</sub> 4x2xAWG23/1

### 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).
- 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
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T  
IEEE 802.5: ISDN; FDDI; ATM
- Outer sheath: PVC - colour light ivory similar to RAL 1015
- Outer sheath: LSZH - colour light orange similar to RAL 2003

### Norm references / Approvals

- Class E<sub>A</sub> out of the standard ISO/IEC 11801 corresponds to Cat.6<sub>A</sub>
- LAN Cat.6<sub>A</sub> 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<sub>A</sub> - permanent link).

### Product make-up

- U/FTP: aluminium compound foil as pair screening
- F/FTP: aluminium compound foil as overall screening and pair screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath either as PVC (color grey RAL1015) or LSZH (color orange RAL2003)

### Technical data



#### Minimum bending radius

during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter



#### Temperature range

Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C



#### Characteristic impedance

100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC version</b>					
2170143	500 S/FTP Cat.6 <sub>A</sub>	4 x 2 x AWG23/1	7.7	27.0	58
<b>Halogen-free versions</b>					
2170195	500 U/FTP Cat.6 <sub>A</sub> LSZH	4 x 2 x AWG23/1	7.4	21.0	52
2170196	500 F/FTP Cat.6 <sub>A</sub> LSZH	4 x 2 x AWG23/1	7.6	22.0	56

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 100 m; Drum (500; 1000) m

CAT.6a is available as a draft

Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.

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

### Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 436
- DATA STRIP stripping tool refer to page 911





New

## UNITRONIC® LAN 1000 S/FTP Cat.7



### 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).
- 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

### Norm references / Approvals

- Class F in the ISO/IEC 11801 standard corresponds to CAT.7

### Product make-up

- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

### Technical data



**Minimum bending radius**  
during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter



**Temperature range**  
Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C



**Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Halogen-free versions</b>					
2170614	1000 S/FTP Cat.7 LSZH	4 x 2 x AWG23/1	7.7	27.0	60
2170634	1000 S/FTP Cat.7 duplex	2 x (4 x 2 x AWG23/1)	7.7 x 15.4	54.0	120

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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 are not to scale and do not represent detailed images of the respective products.

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APPENDIX



New

## UNITRONIC® LAN 1200 S/FTP Cat.7<sub>A</sub>



Info

- Complies with the EN 50173 and ISO/IEC 11801 standards

### 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).
- 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
- The cable is specified for up to 1.2 GHz
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
- IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- IEEE 802.3at: suitable for PoE

### Norm references / Approvals

- LAN Cat.7<sub>A</sub> 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<sub>A</sub> - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

### Product make-up

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

### Technical data



#### Minimum bending radius

during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter



#### Temperature range

Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170615	1200 S/FTP Cat.7 <sub>A</sub> LSZH	4 x 2 x AWG22/1	8.1	34.0	66
2170618	1200 S/FTP Cat.7 <sub>A</sub> LSZH duplex	4 x 2 x AWG22	16.3	68.0	

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Drum

Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.

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

### Accessories

- Multipurpose shears A and B refer to page 907
- DATA STRIP stripping tool refer to page 911



New

## UNITRONIC® LAN 1500 S/FTP Cat.7<sub>A</sub>

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1500 MHz Cat.7A



**Info**

- Complies with the EN 50173 and ISO/IEC 11801 standards

### 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).

### Product features

- Transfer of digital and analogue data signals
- Cable is specified for up to 1.5 GHz
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
- IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- IEEE 802.3at: suitable for PoE, VoIP

### Norm references / Approvals

- LAN Cat.7<sub>A</sub> 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<sub>A</sub> - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

### Product make-up

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

### Technical data



**Minimum bending radius**  
during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter



**Temperature range**  
Operating temperature: -20°C to +60°C  
During installation: 0 °C to +50 °C



**Characteristic impedance**  
100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
2170199	1500 S/FTP Cat.7 <sub>A</sub> LSZH	4 x 2 x AWG22/1	8.5	42.0

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



New

## UNITRONIC® LAN OUTDOOR



Info

- Data cable for primary, secondary and tertiary cabling with PE outer sheath for outdoor applications
- Suitable for direct burial

### Benefits

- Suitable for outdoor use and direct burial
- UV-resistant longitudinally and laterally watertight
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

### Application range

- For outdoor use
- Suitable for direct burial
- 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

### 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

- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Core insulation: foamed polyolefin
- PE outer sheath
- Colour: black (RAL 9005)

### Technical data



#### Minimum bending radius

During installation: 10 x outer diameter  
Fixed installation: 4 x outer diameter



#### Temperature range

During installation: -15 °C to +60 °C  
Operation: -40 °C to +70 °C



#### Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>Suitable for direct burial</b>					
2170198	1000 S/FTP Cat.7 (L)PE	4 x 2 x AWG23/1	10.0	34.0	90
<b>Suitable for direct routing underground, not transversely waterproof</b>					
2170197	1000 S/FTP Cat.7 PE	4 x 2 x AWG23/1	9.6	34.0	75

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



New

## UNITRONIC® LAN FLEX

Flexible use



### 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

### Product make-up

- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening 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



**Minimum bending radius**  
during installation: 8 x outer diameter  
Fixed installation: 4 x outer diameter



**Characteristic impedance**  
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
<b>PVC versions</b>					
2170127	200 F/UTP Cat.5e	4 x 2 x AWG26/7	5.6	13.0	28
2170129	200 SF/UTP Cat.5e	4 x 2 x AWG26/7	6.0	22.0	36
2170144	600 S/FTP CAT7 Y	4 x 2 x AWG26/7	6.5	22.0	39
<b>Halogen-free versions</b>					
2170172	200 F/UTP Cat.5e LSZH	4 x 2 x AWG26/7	5.6	13.0	28
2170139	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG26/7	6.0	22.0	36
2170142	600 S/FTP CAT7 LSZH	4 x 2 x AWG26/7	6.2	21.0	40

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

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



## Patchcable RJ45 CAT.5e



### Application range

- Indoor applications
- Building Installation
- For interconnecting two computers without the use of a central active component (hub, switch...).

### Product features

- F/UTP patch cable CAT.5e
- Foil screening, 300 MHz, grey, FRNC, with Hirose TM 11 connector, also available in different colours, allocation according to TIA/EIA 568B

- S/FTP patch cable CAT.5e
- Foil and braid screening, 300 MHz, grey, FRNC, with Hirose TM 11 connector, also available in different colours, allocation according to TIA/EIA 568B

Article number	Article designation	Colour	Length (m)	PU
<b>F/UTP patch cable CAT.5e</b>				
CE6547	F/UTP Patch Cable CAT.5e 0,5m GY	grey	0,5	5 pieces
CE6548	F/UTP Patch Cable CAT.5e 1m GY	grey	1,0	5 pieces
CE6549	F/UTP Patch Cable CAT.5e 1,5m GY	grey	1,5	5 pieces
CE6550	F/UTP Patch Cable CAT.5e 2m GY	grey	2,0	5 pieces
CE6551	F/UTP Patch Cable CAT.5e 3m GY	grey	3,0	5 pieces
CE6552	F/UTP Patch Cable CAT.5e 5m GY	grey	5,0	5 pieces
CE6553	F/UTP Patch Cable CAT.5e 7,5m GY	grey	7,5	5 pieces
CE6554	F/UTP Patch Cable CAT.5e 10m GY	grey	10,0	5 pieces
CE6555	F/UTP Patch Cable CAT.5e 15m GY	grey	15,0	5 pieces
CE6556	F/UTP Patch Cable CAT.5e 20m GY	grey	20,0	5 pieces
<b>S/FTP patch cable CAT.5e</b>				
CE6647	SF/UTP Patch Cable CAT.5e 0,5m GY	grey	0,5	5 pieces
CE6648	Patchcable RJ45 CAT.5e S-FTP 1.0m	grey	1,0	5 pieces
CE6649	SF/UTP Patch Cable CAT.5e 1,5m GY	grey	1,5	5 pieces
CE6650	SF/UTP Patch Cable CAT.5e 2m GY	grey	2,0	5 pieces
CE6651	SF/UTP Patch Cable CAT.5e 3m GY	grey	3,0	5 pieces
CE6652	SF/UTP Patch Cable CAT.5e 5m GY	grey	5,0	5 pieces
CE6653	SF/UTP Patch Cable CAT.5e 7,5m GY	grey	7,5	5 pieces
CE6654	SF/UTP Patch Cable CAT.5e 10m GY	grey	10,0	5 pieces
CE6655	SF/UTP Patch Cable CAT.5e 15m GY	grey	15,0	5 pieces
CE6656	SF/UTP Patch Cable CAT.5e 20m GY	grey	20,0	5 pieces

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Other colours are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.



## Patchcable RJ45 CAT.6 S/FTP



### Application range

- Indoor applications
- For use in the workplace (tertiary area) to connect various devices within the scope of "Structured Cabling"

### Product features

- PiMF 500 MHz, with Hirose TM21 connector
- Halogen-free
- Configuration is in accordance with TIA/EIA 568B
- Colour: grey; other colours are available upon request

Article number	Article designation	Colour	Length (m)
<b>S-STP patch cable CAT.6</b>			
CE6847	S/FTP Patchcable CAT.6 0,5m GY	grey	0,5
CE6848	S/FTP Patchcable CAT.6 1m GY	grey	1,0
CE6849	S/FTP Patchcable CAT.6 1,5m GY	grey	1,5
CE6850	S/FTP Patchcable CAT.6 2m GY	grey	2,0
CE6851	S/FTP Patchcable CAT.6 3M GY	grey	3,0
CE6852	S/FTP Patchcable CAT.6 5m GY	grey	5,0
CE6853	S/FTP Patchcable CAT.6 7,5m GY	grey	7,5
CE6854	S/FTP Patchcable CAT.6 10m GY	grey	10,0
CE6855	S/FTP Patchcable CAT.6 15m GY	grey	15,0
CE6856	S/FTP Patchcable CAT.6 20m GY	grey	20,0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Other colours are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.



**Product features**

- 10Gigabit Ethernet
- The patchcord fully complies to Category 6, maximising the channel performance and exceeding the requirements of ISO/IEC 11801:2002 as part of a LANmark-6 wiring of Class E. This offers an improved data transmission rates and enables the inclusion of consolidation points for maximum system flexibility.
- Halogen-free, flame-retardant sheath with lower smoke development
- Screened version

Article number	Article designation	Colour	Length (m)
<b>LANmark-6 RJ45 Patchcord</b>			
CE6147	LANmark-6 RJ45 Patchcord 0.5m	orange	0.5
CE6148	LANmark-6 RJ45 Patchcord 1.0m	orange	1.0
CE6149	LANmark-6 RJ45 Patchcord 1.5m	orange	1.5
CE6150	LANmark-6 RJ45 Patchcord 2.0m	orange	2.0
CE6151	LANmark-6 RJ45 Patchcord 3.0m	orange	3.0
CE6152	LANmark-6 RJ45 Patchcord 5.0m	orange	5.0
CE6154	LANmark-6 RJ45 Patchcord 10.0m	orange	10.0
CE6155	LANmark-6 RJ45 Patchcord 15.0m	orange	15.0

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.

**LANmark-6 RJ45 Patchcord**



**Product features**

- The LANmark-7 Patchcable with two four-paired, non-switched CAT.7 connectors makes it possible to operate one GG45 Permanent Link in 600 MHz mode.
- Screened version
- 2 x GG45 4-pair, backward-incompatible plug
- Low smoke zero halogen (LSZH)

**Technical data**

**Z<sub>∞</sub> Characteristic impedance**  
100 Ohm +- 15%

**LANmark-7 GG45 Patchcord**



Article number	Article designation	Colour	Length (m)
<b>LANmark-7 GG45 Patchcord</b>			
60641	LANmark-7 GG45 Patchcord 1.0m	orange	1.0
60642	LANmark-7 GG45 Patchcord 2.0m	orange	2.0
60643	LANmark-7 GG45 Patchcord 3.0m	orange	3.0
60644	LANmark-7 GG45 Patchcord 5.0m	orange	5.0
60645	LANmark-7 GG45 Patchcord 10.0m	orange	10.0

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.



**Info**

- Cat.5e

**Product features**

- For interconnecting two computers without the use of a central active component (hub, switch...).

**S-FTP Patchcable Crossover RJ45 CAT.5e**



- SF/UTP: copper braid and foil screening as overall screening
- Outer sheath: halogen-free, flame-retardant compound
- Hirose TM 11 connector
- Outer sheath and anti-kink sleeve colour: red

Article number	Article designation	Colour	Length (m)
<b>Crossover patch cable</b>			
CE6660	Crossover Patchcable RJ45 CAT.5e S-FTP 2.0m	red	2.0
CE6661	Crossover Patchcable RJ45 CAT.5e S-FTP 3.0m	red	3.0
CE6662	Crossover Patchcable RJ45 CAT.5e S-FTP 5.0m	red	5.0
CE6664	Crossover Patchcable RJ45 CAT.5e S-FTP 10.0m	red	10.0

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.

## Connector RJ45 CAT.5 Hirose TM 11



- Product features**
- Screened version
  - Suitable for stranded conductors (AWG26)
  - Included: bend protection and guide plate

- Anti-kink protection: beige
- Max. outer sheath diameter: 5.8 mm



Article number	Article designation
CE6321	Connector RJ45 CAT.5 Hirose TM 11

Hirose is a registered trademark of the HIROSE ELECTRIC Group  
 Other colours are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.

- Accessories**
- Crimping tool RJ45 Hirose refer to page 438



## Connector RJ45 CAT.5 Stewart SS37



- Product features**
- Screened version
  - Suitable for stranded conductors (AWG26)
  - Included: bend protection and guide plate

- Anti-kink protection: light grey
- Max. outer sheath diameter: 5.72 mm

Article number	Article designation
CE6323	Connector RJ45 CAT.5 Stewart SS37

Stewart is a registered trademark of Bel Fuse Inc.  
 Other colours are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.

- Accessories**
- Crimping tool RJ45 Stewart refer to page 438



## Field-Terminable Connector RJ45 CAT.5e FM45



- Product features**
- Screened version
  - FM45 is a tool-free switchable, field-terminable RJ45 Connector with IDC contacting and CAT.5e performance. The 8-pin connection is tension and vibration-resistant, and can be re-switched. The connecting block can accommodate both screened and unscreened cable of up to 8 mm diameter.

- Suitable for AWG 23 - 26, AWG 22 possible with restrictions
- IDC/piercing terminal according to 60352-4
- Suitable for solid and stranded conductors
- Suitable for use in industrial applications
- Protection rating: IP20

Article number	Article designation
21700540	Field-Terminable Connector RJ45 CAT.5e FM45

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



## Connector RJ45 CAT.6 Hirose TM21



- Product features**
- Channel Class E up to 250 MHz (CAT.6)
  - Fully screened
  - Conductor: Ø 0.5 mm solid wire; AWG 24 & 26; guide plate for 1.1 mm diameter wire; cable outer diameter: 6.6 mm

- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige
- Suitable for solid and stranded conductors

Article number	Article designation
CE6324	Connector RJ45 CAT.6 Hirose TM21

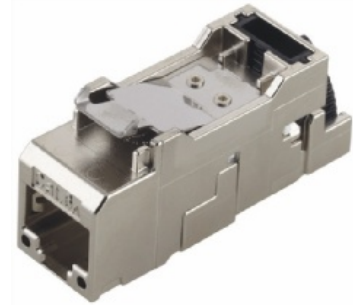
Hirose is a registered trademark of the HIROSE ELECTRIC Group  
 Other colours are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.





**New**

## Easy Connect RJ45 Modul Cat.6<sub>A</sub> 10G



### Product features

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm

- 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

### Technical data

- IP Protection rating**  
IP 20
- Ambient temperature (operation)**  
-40°C to +70°C

Article number	Article designation
<b>RJ45 Modul acc. to T568A</b> 21700611	EPIC® DATA ED-IE-AX-6A-B-20-FC
<b>RJ45 Modul acc. to T568B</b> 21700612	ED-IE-AX-RJ45F-6A-B-FC

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



**New**

## Easy connect rail mount adapter Cat.6<sub>A</sub>



### Product features

- Plastic housing including Easy Connect RJ45 Modul Cat.6A 10G
- Suitable for use in industrial applications
- Integrated strain relief for cable O.D. to 9 mm
- 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

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51

### Technical data

- IP Protection rating**  
IP 20
- Ambient temperature (operation)**  
-40°C to +70°C

Article number	Article designation
<b>Inclusive RJ45 Modul acc. to T568A</b> 21700613	EPIC® DATA HS RJ45 F 10G B
<b>Inclusive RJ45 Modul acc. to T568B</b> 21700614	EPIC® DATA HS RJ45 F 10G B

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



## Crimping tool RJ45 Hirose



### Product features

- Crimping tool for RJ45 connector Hirose TM11 and TM21

Article number	Article designation
CE5091	Crimping tool RJ45 Hirose TM11/TM21 8-pole

Hirose is a registered trademark of the HIROSE ELECTRIC Group  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- Connector RJ45 CAT.5 Hirose TM11 refer to page 436
- Connector RJ45 CAT.6 Hirose TM21 refer to page 436



## Crimping tool RJ45 Stewart



### Product features

- Crimping tool for RJ45 connector CAT.5 Stewart SS37
- Crimping tool for RJ plug 4, 6, 6-DEC and 8-pin

Article number	Article designation
CE5093	Crimping tool RJ45 Stewart SS37 8-pole
CE5092	Crimping tool RJ 4-, 6-, 6-DEC- and 8-pole

Stewart is a registered trademark of Bel Fuse Inc.  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- Connector RJ45 CAT.5 Stewart SS37 refer to page 436



## LANmark-5 EVO SnapIn Connector

**Product features**

- CAT.5e socket screened incl. EMC cover
- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components

- All services of CAT.5/Class D according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:
- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM



Article number	Article designation
61103	LANmark-5 EVO SnapIn Connector

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

**Similar products**

- LANmark-5 EVO SnapIn Connector AWG26 refer to page 439
- LANmark-7 GG45 SnapIn Connector refer to page 440

**Accessories**

- Comfort Tool refer to page 441
- Easy Termination Tool refer to page 441



## LANmark-5 EVO SnapIn Connector AWG26

**Product features**

- Especially suited to stranded conductors (Consolidation Point) AWG26 and 27
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components

- All services of CAT.5/Class D according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:
- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM



Article number	Article designation
61102	LANmark-5 EVO SnapIn Connector AWG26

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



## LANmark-6 EVO SnapIn Connector

**Product features**

- CAT.6 socket screened incl. EMC cover
- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components

- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:
- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM



Article number	Article designation
62104	LANmark-6 EVO SnapIn Connector

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

## LANmark-6 EVO SnapIn Connector AWG26



### Product features

- CAT.6 socket screened incl. EMC cover
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components

- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:
- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM

Article number	Article designation
62105	LANmark-6 EVO SnapIn Connector AWG26

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



## LANmark-6 EVO SnapIn Connector 10G



### Product features

- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components
- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002, as well as for 10 Gigabit Ethernet according to IEEE 802.3an draft 1.11, are supported:

- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 10Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM

Article number	Article designation
62106	LANmark-6 EVO SnapIn Connector 10G

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



## LANmark-7 GG45 SnapIn Connector



### Product features

- CAT.7 GG45 socket screened incl. EMC cover
- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components

- All applications defined for CAT.5 / 6 and 7 are supported:
- 10BaseT
- Fast Ethernet
- Gigabit Ethernet
- 10Gigabit Ethernet
- 155 ATM, 622 ATM, 1.2 ATM

Article number	Article designation
63103	LANmark-7 GG45 SnapIn Connector

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





## Comfort Tool



### Product features

- This tool is recommended for quick, easy and reliable installation of SnapIn connectors. All 8 cores are terminated in one simple step.
- The marking on the pliers defines the correct stripping dimension.

Article number	Article designation
60501	Comfort Tool

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



## Easy Termination Tool



### Product features

- Precise and fast removal of pair screening in PiMF cables.
- All foils are removed at exactly the same length, ensuring that the distances of the four foil screens match the available space on the GG45.
- The integrated holder for the wire manager simplifies insertion of the cores. Simple handling for quick and reproducible stripping results.
- An application sheet is included. The piercing terminals are adjustable and replaceable.

Article number	Article designation
60503	Easy Termination Tool

Caution! The Easy Termination Tools are meant for GG45 installation.  
Photographs are not to scale and do not represent detailed images of the respective products.



## Patchpanel Modular fix mounting



### Product features

- 19" modular patch panel, for fixed installation
- 24 connections with integrated dust-protection caps
- Compatible with all Snap-In Connectors
- Stable metal structure
- Printed numbering system
- Dimensions: 19" - 1RU - 85 mm
- Colour: grey-white (RAL 9002)

Article number	Article designation
60024	Patchpanel Modular fix mounting

Delivered without snap-in connectors!  
Photographs are not to scale and do not represent detailed images of the respective products.

## Patchpanel Modular extendable



### Product features

- 19" modular patch panel, extendable
- Front screen can be pulled out and swivelled at an angle of 45°, allowing simple and fast installation, as well as simple maintenance (sliding mechanism)
- 24 connections with integrated dust-protection caps

- Compatible with all Snap-In Connectors
- Stable metal structure
- Flexible label for the numbering system
- Dimensions: 19" - 1RU - 125 mm
- Colour: grey-white (RAL 9002)



Article number	Article designation
60124	Patchpanel Modular extendable

Delivered without snap-in connectors!  
Photographs are not to scale and do not represent detailed images of the respective products.

## Patchpanel Modular Mini Surface-Mounted



### Product features

- 12 connections with integrated dust-protection caps
- Compatible with all Snap-In Connectors
- Feed-through possibilities from the front and bottom: two pre-manufactured openings on the back and one pre-manufactured opening in the lower panel permit more flexible feed-through of the cable

- Holes for cable ties for securing the cable
- For use with desktop equipment, in false floors or in cable ducts
- Printed numbering system
- Dimensions (WxHxD): 200 x 40 x 230 mm
- Colour: grey-white (RAL 9002)



Article number	Article designation
62112	Patchpanel Modular Mini Surface-Mounted

Delivered without snap-in connectors!  
Photographs are not to scale and do not represent detailed images of the respective products.

## Patchpanel Modular rail mounting



### Product features

- 6 connections with integrated dust-protection caps
- Compatible with all Snap-In Connectors
- Robust powder-coated metal housing for top-hat rail and wall-mounting

- Strain relief of the cables through strain relief rail, 1 x M20, 1 x PG16 or 1 x PG11 gland
- Dimensions (WxHxD): 50 x 150 x 104 mm
- Protection rating: IP20
- Colour: black



Article number	Article designation
60055	Patchpanel Modular rail mounting

Delivered without snap-in connectors!  
Photographs are not to scale and do not represent detailed images of the respective products.

**New**

## Frontplate 19" 1HE Cat.6<sub>A</sub>

### Product features

- 19" modular patch panel, for fixed installation
- 24 Ports
- Stable metal structure
- Dimensions: 19" - 1RU
- Colour: grey (RAL 7035)
- Unpopulated
- Incl. cable strain relief and cable ties
- On frontplate portnumbers are printed on
- Potential equalisation with incl. grounding set (0,3 m)



#### Info

- Specially for RJ45 Cat.6<sub>A</sub> female connector



Article number	Article designation
24441122	Frontplate 19" 1HE Cat.6 <sub>A</sub>

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

### Accessories

- Easy Connect RJ45 Modul Cat.6A 10G refer to page 437



## Outlet Snap-In front module

### Suitable housing

- Surface-Mounted Case (84x84 mm) and coverplate Page 444

### Product features

- Article number 60622;60722;60723:
- Kit consisting of back module with Snap-In front module
- The Snap-In connectors are inserted into the front module using a simple click-in mechanism, and the front module is also mounted into the housing without the use of any tools.
- Compatible with all Snap-In Connectors
- Suitable for both copper and fibre-optic modules
- 2 connectors with integrated dust-protection caps



#### Info

- Click, instead of screw-in (tool-free assembly)

- Colour: pure white (RAL 9010)
- Optional accessory: cover frame with integrated mounting ring
- Article number 60622;60722;60723:
- Modul 80 x 80 mm; double gang AP incl. Module Carrier; label field and shutter; without Modules/Coupler;
- Potential equalisation with incl. grounding set (0,3 m)



Article number	Article designation
60622	Flush-Mounted Outlet 45 Modular
60722	Flush-Mounted Outlet 50 Modular
24441123	sm box double empty alpin white
24441124	sm box double empty alpin white
60723	um box double empty alpin white

Delivered without snap-in connectors!

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

### Accessories

- Surface-Mounted Case (84x84 mm) and coverplate refer to page 444

## Surface-Mounted Case (84x84 mm) and coverplate



### Product features

- Surface-mounted housing with integrated flush-mounted cover frame
- Cover frame with integrated mounting ring (2-part)
- Used in areas where concealed installation is not possible or undesirable
- Suitable for data outlet LSA+ CAT.6 (case 50)
- Cover frame also usable for flush-mounted outlet
- Dimensions: 84 x 84 mm
- Height: 40 mm (incl. frame)
- Colour: pure white (RAL 9010)

Article number	Article designation
<b>Surface-mounted case</b>	
60632	Surface-Mounted Case 45
60732	Surface-Mounted Case 50
<b>Cover frame with integrated mounting ring (2-part)</b>	
60652	Surface-Mounted Masking Frame 45
60852	Surface-Mounted Masking Frame 50

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

## Keystone Clips for EVO SnapIn Connectors



### Product features

- Red keystone clips for LANmark EVO SnapIn with keystone format (wall thickness 1.5 - 1.75 mm)
- Suitable for EVO SnapIn Connectors
- Not suitable for GG45 connectors

Article number	Article designation
61203	Keystone Clips for EVO SnapIn Connectors

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

## Keystone Clips for SnapIn Connectors



### Product features

- Keystone clips for LANmark SnapIn with keystone format
- Suitable for GG45 Connectors
- Not suitable for EVO SnapIn Connectors

Article number	Article designation
61201	Keystone Clips for SnapIn Connectors

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





## SnapIn rail mount Adapter

**Product features**

- Plastic housing including CAT.6 SnapIn Connector
- Suitable for use in industrial applications
- Angled outlet at 45°
- Several adapters can be connected in series
- Covers packed in pairs (right/left)
- Side cover for SnapIn rail adapter (60797)
- Colour: pure white (RAL 9010)



Article number	Article designation
60795	SnapIn rail mount Adapter

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



## Flush-Mounted Outlet LSA+

**Suitable housing:**

- Surface-Mounted Case (84x84 mm) and coverplate Page 444

**Product features**

- Flush-mounted outlet 80 x 80 LSA+ CAT.6
- 2x RJ45 angled outlet
- Colour-coded in accordance with EIA/TIA 568A and B
- Suitable for cable types (AWG 22, 23 and 24)
- Colour: pure white (RAL 9010)



Article number	Article designation
62722	Flush-mounted outlet 80 x 80 LSA+ CAT.6

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



## Data Binder LSA+

**Product features**

- A data connector allows installation cables to be easily extended and damaged cables to be replaced, without having to reinstall the entire cable network.
- Cable inlet 7.5 mm
- Screw-adjustable strain relief
- Adhesive strips for fastening



Article number	Article designation
CE6382	Data Binder LSA+ CAT.6

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

New

## Data Binder LSA+ Cat.7<sub>A</sub>



### Product features

- A data connector allows installation cables to be easily extended and damaged cables to be replaced, without having to reinstall the entire cable network.

- For 4pair shielded or unshielded installation cable with diameter of AWG26/1-AWG22/1
- Cable strain relief using cable ties
- ABS (halogen free) housing, black

### Norm references / Approvals

- Complies with the EN 50173 and ISO/IEC 11801 standards

Article number	Article designation
21700629	EPIC DATA DV LSA+ Cat.7 <sub>A</sub>

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



## Punch down tool LSA+



### Product features

- LSA+ punch-down tool for setting the individual cores on the data outlets or patch panel.
- Cores are set properly in the terminal strip and cut off at the same time.

Article number	Article designation
CE5076	Punch down tool LSA+

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



**Special Applications**

<b>HITRONIC® FIRE</b>		
HITRONIC® FIRE	New	450
<b>HITRONIC® TORSION</b>		
HITRONIC® TORSION	New	451
<b>HITRONIC® Flexible</b>		
HITRONIC® HDM Cable	New	452
HITRONIC® HRM-FD Cable	New	453

**POF - Polymer Optical Fibre**

<b>HITRONIC® POF Simplex Cables</b>		
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HITRONIC® POF SIMPLEX PE-PUR		454
HITRONIC® POF FD PE-PUR	New	455
<b>HITRONIC® POF Duplex Cables</b>		
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<b>POF Connectors and Adapters</b>		
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POF Adapter F-SMA	New	459
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<b>POF Tools and Accessories</b>		
POF Assembly Sets	New	459
POF Cutting Tools	New	460
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**PCF - Plastic Cladded Fibre**

<b>HITRONIC® PCF SIMPLEX Cable</b>		
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<b>HITRONIC® PCF DUPLEX Cable</b>		
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<b>PCF Tools and Accessories</b>		
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PCF Measurement Equipment	New	466

**GOF - Glass Optical Fibre**

<b>HITRONIC® Outdoor Cables</b>		
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<b>GOF Patchcords and Pigtails</b>		
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19" Splice Box for ST		481
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Mini wall-mounted rack		482
Accessories for splice boxes and wall-mounted rack		482



# HITRONIC® Product Overview

Type of fibre	Cables	Trunks/Patchcords	Connectors
POF	POF SIMPLEX PE		F-SMA
	POF DUPLEX PE		B-FOC (ST)
	POF SIMPLEX PE-PUR		HFBR
	POF DUPLEX PE-PUR		F05 (TOCP)
	POF DUPLEX Heavy		
	POF SIMPLEX FD PE-PUR		
	POF DUPLEX FD PE-PUR		
PCF	PCF SIMPLEX Outdoor		Trunk Systems
	PCF DUPLEX Outdoor		 B-FOC (ST)
	PCF DUPLEX Indoor		HFBR
	PCF DUPLEX FD Universal		
GOF	HITRONIC® FIRE		Trunk Systems
	HITRONIC® TORSION		
	HRM-FD Flexible		
	HDM Reel		
	HQN Outdoor		
	HVN Stranded Outdoor		Patchcords
	HVN-Micro Outdoor		Pigtails
	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			

Accessories (assembly toolbox, splice boxes and other tools) are also available and can be found in the catalogue. Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

**CAMUNACAM**



**HITRONIC® ARMOUR SWA**

Fibre optic cable with steel wire armouring (SWA)

**Benefits**

- High mechanical protection against accidental impacts
- Excellent rodent protection
- Suitable for direct burial
- UV and water-resistant

**Application range**

- Heavy industrial areas
- For indoor or outdoor use
- Methods of deployment: empty plastic pipes, ducts and trays



**HITRONIC® ARMOUR SWA LEAD**

Fibre optic cable with extruded lead armouring for chemical protection

**Benefits**

- Protection against hydrocarbons and other chemicals
- Excellent rodent protection
- High mechanical protection against accidental impacts

**Application range**

- Harsh oil and chemical environments
- Heavy industrial areas
- For direct burial, especially in the presence of oil and aggressive chemical substances



**HITRONIC® ARMOUR SWA AL/HDPE/PA**

Fibre optic cable with aluminum tape and additional HDPE and PA sheaths for water and chemical protection

**Benefits**

- Aluminum tape acts as a barrier to prevent water penetration
- Cost-effective protection against hydrocarbons and other aggressive chemicals (EN 50288-7)
- High mechanical protection

**Application range**

- Harsh oil and chemical environments
- Heavy industrial areas
- For direct burial, especially in the presence of oil and aggressive chemical substances

**Technical data**

**Fibre**  
 Core/Cladding material: Glass/Glass  
 Type of fibre: Singlemode 9/125 OS2;  
 Multimode 50/125 OM4, 50/125 OM3,  
 50/125 OM2, and 62.5/125 OM1  
 No. of fibres: 4-144

**Temperature range**  
 -40 °C to +70 °C

**Tensile force (maximum)**  
 3000 N

- Inner and outer sheath materials are based on the area of installation:
- For outdoors, PE or PVC is used
  - For indoor use, where flame retardance is required, LSZH material is used

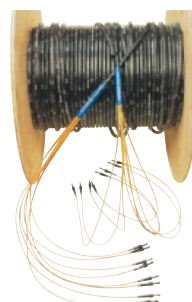
**Similar armouring can also be added to other cables, e.g. ETHERLINE® ARMOUR, UNITRONIC® ARMOUR**

**LAPP SYSTEMS**

Two different connection types are used with fibre optic cables:



1. Detachable connections realised with plug connectors. In this case it is necessary to attach a plug to a glass fibre. This calls for trained personnel and expensive special tools.



2. Non-detachable connections created by directly splicing two glass fibres together. To do this requires highly trained personnel and very expensive equipment. If the necessary resources are used only occasionally, the investment is very unlikely to pay for itself.

**The answer: The Lapp fibre trunk system.**

**Advantages**

- Using a trunk system offers you the following advantages:
- No costs of special equipment
  - No need for highly trained personnel
  - Uniform quality thanks to manufacture under laboratory conditions
  - Installation is quick, thereby saving costs
  - No need to carry out measurements on the cable run, comes with OTDR test certificate
  - Fan-out elements also available in IP67

**Requirements**

- The following data are needed to produce your tailor-made trunk system:
- Length of cable run (effective run +3 to 5 metres reserve on either side)
  - Fibre type (SM 9 µm, MM 50 µm or 62.5 µm)
  - Number of fibres (2, 4, 6, 8 ... to 48 fibres)
  - Plug type (ST, SC, DIN, E-2000 .... including mixed)
  - Cable type (indoor, outdoor, rodent protection etc.)
  - Special type on request

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



New

## HITRONIC® FIRE



Info

- A/J-DQ(ZN)BH(SR)H or U-DQ(ZN)BH(SR)H
- Fire-resistant for at least 90 minutes in the event of fire\*
- \* Cable had been tested to withstand 180 min

### 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

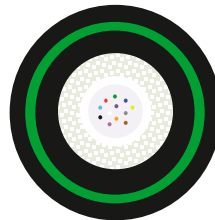
- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3)
  - 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
- Flame-retardant and halogen-free outer sheath

### 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)



### Technical data



#### Optical fibre type

Core material: glass  
Cladding material: glass



#### Temperature range

Fixed installation: -30°C to +70°C



#### Permissible bending radius

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



#### Permissible tensile force

Fixed installation: 1500 N  
Short-term: 2200 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27560304	HITRONIC® FIRE 4G 50/125 OM3	50/125 OM3	4	9.8	123
27560308	HITRONIC® FIRE 8G 50/125 OM3	50/125 OM3	8	9.8	123
27560312	HITRONIC® FIRE 12G 50/125 OM3	50/125 OM3	12	12.8	188
27560324	HITRONIC® FIRE 24G 50/125 OM3	50/125 OM3	24	12.8	188
<b>Multimode G 50 OM2</b>					
27560204	HITRONIC® FIRE 4G 50/125 OM2	50/125 OM2	4	9.8	123
27560208	HITRONIC® FIRE 8G 50/125 OM2	50/125 OM2	8	9.8	123
27560212	HITRONIC® FIRE 12G 50/125 OM2	50/125 OM2	12	12.8	188
27560224	HITRONIC® FIRE 24G 50/125 OM2	50/125 OM2	24	12.8	188
<b>Multimode G 62.5 OM1</b>					
27560104	HITRONIC® FIRE 4G 62.5/125 OM1	62.5/125 OM1	4	9.8	123
27560108	HITRONIC® FIRE 8G 62.5/125 OM1	62.5/125 OM1	8	9.8	123
27560112	HITRONIC® FIRE 12G 62.5/125 OM1	62.5/125 OM1	12	12.8	188
27560124	HITRONIC® FIRE 24G 62.5/125 OM1	62.5/125 OM1	24	12.8	188
<b>Single-mode E 9 OS2</b>					
27560904	HITRONIC® FIRE 4E 9/125 OS2	9/125 OS2	4	9.8	123
27560908	HITRONIC® FIRE 8E 9/125 OS2	9/125 OS2	8	9.8	123
27560912	HITRONIC® FIRE 12E 9/125 OS2	9/125 OS2	12	12.8	188
27560924	HITRONIC® FIRE 24E 9/125 OS2	9/125 OS2	24	12.8	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 are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

### Accessories

- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911



**New**

# HITRONIC® TORSION



**Info**

- A/J-V(ZN)H11Y
- Breakout cable designed to withstand high torsional stresses
- 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

**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
- 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**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C  
Occasional flexing: -30°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
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 are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

**Accessories**

- STAR STRIP stripping tool refer to page 910

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 APPENDIX



New

## HITRONIC® HDM Cable



**Info**

- A/J-V(ZN) 11Y
- Mini breakout/distribution cable designed for frequent reeling and unreeling use

**Benefits**

- Designed for use in temporary events' management
- Easy to coil for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Zero electromagnetic interference as the cable contains no metal

**Application range**

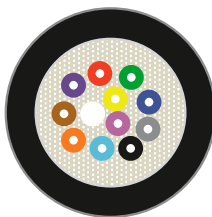
- For flexible applications
- In temporary installations
- Industrial environments
- For indoor and outdoor use

**Product features**

- Based on military norm MIL-C-85045
- Highly flexible
- Colour-coded fibres
- Flame-retardant and halogen-free
- Mechanically robust

**Product make-up**

- Up to 12 tight-buffered fibres (900µm)
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)



**Technical data**



**Optical fibre type**

Core material: glass  
Cladding material: glass



**Temperature range**

Fixed installation: -40°C to +70°C  
Flexible use: -20°C to +60°C



**Permissible bending radius**

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM4</b>					
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
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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

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





**New**

## HITRONIC® HRM-FD Cable



**Info**

- A/J-V(ZN)H(ZN)11Y
- Flexible breakout cable designed for use in power chain applications



**Benefits**

- Designed for use in power 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

**Application range**

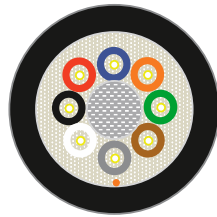
- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

**Product features**

- Based on military norm MIL-C-85045
- For use in power chains and moving machinery parts in dry or damp rooms
- 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)



**Technical data**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C  
Flexible use: -20°C to +60°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM4</b>					
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	13.0	98
<b>Multimode G 50 OM3</b>					
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	13.0	98
<b>Multimode G 50 OM2</b>					
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	13.0	98
<b>Multimode G 62.5 OM1</b>					
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	13.0	98
<b>Single-mode E 9 OS2</b>					
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	13.0	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 are not to scale and do not represent detailed images of the respective products.

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## HITRONIC® POF SIMPLEX PE

### ■ 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

### ■ Product make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Without outer sheath
- Colour: black



### Info

- J-V2Y 1P 980/1000
- Simplex plastic fibre-optic cable for direct connector assembly

### ■ Technical data



#### Optical fibre type

Core material: PMMA  
Cladding material: fluoropolymers



#### Temperature range

Operation: -55 °C to +85 °C  
Installation: -10 °C to +50 °C



#### Permissible bending radius

≥ 10 x outer diameter



#### Permissible tensile force

Fixed installation: 5 N  
Short-term: 15 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
2800001	HITRONIC® POF SIMPLEX PE	980/1000 POF	1	2.2	4

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.

### ■ Similar products

- HITRONIC® POF SIMPLEX PE-PUR refer to page 454

### ■ Accessories

- POF Connector and Adapter HFBR refer to page 457
- POF Cutting Tools refer to page 460
- POF Connector F05 Simplex refer to page 458
- UNIVERSAL STRIP stripping and cutting tool refer to page 910



## HITRONIC® POF SIMPLEX PE-PUR



### ■ 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 with high mechanical stress

### ■ Product features

- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Flame-retardant and halogen-free

### ■ Product make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)



### Info

- J-V2Y(ZN) 11Y 1P 980/1000
- Simplex POF cable with strain relief and PUR outer sheath

### ■ Technical data



#### Optical fibre type

Core material: PMMA  
Cladding material: fluoropolymers



#### Temperature range

Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C



#### Permissible bending radius

Short-term: 30 mm  
Fixed installation: 50 mm



#### Permissible tensile force

Fixed installation: 100 N  
Short-term: 350 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
2802001	HITRONIC® POF SIMPLEX PE-PUR	980/1000 POF	1	5.5	25

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) Photographs are not to scale and do not represent detailed images of the respective products.

### ■ Accessories

- POF Assembly Sets refer to page 459
- POF Cutting Tools refer to page 460
- POF Connector F-SMA and ST(BFOC) refer to page 458
- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911



**New**

## HITRONIC® POF FD PE-PUR

**Info**

- J-V2Y(ZN)11Y
- Flexible POF cable designed for moving applications



**Benefits**

- Designed for use in power chains
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- EMC protection

**Application range**

- For highly flexible applications
- As a link between moving parts
- For optical signal transmission in industrial applications with high mechanical stress

**Product features**

- Highly flexible
- Flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis

**Product make-up**

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

**Technical data**

- Minimum bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Optical fibre type**  
Core material: PMMA  
Cladding material: fluoropolymers
- Temperature range**  
Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C
- Permissible tensile force**  
Fixed installation: 100 N  
Short-term: 400 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>SIMPLEX</b>					
28320001	HITRONIC® POF SIMPLEX FD PE-PUR	980/1000 POF	1	6	32
<b>DUPLEX</b>					
28320002	HITRONIC® POF DUPLEX FD PE-PUR	980/1000 POF	2	8	60

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- POF Assembly Sets refer to page 459
- POF Cutting Tools refer to page 460
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911

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## HITRONIC® POF DUPLEX PE

### 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



### Info

- J-V2Y 2x 1P 980/1000
- Duplex plastic fibre-optic cable for direct connector assembly

### Technical data



#### Optical fibre type

Core material: PMMA  
Cladding material: fluoropolymers



#### Temperature range

Operation: -55°C to +85°C  
Installation: -10°C to +50°C



#### Permissible bending radius

≥ 10 x outer diameter



#### Permissible tensile force

Fixed installation: 10 N  
Short-term: 30 N

Article number	Article designation	Fibre type	Number of fibres	Weight (kg/km)
28000002	HITRONIC® POF DUPLEX PE	980/1000 POF	2	7.6

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

### Similar products

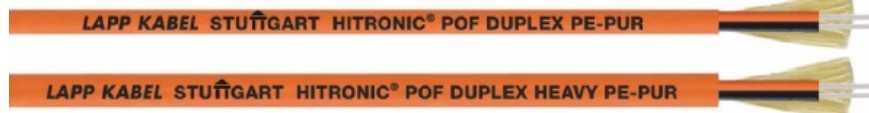
- HITRONIC® POF SIMPLEX PE refer to page 454

### Accessories

- POF Connector and Adapter HFBR refer to page 457
- POF Cutting Tools refer to page 460
- UNIVERSAL STRIP stripping and cutting tool refer to page 910



## HITRONIC® POF DUPLEX PE-PUR



### Benefits

- EMC protection
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk

### Application range

- For optical signal transmission in industrial applications with high mechanical stress

### Product features

- Flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free

### 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)



### Info

- J-V2Y(ZN) 11Y 2P 980/1000
- Duplex plastic fibre optic cable with strain relief and PUR outer sheath

### Technical data



#### Optical fibre type

Core material: PMMA  
Cladding material: fluoropolymers



#### Temperature range

Operation: -40 °C to +70 °C  
Installation: -10°C to +50°C



#### Permissible bending radius

Static: ≥ 30 mm (PE-PUR), ≥ 50 mm (Heavy PE-PUR)  
Dynamic: ≥ 50 mm (PE-PUR), ≥ 80 mm (Heavy PE-PUR)



#### Permissible tensile force

Fixed installation: 100 N (PE-PUR), 130 N (Heavy PE-PUR)  
Short-term: 400 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28020002	HITRONIC® POF DUPLEX PE-PUR	980/1000 POF	2	5,5	28
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	980/1000 POF	2	8	28

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.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Assembly Sets refer to page 459
- POF Cutting Tools refer to page 460
- POF Connector F-SMA and ST(BFOC) refer to page 458
- STAR STRIP stripping tool refer to page 910

**New**

## POF Connector and Adapter HFBR

### 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
- For crimping or clamping
- Simplex or Duplex variations



Article number	Article designation	PU
<b>Connector HFBR-4501, Simplex, with Crimp Sleeve</b>		
29140099	POF Connector HFBR4501 GY Simplex /4PC	4 piece
29140098	POF Connector HFBR4501 GY Simplex /50PC	50 piece
<b>Latching Connector HFBR-4503, Simplex, with Crimp Sleeve</b>		
29141099	POF Connector HFBR4503 GY Simplex /4PC	4 piece
29141098	POF Connector HFBR4503 GY Simplex /50PC	50 piece
<b>Connector HFBR-4506, Duplex, with Crimp Sleeve</b>		
29142099	POF Connector HFBR4506 WH Duplex /4PC	4 piece
29142098	POF Connector HFBR4506 WH Duplex /50PC	50 piece
<b>Connector HFBR-4511, Simplex, with Crimp Sleeve</b>		
29143099	POF Connector HFBR4511 BL Simplex /4PC	4 piece
29143098	POF Connector HFBR4511 BL Simplex /50PC	50 piece
<b>Latching Connector HFBR-4513, Simplex, with Crimp Sleeve</b>		
29144099	POF Connector HFBR4513 BL Simplex /4PC	4 piece
29144098	POF Connector HFBR4513 BL Simplex /50PC	50 piece
<b>Latching Connector HFBR-4516, Duplex, with Crimp Sleeve</b>		
29145099	POF Connector HFBR4516 GY Duplex /4PC	4 piece
29145098	POF Connector HFBR4516 GY Duplex /50PC	50 piece
<b>Clamp Connector HFBR-4531, Simplex</b>		
29146099	POF Connector HFBR4531 BK Simplex /4PC	4 piece
29146098	POF Connector HFBR4531 BK Simplex /50PC	50 piece
<b>Clamp and Latching Connector HFBR-4532, Simplex</b>		
29147099	POF Connector HFBR4532 BK Simplex /4PC	4 piece
29147098	POF Connector HFBR4532 BK Simplex /50PC	50 piece
<b>Clamp Connector HFBR-4533, Simplex</b>		
29148099	POF Connector HFBR4533 BL Simplex /4PC	4 piece
29148098	POF Connector HFBR4533 BL Simplex /50PC	50 piece
<b>HFBR4505 Adapters</b>		
29440099	POF Adapter HFBR4505 GY Simplex /4PC	4 piece
<b>HFBR4515 Adapters</b>		
29441099	POF Adapter HFBR4515 BL Simplex /4PC	4 piece

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

### Accessories

- POF Cutting Tools refer to page 460
- POF Polishing tools and accessories refer to page 461

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New

## POF Connector 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

Article number	Article designation	PU
<b>Connector F05 Simplex</b>		
29150099	POF Connector F05 Simplex /4PC	4 piece
29150098	POF Connector F05 Simplex /50PC	50 piece
<b>Adapter for Connector F05 Simplex</b>		
29450099	POF Adapter F05 Simplex /4PC	4 piece

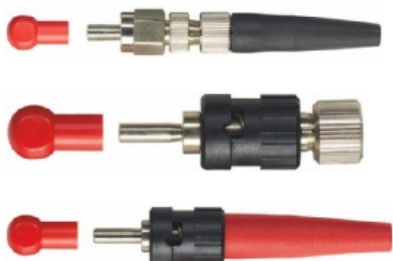
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Cutting Tools refer to page 460
- POF Polishing tools and accessories refer to page 461

New

## POF Connector F-SMA and 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



### Info

- FSMA and ST(BFOC) connectors for POF cable assembly

- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: black and red

Article number	Article designation	PU
<b>FSMA Connectors with knurled nut for crimping</b>		
29135099	POF Connector FSMA Crimp 2.2 /4PC	4 piece
29135098	POF Connector FSMA Crimp 2.2 /50PC	50 piece
29137099	POF Connector FSMA Crimp 6.0 /4PC	4 piece
29137098	POF Connector FSMA Crimp 6.0 /50PC	50 piece
<b>FSMA Connectors with hexagonal nut for crimping</b>		
29135089	POF Connector FSMA Hex Crimp 2.2 /4PC	4 piece
29135088	POF Connector FSMA Hex Crimp 2.2 /50PC	50 piece
29132089	POF Connector FSMA Hex Crimp 6.0 /4PC	4 piece
29132088	POF Connector FSMA Hex Crimp 6.0 /50PC	50 piece
<b>FSMA Connectors with knurled nut for clamping</b>		
29130099	POF Connector FSMA Clamp 2.2 /4PC	4 piece
29130098	POF Connector FSMA Clamp 2.2 /50PC	50 piece
<b>FSMA Connectors with hexagonal nut for clamping</b>		
29130089	POF Connector FSMA Hex Clamp 2.2 /4PC	4 piece
29130088	POF Connector FSMA Hex Clamp 2.2 /50PC	50 piece
<b>ST(BFOC) Connectors for crimping</b>		
29125099	POF Connector ST(BFOC) Crimp 2.2 /4PC	4 piece
29125098	POF Connector ST(BFOC) Crimp 2.2 /50PC	50 piece
<b>ST(BFOC) Connectors for clamping</b>		
29120099	POF Connector ST(BFOC) Clamp 2.2 /4PC	4 piece
29120098	POF Connector ST(BFOC) Clamp 2.2 /50PC	50 piece

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

### Accessories

- POF Assembly Sets refer to page 459
- POF Cutting Tools refer to page 460
- POF Polishing tools and accessories refer to page 461
- POF Measurement Equipment refer to page 461

**New**

## POF Adapter F-SMA

**Product features**

- POF Adapter FSMA: version with two fixing nuts and lock washer
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock washer



**Info**

- Can be used for POF and PCF connector types



Article number	Article designation	PU
<b>FSMA Adapters</b>		
29430099	POF Adapter FSMA /4PC	4 piece
29430089	POF Adapter FSMA Hex /4PC	4 piece

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

**New**

## POF Adapter ST (BFOC)

**Product features**

- ST(BFOC) adapter with flange, fixing nuts and lock washer



**Info**

- Can be used for POF and PCF connector types



Article number	Article designation	PU
<b>ST(BFOC) Adapters</b>		
29420099	POF Adapter ST (BFOC) /4PC	4 piece

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

**New**

## POF Assembly Sets

**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)
- Contents: crimp tool, buffered fibre stripper, polishing disc FSMA, polishing film, cutter



Article number	Article designation	PU
<b>Assembly Set for POF FSMA Connector</b>		
29500001	Assembly Set POF Connector FSMA	1 piece
<b>Assembly Set for POF ST(BFOC) Connector</b>		
29500002	Assembly Set POF Connector ST(BFOC)	1 piece

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

New

## POF Cutting Tools



### 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
- Crimping tool suitable for the POF(PCF) connector program



Article number	Article designation	PU
<b>POF Bare Fibre Cutter</b>		
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
<b>POF Cable Stripper</b>		
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
<b>Strain relief element scissors</b>		
29500017	Strain relief element scissors	1 piece
<b>POF Crimping Tool</b>		
29500010	POF Crimp Tool 2.5/3.0/4.5/4.95mm	1 piece

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

### Similar products

- POF Assembly Sets refer to page 459



**New**

## POF Polishing tools and 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)



Article number	Article designation	PU
<b>Polishing Disc for POF connector assembly</b>		
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
<b>Polishing film</b>		
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
<b>Polishing accessories</b>		
29500020	Polishing glass plate 150x230mm	1 piece

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

**■ Similar products**

- POF Assembly Sets refer to page 459

**New**

## POF Measurement Equipment

**■ Benefits**

- Measuring Equipment Set for wavelengths 660/850nm
- Suitable for the measurement of assembled POF and PCF systems
- Measuring Equipment Set for different wave lengths and connector types. Connector type and wavelength is defined by interchangeable adapter system

**■ Product features**

- The measurement device is supplied without adapters. Please order separately
- 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)



Article number	Article designation	PU
29500070	POF Optical Transmitter (TMR)	1 piece
<b>POF TMR Adapter, wavelength 650nm</b>		
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
<b>POF TMR Adapter, wavelength 660nm</b>		
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
<b>POF Optical Power Meter 660/850 nm</b>		
29500080	POF Optical Power Meter 660/850 nm	1 piece
<b>POF Power Meter Adapters</b>		
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
<b>POF Measuring Equipment Set without adapters</b>		
29500089	POF Measuring Equipment Set 660/850nm	1 piece

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PCF - Plastic Cladded Fibre

HITRONIC® PCF SIMPLEX Cable



## HITRONIC® PCF SIMPLEX Cable



**Info**

- A-V(ZN) 11Y
- Simplex plastic cladded fibre (PCF) cable 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
- 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**

- Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Core material: glass  
Cladding material: fluoropolymers
- Operation: -10°C to +60°C  
Installation: -10°C to +50°C
- Fixed installation: 200 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
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 are not to scale and do not represent detailed images of the respective products.

**■ Accessories**

- PCF Assembly Sets refer to page 466
- PCF Connector HFBR refer to page 465
- PCF Connector F-SMA and ST(BFOC) refer to page 465
- PCF Cutting Tools refer to page 466

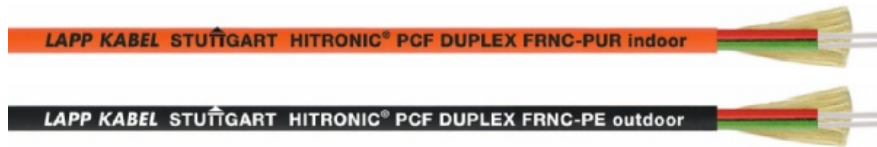
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## HITRONIC® PCF DUPLEX Cable

**Info**

- PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230
- PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230
- Plastic-cladded fibre (PCF) cable compatible with all BUS systems



### 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

- Minimum bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Optical fibre type**  
Core material: glass  
Cladding material: fluoropolymers
- Temperature range**  
Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C
- Permissible tensile force**  
Fixed installation: 400 N (indoor); 500 N (outdoor)  
Short-term: 1200 N (indoor); 1500 N (outdoor)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Indoor</b>					
28020702	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	200/230 PCF	2	8	55
<b>Outdoor</b>					
28620702	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	200/230 PCF	2	10.5	90

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

### Similar products

- HITRONIC® PCF DUPLEX FD Cable refer to page 464

### Accessories

- PCF Assembly Sets refer to page 466
- PCF Connector HFBR refer to page 465
- PCF Connector F-SMA and ST(BFOC) refer to page 465
- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911

PCF - Plastic Cladded Fibre

HITRONIC® PCF DUPLEX Cable



New

**HITRONIC® PCF DUPLEX FD Cable**



Info

- A/J-V(ZN)H11Y
- Flexible PCF cable compatible with all BUS systems

■ **Benefits**

- Designed for use in power 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
- Flame-retardant and halogen-free

■ **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**



**Minimum bending radius**

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



**Optical fibre type**

Core material: glass  
Cladding material: fluoropolymers



**Temperature range**

Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C



**Permissible tensile force**

Fixed installation: 800 N  
Short-term: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28320702	HITRONIC® PCF DUPLEX FD FRNC-PUR	200/230 PCF	2	8.8	55

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

■ **Accessories**

- PCF Assembly Sets refer to page 466
- PCF Connector HFBR refer to page 465
- PCF Connector F-SMA and ST(BFOC) refer to page 465
- PCF Cutting Tools refer to page 466
- STAR STRIP stripping tool refer to page 910

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**New**

**PCF Connector HFBR**



**Benefits**

- Compatible with HP Versatile Link Connectors and Components series

**Product features**

- HFBR connector series for 2.2 mm PCF cable diameter

**Application range**

- Factory automation
- Medical equipment
- Telecommunications Switching Systems

Article number	Article designation	PU
<b>Connector HFBR4521 for 2.2 mm cables</b>		
29140799	PCF Connector HFBR4521 BK Simplex 2.2 /4PC	4 piece
29140798	PCF Connector HFBR4521 BK Simplex 2.2 /50PC	50 piece

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



**New**

**PCF Connector F-SMA 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
- Adapters available on request
- Bend protection boot colour: black and red

Article number	Article designation	PU
<b>Connector FSMA Clamp for 3.0 mm cables</b>		
29136799	PCF Connector FSMA Clamp 3.0 /4PC	4 piece
29136798	PCF Connector FSMA Clamp 3.0 /50PC	50 piece
<b>Connector FSMA Clamp for 2.2 mm cables</b>		
29135799	PCF Connector FSMA Clamp 2.2 /4PC	4 piece
29135798	PCF Connector FSMA Clamp 2.2 /50PC	50 piece
<b>Connector ST(BFOC) Clamp for 3.0 mm cables</b>		
29126799	PCF Connector ST (BFOC) Clamp 3.0 /4PC	4 piece
29126798	PCF Connector ST (BFOC) Clamp 3.0 /50PC	50 piece
<b>Connector ST(BFOC) Clamp for 2.2 mm cables</b>		
29125799	PCF Connector ST (BFOC) Clamp 2.2 /4PC	4 piece
29125798	PCF Connector ST (BFOC) Clamp 2.2 /50PC	50 piece

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

**Similar products**

- POF Adapter F-SMA refer to page 459
- POF Adapter ST (BFOC) refer to page 459

**Accessories**

- PCF Assembly kit
- PCF Cutting Tools refer to page 466

New

## PCF Assembly Sets



### Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly
- Suitable for on-site assembly

### Product features

- Sets available for PCF connector types FSMA, ST (BFOC) and HFBR4521
- Contents: stripper, cleave tool, kevlar scissor, cutter, microscope

Article number	Article designation	PU
<b>Assembly Set For PCF Connectors</b>		
29500701	Assembly Set PCF Connector FSMA	1 piece
29500702	Assembly Set PCF Connector ST(BFOC)	1 piece
29500703	Assembly Set PCF Connector HFBR4521	1 piece

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

### Accessories

- PCF Connector F-SMA and ST(BFOC) refer to page 465
- PCF Cutting Tools refer to page 466

New

## PCF Cutting Tools



### 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

Article number	Article designation	PU
<b>PCF Buffered Fibre Stripper</b>		
29500711	PCF Buffered Fibre Stripper 0.5mm (K200/230)	1 piece
<b>PCF Fibre Cleaving Tool</b>		
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

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

### Similar products

- PCF Assembly Sets refer to page 466

New

## PCF Measurement Equipment



### Benefits

- Inspection Microscope with 100x 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

Article number	Article designation	PU
<b>PCF Inspection Microscope (100x) without adapter</b>		
29500770	PCF Inspection Microscope (100x)	1 piece
<b>PCF Microscope Adapter For Connector Types</b>		
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

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



## HITRONIC® HQN Outdoor Cable



**Info**

- A-DQ(ZN)B2Y
- Outdoor cable with central loose tube and non-metallic strain relief

### 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

### Application range

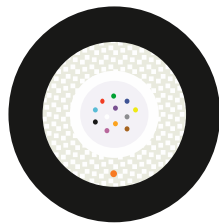
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- 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)



### Technical data

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 3000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
27600904	HITRONIC® HQN 1500 4E 9/125 OS2	9/125 OS2	4	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 are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

**Similar products**

- HITRONIC® HUN Universal Cable refer to page 474
- HITRONIC® HVN Outdoor Cable refer to page 468
- HITRONIC® HQW Armoured Outdoor Cable refer to page 470

**Accessories**

- GOF Simplex Pigtail refer to page 479
- DATA STRIP stripping tool refer to page 911



## HITRONIC® HVN Outdoor Cable



**Info**

- A-DQ(ZN)B2Y
- Outdoor cable with stranded loose tubes and non-metallic strain relief

### 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

### Application range

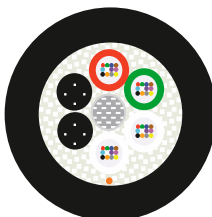
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

### 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

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11.0	64
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11.0	84
<b>Single-mode E 9 OS2</b>					
26600924	HITRONIC® HVN5000 2x12E 9/125 OS2	9/125 OS2	24	11.0	64
26600948	HITRONIC® HVN5000 4x12E 9/125 OS2	9/125 OS2	48	11.0	84
<b>HVN Telecom Single-mode E 9 OS2</b>					
26601924	HITRONIC® HVN1500 2x12E 9/125 OS2	9/125 OS2	24	11.0	64
26601948	HITRONIC® HVN1500 4x12E 9/125 OS2	9/125 OS2	48	11.0	84
26601972	HITRONIC® HVN2000 6x12E 9/125 OS2	9/125 OS2	72	12.6	119
26601996	HITRONIC® HVN2000 8x12E 9/125 OS2	9/125 OS2	96	14.3	157
26601944	HITRONIC® HVN2000 12x12E 9/125 OS2	9/125 OS2	144	17.0	181
<b>Multimode G 50 OM2</b>					
26600224	HITRONIC® HVN5000 2x12G 50/125 OM2	50/125 OM2	24	11.0	64
26600248	HITRONIC® HVN5000 4x12G 50/125 OM2	50/125 OM2	48	11.0	84

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 are not to scale and do not represent detailed images of the respective products. Other models are available upon request.

### Similar products

- HITRONIC® HVN-Micro Outdoor Cable refer to page 469
- HITRONIC® HVW Armoured Outdoor Cable refer to page 471





**New**

## HITRONIC® HVN-Micro Outdoor Cable



**Info**

- A-DQ(ZN)B2Y
- Micro outdoor cable designed for installation by air-blowing systems (Micro Ducts)

**Benefits**

- Suitable for blowing into micro-ducts
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal

**Application range**

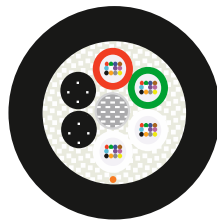
- For outdoor use
- For installations by blowing
- Telecommunications network
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

**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**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26609972	HITRONIC® HVN-Micro500 6x12E 9/125 OS2	9/125 OS2	72	5.7	29
26609996	HITRONIC® HVN-Micro1200 8x12E 9/125 OS2	9/125 OS2	96	6.6	42
26609944	HITRONIC® HVN-Micro1500 12x12E 9/125 OS2	9/125 OS2	144	8.6	72

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.



## HITRONIC® HQW Armoured Outdoor Cable



**Info**

- A-DQ(ZN)(SR)2Y
- Double-sheathed outdoor cable with corrugated steel tape armour, and non-metallic strength elements

### 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

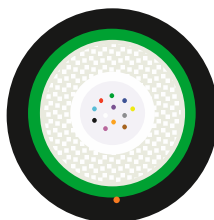
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

### 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

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
Fixed installation: 3000 N  
Short-term: 5000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911



**New**

## HITRONIC® HVW Armoured Outdoor Cable



**Info**

- A-DQ(ZN)B2Y(SR)2Y
- Outdoor cable with corrugated steel tape armour, stranded loose tubes and non-metallic strain relief

### 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

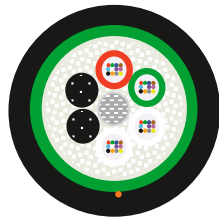
- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

### 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

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
Fixed installation: 3000 N  
Short-term: 5000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26900924	HITRONIC® HVW3000 2x12E 9/125 OS2	9/125 OS2	24	10.0	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	16.0	215
26900996	HITRONIC® HVW3000 8x12E 9/125 OS2	9/125 OS2	96	16.0	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 are not to scale and do not represent detailed images of the respective products.



New

## HITRONIC® HQW-Plus Armoured Outdoor Cable



Info

- A-DQ(ZN)B2Y(SR)2Y
- Double-sheathed outdoor cable with corrugated steel tape armour, and non-metallic strength elements

### 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



#### Optical fibre type

Core material: glass  
Cladding material: glass



#### Temperature range

Fixed installation: -40°C to +70°C



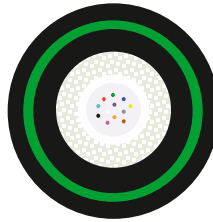
#### Permissible bending radius

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



#### Permissible tensile force

Fixed installation: 3000 N  
Short-term: 5000 N



Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
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 are not to scale and do not represent detailed images of the respective products.



**Info**

- A-DQ(ZN)2Y - ADSS
- Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief

**Technical data**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C  
Occasional flexing: -30°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
EDS: 2000 N

**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

**Application range**

- For outdoor use
- Hanging on poles

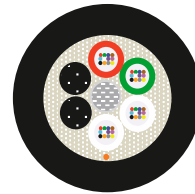
**Product features**

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Robust, halogen-free outer sheath
- Span wide 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)

**HITRONIC® HQA Aerial Cable**



Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
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 are not to scale and do not represent detailed images of the respective products.



**Info**

- A-DQ2Y(ZN)2Y ADSS
- Double-sheathed, self-supporting aerial cable with stranded loose tubes and non-metallic strain relief

**Technical data**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -40°C to +70°C  
Occasional flexing: -30°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
MAT: 3200 N  
EDS: 8000 N

**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

**Application range**

- For long span lengths
- Hanging on poles
- For outdoor use

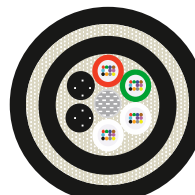
**Product features**

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Robust, halogen-free outer sheath
- Span wide up to 250m

**Product make-up**

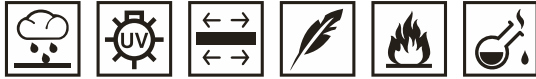
- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE inner and outer sheaths
- Colour: black (RAL 9005)

**HITRONIC® HQA-Plus Aerial Cable**



Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
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 are not to scale and do not represent detailed images of the respective products.



## HITRONIC® HUN Universal Cable



**Info**

- A/J-DQ(ZN)BH or U-DQ(ZN)BH
- Universal cable with central or stranded 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

**Application range**

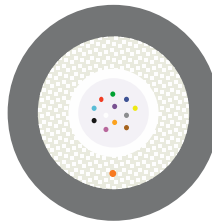
- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

**Product features**

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Flame-retardant and halogen-free outer sheath
- 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



**Technical data**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -30°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
26400324	HITRONIC® HUN1500 2x12G 50/125 OM3	50/125 OM3	24	9.3	84
26400348	HITRONIC® HUN1500 4x12G 50/125 OM3	50/125 OM3	48	11.0	109
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
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
26400924	HITRONIC® HUN1500 2x12E 9/125 OS2	9/125 OS2	24	9.3	84
26400948	HITRONIC® HUN1500 4x12E 9/125 OS2	9/125 OS2	48	11.0	109
26400972	HITRONIC® HUN2000 6x12E 9/125 OS2	9/125 OS2	72	12.6	148
26400996	HITRONIC® HUN2000 8x12E 9/125 OS2	9/125 OS2	96	14.3	190
26400944	HITRONIC® HUN2000 12x12E 9/125 OS2	9/125 OS2	144	17.0	221

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 are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

**Accessories**

- GOF Simplex Pigtail refer to page 479
- DATA STRIP stripping tool refer to page 911



## HITRONIC® HUW Armoured Universal Cable

**Info**

- A/J-DQ(ZN)(SR)H or U-DQ(ZN)(SR)H
- Universal cable with corrugated steel tape armour, central loose tube and non-metallic strain relief



### 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

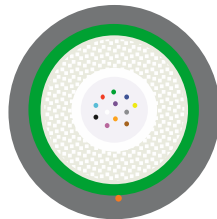
- Flame-retardant and halogen-free outer sheath
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection

### 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)

### Technical data

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -30°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 2000 N



Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
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
<b>Multimode G 50 OM2</b>					
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
<b>Multimode G 62.5 OM1</b>					
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
<b>Single-mode E 9 OS2</b>					
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
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

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

### Accessories

- STAR STRIP stripping tool refer to page 910
- SMART STRIP stripping tool refer to page 911

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ACCESSORIES  
APPENDIX



## HITRONIC® HRH Breakout Cable



**Info**

- J-V(ZN)HH
- Breakout cable for direct connector assembly

**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

**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
- Flame-retardant and halogen-free
- Mechanically robust

**Product make-up**

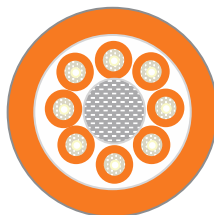
- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1

**Technical data**

**Optical fibre type**  
Core material: glass  
Cladding material: glass

**Temperature range**  
Fixed installation: -20°C to +70°C

**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7.0	35
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7.0	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
<b>Multimode G 50 OM2</b>					
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7.0	35
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7.0	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
<b>Multimode G 62.5 OM1</b>					
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7.0	35
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7.0	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

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 are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

**Accessories**

- DATA STRIP stripping tool refer to page 911

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**New**

## HITRONIC® HDH Mini-Breakout Cable



**Info**

- J-V(ZN)H
- 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

### Application range

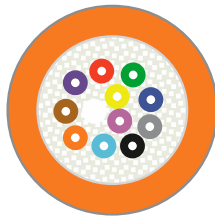
- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

### Product features

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded fibres
- 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

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -20°C to +70°C
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26010302	HITRONIC® HDH 2G 50/125 OM3	50/125 OM3	2	6.0	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
<b>Multimode G 50 OM2</b>					
26010202	HITRONIC® HDH 2G 50/125 OM2	50/125 OM2	2	6.0	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
<b>Multimode G 62.5 OM1</b>					
26010102	HITRONIC® HDH 2G 62.5/125 OM1	62.5/125 OM1	2	6.0	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 are not to scale and do not represent detailed images of the respective products.

### Accessories

- DATA STRIP stripping tool refer to page 911



New

## GOF Duplex Patchcord



Info

- J-VH 2x1G/E
- Pre-terminated tight buffered duplex cable with durable ceramic ferrules

### Benefits

- “Plug & Play” connection between any optical devices
- Non-permanent connections allow for easy change of equipment
- Direct connection between two active optical components
- Zero electromagnetic interference as the cable contains no metal

### Application range

- For indoor use
- LAN connections

### Product features

- Flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules

### Product make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour: violet for multimode OM4, aqua for multimode OM3, orange for multimode OM2 and OM1, yellow for single-mode OS2
- Standard length: 2 m

### Technical data



#### Optical fibre type

Core material: glass  
Cladding material: glass



#### Temperature range

Fixed installation: -20°C to +60°C  
Occasional flexing: -5°C to +50°C



#### Permissible bending radius

Static: ≥ 30 mm  
Dynamic: ≥ 40 mm



#### Permissible tensile force

Fixed installation: 100 N

Article number	Article designation	PU
<b>Multimode G 50 OM4</b>		
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
<b>Multimode G 50 OM3</b>		
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
<b>Multimode G 50 OM2</b>		
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
<b>Multimode G 62.5 OM1</b>		
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
<b>Single-mode E 9 OS2</b>		
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

Other lengths and types of connectors are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.



**New**

## GOF Simplex Pigtail



**Info**

- J-VH 1G/E
- Pre-terminated tight-buffered simplex cable with one durable ceramic ferrule



**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

**Application range**

- For indoor use
- Connection to an end optical device

**Product features**

- Flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails

**Product make-up**

- Tight-buffered simplex fibre with LSZH outer sheath
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

**Technical data**

- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Temperature range**  
Fixed installation: -20°C to +60°C  
Occasional flexing: -5°C to +50°C
- Permissible tensile force**  
Fixed installation: 100 N

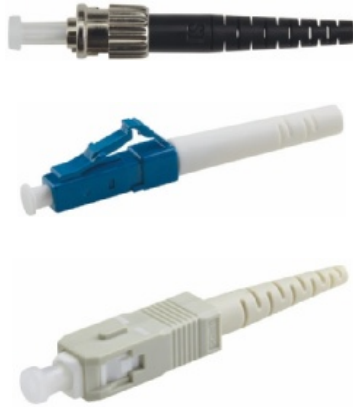
Article number	Article designation	PU
<b>Multimode G 50 OM4</b>		
29310402	GOF Simplex Pigtail SC G50 OM4, 2m	12 piece
29320402	GOF Simplex Pigtail ST G50 OM4, 2m	12 piece
29330402	GOF Simplex Pigtail LC G50 OM4, 2m	12 piece
<b>Multimode G 50 OM3</b>		
29310302	GOF Simplex Pigtail SC G50 OM3, 2m	12 piece
29320302	GOF Simplex Pigtail ST G50 OM3, 2m	12 piece
29330302	GOF Simplex Pigtail LC G50 OM3, 2m	12 piece
<b>Multimode G 50 OM2</b>		
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
<b>Multimode G 62.5 OM1</b>		
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
<b>Single-mode E 9 OS2</b>		
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

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

New

## GOF Connector



### Product features

- Connector sets included 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



#### 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



#### Permissible tensile force

- Tensile load 70N
- Tensile strength after assembly > 100N

Article number	Article designation	PU
<b>Singlemode</b>		
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
<b>Multimode</b>		
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
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 are not to scale and do not represent detailed images of the respective products.



New

## GOF Adapters



### 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

#### Attenuation

- Attenuation (dB) < 0.2
- Repeatability 1000 cycles (dB) < 0.2



#### Temperature range

- Operating
  - LC: -25°C to 70°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
<b>Singlemode</b>		
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
<b>Multimode</b>		
29410199	GOF Adapter Duplex SC Multimode Beige /4PC	4 piece
29430199	GOF Adapter Duplex LC Multimode Beige /4PC	4 piece
29420199	GOF Adapter Simplex ST(BFOC) Multimode /4PC	4 piece
29421199	GOF Adapter Duplex ST-SC Multimode /4PC	4 piece

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



## 19" Splice Box for ST

**Product features**

- For up to 12 or 24 fibres
- Can be pulled out
- Unpopulated
- For a maximum of 4 splicing cartridges
- Height: 1 RU
- Dimensions (WxHxD): 483 x 44.5 x 244 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)



Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9138	19" Splice Box for 12 ST	1 piece
CE9139	19" Splice Box for 24 ST	1 piece

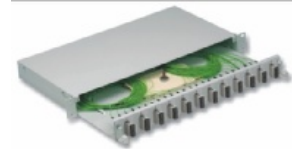
Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with couplings and pigtails. Photographs are not to scale and do not represent detailed images of the respective products.



## 19" Splice Box for SC

**Product features**

- For up to 24 fibres
- Included: front panel with 12 SC-duplex holes
- Can be pulled out
- Unpopulated
- Height: 1 RU
- Dimensions (WxHxD): 483 x 44.5 x 170 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)



Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9135	19" Splice Box for SC	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with couplings and pigtails. Photographs are not to scale and do not represent detailed images of the respective products.



## 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)



Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9147	Splice Box Compact	1 piece

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



## Mini wall-mounted rack



### Product features

- Panel mounting
  - Lockable
  - Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Accessories for Mini wall-mounted rack:
    - Distributor plate for 24 ST couplings
    - Distributor plate for 24 SC Simplex couplings
    - Distributor plate for 12 SC Duplex couplings
  - Dimensions (W x H x D): 320 x 280 x 54 mm
  - Colour: light grey (RAL 7035)

Article number	Article designation	PU
CE9150	Mini wall-mounted rack	1 piece
<b>Accessories for Mini wall-mounted rack</b>		
CE9151	Distribution plate for 24 x ST-Couplers	1 piece
CE9152	Distribution plate for 24 x SC-simplex-Couplers	1 piece
CE9153	Distribution plate for 12 x SC-duplex-Couplers	1 piece

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



## 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

Article number	Article designation	PU
<b>Accessories for splice boxes and wall-mounted rack</b>		
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
CE9917	Blind cap instead of E2000 coupling	10 pieces
CE9918	Blind cap instead of ST coupling	10 pieces
CE9919	Blind cap instead of SC duplex coupling	10 pieces

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



**Rectangular connectors**

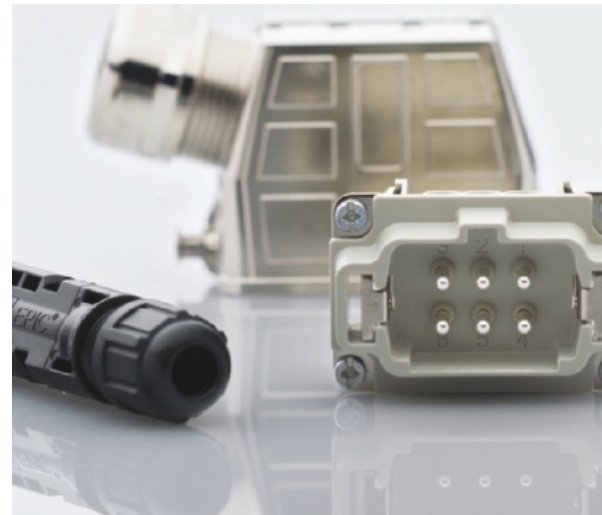
EPIC® H-A Inserts	488
EPIC® STA inserts	490
EPIC® H-Q 5 / H-D 8 Inserts	493
EPIC® H-D Inserts	494
EPIC® H-DD Inserts	499
EPIC® H-BE Inserts	501
EPIC® H-EE Inserts	505
EPIC® H-BS Inserts	507
EPIC® H-BVE Inserts	508
H-S Inserts	509
EPIC® K-Inserts	510
EPIC® TB-H-BE Terminal adapter	511
EPIC® MC Modules	512
EPIC® MCR Frames	523
EPIC® Contacts + tools	524
EPIC® H-A 3 Housings	535
EPIC® H-A 10 Housings	540
EPIC® H-A 16 Housings	546
EPIC® ULTRA H-B 6	552
EPIC® ULTRA H-B 10	554
EPIC® ULTRA H-B 16	555
EPIC® ULTRA H-B 24	556
EPIC® H-B 6 Housings	557
EPIC® H-B 10 Housings	563
EPIC® H-B 16 Housings	577
EPIC® H-B 24 Housings	591
EPIC® Housing accessories	605

**Circular connectors**

EPIC® M12 POWER	608
EPIC® M17 POWER	609
EPIC® M17 SIGNAL	611
EPIC® LS1.5 Contacts, tools, accessories	613
EPIC® CIRCON M23 Housings	614
EPIC® CIRCON M23 Inserts	618
EPIC® CIRCON M23 Contacts, tools, accessories	624
EPIC® ZYLIN R 3.0	625
EPIC® CIRCON LS1	627
EPIC® CIRCON LS1 Contacts, tools, accessories	631
EPIC® LS1.5	632
EPIC® LS1.5 Contacts, tools, accessories	634
EPIC® LS3	635
EPIC® LS3 Contacts, tools, accessories	636
EPIC® POWERLOCK CRIMP 660A	637
EPIC® POWERLOCK Contacts, tools, accessories	640
EPIC® POWERLOCK SCREW 400A	641
EPIC® POWERLOCK Contacts, tools, accessories	644

**Solar connectors**

EPIC® SOLAR BOX	645
EPIC® SOLAR 4 THIN	646
EPIC® SOLAR 4	647
EPIC® SOLAR TOOL	648



**Rectangular connectors**

<b>EPIC® H-A Inserts</b>		<b>EPIC® MC Module: 10pole stamped</b>	519	<b>EPIC® H-A 16 Housings</b>	
EPIC® H-A 3	488	EPIC® MC Module: 20pole	519	EPIC® H-A 16 TG	546
EPIC® H-A 4	488	EPIC® MC Dummy Module	519	EPIC® H-A 16 TGH	546
EPIC® H-A 10	489	EPIC® MC Module: Koax 3pole	520	EPIC® H-A 16 TS	547
EPIC® H-A 16	489	EPIC® MC Module: PROFIBUS DP	520	EPIC® H-A 16 TSH	547
<b>EPIC® STA inserts</b>		EPIC® MC Module: Universal Bus	520	EPIC® H-A 16 AG-LB	548
EPIC® STA 6 Screw termination	490	EPIC® MC Module: RJ45	521	EPIC® H-A 16 AD-LB	548
EPIC® STA 6 Solder termination	490	EPIC® CE6326 Connector RJ45	521	EPIC® H-A 16 SGR-LB	549
EPIC® STA 14 Screw termination	491	EPIC® MC Module Pneumatic 1pole	522	EPIC® H-A 16 SGRL-LB	549
EPIC® STA 14 Solder termination	491	EPIC® MC Module Pneumatic 2pole	522	EPIC® H-A 16 SDR-LB	550
EPIC® STA 20 Screw termination	492	EPIC® MC Module removal tool	522	EPIC® H-A 16 SDRL-LB	550
EPIC® STA 20 Solder termination	492	<b>EPIC® MCR Frames</b>		EPIC® H-A 16 TBF-LB	551
<b>EPIC® H-Q 5 / H-D 8 Inserts</b>		EPIC® MCR 6	523	EPIC® H-A 16 TBFH-LB	551
EPIC® H-Q 5	493	EPIC® MCR 10	523	<b>EPIC® ULTRA H-B 6</b>	
EPIC® H-D 8	493	EPIC® MCR 16	523	EPIC® ULTRA H-B 6 TG LB	552
<b>EPIC® H-D Inserts</b>		EPIC® MCR 24	523	EPIC® ULTRA H-B 6 TS LB	552
EPIC® H-D 7 machined	494	<b>EPIC® Contacts + tools</b>		EPIC® ULTRA H-B 6 AG LB	553
EPIC® H-D 7 stamped	494	EPIC® M-D 1.0 D-Sub stamped		EPIC® ULTRA H-B 6 SGR LB	553
EPIC® H-D 15 machined	495	contacts-on-reel	524	<b>EPIC® ULTRA H-B 10</b>	
EPIC® H-D 15 stamped	495	EPIC® Tools for M-D 1,0 D-Sub		EPIC® ULTRA H-B 10 TS QB	554
EPIC® H-D 25 machined	496	contacts-on-reel stamped	524	EPIC® ULTRA H-B 10 AG QB	554
EPIC® H-D 25 stamped	496	EPIC® H-D 1.6 machined contacts	525	<b>EPIC® ULTRA H-B 16</b>	
EPIC® H-D 40 machined	497	EPIC® Tools for contacts H-D 1.6		EPIC® ULTRA H-B 16 TS QB	555
EPIC® H-D 40 stamped	497	machined	525	EPIC® ULTRA H-B 16 AG QB	555
EPIC® H-D 64 machined	498	EPIC® H-D 1.6 stamped contacts	526	<b>EPIC® ULTRA H-B 24</b>	
EPIC® H-D 64 stamped	498	EPIC® Tools for contacts H-D 1.6 stamped	526	EPIC® ULTRA H-B 24 TS QB	556
<b>EPIC® H-DD Inserts</b>		EPIC® H-D 1.6 stamped		EPIC® ULTRA H-B 24 AG QB	556
EPIC® H-DD 24	499	contacts-on-reel	<b>New</b> 527	<b>EPIC® H-B 6 Housings</b>	
EPIC® H-DD 42	499	EPIC® Tools for contacts-on-reel H-D 1.6 stamped	527	EPIC® H-B 6 TG	557
EPIC® H-DD 72	500	EPIC® H-BE 2.5 machined contacts	528	EPIC® H-B 6 TGH	557
EPIC® H-DD 108	500	EPIC® Tools for contacts H-BE 2.5		EPIC® H-B 6 TS	557
<b>EPIC® H-BE Inserts</b>		machined	528	EPIC® H-B 6 TSH	558
EPIC® H-BE 6 Screw termination	501	EPIC® MC 2.5 machined contacts	529	EPIC® H-B 6 AG-LB	558
EPIC® H-BE 6 Crimp termination	501	EPIC® Tools for contacts MC 2.5		EPIC® H-B 6 AD-LB	558
EPIC® H-BE 6 Cage clamp	501	machined	529	EPIC® H-B 6 SGR-LB	559
EPIC® H-BE 10 Screw termination	502	EPIC® MC 2.5 stamped contacts	530	EPIC® H-B 6 SGRL-LB	559
EPIC® H-BE 10 Crimp termination	502	EPIC® Tools for contacts MC 2.5 stamped	530	EPIC® H-B 6 SGRH-LB	559
EPIC® H-BE 10 Cage clamp	502	EPIC® MC 2.5 stamped		EPIC® H-B 6 SGRLH-LB	560
EPIC® H-BE 16 Screw termination	503	contacts-on-reel	<b>New</b> 531	EPIC® H-B 6 SDR-LB	560
EPIC® H-BE 16 Crimp termination	503	EPIC® Tools for contacts-on-reel MC 2.5		EPIC® H-B 6 SDRL-LB	561
EPIC® H-BE 16 Cage clamp	503	stamped	531	EPIC® H-B 6 SDRLH-LB	561
EPIC® H-BE 24 Screw termination	504	EPIC® Modular 3.6 machined contacts	532	EPIC® H-B 6 TBF-LB	562
EPIC® H-BE 24 Crimp termination	504	EPIC® Tools for contacts MC 3.6		EPIC® H-B 6 TBFH-LB	562
EPIC® H-BE 24 Cage clamp	504	machined	532	<b>EPIC® H-B 10 Housings</b>	
<b>EPIC® H-EE Inserts</b>		EPIC® Modular 3.6 machined contacts		EPIC® H-B 10 TG-RO	563
EPIC® H-EE 10	505	16 mm <sup>2</sup>	<b>New</b> 533	EPIC® H-B 10 TGH-RO	563
EPIC® H-EE 18	505	EPIC® Modular 6.0 machined		EPIC® H-B 10 TS-RO	563
EPIC® H-EE 32	506	contacts	<b>New</b> 533	EPIC® H-B 10 TSH-RO	564
EPIC® H-EE 46	506	EPIC® Modular 10.0 machined		EPIC® H-B 10 TG	564
<b>EPIC® H-BS Inserts</b>		contacts	<b>New</b> 534	EPIC® H-B 10 TGH	564
EPIC® H-BS 6	507	EPIC® MC Coax-Contacts	<b>New</b> 534	EPIC® H-B 10 TGB	565
EPIC® H-BS 12	507	EPIC® Tools for contacts MC Coax	534	EPIC® H-B 10 TGBH	565
<b>EPIC® H-BVE Inserts</b>		<b>EPIC® H-A 3 Housings</b>		EPIC® H-B 10 TS	565
EPIC® H-BVE 3	508	EPIC® H-A 3 MTG	535	EPIC® H-B 10 TSH	566
EPIC® H-BVE 6	508	EPIC® H-A 3 TG	535	EPIC® H-B 10 TSB	566
EPIC® H-BVE 10	508	EPIC® H-A 3 MTS	536	EPIC® H-B 10 TSBH	566
<b>H-S Inserts</b>		EPIC® H-A 3 TS	536	EPIC® H-B 10 AG-LB	567
Power H-S	<b>New</b> 509	EPIC® H-A 3 AG	537	EPIC® H-B 10 AD-LB	567
<b>EPIC® K-Inserts</b>		EPIC® H-A 3 MAGD	537	EPIC® H-B 10 AG	567
EPIC® Power K 4/0	<b>New</b> 510	EPIC® H-A 3 AGS	537	EPIC® H-B 10 AD-BO	567
EPIC® Power K 4/2	<b>New</b> 510	EPIC® H-A 3 AGSV	538	EPIC® H-B 10 AGS-LB	<b>New</b> 568
<b>EPIC® TB-H-BE Terminal adapter</b>		EPIC® H-A 3 AGSV open bottom	538	EPIC® H-B 10 SGR-LB	569
EPIC® TB-H-BE 16	511	EPIC® H-A 3 MTGVV	539	EPIC® H-B 10 SGRL-LB	569
EPIC® TB-H-BE 24	511	EPIC® H-A 3 TGVB	539	EPIC® H-B 10 SGRH-LB	570
<b>EPIC® MC Modules</b>		<b>EPIC® H-A 10 Housings</b>		EPIC® H-B 10 SGRLH-LB	570
EPIC® MC Module: High Current 1+PE	512	EPIC® H-A 10 TG	540	EPIC® H-B 10 SDR-LB	570
EPIC® MC Module: High Current 2pole	512	EPIC® H-A 10 TGH	540	EPIC® H-B 10 SDRL-LB	571
EPIC® Power Module HC2	<b>New</b> 513	EPIC® H-A 10 TS	541	EPIC® H-B 10 SDRH-LB	571
EPIC® Power Module HHC2	<b>New</b> 514	EPIC® H-A 10 TSH	541	EPIC® H-B 10 SDRLH-LB	571
EPIC® Power Module HHC1	<b>New</b> 515	EPIC® H-A 10 AG-LB	542	EPIC® H-B 10 SGR	572
EPIC® MC Module: High Voltage 3pole	516	EPIC® H-A 10 AD-LB	542	EPIC® H-B 10 SGRL	572
EPIC® MC Module: High Voltage 4+PE	517	EPIC® H-A 10 SGR-LB	543	EPIC® H-B 10 SGRH	572
EPIC® MC Module: 3pole	517	EPIC® H-A 10 SGRL-LB	543	EPIC® H-B 10 SGRLH	573
EPIC® MC Module: HE 4pole	517	EPIC® H-A 10 SDR-LB	544	EPIC® H-B 10 SDR-BO	573
EPIC® MC Module: Cage clamp 4pole	518	EPIC® H-A 10 SDRL-LB	544	EPIC® H-B 10 SDRL-BO	573
EPIC® MC Module: 5pole	518	EPIC® H-A 10 TBF-LB	545	EPIC® H-B 10 SDRH-BO	574
EPIC® MC Module: 10pole	518	EPIC® H-A 10 TBFH-LB	545	EPIC® H-B 10 SDRLH-BO	574



EPIC® H-B 10 TBF-LB	575	EPIC® H-B 24 TBF-LB	603	EPIC® ZYLIN R 3.0 B2	626
EPIC® H-B 10 TBFH-LB	575	EPIC® H-B 24 TBFH-LB	603	EPIC® ZYLIN R 3.0 G1	626
EPIC® H-B 10 TBF	575	EPIC® H-B 24 TBF	603	EPIC® ZYLIN R 3.0 Tools	626
EPIC® H-B 10 TBFH	576	EPIC® H-B 24 TBFH	604	EPIC® ZYLIN R 3.0 Accessories	626
<b>EPIC® H-B 16 Housings</b>		<b>EPIC® Housing accessories</b>		<b>EPIC® CIRCON LS1</b>	
EPIC® H-B 16 TG-RO	577	EPIC® Flat gaskets for housings		EPIC® LS1 A1	627
EPIC® H-B 16 TGH-RO	577	H-A und H-B	605	EPIC® LS1 A3	627
EPIC® H-B 16 TS-RO	577	EPIC® Fixing screws	605	EPIC® LS1 G5	628
EPIC® H-B 16 TSH-RO	578	EPIC® Coding parts	605	EPIC® LS1 A6	628
EPIC® H-B 16 TG	578	EPIC® Protective cover H-A 3	606	EPIC® LS1 D6	629
EPIC® H-B 16 TG 2X	578	EPIC® Protective cover H-A	606	EPIC® LS1 D6 (short)	629
EPIC® H-B 16 TGH	579	EPIC® Protective cover H-B	606	EPIC® LS1 F6	630
EPIC® H-B 16 TGH 2X	579	EPIC® Cover plates	607	EPIC® LS1 F7	630
EPIC® H-B 16 TGB	580	EPIC® Adapter plates for 1 D-Sub insert	607	<b>EPIC® CIRCON LS1 Contacts, tools, accessories</b>	
EPIC® H-B 16 TGBH	580	EPIC® Adapter plates for 2 D-Sub inserts	607	EPIC® LS1 Contacts male	631
EPIC® H-B 16 TS	580	EPIC® Locking levers	607	EPIC® LS1 Contacts female	631
EPIC® H-B 16 TSH	581	<b>Circular connectors</b>		EPIC® LS1 Tools	631
EPIC® H-B 16 TSB	581	<b>EPIC® M12 POWER</b>		EPIC® LS1 Accessories	631
EPIC® H-B 16 TSBH	581	EPIC® M12 POWER panel base <i>New</i>	608	<b>EPIC® LS1.5</b>	
EPIC® H-B 16 AG-LB	582	EPIC® M12 POWER cable connector <i>New</i>	608	EPIC® LS1.5 A1	632
EPIC® H-B 16 AD-LB	582	<b>EPIC® M17 POWER</b>		EPIC® LS1.5 A3	632
EPIC® H-B 16 AG	582	EPIC® M17 POWER A1 <i>New</i>	609	EPIC® LS1.5 A6	632
EPIC® H-B 16 AD-BO	583	EPIC® M17 POWER A3 <i>New</i>	609	EPIC® LS1.5 D6	633
EPIC® H-B 16 SGR-LB	583	EPIC® M17 POWER G4 <i>New</i>	609	EPIC® LS1.5 F6	633
EPIC® H-B 16 SGR-LB	583	EPIC® M17 POWER D6 <i>New</i>	610	<b>EPIC® LS1.5 Contacts, tools, accessories</b>	
EPIC® H-B 16 SGRH-LB	584	EPIC® M17 POWER F6 <i>New</i>	610	EPIC® LS1.5 Contacts male	634
EPIC® H-B 16 SDR-LB	584	<b>EPIC® M17 SIGNAL</b>		EPIC® LS1.5 Contacts female	634
EPIC® H-B 16 SDRL-LB	585	EPIC® M17 SIGNAL A1 <i>New</i>	611	EPIC® LS1.5 Tools	634
EPIC® H-B 16 SDRH-LB	585	EPIC® M17 SIGNAL A3 <i>New</i>	611	<b>EPIC® LS3</b>	
EPIC® H-B 16 SDRHL-LB	585	EPIC® M17 SIGNAL G4 <i>New</i>	611	EPIC® LS3 A1	635
EPIC® H-B 16 SGR	586	EPIC® M17 SIGNAL D6 <i>New</i>	612	EPIC® LS3 D6	635
EPIC® H-B 16 SGRL	586	EPIC® M17 SIGNAL F6 <i>New</i>	612	EPIC® LS3 F6	635
EPIC® H-B 16 SGRH	586	<b>EPIC® LS1.5 Contacts, tools, accessories</b>		<b>EPIC® LS3 Contacts, tools, accessories</b>	
EPIC® H-B 16 SGRH	586	EPIC® M17 Contacts <i>New</i>	613	EPIC® LS3 male contacts	636
EPIC® H-B 16 SGRH	586	EPIC® M17 Tools <i>New</i>	613	EPIC® LS3 female contacts	636
EPIC® H-B 16 SDR-BO	587	EPIC® M17 Accessories	613	EPIC® LS3 Tools	636
EPIC® H-B 16 SDRH-BO	587	<b>EPIC® CIRCON M23 Housings</b>		<b>EPIC® POWERLOCK CRIMP 660A</b>	
EPIC® H-B 16 SDRH-BO	588	EPIC® M23 A1	614	EPIC® POWERLOCK A1 C	637
EPIC® H-B 16 SDRHL-BO	588	EPIC® M23 A1 D3,2	614	EPIC® POWERLOCK A6 C	637
EPIC® H-B 16 TBF-LB	589	EPIC® M23 A3	614	EPIC® POWERLOCK D6 C	638
EPIC® H-B 16 TBFH-LB	589	EPIC® M23 D6	615	EPIC® POWERLOCK F6 C	638
EPIC® H-B 16 TBF	589	EPIC® M23 F6	615	POWERLOCK BOX C*	639
EPIC® H-B 16 TBFH	590	EPIC® M23 F7	615	<b>EPIC® POWERLOCK Contacts, tools, accessories</b>	
<b>EPIC® H-B 24 Housings</b>		EPIC® M23 G4	616	EPIC® POWERLOCK Crimp contacts	640
EPIC® H-B 24 TG-RO	591	EPIC® M23 G5	616	EPIC® POWERLOCK Tools	640
EPIC® H-B 24 TGH-RO	591	EPIC® M23 G6	616	EPIC® POWERLOCK Accessories	640
EPIC® H-B 24 TS-RO	591	EPIC® M23 B1	617	<b>EPIC® POWERLOCK SCREW 400A</b>	
EPIC® H-B 24 TSH-RO	592	EPIC® M23 B2	617	EPIC® POWERLOCK A1 S	641
EPIC® H-B 24 TG	592	EPIC® M23 O1	617	EPIC® POWERLOCK A6 S	641
EPIC® H-B 24 TG 2X	592	<b>EPIC® CIRCON M23 Inserts</b>		EPIC® POWERLOCK D6 S	642
EPIC® H-B 24 TGH	593	EPIC® M23 Inserts 12 pole D-Sub	618	EPIC® POWERLOCK F6 S	642
EPIC® H-B 24 TGH 2X	593	EPIC® M23 Inserts 17 pole D-Sub	618	POWERLOCK BOX S*	643
EPIC® H-B 24 TGB	594	EPIC® M23 Inserts 12 pole PCB-soldering	619	<b>EPIC® POWERLOCK Contacts, tools, accessories</b>	
EPIC® H-B 24 TGBH	594	EPIC® M23 Inserts 17 pole PCB-soldering	619	EPIC® POWERLOCK Screw contacts	644
EPIC® H-B 24 TS	594	EPIC® M23 Inserts 6 pole	620	EPIC® POWERLOCK Tools	644
EPIC® H-B 24 TSH	595	EPIC® M23 Inserts 7 pole	620	EPIC® POWERLOCK Accessories	644
EPIC® H-B 24 TSB	595	EPIC® M23 Inserts 8+1 pole	621	<b>Solar connectors</b>	
EPIC® H-B 24 TSBH	595	EPIC® M23 Inserts 9 pole	621	<b>EPIC® SOLAR BOX</b>	
EPIC® H-B 24 AG-LB	596	EPIC® M23 Inserts 12 pole	622	EPIC® III SOLAR PL008 <i>New</i>	645
EPIC® H-B 24 AD-LB	596	EPIC® M23 Inserts 16 pole	622	EPIC® SOLAR AL008 <i>New</i>	645
EPIC® H-B 24 AG	596	EPIC® M23 Inserts 17 pole	623	<b>EPIC® SOLAR 4 THIN</b>	
EPIC® H-B 24 AD-BO	596	<b>EPIC® CIRCON M23 Contacts, tools, accessories</b>		EPIC® SOLAR 4 Thin M pre-assembled	646
EPIC® H-B 24 SGR-LB	597	EPIC® M23 Contacts male	624	EPIC® SOLAR 4 THIN F pre-assembled	646
EPIC® H-B 24 SGR-LB	597	EPIC® M23 Contacts female	624	<b>EPIC® SOLAR 4</b>	
EPIC® H-B 24 SGRH-LB	598	EPIC® M23 Tools	624	EPIC® SOLAR 4 M <i>New</i>	647
EPIC® H-B 24 SGRH-LB	598	EPIC® M23 Accessories	624	EPIC® SOLAR 4 F <i>New</i>	647
EPIC® H-B 24 SDR-LB	599	<b>EPIC® ZYLIN R 3.0</b>		<b>EPIC® SOLAR TOOL</b>	
EPIC® H-B 24 SDRH-LB	599	EPIC® ZYLIN R 3.0 D PG16	625	EPIC® SOLAR TOOL CSC <i>New</i>	648
EPIC® H-B 24 SDRHL-LB	599	EPIC® ZYLIN R 3.0 F PG16	625	EPIC® CRIMPTOOL	648
EPIC® H-B 24 SDRH-LB	599	EPIC® ZYLIN R 3.0 A	625	EPIC® SOLAR TOOL <i>New</i>	648
EPIC® H-B 24 SDRLH-LB	599	EPIC® ZYLIN R 3.0 B1	626		
EPIC® H-B 24 SGR	600	EPIC® ZYLIN R 3.0 B2	626		
EPIC® H-B 24 SGR	600	EPIC® ZYLIN R 3.0 G1	626		
EPIC® H-B 24 SGRH	600	EPIC® ZYLIN R 3.0 G1	626		
EPIC® H-B 24 SGRH	600	EPIC® ZYLIN R 3.0 Tools	626		
EPIC® H-B 24 SGRH	600	EPIC® ZYLIN R 3.0 Tools	626		
EPIC® H-B 24 SGRH	600	EPIC® ZYLIN R 3.0 Accessories	626		
EPIC® H-B 24 SGRH	600	EPIC® ZYLIN R 3.0 B1	626		
EPIC® H-B 24 SGRHLH	601				
EPIC® H-B 24 SDR-BO	601				
EPIC® H-B 24 SDRH-BO	601				
EPIC® H-B 24 SDRH-BO	602				
EPIC® H-B 24 SDRHL-BO	602				

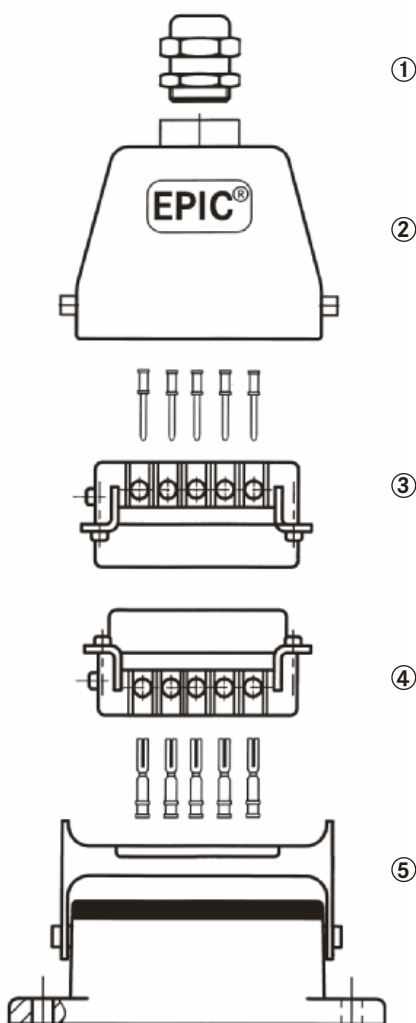
Please pay attention on the EPIC® Selection table A10, this table is a great guide in helping you to find the right insert and suitable housings. It is particularly convenient using the connector with the connectorfinder in the internet ([www.lappgroup.com/connectorfinder](http://www.lappgroup.com/connectorfinder)). Please also pay attention on the complete configured Connector kits.

**Solutions for many application's 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, fiber optics, coax connection and compressed air
- Termination technologies:  
Screw, crimp, cage clamp, solder

- **Warning:**  
EPIC® industrial connectors may not be connected or disconnected under load.
- An assurance of the technical characteristics, as well as the validity of the certificates can only be given if all components are used exclusively by Lapp.

- **Tip:**  
Only use tools recommended and approved by Lapp. This ensures the safe and long-term operation of the connector.



**1. Cable Gland:**

The Cable Gland provides a seal between the cable and the connector housing. It may also be used to offer additional functions like strain relief and braid continuity for EMC protection.

**2. Hood:**

The connector housing for the cable entry.

**3. Male insert:**

Types of contact termination

- Screw
- Crimp (contacts must be ordered separately)
- Cage clamp

**4. Female insert:**

Types of contact termination

- Screw
- Crimp (contacts must be ordered separately)
- Cage clamp

**5. Base:**

- Panel mounting (cable entry through cut out in panel)
- or
- Surface mounting (cable entry through a gland into the side of the connector base)
- or
- Cable Connector Hood, cable to cable connection

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

Please pay attention on the EPIC® Selection table A10, this table is a great guide in helping you to find the right insert and suitable housings. It is particularly convenient using the connector with the connectorfinder in the internet ([www.lappgroup.com/connectorfinder](http://www.lappgroup.com/connectorfinder)). Please also pay attention on the complete configured Connector kits.

**Solutions for many application's with EPIC® rectangular connectors:**

- Housings for cable connection and for the assembly on devices
- Degree of protection depends on the type of housing und the cable gland. Therefore we recommend to use a brass gland with integrated sealing ring for example **SKINTOP® MS ...**
- For applications with EMC requirements, we recommend the EPIC® Ultra in combination with the **SKINTOP® Brush.**
- An assurance of the technical characteristics, as well as the validity of the certificates can only be given if all components are used exclusively by Lapp.

**Hood:**

A hood 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).



**Socket housing:**

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.



**Panel Base housing:**

The panel base is wired from below through a hole cut in a panel. The panel base is attached to the surface of a control panel for connection of control or power cables.

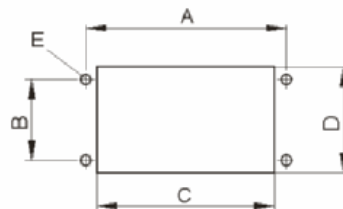


**Cable Connector Hood:**

The cable connector hood mates with a top entry hood to offer cable to cable connection. This is frequently used to extend cables.



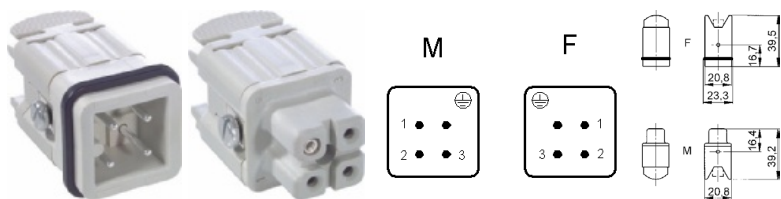
Panel cut out for panel mount base (mm)					
Panel mount base	A	B	C	D	E
H-A 3	30	—	21	21	3.3
H-A 10	70	17.5	57.5	24	3.6
H-A 16	86	17.5	73.7	24	3.6
H-A 32	92	42	74.2	48.4	4.3
H-A 48	110	65	85.5	71	5.5
H-B 6	70	32	52.2	35	4.3
H-B 10	83	32	65.2	35	4.3
H-B 16	103	32	85.5	35	4.3
H-B 24	130	32	112.2	35	4.3
H-B 32	110	65	85.5	71	5.5
H-B 48	148	70	117	82	7



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



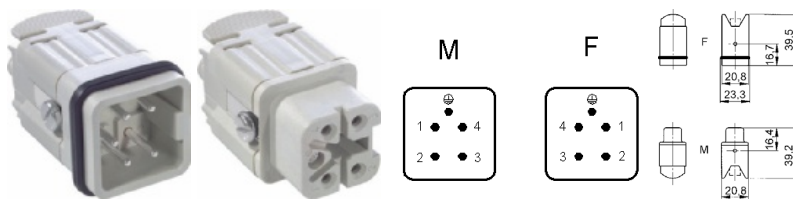
### EPIC® H-A 3



**Info**

- Robust power supply connector
- Straight cable entry into the contacts

### EPIC® H-A 4



**Info**

- Robust power supply connector
- Straight cable entry into the contacts

#### Suitable housing:

- EPIC® H-A 3 Housings Page 535
- Refer to Selection Table A10 to select the required inserts and housings

#### 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 straight cable entry into the contacts

#### Application range

- Machine and equipment manufacturing
- Control engineering

#### Suitable tools

##### EPIC® H-A 3

- MULTICRIMP 6 crimping pliers refer to page 920
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

#### Technical data

##### 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

##### Degree of soiling

3

##### 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 mm<sup>2</sup>  
(2.5 mm<sup>2</sup> with conductor end sleeves depending on the crimping profile)

##### Cycle of mechanical operation

100



##### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



##### VDE-tested

Certified production control:  
VDE-REG. no.: B437  
UL-tested:  
UL File Number: E75770

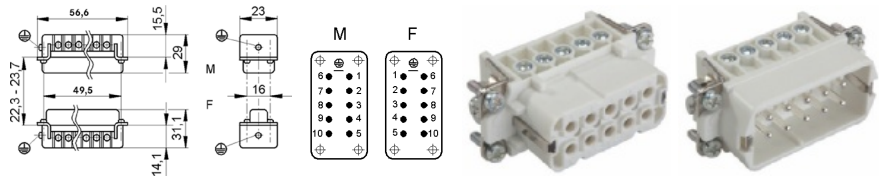
Article number	Article	Version	Contacts	Pieces / PU
<b>H-A 3 screw termination</b>				
10420000	H-A 3 SS	male	1 - 3	10
10421000	H-A 3 BS	female	1 - 3	10
<b>H-A 4 screw termination</b>				
10431000	H-A 4 SS	male	1 - 4	10
10432000	H-A 4 BS	female	1 - 4	10

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



**Info**

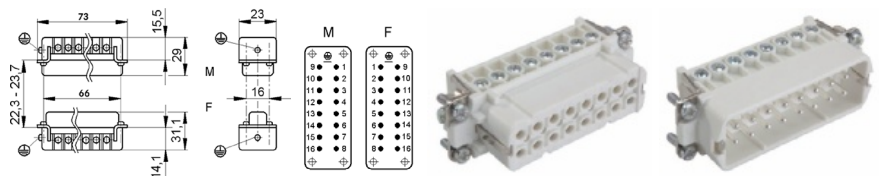
- Slim standard insert, easy to connect by screw
- Universal for current and voltage transmission



**EPIC® H-A 10**

**Info**

- Slim standard insert, easy to connect by screw
- Universal for current and voltage transmission



**EPIC® H-A 16**

**Suitable housing:**

**EPIC® H-A 10**

- EPIC® H-A 10 Housings Page 540

**EPIC® H-A 16**

- EPIC® H-A 16 Housings Page 540
- Refer to Selection Table A 10 to select the required inserts and housings

**Benefits**

- Slim connector insert for standard application
- Easy to service screw connection
- Universal for current and voltage transmission

**Application range**

- Machine and equipment manufacturing
- Control engineering

**Suitable tools**

**EPIC® H-A 10**

- MULTICRIMP 6 crimping pliers refer to page 920
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

**Technical data**

**Rated voltage (V)**

IEC: 250 V  
UL: 600 V  
CSA: 600 V

**Rated impulse voltage**

4 kV

**Rated current (A)**

IEC: 16 A  
UL: 14 A  
CSA: 16 A

**Degree of soiling**

3

**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 mm<sup>2</sup>  
(2.5 mm<sup>2</sup> with conductor end sleeves depending on the crimping profile)

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	Version	Wire protection	Contacts	Pieces / PU
<b>H-A 10 screw termination</b>					
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
<b>H-A 16 screw termination</b>					
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

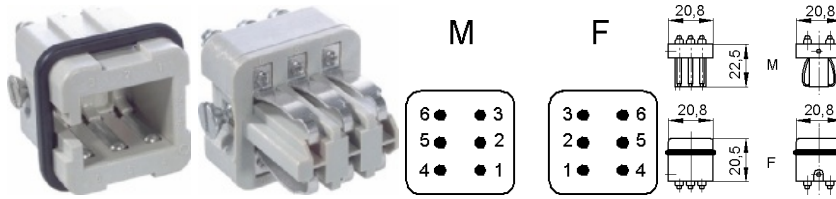
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**Similar products**

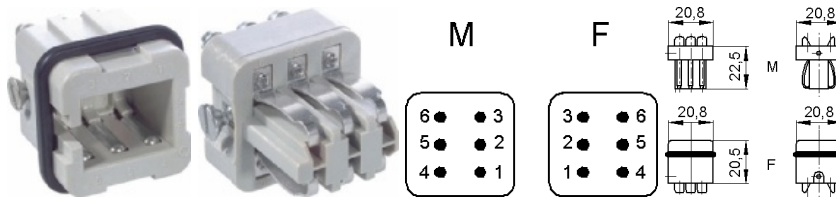
- Further products with higher numbering in the internet. (H-A 32, H-A 48)



## EPIC® STA 6 Screw termination



## EPIC® STA 6 Solder termination



### Suitable housing:

- EPIC® H-A 3 Housings Page 535
- Refer to Selection Table A10 to select the required inserts and housings

### Benefits

- STA inserts - proven by the strong contact springs.
- The proven STA inserts for screw termination and solder termination.

### Application range

- Control systems
- Rack technology
- Electronic laboratory

### Technical data

#### 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

#### Degree of soiling

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 mm<sup>2</sup>

**EPIC® STA 6 Solder termination**

Solder termination: up to 1.5 mm<sup>2</sup>

#### Cycle of mechanical operation

100



#### Temperature range

-40°C - +80°C



#### UL-tested:

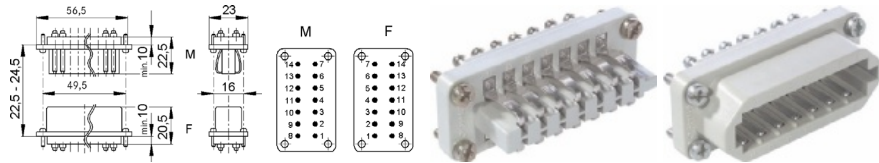
UL File Number: E75770

Article number	Article	Version	Contacts	Pieces / PU
<b>STA 6 screw termination</b>				
10486100	STA 6 SS	male	1 - 6	10
10488100	STA 6 FS	Spring	1 - 6	10
<b>STA 6 solder termination</b>				
10485200	STA 6 SL	male	1 - 6	10
10487200	STA 6 FL	Spring	1 - 6	10

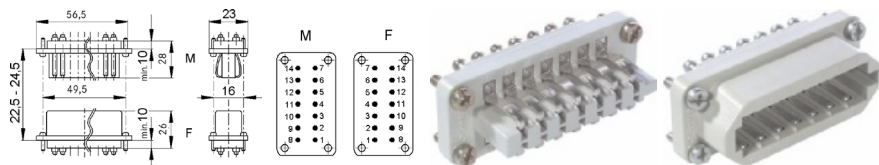
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**EPIC® STA 14 Screw termination**



**EPIC® STA 14 Solder termination**



**Suitable housing:**

- EPIC® H-A 10 Housings Page 540
- Refer to Selection Table A10 to select the required inserts and housings

**Benefits**

- STA inserts – proven by the strong contact springs.
- The proven STA inserts for screw termination and solder termination.

**Application range**

- Control systems
- Rack technology
- Electronic laboratory

**Technical data**

**Rated voltage (V)**

IEC: 24 V AC, 60 V DC  
UL: 48 V  
CSA: 48 V

**Rated current (A)**

IEC: 7.5 A  
UL: 7.5 A  
CSA: 7.5 A

**Degree of soiling**

2

**Contact resistance**

< 3 mOhm

**Contacts**

Copper alloy, tinned

**Number of contacts**

14

**Termination methods**

**EPIC® STA 14 Screw termination**  
Screw termination: 0.5 - 1.5 mm<sup>2</sup>  
**EPIC® STA 14 Solder termination**  
Solder termination: up to 1.5 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40°C - +80°C



**UL-tested:**

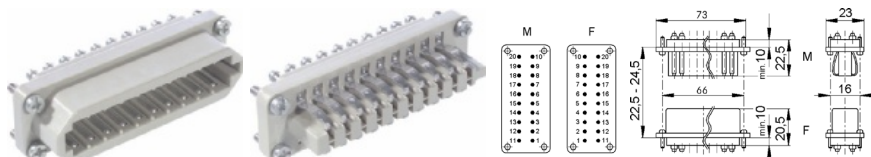
UL File Number: E75770

Article number	Article	Version	Contacts	Pieces / PU
<b>STA 14 screw termination</b>				
10491100	STA 14 SS	male	1 - 14	5
10493100	STA 14 FS	Spring	1 - 14	5
<b>STA 14 solder termination</b>				
10490200	STA 14 SL	male	1 - 14	5
10492200	STA 14 FL	Spring	1 - 14	5

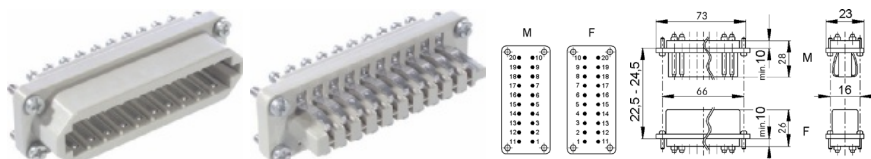
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### EPIC® STA 20 Screw termination



### EPIC® STA 20 Solder termination



**Suitable housing:**

- EPIC® H-A 16 Housings Page 546
- Refer to Selection Table A10 to select the required inserts and housings

**Benefits**

- STA inserts - proven by the strong contact springs.
- The proven STA inserts for screw termination and solder termination.

**Application range**

- Control systems
- Rack technology
- Electronic laboratory

**Technical data**

**Rated voltage (V)**  
IEC: 24 V AC, 60 V DC  
UL: 48 V  
CSA: 48 V

**Rated current (A)**  
IEC: 7 A  
UL: 7 A  
CSA: 7 A

**Degree of soiling**  
2

**Contact resistance**  
< 3 mOhm

**Contacts**  
Copper alloy, tinned

**Number of contacts**  
20

**Termination methods**

**EPIC® STA 20 Screw termination**  
Screw termination: 0.5 - 1.5 mm<sup>2</sup>  
**EPIC® STA 20 Solder termination**  
Solder termination: up to 1.5 mm<sup>2</sup>

**Cycle of mechanical operation**  
100

**Temperature range**  
-40°C - +80°C

**UL-tested:**  
UL File Number: E75770

Article number	Article	Version	Contacts	Pieces / PU
<b>STA 20 screw termination</b>				
10501100	STA 20 SS	male	1 - 20	5
10503100	STA 20 FS	Spring	1 - 20	5
<b>STA 20 solder termination</b>				
10500200	STA 20 SL	male	1 - 20	5
10502200	STA 20 FL	Spring	1 - 20	5

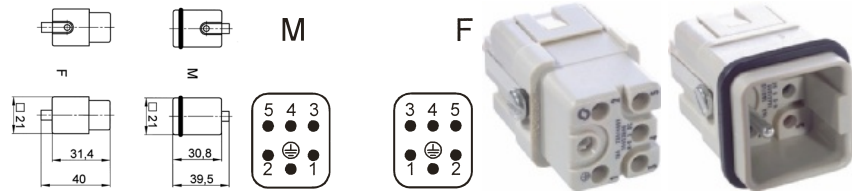
Photographs are not to scale and do not represent detailed images of the respective products.





**Info**

- Compact, powerful standard insert
- Space saving, crimping contact

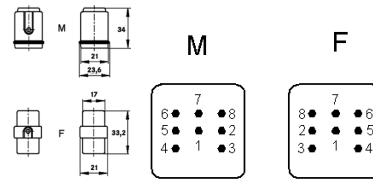


**EPIC® H-Q 5**



**Info**

- Compact, powerful standard insert
- Space saving, crimping contact



**EPIC® H-D 8**



**Suitable housing:**

- EPIC® H-A 3 Housings Page 535
- Refer to Selection Table A 10 to select the required inserts and housings

**Suitable contacts:**

**EPIC® H-Q 5**

- EPIC® H-BE 2.5 machined contacts Page 528

**EPIC® H-D 8**

- EPIC® H-BE 2.5 machined contacts Page 528

**Benefits**

**EPIC® H-Q 5**

- High performance crimping contacts
- PE contact with screw connection

**EPIC® H-D 8**

- Small, high-performance connector
- PE contact with screw connection
- High performance crimping contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering

**Technical data**

**Rated voltage (V)**

**EPIC® H-Q 5**

IEC: 230 V / 400 V

UL: 600 V

CSA: 600 V

**EPIC® H-D 8**

IEC: 24 V (AC)/60 V (DC) metal housing;

250 V thermoplastic housing;

UL: 250 V

**Rated impulse voltage**

**EPIC® H-Q 5**

4 kV

**EPIC® H-D 8**

2.5 kV

**Rated current (A)**

**EPIC® H-Q 5**

IEC: 16 A

UL: 16 A

CSA: 16 A

**EPIC® H-D 8**

IEC: 10 A

UL: 10 A

**Degree of soiling**

3

**Contact resistance**

< 2 mOhm

**Contacts**

Copper alloy, hard silver/gold-plated

**Number of contacts**

**EPIC® H-Q 5**

5 + PE

**EPIC® H-D 8**

8

**Termination methods**

**EPIC® H-Q 5**

Crimp termination: 0.5 - 2.5 mm<sup>2</sup>

**EPIC® H-D 8**

Crimp termination: 0.14 - 2.5 mm<sup>2</sup>

**Cycle of mechanical operation**

100

**Temperature range**

-40 °C to +100 °C, short-term up to

+125 °C



**EPIC® H-Q 5**

UL-tested:

UL File Number: **E75770**

**EPIC® H-D 8**

Certified production control:

VDE-REG. no.: **B437**

UL-tested:

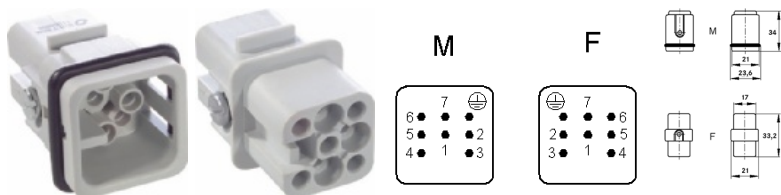
UL File Number: **E75770**

Article number	Article	Version	Contacts	Pieces / PU
<b>H-Q 5 crimp termination</b>				
10431500	H-Q 5 SC	male	1 - 5	10
10432500	H-Q 5 BC	female	1 - 5	10
<b>H-D 8 crimp termination</b>				
11252500	H-D 8 SCM	male	1 - 8	10
11253500	H-D 8 BCM	female	1 - 8	10

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



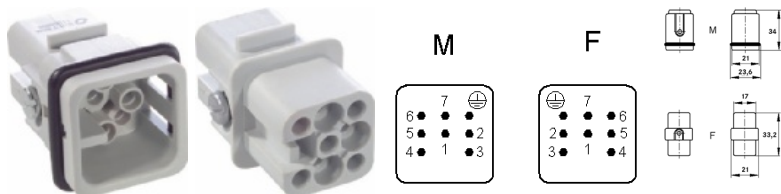
### EPIC® H-D 7 machined



**Info**

- Compact, powerful standard insert
- Space saving, crimping contact

### EPIC® H-D 7 stamped



**Info**

- Compact, powerful standard insert
- Space saving, crimping contact

**Suitable housing:**

- EPIC® H-A 3 Housings Page 535
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

**EPIC® H-D 7 machined**

- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 7 stamped**

- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**Benefits**

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

**Application range**

- Machine and equipment manufacturing
- Control engineering

**Technical data**

**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

**Degree of soiling**

3

**Contact resistance**

< 2 mOhm

**Contacts**

Copper alloy, hard silver/gold-plated

**Number of contacts**

7 + PE

**Termination methods**

Crimp termination: 0.14 - 2.5 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

Certified production control:

VDE-REG. no.: **B437**

UL-tested:

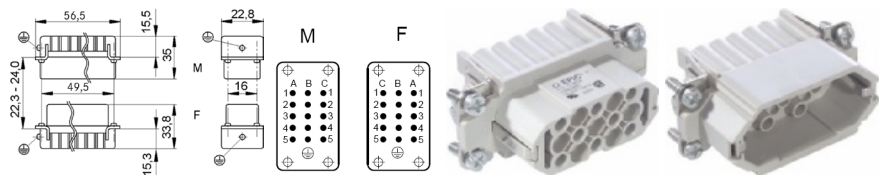
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-D 7 crimp termination</b>					
11250500	H-D 7 SCM	male	machined	1 - 7	10
11251500	H-D 7 BCM	female	machined	1 - 7	10
11250000	H-D 7 SCG	male	stamped	1 - 7	10
11251000	H-D 7 BCG	female	stamped	1 - 7	10

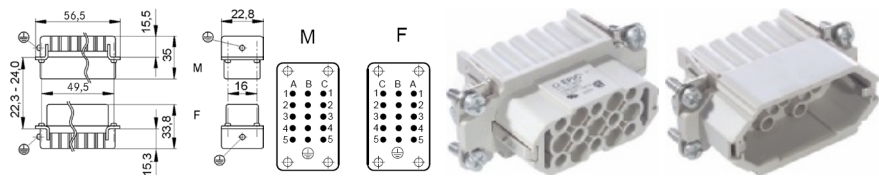
Photographs are not to scale and do not represent detailed images of the respective products.



**EPIC® H-D 15 machined**



**EPIC® H-D 15 stamped**



**Suitable housing:**

**EPIC® H-D 15 machined**

- EPIC® H-A 10 Housings Page 540
- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 15 stamped**

- EPIC® H-A 10 Housings Page 540
- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

**EPIC® H-D 15 machined**

- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 15 stamped**

- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**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**

**Rated voltage (V)**

IEC: 250 V  
UL: 250 V

**Rated impulse voltage**

2.5 kV

**Rated current (A)**

IEC: 10 A  
UL: 10 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

Certified production control:

VDE-REG. no.: **B437**

UL-tested:

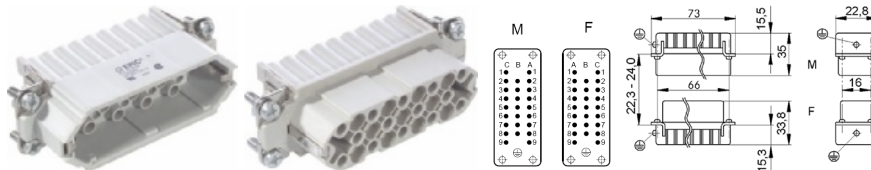
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-D 15 crimp termination</b>					
11283200	H-D 15 SCM	male	machined	1 - 15	5
11282200	H-D 15 BCM	female	machined	1 - 15	5
11255000	H-D 15 SCG	male	stamped	1 - 15	5
11256000	H-D 15 BCG	female	stamped	1 - 15	5

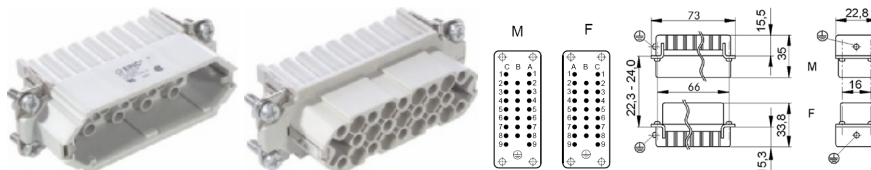
Photographs are not to scale and do not represent detailed images of the respective products.



### EPIC® H-D 25 machined



### EPIC® H-D 25 stamped



**Suitable housing:**

**EPIC® H-D 25 machined**

- EPIC® H-A 16 Housings Page 546
- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 25 stamped**

- EPIC® H-A 16 Housings Page 546
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

**EPIC® H-D 25 machined**

- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 25 stamped**

- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**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**

**Rated voltage (V)**

IEC: 250 V  
UL: 250 V

**Rated impulse voltage**

2.5 kV

**Rated current (A)**

IEC: 10 A  
UL: 10 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

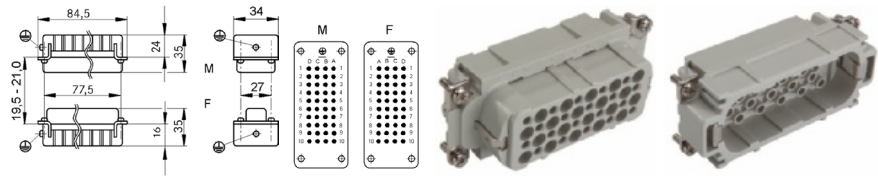
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-D 25 crimp termination</b>					
11283300	H-D 25 SCM	male	machined	1 - 25	5
11282300	H-D 25 BCM	female	machined	1 - 25	5
11260000	H-D 25 SCG	male	stamped	1 - 25	5
11261000	H-D 25 BCG	female	stamped	1 - 25	5

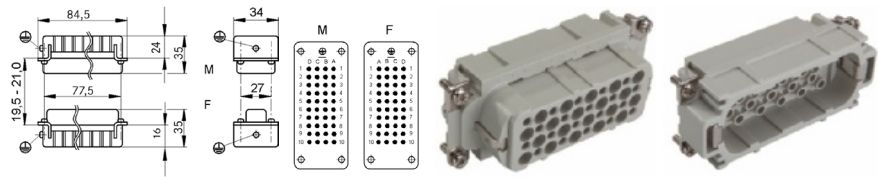
Photographs are not to scale and do not represent detailed images of the respective products.



**EPIC® H-D 40 machined**



**EPIC® H-D 40 stamped**



**Suitable housing:**

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

**Suitable contacts:**

**EPIC® H-D 40 machined**

- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 40 stamped**

- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**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**

**Rated voltage (V)**

IEC: 250 V  
UL: 250 V

**Rated impulse voltage**

2.5 kV

**Rated current (A)**

IEC: 10 A  
UL: 10 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

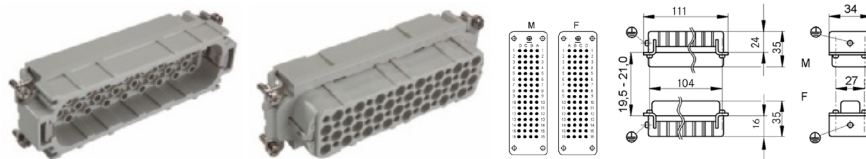
UL-tested:  
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-D 40 crimp termination</b>					
11265200	H-D 40 SCM	male	machined	1 - 40	10
11266200	H-D 40 BCM	female	machined	1 - 40	10
11265000	H-D 40 SCG	male	stamped	1 - 40	5
11266000	H-D 40 BCG	female	stamped	1 - 40	5

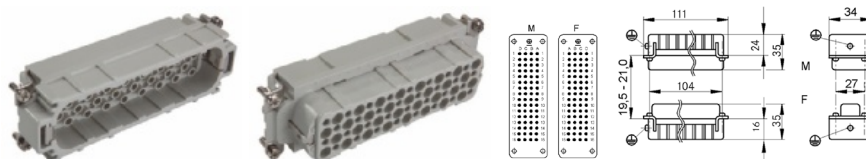
Photographs are not to scale and do not represent detailed images of the respective products.



### EPIC® H-D 64 machined



### EPIC® H-D 64 stamped



**Suitable housing:**

- EPIC® ULTRA H-B 24 Page 556
- EPIC® H-B 24 Housings Page 591
- EPIC® QUICK & EASY Mounting system

**Suitable contacts:**

**EPIC® H-D 64 machined**

- EPIC® H-D 1.6 machined contacts Page 525

**EPIC® H-D 64 stamped**

- EPIC® H-D 1.6 machined contacts Page 525
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**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**

**Rated voltage (V)**

IEC: 250 V  
UL: 250 V

**Rated impulse voltage**

2.5 kV

**Rated current (A)**

IEC: 10 A  
UL: 10 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

UL-tested:  
UL File Number: **E75770**

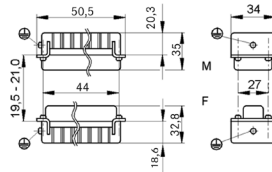
Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-D 64 crimp termination</b>					
11272000	H-D 64 SCM	male	machined	1 - 64	10
11273000	H-D 64 BCM	female	machined	1 - 64	10
11270000	H-D 64 SCG	male	stamped	1 - 64	5
11271000	H-D 64 BCG	female	stamped	1 - 64	5

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

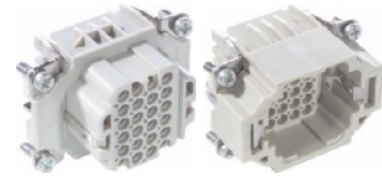


**Info**

- Highest packing density for compact connectors

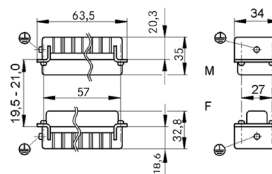


**EPIC® H-DD 24**



**Info**

- Highest packing density for compact connectors



**EPIC® H-DD 42**



**Suitable housing:**

**EPIC® H-DD 24**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**EPIC® H-DD 42**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**Suitable contacts:**

- EPIC® H-D 1.6 machined contacts Page 525

**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**

**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

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

Certified production control: VDE-REG.

no.: **B437**

UL-tested:

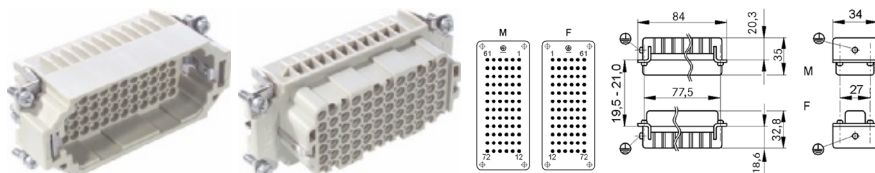
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-DD 24 crimp termination</b>					
11285000	H-DD 24 SCM	male	machined	1 - 24	5
11286000	H-DD 24 BCM	female	machined	1 - 24	5
<b>H-DD 42 crimp termination</b>					
11285100	H-DD 42 SCM	male	machined	1 - 42	5
11286100	H-DD 42 BCM	female	machined	1 - 42	5

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



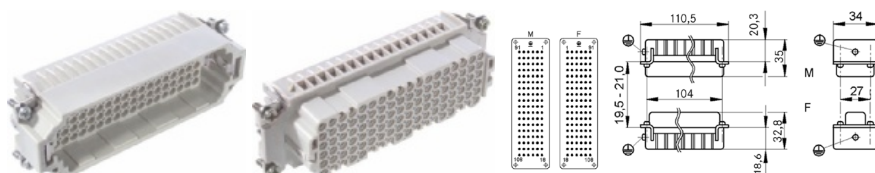
## EPIC® H-DD 72



**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 144 available

## EPIC® H-DD 108



**Info**

- Highest packing density for compact connectors
- Also as EPIC® H-DD 216 available

### Suitable housing:

#### EPIC® H-DD 72

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

#### EPIC® H-DD 108

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

### Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 525

### 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

#### 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

#### Degree of soiling

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 mm<sup>2</sup>

#### Cycle of mechanical operation

100



#### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



#### VDE-tested

Certified production control:  
VDE-REG. no.: B437

UL-tested:

UL File Number: E75770

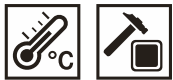
Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-DD 72 crimp termination</b>					
11285200	H-DD 72 SCM	male	machined	1 - 72	5
11286200	H-DD 72 BCM	female	machined	1 - 72	5
<b>H-DD 108 crimp termination</b>					
11285300	H-DD 108 SCM	male	machined	1 - 108	5
11286300	H-DD 108 BCM	female	machined	1 - 108	5

Photographs 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)

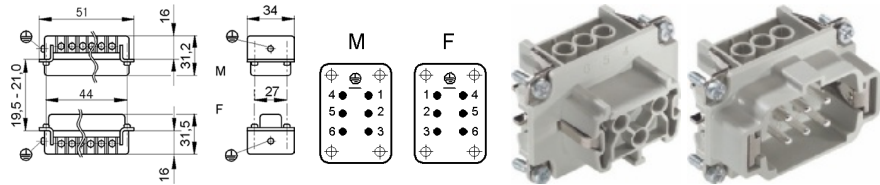




**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

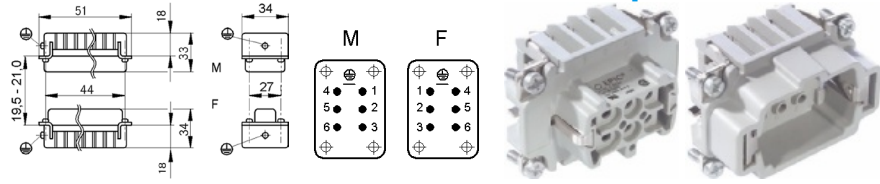
EPIC® H-BE 6 Screw termination



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

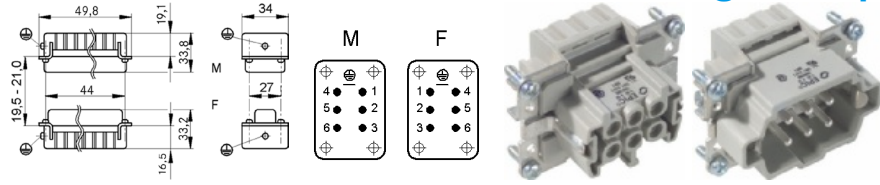
EPIC® H-BE 6 Crimp termination



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

EPIC® H-BE 6 Cage clamp



■ Suitable housing:

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A 10 to select the required inserts and housings

■ Suitable contacts:

- EPIC® H-BE 6 Crimp termination**
- EPIC® H-BE 2.5 machined contacts Page 528

■ Benefits

- Standard inserts with screw, crimp and cage clamp 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

- EPIC® H-BE 6 Screw termination**
- MULTICRIMP 6 crimping pliers refer to page 920
  - Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976
  - Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

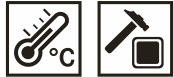
■ Technical data

<b>Rated voltage (V)</b> IEC: 500 V UL: 600 V CSA: 600 V	<b>Number of contacts</b> 6 + PE
<b>Rated impulse voltage</b> 6 kV	<b>Termination methods</b> <b>EPIC® H-BE 6 Screw termination</b> Screw termination: 0.5 - 2.5 mm <sup>2</sup> <b>EPIC® H-BE 6 Crimp termination</b> Crimp termination: 0.5 - 4.0 mm <sup>2</sup> <b>EPIC® H-BE 6 Cage clamp</b> Cage clamp termination: 0.5 - 2.5 mm <sup>2</sup>
<b>Rated current (A)</b> IEC: 16 A UL: 16 A CSA: 16 A	<b>Cycle of mechanical operation</b> 100
<b>Degree of soiling</b> 3	<b>Temperature range</b> -40 °C to +100 °C, short-term up to +125 °C
<b>Contact resistance</b> <b>EPIC® H-BE 6 Screw termination</b> < 2 mOhm <b>EPIC® H-BE 6 Crimp termination</b> < 2 mOhm <b>EPIC® H-BE 6 Cage clamp</b> 1.5 - 4 mohm	<b>VDE-tested</b> <b>EPIC® H-BE 6 Screw termination</b> Certified production control: VDE-REG. no.: <b>B437</b> UL-tested: UL File Number: <b>E75770</b> <b>EPIC® H-BE 6 Crimp termination</b> Certified production control: VDE-REG. no.: <b>B437</b> UL-tested: UL File Number: <b>E75770</b> <b>EPIC® H-BE 6 Cage clamp</b> UL-tested: UL File Number: <b>E75770</b>
<b>Contacts</b> <b>EPIC® H-BE 6 Screw termination</b> Copper alloy, hard silver-plated <b>EPIC® H-BE 6 Crimp termination</b> Copper alloy, hard silver/gold-plated <b>EPIC® H-BE 6 Cage clamp</b> Copper alloy, hard silver-plated	

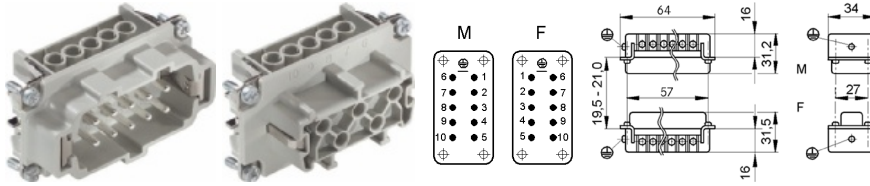
Article number	Article	Version	Wire protection	Article designation	Contacts	Pieces / PU
<b>H-BE 6 screw termination</b>						
10190000	H-BE 6 SS	male	yes		1 - 6	10
10191000	H-BE 6 BS	female	yes		1 - 6	10
10190100	H-BE 6 SS	male			1 - 6	10
10191100	H-BE 6 BS	female			1 - 6	10
<b>H-BE 6 crimp termination</b>						
10180000	H-BE 6 SCM	male		machined	1 - 6	10
10181000	H-BE 6 BCM	female		machined	1 - 6	10
<b>H-BE 6 cage clamp termination</b>						
10400000	H-BE 6 SF	male			1 - 6	10
10401000	H-BE 6 BF	female			1 - 6	10

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

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



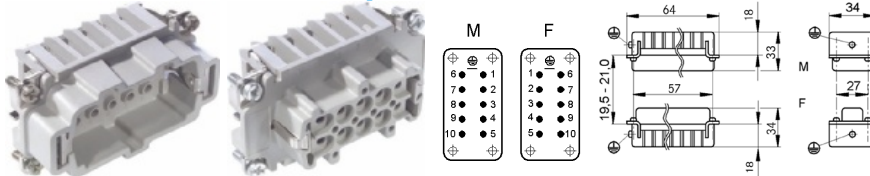
### EPIC® H-BE 10 Screw termination



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

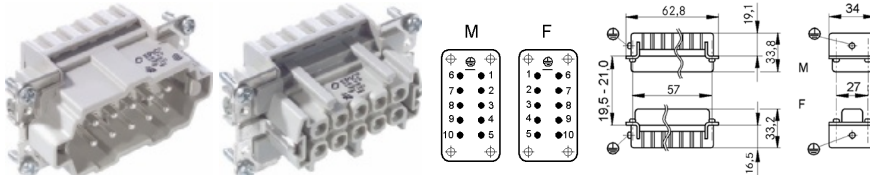
### EPIC® H-BE 10 Crimp termination



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

### EPIC® H-BE 10 Cage clamp



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable

**Suitable housing:**

- EPIC® ULTRA H-B 10 Page 554
- EPIC® H-B 10 Housings Page 563
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

**EPIC® H-BE 10 Crimp termination**

- EPIC® H-BE 2.5 machined contacts Page 528

**Benefits**

- Standard inserts with screw, crimp and cage clamp 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**

**EPIC® H-BE 10 Screw termination**

- MULTICRIMP 6 crimping pliers refer to page 920
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

**Technical data**

**Rated voltage (V)**

IEC: 500 V  
UL: 600 V  
CSA: 600 V

**Rated impulse voltage**

6 kV

**Rated current (A)**

IEC: 16 A  
UL: 16 A  
CSA: 16 A

**Degree of soiling**

3

**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

**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

**Number of contacts**

10 + PE

**Termination methods**

**EPIC® H-BE 10 Screw termination**  
Screw termination: 0.5 - 2.5 mm<sup>2</sup>  
**EPIC® H-BE 10 Crimp termination**  
Crimp termination: 0.5 - 4.0 mm<sup>2</sup>  
**EPIC® H-BE 10 Cage clamp**  
Cage clamp termination: 0.5 - 2.5 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

**EPIC® H-BE 10 Screw termination**  
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**  
**EPIC® H-BE 10 Crimp termination**  
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**  
**EPIC® H-BE 10 Cage clamp**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Version	Wire protection	Article designation	Contacts	Pieces / PU
<b>H-BE 10 screw termination</b>						
10192000	H-BE 10 SS	male	yes		1 - 10	10
10193000	H-BE 10 BS	female	yes		1 - 10	10
10192100	H-BE 10 SS	male			1 - 10	10
10193100	H-BE 10 BS	female			1 - 10	10
<b>H-BE 10 crimp termination</b>						
10182000	H-BE 10 SCM	male		machined	1 - 10	10
10183000	H-BE 10 BCM	female		machined	1 - 10	10
<b>H-BE 10 cage clamp termination</b>						
10400100	H-BE 10 SF	male			1 - 10	10
10401100	H-BE 10 BF	female			1 - 10	10

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



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 32 available

**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 32 available

**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 32 available

**Suitable housing:**

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

- EPIC® H-BE 16 Crimp termination**
- EPIC® H-BE 2.5 machined contacts Page 528

**Benefits**

- Standard inserts with screw, crimp and cage clamp termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

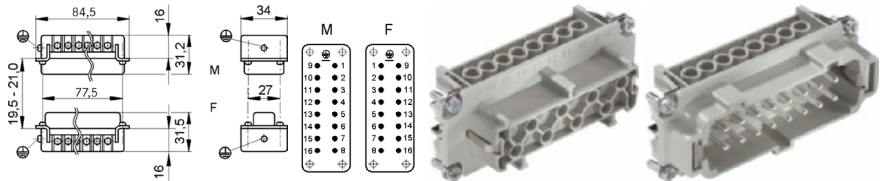
**Application range**

- Mechanical engineering
- Light & sound technology
- Plastics industry

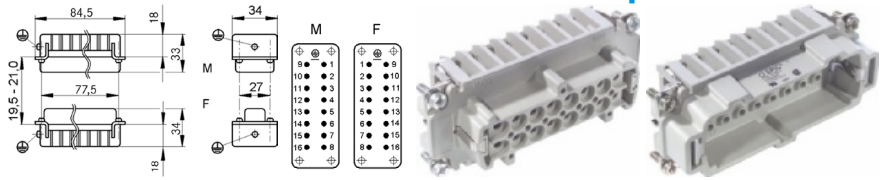
**Suitable tools**

- EPIC® H-BE 16 Screw termination**
- MULTICRIMP 6 crimping pliers refer to page 920
  - Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976
  - Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

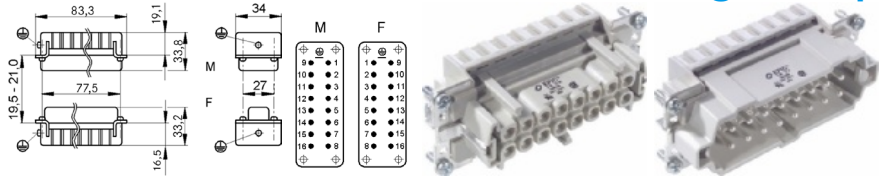
**EPIC® H-BE 16 Screw termination**



**EPIC® H-BE 16 Crimp termination**



**EPIC® H-BE 16 Cage clamp**



**Technical data**

<p><b>Rated voltage (V)</b> IEC: 500 V UL: 600 V CSA: 600 V</p> <p><b>Rated impulse voltage</b> 6 kV</p> <p><b>Rated current (A)</b> IEC: 16 A UL: 16 A CSA: 16 A</p> <p><b>Degree of soiling</b> 3</p> <p><b>Contact resistance</b> <b>EPIC® H-BE 16 Screw termination</b> &lt; 2 mOhm <b>EPIC® H-BE 16 Crimp termination</b> &lt; 2 mOhm <b>EPIC® H-BE 16 Cage clamp</b> 1.5 - 4 mohm</p> <p><b>Contacts</b> <b>EPIC® H-BE 16 Screw termination</b> Copper alloy, hard silver-plated <b>EPIC® H-BE 16 Crimp termination</b> Copper alloy, hard silver/gold-plated <b>EPIC® H-BE 16 Cage clamp</b> Copper alloy, hard silver-plated</p>	<p><b>Number of contacts</b> 16 + PE</p> <p><b>Termination methods</b> <b>EPIC® H-BE 16 Screw termination</b> Screw termination: 0.5 - 2.5 mm<sup>2</sup> <b>EPIC® H-BE 16 Crimp termination</b> Crimp termination: 0.5 - 4.0 mm<sup>2</sup> <b>EPIC® H-BE 16 Cage clamp</b> Cage clamp termination: 0.5 - 2.5 mm<sup>2</sup></p> <p><b>Cycle of mechanical operation</b> 100</p> <p><b>Temperature range</b> -40 °C to +100 °C, short-term up to +125 °C</p> <p><b>VDE-tested</b> <b>EPIC® H-BE 16 Screw termination</b> Certified production control: VDE-REG. no.: <b>B437</b> UL-tested: UL File Number: <b>E75770</b> <b>EPIC® H-BE 16 Crimp termination</b> Certified production control: VDE-REG. no.: <b>B437</b> UL-tested: UL File Number: <b>E75770</b> <b>EPIC® H-BE 16 Cage clamp</b> UL-tested: UL File Number: <b>E75770</b></p>
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**Similar products**

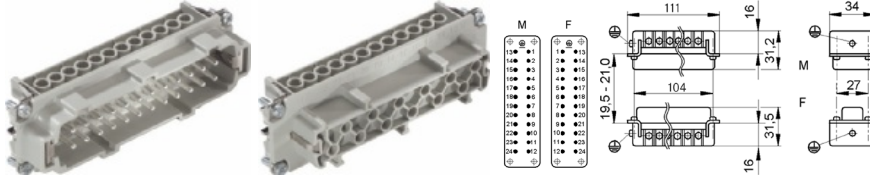
- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

Article number	Article	Version	Wire protection	Article designation	Contacts	Pieces / PU
<b>H-BE 16 screw termination</b>						
10194000	H-BE 16 SS	male	yes		1 - 16	5
10195000	H-BE 16 BS	female	yes		1 - 16	5
10194100	H-BE 16 SS	male			1 - 16	5
10195100	H-BE 16 BS	female			1 - 16	5
<b>H-BE 16 crimp termination</b>						
10184000	H-BE 16 SCM	male		machined	1 - 16	5
10185000	H-BE 16 BCM	female		machined	1 - 16	5
<b>H-BE 16 cage clamp termination</b>						
10400200	H-BE 16 SF	male			1 - 16	5
10401200	H-BE 16 BF	female			1 - 16	5

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



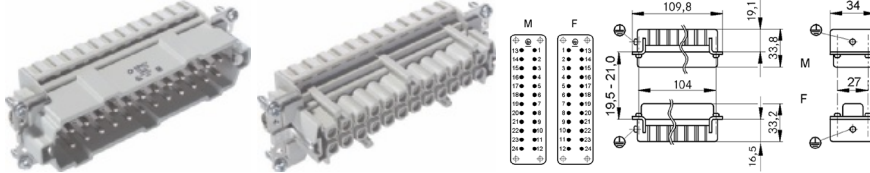
EPIC® H-BE 24 Screw termination



EPIC® H-BE 24 Crimp termination



EPIC® H-BE 24 Cage clamp



**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 48 available

**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 48 available

**Info**

- Multifunctional insert for versatile applications
- Screw, crimp and cage clamp version - freely combinable
- Also as EPIC® H-BE 48 available

Suitable housing:

- EPIC® ULTRA H-B 24 Page 556
- EPIC® H-B 24 Housings Page 591
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-BE 24 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 528

Benefits

- Standard inserts with screw, crimp and cage clamp 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

EPIC® H-BE 24 Screw termination

- MULTICRIMP 6 crimping pliers refer to page 920
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

Technical data

Rated voltage (V)

- IEC: 500 V
- UL: 600 V
- CSA: 600 V

Rated impulse voltage

6 kV

Rated current (A)

- IEC: 16 A
- UL: 16 A
- CSA: 16 A

Degree of soiling

3

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

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

Number of contacts

24 + PE

Termination methods

- EPIC® H-BE 24 Screw termination Screw termination: 0.5 - 2.5 mm<sup>2</sup>
- EPIC® H-BE 24 Crimp termination Crimp termination: 0.5 - 4.0 mm<sup>2</sup>
- EPIC® H-BE 24 Cage clamp Cage clamp termination: 0.5 - 2.5 mm<sup>2</sup>

Cycle of mechanical operation

100

Temperature range

-40 °C to +100 °C, short-term up to +125 °C



VDE-tested

- EPIC® H-BE 24 Screw termination Certified production control: VDE-REG. no.: B437
- UL-tested: UL File Number: E75770
- EPIC® H-BE 24 Crimp termination Certified production control: VDE-REG. no.: B437
- UL-tested: UL File Number: E75770
- EPIC® H-BE 24 Cage clamp UL-tested: UL File Number: E75770

Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

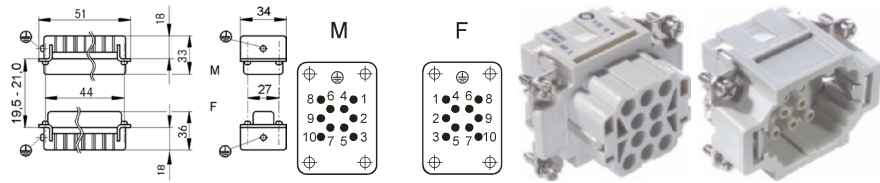
Article number	Article	Version	Wire protection	Article designation	Contacts	Pieces / PU
<b>H-BE 24 screw termination</b>						
10196000	H-BE 24 SS	male	yes		1 - 24	5
10197000	H-BE 24 BS	female	yes		1 - 24	5
10196100	H-BE 24 SS	male			1 - 24	5
10197100	H-BE 24 BS	female			1 - 24	5
<b>H-BE 24 crimp termination</b>						
10186000	H-BE 24 SCM	male		machined	1 - 24	5
10187000	H-BE 24 BCM	female		machined	1 - 24	5
<b>H-BE 24 cage clamp termination</b>						
10400300	H-BE 24 SF	male			1 - 24	5
10401300	H-BE 24 BF	female			1 - 24	5

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



**Info**

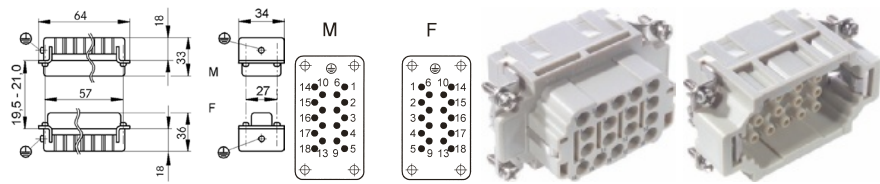
- Inserts with high contact density for medium power



**EPIC® H-EE 10**

**Info**

- Inserts with high contact density for medium power



**EPIC® H-EE 18**

**Suitable housing:**

**EPIC® H-EE 10**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**EPIC® H-EE 18**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

- EPIC® H-BE 2.5 machined contacts Page 528

**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

**Technical data**

**Rated voltage (V)**

IEC: 500 V  
UL: 600 V  
CSA: 600 V

**Rated impulse voltage**

6 kV

**Rated current (A)**

IEC: 16 A  
UL: 16 A  
CSA: 16 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**UL-tested:**

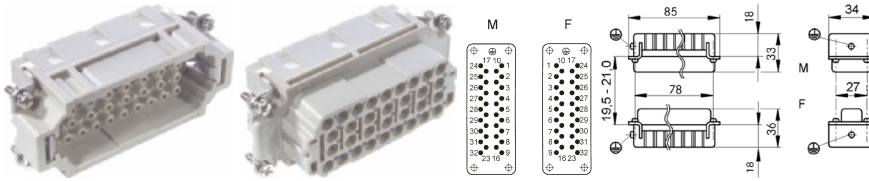
UL File Number: **E75770**

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-EE 10 crimp termination</b>					
10180400	H-EE 10 SC	male	machined	1 - 10	10
10181400	H-EE 10 BC	female	machined	1 - 10	10
<b>H-EE 18 crimp termination</b>					
10182400	H-EE 18 SC	male	machined	1 - 18	10
10183400	H-EE 18 BC	female	machined	1 - 18	10

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



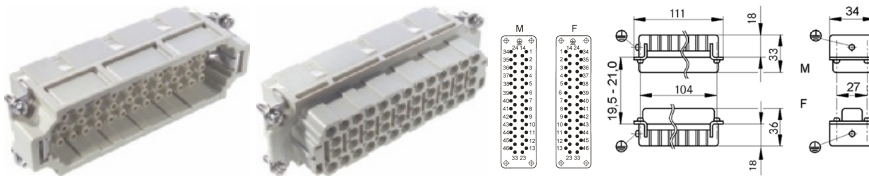
### EPIC® H-EE 32



**Info**

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 64 available

### EPIC® H-EE 46



**Info**

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 92 available

**Suitable housing:**

**EPIC® H-EE 32**

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

**EPIC® H-EE 46**

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

**Suitable contacts:**

- EPIC® H-BE 2.5 machined contacts Page 528

**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

**Technical data**

**Rated voltage (V)**

IEC: 500 V  
UL: 600 V  
CSA: 600 V

**Rated impulse voltage**

6 kV

**Rated current (A)**

IEC: 16 A  
UL: 16 A  
CSA: 16 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**UL-tested:**

UL File Number: E75770

Article number	Article	Version	Article designation	Contacts	Pieces / PU
<b>H-EE 32 crimp termination</b>					
10184400	H-EE 32 SC	male	machined	1 - 32	5
10185400	H-EE 32 BC	female	machined	1 - 32	5
<b>H-EE 46 crimp termination</b>					
10186400	H-EE 46 SC	male	machined	1 - 46	5
10187400	H-EE 46 BC	female	machined	1 - 46	5

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

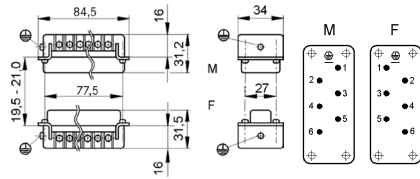
**Similar products**

- Further products with higher numbering in the internet. (H-EE 64, H-EE 92)



**Info**

- Standard insert for currents up to 35A

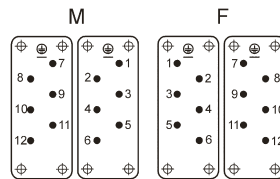


**EPIC® H-BS 6**



**Info**

- Standard insert for currents up to 35A



**EPIC® H-BS 12**



**Suitable housing:**

**EPIC® H-BS 6**

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

**EPIC® H-BS 12**

- EPIC® ULTRA H-B 16 Page 555
- Refer to Selection Table A10 to select the required inserts and housings

**Benefits**

**EPIC® H-BS 6**

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm<sup>2</sup>

**EPIC® H-BS 12**

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm<sup>2</sup>
- Two H-BS 6 inserts with different contact-numbering for one housing.

**Application range**

- Plant engineering
- Mechanical engineering
- Drive systems

**Suitable tools**

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 976

**Technical data**

**Rated voltage (V)**

IEC: 500 V  
UL: 600 V  
CSA: 600 V  
Conductor - conductor: 690 V

**Rated impulse voltage**

6 kV

**Rated current (A)**

IEC: 35 A  
UL: 35 A  
CSA: 35 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

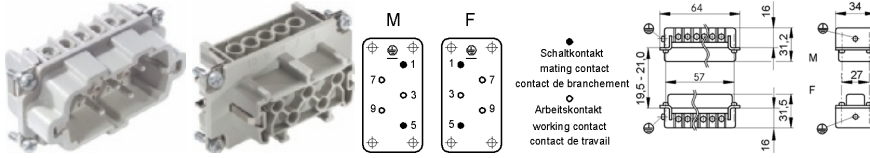
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Version	Wire protection	Contacts	Pieces / PU
<b>H-BS 6 screw termination</b>					
10170000	H-BS 6 SS	male	yes	1 - 6	5
10171000	H-BS 6 BS	female	yes	1 - 6	5
<b>H-BS 12 screw termination</b>					
10170600	H-BS 6 SS	male	yes	7 - 12	5
10170000	H-BS 6 SS	male	yes	1 - 6	5
10171600	H-BS 6 BS	female	yes	7 - 12	5
10171000	H-BS 6 BS	female	yes	1 - 6	5

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



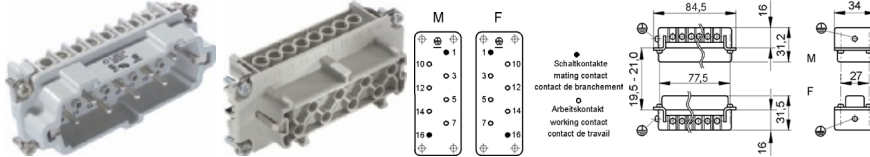
EPIC® H-BVE 3



**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

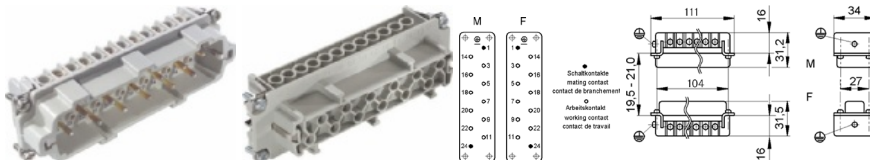
EPIC® H-BVE 6



**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

EPIC® H-BVE 10



**Info**

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

Suitable housing:

- EPIC® H-BVE 3**
- EPIC® ULTRA H-B 10 Page 554
  - EPIC® H-B 10 Housings Page 563
  - EPIC® QUICK & EASY Mounting system
- EPIC® H-BVE 6**
- EPIC® ULTRA H-B 10 Page 554
  - EPIC® H-B 10 Housings Page 563
  - EPIC® QUICK & EASY Mounting system
- EPIC® H-BVE 10**
- EPIC® ULTRA H-B 10 Page 554
  - EPIC® H-B 10 Housings Page 563
  - EPIC® QUICK & EASY Mounting system

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

Rated voltage (V)

IEC: 630 V  
UL: 600 V  
CSA: 600V

Rated impulse voltage

6 kV

Rated current (A)

IEC: 16 A  
UL: 16 A  
CSA: 16 A

Degree of soiling

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 mm<sup>2</sup>

Cycle of mechanical operation

100



Temperature range

-40 °C to +100 °C, short-term up to +125 °C



VDE-tested

Certified production control:  
VDE-REG. no.: B437  
UL-tested:  
UL File Number: E75770

Suitable tools

- Kraftform® adjustable torque screwdriver/  
Kraftform Kompakt® Set refer to page 976

Article number	Article	Version	Wire protection	Contacts	Pieces / PU
<b>H-BVE 3 screw termination</b>					
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
<b>H-BVE 6 screw termination</b>					
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
<b>H-BVE 10 screw termination</b>					
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

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



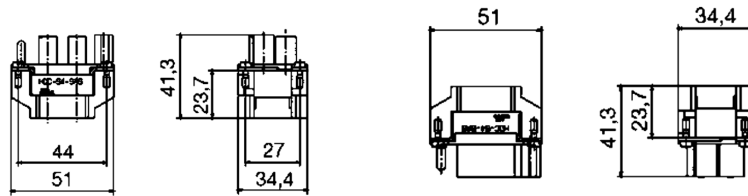


**New**

**Power H-S**

**Info**

- Very high current transfer in a small space
- Axial screw termination for assembly without special tool



**Suitable housing:**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557

**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

**Technical data**

**Rated voltage (V)**  
1000

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
65

**Degree of soiling**  
3

**Contact resistance**  
< 1 mOhm

**Number of contacts**  
4 + PE

**Termination methods**  
Axial screw termination  
2.5 mm<sup>2</sup> ... 10.0 mm<sup>2</sup>

**Material**  
PC, polycarbonate

**Cycle of mechanical operation**  
500

**Temperature range**  
-40°C ... +125°C

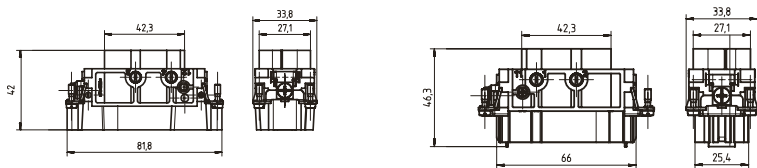
Article number	Article	Version	Contacts	PU
<b>H-S Axial screw connection</b>				
10407910	H-S 4+2xPE SAS	male	4 + PE	10
10407900	H-S 4+2xPE BAS	female	4 + PE	10
<b>Tool for axial connection</b>				
44424028	TOOL HEX 2x100			1

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



New

## EPIC® Power K 4/0

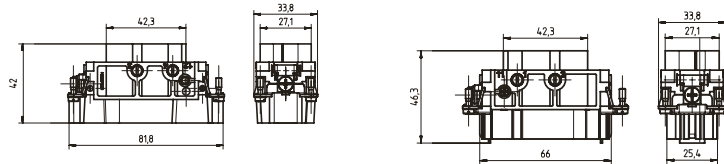


Info

- Combination insert Power

New

## EPIC® Power K 4/2



Info

- Combination insert Power and Control

### Suitable housing:

- EPIC® ULTRA H-B 16 Page 555
- EPIC® H-B 16 Housings Page 577
- EPIC® QUICK & EASY Mounting system

### Benefits

#### EPIC® Power K 4/0

- High power in one connector insert
- Best in combination with ÖLFLEX® SERVO

#### 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

#### Rated voltage (V)

EPIC® Power K 4/0

830 V Power

EPIC® Power K 4/2

830 V Power

400 V Control

#### Rated impulse voltage

8 kV

#### Rated current (A)

EPIC® Power K 4/0

80 A Power

EPIC® Power K 4/2

80 A Power

16 A Control

#### Degree of soiling

3

#### Contact resistance

< 5 mOhm

#### Number of contacts

EPIC® Power K 4/0

4 + PE

EPIC® Power K 4/2

4 + 2 + PE

#### Termination methods

Screw termination: 1.5 - 16.0 mm<sup>2</sup>



#### Material

PC, polycarbonate

#### Cycle of mechanical operation

500



#### Temperature range

-40°C ... +125°C

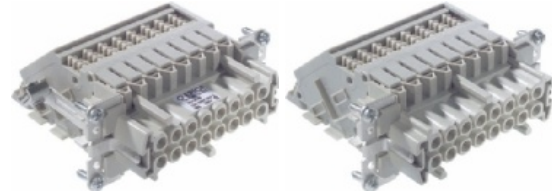
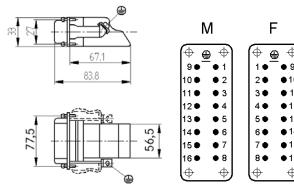
Article number	Article	Version	Contacts	PU
<b>EPIC® 4/0 screw termination</b>				
44424041	EPIC® K 4/0 SS	male	4 + PE	10
44424042	EPIC® K 4/0 BS	female	4 + PE	10
<b>EPIC® K 4/2 screw termination</b>				
44424043	EPIC® K 4/2 SS	male	4 + 2 + PE	10
44424044	EPIC® K 4/2 BS	female	4 + 2 + PE	10

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



**Info**

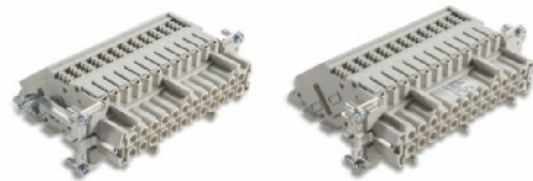
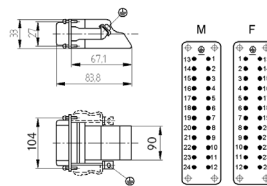
- Plug connection for control cabinets



**EPIC® TB-H-BE 16**

**Info**

- Plug connection for control cabinets



**EPIC® TB-H-BE 24**

**Suitable housing:**

**EPIC® TB-H-BE 16**

- EPIC® ULTRA H-B 16 AG QB Page 555
- EPIC® H-B 16 AG-LB Page 582
- EPIC® H-B 16 AD-LB Page 582
- EPIC® H-B 16 AG Page 582
- EPIC® H-B 16 AD-BO Page 583
- EPIC® H-B 16 AG-ZR

**EPIC® TB-H-BE 24**

- EPIC® ULTRA H-B 16 AG QB Page 555
- EPIC® H-B 16 AG-LB Page 582
- EPIC® H-B 16 AD-LB Page 582
- EPIC® H-B 16 AG Page 582
- EPIC® H-B 16 AD-BO Page 583
- EPIC® H-B 16 AG-ZR

**Technical data**

**Rated voltage (V)**

- IEC: 500 V
- UL: 600 V
- CSA: 600 V

**Rated impulse voltage**

6 kV

**Rated current (A)**

- IEC: 16 A
- UL: 16 A
- CSA: 16 A

**Degree of soiling**

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 mm<sup>2</sup>

**Cycle of mechanical operation**

200



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



**UL-tested:**

UL File Number: **E75770**

**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**

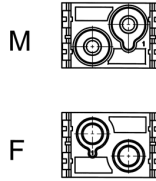
- Control cabinet manufacturing
- Plant engineering

Article number	Article	Version	Fastening on side	Contacts	Pieces / PU
<b>16-pin terminal adapter</b>					
70315100	TB-H-BE 16 BRE	female	right	1 - 16	10
70314100	TB-H-BE 16 BLI	female	left	1 - 16	10
<b>24-pin terminal adapter</b>					
70317100	TB-H-BE 24 BRE	female	right	1 - 24	10
70316100	TB-H-BE 24 BLI	female	left	1 - 24	10

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



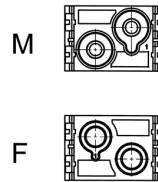
## EPIC® MC Module: High Current 1+PE



**Info**

- High power module with screw connection and reinforced protection earth

## EPIC® MC Module: High Current 2pole



**Info**

- High power module 2pole with screw connection

### Suitable housing:

- EPIC® MCR Frames Page 523
- Higher housing
- The suitable connector housings depend on the modular frame used

### Benefits

#### EPIC® MC Module: High Current 1+PE

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm<sup>2</sup> for easy assembly without special tools
- Separate protective conductor for increased safety

#### EPIC® MC Module: High Current 2pole

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm<sup>2</sup> for easy assembly without special tools

### Application range

- Plant engineering
- Printing machines
- Control engineering

### Suitable tools

- PEW 12 universal tool refer to page 937
- When connecting 25 mm<sup>2</sup> cables, please use the special crimping die (11147500) for the cable-end sleeves

### Technical data

#### Rated voltage (V)

IEC: 1000 V  
UL: 600 V  
CSA: 600 V

#### Rated current (A)

82 A

#### Degree of soiling

3

#### Contact resistance

< 2 mOhm

#### Contacts

Copper alloy, hard silver-plated

#### Number of contacts

EPIC® MC Module: High Current 1+PE  
1 + PE  
EPIC® MC Module: High Current 2pole  
2

#### Termination methods

Screw termination: 10.0 - 25.0 mm<sup>2</sup>

#### Cycle of mechanical operation

100



#### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



#### VDE-tested

Certified production control:  
VDE-REG. no. **A870**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: high current 1-pin + PE (occupies 2 slots in the MCR frame)</b>				
10344600	MCS-HC 1+PE	male	1 + PE	5
10345600	MCB-HC 1+PE	female	1 + PE	5
<b>Module: high current 2-pin (occupies 2 slots in the MCR frame)</b>				
10344100	MCS-HC 2	male	2	5
10345100	MCB-HC 2	female	2	5

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

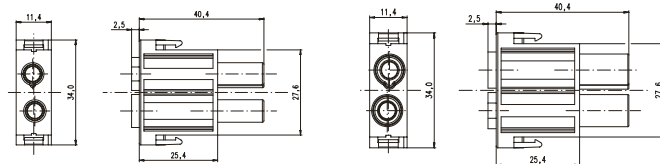
### Accessories

- EPIC® MC Module removal tool refer to page 522



**New**

## EPIC® Power Module HC2



**Info**

- High current with only one module slot
- Versatile functions in one connector

### Suitable housing:

- EPIC® MCR Frames Page 523
- EPIC® H-B housing use in high version

### Suitable contacts:

- EPIC® Modular 3.6 machined contacts 16 mm<sup>2</sup> Page 533
- Use only EPIC® MC 3.6 contacts 16mm<sup>2</sup>

### Benefits

- High current transfer
- Only one slot needed in the frame
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

### Application range

- Plant engineering
- Robotics industry
- Control engineering
- Mechanical engineering

### Technical data

**Rated voltage (V)**  
1000 V

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
65

**Degree of soiling**  
3

**Number of contacts**  
2

**Termination methods**  
Crimp termination: 16.0 mm<sup>2</sup>



**Material**  
PA6

**Cycle of mechanical operation**  
500



**Temperature range**  
-40°C ... +125°C

Article number	Article	Version	PU
<b>EPIC® Power Module HC2</b>			
44424012	EPIC® MCS HC2	male	10
44424013	EPIC® MCB HC2	female	10

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).

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

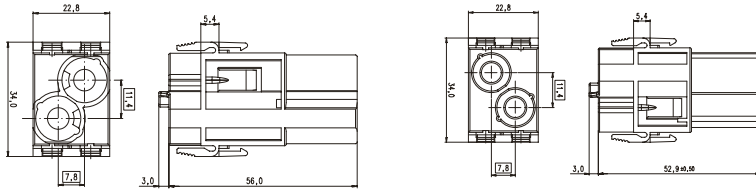
### Accessories

- EPIC® MCR Frames refer to page 523



New

## EPIC® Power Module HHC2



Info

- High current for sufficient power reserves
- Versatile functions in one connector

### Suitable housing:

- EPIC® MCR Frames Page 523
- EPIC® H-B housing use in high version

### Suitable contacts:

- EPIC® Modular 6.0 machined contacts

### Benefits

- Very high current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

### Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy

### Technical data

**Rated voltage (V)**  
1000

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
150

**Degree of soiling**  
3

**Number of contacts**  
2

### Termination methods

Crimp termination: 16 mm<sup>2</sup> ... 35 mm<sup>2</sup>



**Material**  
PA6

**Cycle of mechanical operation**  
500



**Temperature range**  
-40°C ... +125°C

Article number	Article	Version	PU
<b>EPIC® Power Module HHC2</b>			
44424017	EPIC® MCS HHC2	male	10
44424018	EPIC® MCB HHC2	female	10

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).  
Photographs are not to scale and do not represent detailed images of the respective products.

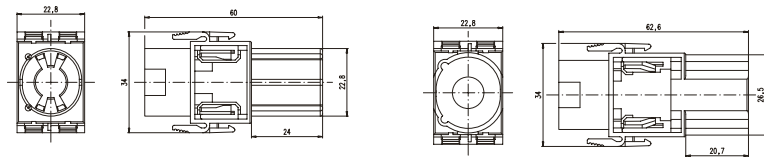
### Accessories

- EPIC® MCR Frames refer to page 523



**New**

## EPIC® Power Module HHC1



**Info**

- Extremely high current for sufficient power reserves
- Versatile functions in one connector

**Suitable housing:**

- EPIC® MCR Frames Page 523
- EPIC® H-B housing use in high version

**Suitable contacts:**

- EPIC® Modular 10.0 machined contacts

**Benefits**

- Extremely high current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

**Application range**

- Robotics industry
- Renewable energy
- Plant engineering
- Mechanical engineering

**Technical data**

**Rated voltage (V)**  
1000

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
220

**Degree of soiling**  
3

**Number of contacts**  
1

**Termination methods**

Crimp termination: 50 mm<sup>2</sup> ... 95mm<sup>2</sup>



**Material**  
PA6

**Cycle of mechanical operation**  
500



**Temperature range**  
-40°C ... +125°C

Article number	Article	Version	PU
<b>EPIC® Power Module HHC1</b>			
44424030	EPIC® MCS HHC1	male	1
44424031	EPIC® MCB HHC1	female	1

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).

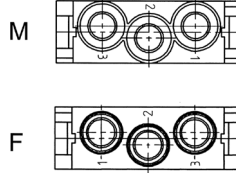
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- EPIC® MCR Frames refer to page 523



## EPIC® MC Module: High Voltage 3pole



**Info**

- Power and signal modules can be used together in one housing

**Suitable housing:**

- EPIC® MCR Frames Page 523
- The suitable connector housings depend on the modular frame used

**Suitable contacts:**

- EPIC® Modular 3.6 machined contacts Page 532

**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**

**Rated voltage (V)**  
1000 V

**Rated current (A)**  
50 A

**Degree of soiling**  
3

**Contact resistance**  
< 2 mOhm

**Contacts**  
Copper alloy, hard silver-plated

**Number of contacts**  
3

**Termination methods**  
Crimp termination: 1.5 - 10.0 mm<sup>2</sup>

**Cycle of mechanical operation**  
100



**Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C



**UL-tested:**  
UL File Number: E75770

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: high voltage 3-pin</b>				
10399800	MCS 3 CM-HV	male	3	10
10399900	MCB 3 CM-HV	female	3	10

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

**Accessories**

- EPIC® MC Module removal tool refer to page 522

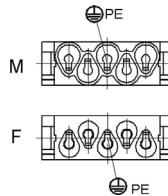




**Info**

- Power and signal modules can be used together in one housing

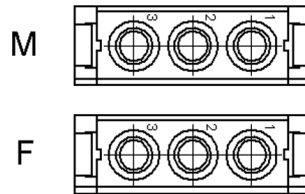
**EPIC® MC Module: High Voltage 4+PE**



**Info**

- Power and signal modules can be used together in one housing

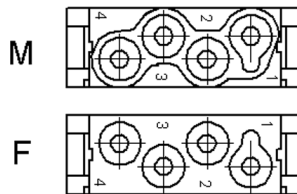
**EPIC® MC Module: 3pole**



**Info**

- Power and signal modules can be used together in one housing

**EPIC® MC Module: HE 4pole**



- Suitable housing:**
- EPIC® MCR Frames Page 523
  - The suitable connector housings depend on the modular frame used

- Suitable contacts:**
- EPIC® MC Module: High Voltage 4+PE**
- EPIC® MC 2.5 stamped contacts Page 530
  - EPIC® MC 2.5 stamped contacts-on-reel Page 531
- EPIC® MC Module: 3pole**
- EPIC® MC 2.5 stamped contacts Page 530
- EPIC® MC Module: HE 4pole**
- EPIC® MC 2.5 stamped contacts Page 530

- 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	
<b>Rated voltage (V)</b>	<b>Number of contacts</b>
EPIC® MC Module: High Voltage 4+PE 1000 V	EPIC® MC Module: High Voltage 4+PE 4 + PE
EPIC® MC Module: 3pole 630 V	EPIC® MC Module: 3pole 3
EPIC® MC Module: HE 4pole 630 V	EPIC® MC Module: HE 4pole 4
<b>Rated current (A)</b>	<b>Termination methods</b>
EPIC® MC Module: High Voltage 4+PE 16 A	EPIC® MC Module: High Voltage 4+PE Crimp termination: 0.5 - 2.5 mm <sup>2</sup>
EPIC® MC Module: 3pole 40 A	EPIC® MC Module: 3pole Crimp termination: 1.5 - 10.0 mm <sup>2</sup>
EPIC® MC Module: HE 4pole 25 A	EPIC® MC Module: HE 4pole Crimp termination: 0.5 - 4.0 mm <sup>2</sup>
<b>Degree of soiling</b> 3	<b>Cycle of mechanical operation</b> 100
<b>Contact resistance</b> < 2 mOhm	<b>Temperature range</b> -40 °C to +100 °C, short-term up to +125 °C
<b>Contacts</b> Copper alloy, hard silver-plated	<b>Temperature range</b> -40 °C to +100 °C, short-term up to +125 °C
	<b>EPIC® MC Module: High Voltage 4+PE</b> UL-tested: UL File Number: <b>E75770</b>
	<b>EPIC® MC Module: 3pole</b> UL-tested: UL File Number: <b>E75770</b>

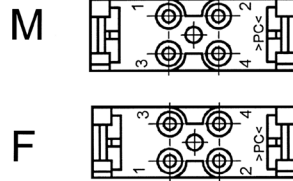
Article number	Article	Version	Contacts	Pieces / PU
<b>Module: high voltage 4-pin + PE</b>				
10383200	MCS 5 CG	male	4 + PE	10
10383300	MCB 5 CG	female	4 + PE	10
<b>Module: 3-pin</b>				
10382000	MCS 3 CM	male	3	10
10382100	MCB 3 CM	female	3	10
<b>Module: 4-pin HE</b>				
10399000	MCS 4 CM	male	4	10
10399100	MCB 4 CM	female	4	10

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

- Accessories**
- EPIC® MC Module removal tool refer to page 522



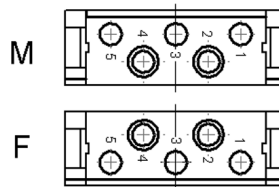
### EPIC® MC Module: Cage clamp 4pole



**Info**

- Fast connection by cage spring

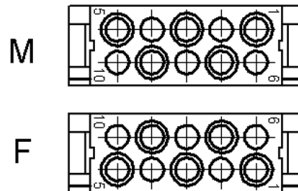
### EPIC® MC Module: 5pole



**Info**

- Power and signal modules can be used together in one housing

### EPIC® MC Module: 10pole



**Info**

- Power and signal modules can be used together in one housing

**Suitable housing:**

- EPIC® MCR Frames Page 523
- The suitable connector housings depend on the modular frame used

**Suitable contacts:**

**EPIC® MC Module: 5pole**

- EPIC® MC 2.5 machined contacts Page 529

**EPIC® MC Module: 10pole**

- EPIC® MC 2.5 machined contacts Page 529

**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**

**Rated voltage (V)**  
400 V

**Rated current (A)**  
EPIC® MC Module: Cage clamp 4pole  
14 A

EPIC® MC Module: 5pole  
20 A

EPIC® MC Module: 10pole  
max. 10 A

**Degree of soiling**  
3

**Contact resistance**  
EPIC® MC Module: Cage clamp 4pole  
1.5 - 4 mohm

EPIC® MC Module: 5pole  
< 2 mOhm

EPIC® MC Module: 10pole  
< 2 mOhm

**Contacts**

EPIC® MC Module: Cage clamp 4pole  
Copper alloy, hard silver-plated

EPIC® MC Module: 5pole  
Copper alloy, hard silver-plated

EPIC® MC Module: 10pole  
Copper alloy, hard silver/gold-plated

**Number of contacts**

EPIC® MC Module: Cage clamp 4pole  
4

EPIC® MC Module: 5pole  
5

EPIC® MC Module: 10pole  
10

**Termination methods**

EPIC® MC Module: Cage clamp 4pole  
Cage clamp termination: 0.5 - 2.5 mm<sup>2</sup>

EPIC® MC Module: 5pole  
Crimp termination: 0.5 - 4.0 mm<sup>2</sup>

EPIC® MC Module: 10pole  
Crimp termination: 0.14 - 2.5 mm<sup>2</sup>

**Cycle of mechanical operation**  
100



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



EPIC® MC Module: 5pole  
UL-tested:

UL File Number: E75770

EPIC® MC Module: 10pole  
UL-tested:

UL File Number: E75770

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: 4-pin cage clamp</b>				
10399600	MCS 4 F	male	4	10
10399700	MCB 4 F	female	4	10
<b>Module: 5-pin</b>				
10382200	MCS 5 CM	male	5	10
10382300	MCB 5 CM	female	5	10
<b>Module: 10-pin</b>				
10382400	MCS 10 CM	male	10	10
10382500	MCB 10 CM	female	10	10

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

**Accessories**

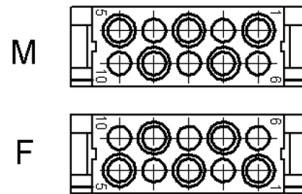
- EPIC® MC Module removal tool refer to page 522



**Info**

- Power and signal modules can be used together in one housing

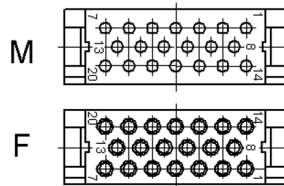
**EPIC® MC Module: 10pole stamped**



**Info**

- Power and signal modules can be used together in one housing

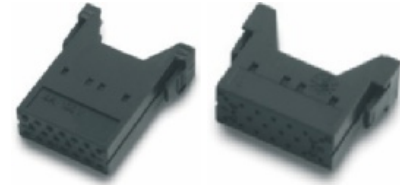
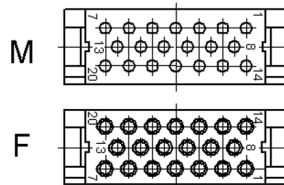
**EPIC® MC Module: 20pole**



**Info**

- Dummy module as a placeholder for future expansion

**EPIC® MC Dummy Module**



**Suitable housing:**

- EPIC® MCR Frames Page 523
- The suitable connector housings depend on the modular frame used

**Suitable contacts:**

**EPIC® MC Module: 10pole stamped**

- EPIC® H-D 1.6 stamped contacts Page 526
- EPIC® H-D 1.6 stamped contacts-on-reel Page 527

**EPIC® MC Module: 20pole**

- EPIC® H-D 1.6 stamped contacts Page 526

**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**

**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

**Degree of soiling**

- 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 mm<sup>2</sup>
- EPIC® MC Module: 20pole Crimp termination: 0.08 - 0.56 mm<sup>2</sup>

**Cycle of mechanical operation**

- EPIC® MC Module: 10pole stamped 100
- EPIC® MC Module: 20pole 50



**Temperature range**

- 40 °C to +100 °C, short-term up to +125 °C



**EPIC® MC Module: 10pole stamped**

- UL-tested: UL File Number: **E75770**
- EPIC® MC Module: 20pole UL-tested: UL File Number: **E75770**

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: 10-pin</b>				
10383400	MCS 10 CG	male	10	10
10383500	MCB 10 CG	female	10	10
<b>Module: 20-pin</b>				
10383600	MCS 20 CG	male	20	10
10383700	MCB 20 CG	female	20	10
<b>Dummy module</b>				
10399400	MCS 0 Blind	male	0	10
10399500	MCB 0 Blind	female	0	10

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**Accessories**

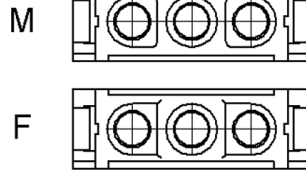
- EPIC® MC Module removal tool refer to page 522

Rectangular connectors

EPIC® MC Modules



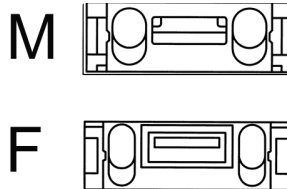
EPIC® MC Module: Koax 3pole



**Info**

- RGB video signal transmission in one module

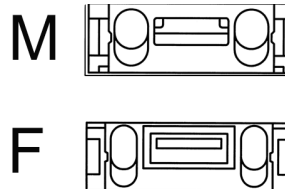
EPIC® MC Module: PROFIBUS DP



**Info**

- Profibus DP module for uninterruptible fieldbus operation

EPIC® MC Module: Universal Bus



**Info**

- Power and signal modules can be used together in one housing

■ Suitable housing:

- EPIC® MCR Frames Page 523
- Higher housing
- The suitable connector housings depend on the modular frame used

■ Suitable contacts:

**EPIC® MC Module: Koax 3pole**

- EPIC® MC Coax-Contacts Page 534

■ Benefits

**EPIC® MC Module: Koax 3pole**

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

**EPIC® MC Module: PROFIBUS DP**

- Uninterruptible fieldbus operation when pulling the connector
- Transmission rate up to 12 MBit/s
- Easy assembly by screw connection
- Shielding connection by strain relief

**EPIC® MC Module: Universal Bus**

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

■ Application range

- Plant engineering
- Light & sound technology
- Control engineering

■ Technical data

**Rated voltage (V)**

EPIC® MC Module: Koax 3pole

250 V

EPIC® MC Module: PROFIBUS DP

30 V

EPIC® MC Module: Universal Bus

30 V

**Bemessungsstrom in A**

EPIC® MC Module: PROFIBUS DP

1 A

EPIC® MC Module: Universal Bus

1 A

**Degree of soiling**

3

**Contact resistance**

EPIC® MC Module: Koax 3pole

< 2,7 mOhm

**Contacts**

Copper alloy, gold-plated

**Number of contacts**

EPIC® MC Module: Koax 3pole

3

EPIC® MC Module: PROFIBUS DP

2 / 4 + shield

EPIC® MC Module: Universal Bus

4 + shield

**Termination methods**

EPIC® MC Module: Koax 3pole

Solder termination: var. coax cables

EPIC® MC Module: PROFIBUS DP

Screw termination: for Profibus cable

EPIC® MC Module: Universal Bus

Screw termination: 0.08 - 1.5 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**

EPIC® MC Module: Koax 3pole

-40 °C to +100 °C, short-term up to +125 °C

EPIC® MC Module: PROFIBUS DP

-20 °C - +85 °C

EPIC® MC Module: Universal Bus

-20 °C - +85 °C

■ Accessories

- EPIC® MC Module removal tool refer to page 522

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: 3-pin coax</b>				
10399200	MCS 3 coax	male	3	10
10399300	MCB 3 coax	female	3	10
<b>Module: Profibus DP</b>				
10390400	MCS 2 SS	male	2 + shield	5
10390500	MCS 2 BS	female	2 + shield	5
<b>Module: Universal Bus</b>				
10390600	MCS 4 SS	male	4 + shield	5
10390700	MCS 4 BS	female	4 + shield	5

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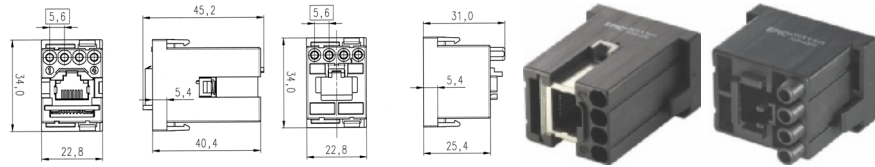
For current information see: [www.lappgroup.com](http://www.lappgroup.com)



**Info**

- Power and signal modules can be used together in one housing

## EPIC® MC Module: RJ45



### Suitable housing:

- EPIC® MCR Frames Page 523
- Higher housing
- The suitable connector housings depend on the modular frame used

### Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 525

### 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

**Rated voltage (V)**  
max. 600 V / max. 125 V

**Rated current (A)**  
max. 10 A / max. 1.5 A

**Degree of soiling**  
3

**Contacts**  
Copper alloy, gold-plated

**Number of contacts**  
4 Power + 8 Data

**Termination methods**  
Power: crimp termination: 0.14 - 2.5 mm<sup>2</sup>,  
Data: IDC/piercing termination: Cat5, AWG 24-26

**Cycle of mechanical operation**  
100

 **Temperature range**  
-20°C - +85°C

Article number	Article	Version	Contacts	Pieces / PU
<b>Module: RJ 45 (occupies 2 slots in the frame)</b>				
10344300	MCS 8 RJ45	male	4 + 8	5
10345300	MCB 8 RJ45	female	4 + 8	5

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### Accessories

- EPIC® MC Module removal tool refer to page 522



### Suitable housing:

- EPIC® MCR Frames Page 523
- The suitable connector housings depend on the modular frame used

### Benefits

- RJ45 connector for use in the module MCS 8 RJ45

### Application range

- Plant engineering
- Control engineering

### Suitable cables

- ETHERLINE® 4-pairs flexible/high flexible CAT.5e

### Suitable tools

- Crimping tool RJ45 Stewart refer to page 438
- Use crimping tool type CE5092

## EPIC® CE6326 Connector RJ45



### Technical data

**Rated voltage (V)**  
max. 125 V

**Rated current (A)**  
max. 1.5 A

**Degree of soiling**  
3

**Contacts**  
Copper alloy, gold-plated

**Number of contacts**  
8

**Termination methods**  
IDC/piercing termination:  
Cat 5, AWG 24-26

**Cycle of mechanical operation**  
100

 **Temperature range**  
-20°C - +85°C

Article number	Article	Version	Contacts	Pieces / PU
<b>RJ45 connector for MCS 8 RJ45</b>				
CE6326	CE6326	male	8	10

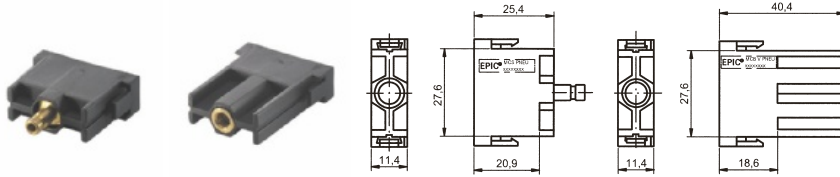
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Rectangular connectors

EPIC® MC Modules



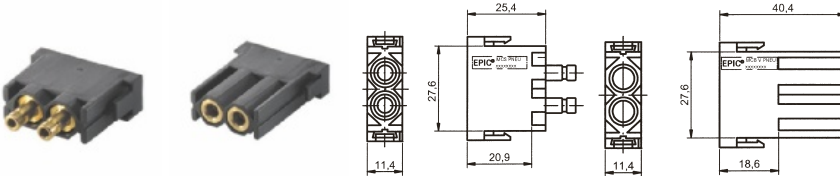
EPIC® MC Module Pneumatic 1pole



**Info**

- Pneumatic modules with valve for 2.5 und 4mm tubings

EPIC® MC Module Pneumatic 2pole



**Info**

- Pneumatic modules with valve for 2.5 und 4mm tubings

**Suitable housing:**

- EPIC® MCR Frames Page 523
- 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

**Technical data**

**Contacts**

Brass

**Number of contacts**

- EPIC® MC Module Pneumatic 1pole  
1
- EPIC® MC Module Pneumatic 2pole  
2

**Termination methods**

Plug-in connection: for hose with inner diameter 2.5 mm/4.0 mm

**Cycle of mechanical operation**

100



**Temperature range**

-20°C to +100°C

**Application range**

- Plant engineering
- Printing machines
- Control engineering

Article number	Article	Version	Contacts	Maximum pressure (bar)	Pieces / PU
<b>Module: pneumatic 1-pin</b>					
44424004	MCS 1x2,5 PNEU (10)	male	1	10	10
44424005	MCB 1x2,5 PNEU (10)	female with valve	1	10	10
44424006	MCS 1x4,0 PNEU (10)	male	1	10	10
44424007	MCB 1x4,0 PNEU (10)	female with valve	1	10	10
<b>Module: pneumatic 2-pin</b>					
44424008	MCS 2x2,5 PNEU (10)	male	2	10	10
44424009	MCB 2x2,5 PNEU (10)	female with valve	2	10	10
44424010	MCS 2x4,0 PNEU (10)	male	2	10	10
44424011	MCB 2x4,0 PNEU (10)	female with valve	2	10	10

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**Accessories**

- EPIC® MC Module removal tool refer to page 522



EPIC® MC Module removal tool



**Suitable housing:**

- EPIC® MCR Frames Page 523

**Benefits**

- This tool is used to lift built-in modules out of the module frames

Article number	Article	Pieces / PU
<b>MC module removal tool</b>		
11171200	MC module removal tool	1

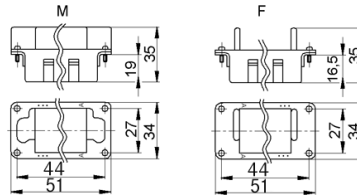
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**Info**

- Frame system for modules
- Various functions can be used together in one connector

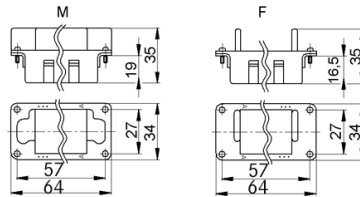
**EPIC® MCR 6**



**Info**

- Frame system for modules
- Various functions can be used together in one connector

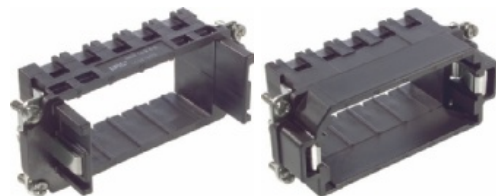
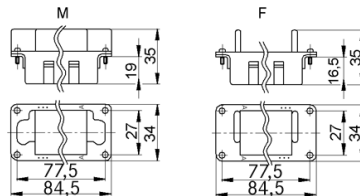
**EPIC® MCR 10**



**Info**

- Frame system for modules
- Various functions can be used together in one connector

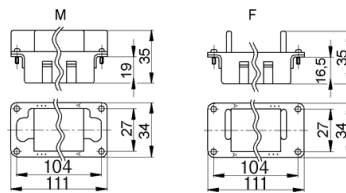
**EPIC® MCR 16**



**Info**

- Frame system for modules
- Various functions can be used together in one connector

**EPIC® MCR 24**



**Suitable housing:**

**EPIC® MCR 6**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**EPIC® MCR 10**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**EPIC® MCR 16**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**EPIC® MCR 24**

- EPIC® ULTRA H-B 6 Page 552
- EPIC® H-B 6 Housings Page 557
- EPIC® QUICK & EASY Mounting system

**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**

**DIN VDE** Certified production control:  
VDE-REG. no. **A870**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Number of modules	Version	Pieces / PU
<b>MCR 6 frame</b>				
10381000	MCR 6 S	2	male	5
10381100	MCR 6 B	2	female	5
<b>MCR 10 frame</b>				
10381200	MCR 10 S	3	male	5
10381300	MCR 10 B	3	female	5
<b>MCR 16 frame</b>				
10381400	MCR 16 S	5	male	5
10381500	MCR 16 B	5	female	5
<b>MCR 24 frame</b>				
10381600	MCR 24 S	7	male	5
10381700	MCR 24 B	7	female	5

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APPENDIX



## EPIC® M-D 1.0 D-Sub stamped contacts-on-reel



**Suitable tools**

- Crimping tool for contacts-on-reel D-Sub
- Removal tool

Article number	Article	Version	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Note	Pieces / PU
<b>Contacts</b>							
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 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



**Suitable contacts:**

- EPIC® M-D 1,0 D-Sub stamped contacts-on-reel Page 524

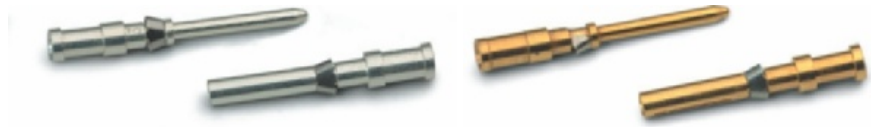
Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11158400	Crimping tool	In tool case	Crimping dies included, for contacts H-D 1.0 D-Sub (0.08 - 0.56 mm²)	1
11132500	Removal tool		For ribbon contacts: D-Sub 1.0 stamped	1

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## EPIC® H-D 1.6 machined contacts



**Suitable tools**

● EPIC® Tools for contacts H-D 1.6 machined refer to page 525

- Pneumatic crimping machine for single contacts
- Crimping dies for single contacts
- Crimping tool for single contacts
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm²)	Cross-section ratio	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>							
13162000	H-D 1.6 machined	male	0.14 - 0.37	1.0	Ag	8.0	100
13163000	H-D 1.6 machined	female	0.14 - 0.37	1.0	Ag	8.0	100
13162100	H-D 1.6 machined	male	0.50	2.0	Ag	8.0	100
13163100	H-D 1.6 machined	female	0.50	2.0	Ag	8.0	100
13162200	H-D 1.6 machined	male	0.75 - 1.00	3.0	Ag	8.0	100
13163200	H-D 1.6 machined	female	0.75 - 1.00	3.0	Ag	8.0	100
13162300	H-D 1.6 machined	male	1.50	4.0	Ag	8.0	100
13163300	H-D 1.6 machined	female	1.50	4.0	Ag	8.0	100
13162400	H-D 1.6 machined	male	2.50	5.0	Ag	5.8	100
13163400	H-D 1.6 machined	female	2.50	5.0	Ag	5.8	100
13162500	H-D 1.6 machined	male	0.14 - 0.37	1.0	Au	8.0	100
13163500	H-D 1.6 machined	female	0.14 - 0.37	1.0	Au	8.0	100
13162600	H-D 1.6 machined	male	0.50	2.0	Au	8.0	100
13163600	H-D 1.6 machined	female	0.50	2.0	Au	8.0	100
13162700	H-D 1.6 machined	male	0.75 - 1.00	3.0	Au	8.0	100
13163700	H-D 1.6 machined	female	0.75 - 1.00	3.0	Au	8.0	100
13162800	H-D 1.6 machined	male	1.50	4.0	Au	8.0	100
13163800	H-D 1.6 machined	female	1.50	4.0	Au	8.0	100
13162900	H-D 1.6 machined	male	2.50	5.0	Au	5.8	100
13163900	H-D 1.6 machined	female	2.50	5.0	Au	5.8	100

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

## EPIC® Tools for contacts H-D 1.6 machined



**Product features**

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools	For contacts: H-D 1.6 machined,	1
		11147000, 11147001	H-BE 2.5 machined, MC 2.5 machined	
11147200	Locator	For crimping tools	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
		11147000, 11147001		
11161000	Removal tool		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

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 APPENDIX



## EPIC® H-D 1.6 stamped contacts



### Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping dies for single contacts
- Crimping tool for single contacts
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm <sup>2</sup> )	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>						
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 are not to scale and do not represent detailed images of the respective products.

## EPIC® Tools for contacts H-D 1.6 stamped



### Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147170	Crimping dies	For crimping tools	For contacts: H-D 1.6 stamped (0.14 - 0.5 mm <sup>2</sup> )	1
11147180	Crimping dies	11147000, 11147001 For crimping tools	For contacts: H-D 1.6 stamped (0.5 - 1.5 mm <sup>2</sup> ), MC 2.5 stamped (0.5 - 1.5 mm <sup>2</sup> )	1
11147190	Crimping dies	11147000, 11147001 For crimping tools	For contacts: H-D 1.6 stamped (1.5 - 2.5 mm <sup>2</sup> ), MC 2.5 stamped (1.5 - 2.5 mm <sup>2</sup> )	1
11147300	Locator	11147000, 11147001	For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11161000	Removal tool		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

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



**New**

## EPIC® H-D 1.6 stamped contacts-on-reel



### ■ Suitable tools

- Crimping tool for contacts-on-reel
- Crimping dies for contacts-on-reel
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Note	Pieces / PU
<b>Contacts</b>							
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 0.5-1.5 200 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

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

## EPIC® Tools for contacts-on-reel H-D 1.6 stamped



Article number	Article	Version	Note	Pieces / PU
11161000	Removal tool		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11147004	EPIC® TOOL H-D, MC 2,5 reel 0,14 ... 0,5mm²	In tool case	inclusive crimping die and locator	1
11147005	EPIC® TOOL H-D, MC 2,5 reel 0,5 ... 1,5mm²	In tool case	inclusive crimping die and locator	1
11147006	EPIC® TOOL H-D, MC 2,5 reel 1,5 ... 2,5mm²	In tool case	inclusive crimping die and locator	1

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## EPIC® H-BE 2.5 machined contacts



### Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm²)	Cross-section ratio	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>							
11190000	H-BE 2.5 machined	male	0.50		Ag	7.4	100
11195000	H-BE 2.5 machined	female	0.50		Ag	7.3	100
11190100	H-BE 2.5 machined	male	0.75 - 1.00	1.0	Ag	7.4	100
11195100	H-BE 2.5 machined	female	0.75 - 1.00	1.0	Ag	7.3	100
11190200	H-BE 2.5 machined	male	1.50	2.0	Ag	7.4	100
11195200	H-BE 2.5 machined	female	1.50	2.0	Ag	7.3	100
11190300	H-BE 2.5 machined	male	2.50	3.0	Ag	7.4	100
11195300	H-BE 2.5 machined	female	2.50	3.0	Ag	7.3	100
11190400	H-BE 2.5 machined	male	4.00		Ag	7.4	100
11195400	H-BE 2.5 machined	female	4.00		Ag	7.3	100
11192000	H-BE 2.5 machined	male	0.50		Au	7.4	100
11197000	H-BE 2.5 machined	female	0.50		Au	7.3	100
11192100	H-BE 2.5 machined	male	0.75 - 1.00	1.0	Au	7.4	100
11197100	H-BE 2.5 machined	female	0.75 - 1.00	1.0	Au	7.3	100
11192200	H-BE 2.5 machined	male	1.50	2.0	Au	7.4	100
11197200	H-BE 2.5 machined	female	1.50	2.0	Au	7.3	100

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

## EPIC® Tools for contacts H-BE 2.5 machined



### Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined	1
11147200	Locator	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
11182500	Removal tool		For contacts: H-BE 2.5 machined	1

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



## EPIC® MC 2.5 machined contacts



### Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Article number	Article	Version	Version	Conductor cross-section (mm²)	Cross-section ratio	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>								
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	1.0	Ag	7.8	100
1121810C	MC 2.5 machined		female	1.00	1.0	Ag	7.8	100
1121320C	MC 2.5 machined	male		1.50	2.0	Ag	7.8	100
1121820C	MC 2.5 machined		female	1.50	2.0	Ag	7.8	100
1121330C	MC 2.5 machined	male		2.50	3.0	Ag	7.8	100
1121830C	MC 2.5 machined		female	2.50	3.0	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 are not to scale and do not represent detailed images of the respective products.

## EPIC® Tools for contacts MC 2.5 machined



### Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined	1
11147200	Locator	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
11171000	Removal tool		For contacts: MC 2.5 machined	1

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



## EPIC® MC 2.5 stamped contacts



### Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm <sup>2</sup> )	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>						
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

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

## EPIC® Tools for contacts MC 2.5 stamped



### Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147180	Crimping dies	For crimping tools	For contacts: H-D 1.6 stamped (0.5 - 1.5 mm <sup>2</sup> ), MC 2.5 stamped (0.5 - 1.5 mm <sup>2</sup> )	1
11147190	Crimping dies	11147000, 11147001 For crimping tools	For contacts: H-D 1.6 stamped (1.5 - 2.5 mm <sup>2</sup> ), MC 2.5 stamped (1.5 - 2.5 mm <sup>2</sup> )	1
11147300	Locator	11147000, 11147001	For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11160000	Removal tool		For contacts: MC 2.5 stamped	1

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



**New**

## EPIC® MC 2.5 stamped contacts-on-reel



**Suitable tools**

- Crimping tool for contacts-on-reel
- Crimping dies for contacts-on-reel
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm <sup>2</sup> )	Surface	Stripping length (mm)	Note	Pieces / PU
<b>Contacts</b>							
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	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
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

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

## EPIC® Tools for contacts-on-reel MC 2.5 stamped

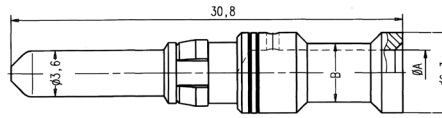


Article number	Article	Version	Note	Pieces / PU
11160000	Removal tool		For contacts: MC 2.5 stamped	1
11147004	EPIC® TOOL H-D, MC 2.5 reel 0.14 ... 0.5mm <sup>2</sup>	In tool case	inclusive crimping die and locator	1
11147005	EPIC® TOOL H-D, MC 2.5 reel 0.5 ... 1.5mm <sup>2</sup>	In tool case	inclusive crimping die and locator	1
11147006	EPIC® TOOL H-D, MC 2.5 reel 1.5 ... 2.5mm <sup>2</sup>	In tool case	inclusive crimping die and locator	1

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



## EPIC® Modular 3.6 machined contacts



### Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts

- Crimping dies for single contacts
- Locator
- Removal tool

Article number	Article	Version	Conductor cross-section (mm <sup>2</sup> )	Surface	Stripping length (mm)	Pieces / PU
<b>Contacts</b>						
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 are not to scale and do not represent detailed images of the respective products.

## EPIC® Tools for contacts MC 3.6 machined



### Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147110	Crimping dies	For crimping tools	For contacts: MC 3.6 machined (1.5 - 2.5 mm <sup>2</sup> )	1
11147120	Crimping dies	11147000, 11147001 For crimping tools	For contacts: MC 3.6 machined (4.0 - 10 mm <sup>2</sup> )	1
11147210	Locator	11147000, 11147001 For crimping tools	For contacts: MC 3.6 machined	1
11171100	Removal tool	11147000, 11147001	For contacts: MC 3.6 machined	1

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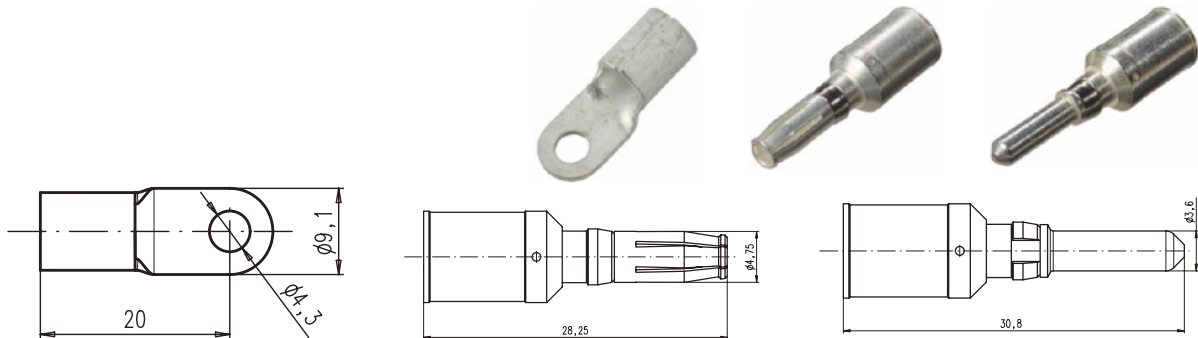
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**New**

## EPIC® Modular 3.6 machined contacts 16 mm<sup>2</sup>



**Suitable tools**

- For use in pneumatic crimping tool Klauke type EK 60/22-L

**Technical data**

**Contact resistance**  
< 1 mOhm

**Cycle of mechanical operation**  
500

**Contacts**  
Copper alloy, hard silver-plated

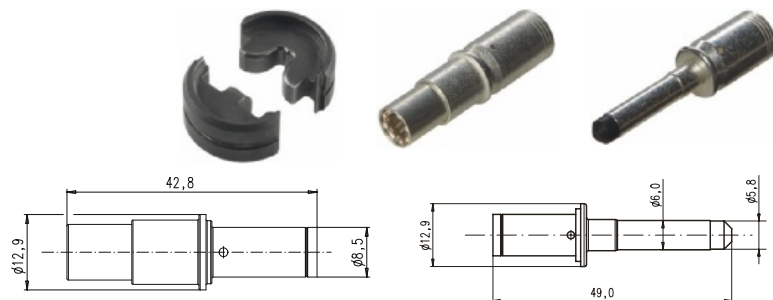
Article number	Article	Inserts	Version	Cross-section (mm <sup>2</sup> )	Surface	PU
<b>Contacts</b>						
44424014	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HC modules	male	16.0	Ag	20
44424015	EPIC® Modular BCEM AG 16 D=3.6	Crimping contacts for HC modules	female	16.0	Ag	20
<b>Ring lug for Protection earth</b>						
44424029	EPIC® KB 16-4R	Ring cable lug to connect a 16mm <sup>2</sup> protective wire to the module frame	Ringlug	16.0		10
<b>Crimping die for contacts of HC2 modules</b>						
44424016	EPIC® TOOL DIE D=3.6/16sqmm	Crimping dies		16.0		1

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



**New**

## EPIC® Modular 6.0 machined contacts



**Suitable tools**

- For use in pneumatic crimping tool Klauke type EK 60/22-L

**Technical data**

**Contact resistance**  
< 1 mOhm

**Cycle of mechanical operation**  
500

**Material**  
Copper alloy, hard silver-plated

Article number	Article	Inserts	Version	Cross-section (mm <sup>2</sup> )	Cross-section ratio	Surface	PU
<b>Contacts</b>							
44424019	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HHC2 modules	male	16.0	1.0	Ag	20
44424022	EPIC® Modular BCEM AG 16 D=6.0	Crimping contacts for HHC2 modules	female	16.0	1.0	Ag	20
44424020	EPIC® Modular SCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	male	25.0	2.0	Ag	20
44424023	EPIC® Modular BCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	female	25.0	2.0	Ag	20
44424021	EPIC® Modular SCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	male	35.0	3.0	Ag	20
44424024	EPIC® Modular BCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	female	35.0	3.0	Ag	20
<b>Crimping die for contacts of HHC2 modules</b>							
44424025	EPIC® TOOL DIE D=6.0/16sqmm	Crimping dies		16.0			1
44424026	EPIC® TOOL DIE D=6.0/25sqmm	Crimping dies		25.0			1
44424027	EPIC® TOOL DIE D=6.0/35sqmm	Crimping dies		35.0			1

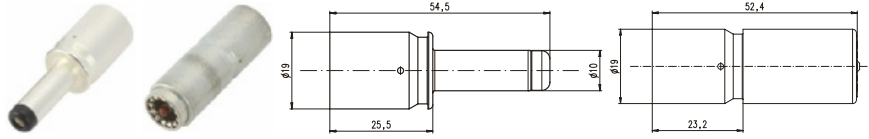
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Rectangular connectors

EPIC® Contacts + tools

**New**

**EPIC® Modular 10.0 machined contacts**



**Suitable tools**

- For use in pneumatic crimping tool Klauke type EK 120/42-L

**Technical data**

**Contact resistance**  
< 1 mOhm

**Cycle of mechanical operation**  
500



**Material**  
Copper alloy, hard silver-plated



**Info**

- Crimping contacts for maximum cross sections and currents

Article number	Article	Inserts	Version	Cross-section (mm <sup>2</sup> )	Surface	PU
<b>Contacts</b>						
44424032	EPIC® Modular SCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	male	50.0	Ag	1
44424035	EPIC® Modular BCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	female	50.0	Ag	1
44424033	EPIC® Modular SCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	male	70.0	Ag	1
44424036	EPIC® Modular BCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	female	70.0	Ag	1
44424034	EPIC® Modular SCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	male	95.0	Ag	1
44424037	EPIC® Modular BCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	female	95.0	Ag	1
<b>Crimping die for contacts of HHC1 modules</b>						
44424038	EPIC® TOOL DIE D=10.0/50sqmm	Crimping dies		50.0		1
44424039	EPIC® TOOL DIE D=10.0/70sqmm	Crimping dies		70.0		1
44424040	EPIC® TOOL DIE D=10.0/95sqmm	Crimping dies		95.0		1

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

**New**

**EPIC® MC Coax-Contacts**



**Product features**

- Solder termination: the inner conductor and the outer sleeve of the COAX cable are terminated by soldering

**Suitable cables**

- UNITRONIC® VIDEO FLAT
- UNITRONIC® VIDEO RL BK
- UNITRONIC® Combi cable

**Suitable tools**

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool



**Info**

- New: 75 ohm contacts

Article number	Article	Version	Surface	For cable type	Pieces / PU
<b>Solder termination</b>					
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 750hm RG180BU	male	Au	RG 180 BU	10
44429019	EPIC® MC BLEM 750hm RG180BU	female	Au	RG 180 BU	10
44429022	EPIC® MC SLEM 750hm RG187AU	male	Au	RG 187 AU	10
44429021	EPIC® MC BLEM 750hm RG187AU	female	Au	RG 187 AU	10
<b>Solder/crimp termination</b>					
11214200	MC SLEM COAX MALE	male	Au	RG 58	1
11219200	MC BLEM COAX FEMALE	female	Au	RG 58	1

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

**EPIC® Tools for contacts MC Coax**



**Product features**

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article	Version	Note	Pieces / PU
<b>Tools</b>				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147130	Crimping dies	For crimping tools	For coax-contacts 11214200, 11219200	1
		11147000, 11147001		
11171100	Removal tool		For contacts: MC 3.6 machined	1

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Compact, robust metal housings size H-A 3

**Info**

- Compact, robust plastic housings size H-A 3

**EPIC® H-A 3 MTG**



**EPIC® H-A 3 TG**



**Benefits**

- Housing in plastic or metal version. For power supply in the smallest possible space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

- Hood
- Bolts for single lever
- Straight cable entry
- Versions with / without cable gland

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
**EPIC® H-A 3 MTG**  
 Housing: powder-coated zinc die-casting, grey  
 Lever: zinc-plated steel  
**EPIC® H-A 3 TG**  
 Housing: grey thermoplastic, black  
 Lever: zinc-plated steel

**IP** **Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** **VDE-tested**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
<b>H-A housing: hood (straight cable entry)</b>									
10512100	H-A 3 MTgv		11	Zinc die-casting	grey				10
10426500	H-A 3 MTgv		11	Zinc die-casting	grey	yes	6.5 - 12.0	57.0	10
19512100	H-A 3 MTgv M20	20		Zinc die-casting	grey				10
19426500	H-A 3 MTgv M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	57.0	10
10425500	H-A 3 Tgv		11	Thermoplastic	black				10
10426000	H-A 3 Tgv		11	Thermoplastic	grey				10
10426700	H-A 3 Tgv		11	Thermoplastic	black	yes	6.5 - 12.0	62.0	10
10426400	H-A 3 Tgv		11	Thermoplastic	grey	yes	6.5 - 12.0	62.0	10
19425500	H-A 3 Tgv M20	20		Thermoplastic	black				10
19426000	H-A 3 Tgv M20	20		Thermoplastic	grey				10

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

**Accessories**

**EPIC® H-A 3 MTG**

- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

**EPIC® H-A 3 TG**

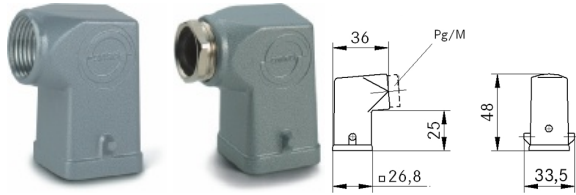
- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

Rectangular connectors

EPIC® H-A 3 Housings



EPIC® H-A 3 MTS



**Info**

- Compact, robust metal housings size H-A 3

EPIC® H-A 3 TS



**Info**

- Compact, robust plastic housings size H-A 3

■ Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space

■ Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

■ Product features

- Hood
- Bolts for single lever
- Side cable entry
- Versions with / without cable gland

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

**Material**  
**EPIC® H-A 3 MTS**  
 Housing: powder-coated zinc die-casting, grey  
 Lever: zinc-plated steel  
**EPIC® H-A 3 TS**  
 Housing: grey thermoplastic, black  
 Lever: zinc-plated steel

**IP** **Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** **VDE-tested**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
<b>H-A housing: hood (side cable entry)</b>									
10512300	H-A 3 MTS		11	Zinc die-casting	grey				10
10427500	H-A 3 MTS		11	Zinc die-casting	grey	yes	6.5 - 12.0	43.0	10
19512300	H-A 3 Ts M20	20		Zinc die-casting	grey				10
19427500	H-A 3 Ts M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	43.0	10
10427300	H-A 3 Ts		11	Thermoplastic	black				10
10427000	H-A 3 Ts		11	Thermoplastic	grey				10
10620600	H-A 3 Ts		11	Thermoplastic	black	yes	6.5 - 12.0	48.0	10
10427100	H-A 3 Ts		11	Thermoplastic	grey	yes	6.5 - 12.0	48.0	10
19427300	H-A 3 Ts M20	20		Thermoplastic	black				10
19427000	H-A 3 Ts M20	20		Thermoplastic	grey				10

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

■ Accessories

**EPIC® H-A 3 MTS**

- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

**EPIC® H-A 3 TS**

- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666



**Info**

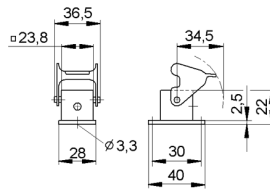
- Compact, robust metal- and plastic housings size H-A 3

**Info**

- Compact, robust metal housings with cover size H-A 3

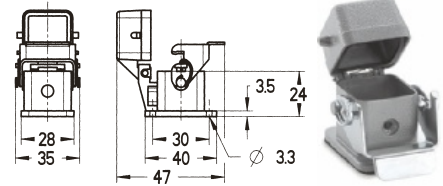
**Info**

- Compact, robust metal- and plastic housings size H-A 3

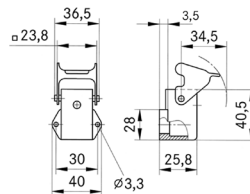


**EPIC® H-A 3 AG**

**EPIC® H-A 3 MAGD**



**EPIC® H-A 3 AGS**



**Benefits**

- Housing in plastic or metal version. For power supply in the smallest possible space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 3 AG**

- Panel-mount base
- 1 lever
- Included: flat gasket

**EPIC® H-A 3 MAGD**

- Panel-mount base
- 1 lever
- Metal cover
- Included: flat gasket

**EPIC® H-A 3 AGS**

- Panel-mount base
- 1 lever
- Angled version
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**



**Material**

- EPIC® H-A 3 AG**  
Housing: powder-coated zinc die-casting, grey  
Lever: zinc-plated steel  
Sealing: NBR  
Housing: grey thermoplastic, black  
Lever: zinc-plated steel  
Sealing: NBR
- EPIC® H-A 3 MAGD**  
Housing: powder-coated zinc die-casting, grey  
Lever: zinc-plated steel  
Sealing: NBR  
Metal cover
- EPIC® H-A 3 AGS**  
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**

- EPIC® H-A 3 AG**  
IP 65 (latched)
- EPIC® H-A 3 MAGD**  
IP 65 (latched)
- IP 44 (Cover latched)
- EPIC® H-A 3 AGS**  
IP 65 (latched)



**Temperature range**

- 40 °C to +100 °C, short-term up to +125 °C



**VDE-tested**

- EPIC® H-A 3 AG**  
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**
- EPIC® H-A 3 MAGD**  
UL-tested:  
UL File Number: **E75770**
- EPIC® H-A 3 AGS**  
Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	Colour	Material	Pieces / PU
<b>H-A housing: panel-mount base (straight)</b>				
10422500	H-A 3 Mag	grey	Zinc die-casting	10
10422200	H-A 3 Ag	black	Thermoplastic	10
10422000	H-A 3 Ag	grey	Thermoplastic	10
<b>H-A housing: panel-mount base with cover (with sealing, for female inserts)</b>				
44429015	H-A 3 MAGD	grey	Aluminium die-casting	10
<b>H-A housing: panel-mount base (angled)</b>				
10423500	H-A 3 Mags	grey	Zinc die-casting	10
10423100	H-A 3 Ags	black	Thermoplastic	10
10423000	H-A 3 Ags	grey	Thermoplastic	10

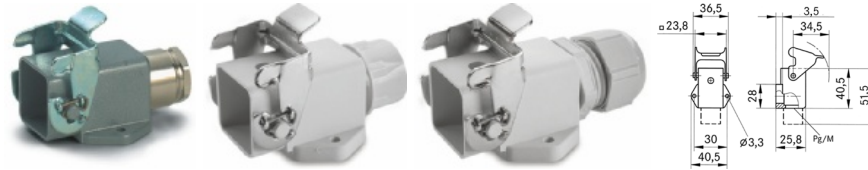
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- EPIC® Protective cover H-A 3 refer to page 606



### EPIC® H-A 3 AGSV



**Info**

- Compact, robust metal- and plastic housings size H-A 3

### EPIC® H-A 3 AGSV open bottom



**Info**

- Compact, robust metal- and plastic housings size H-A 3

**Benefits**

- Housing in plastic or metal version.  
For power supply in the smallest possible space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 3 AGSV**

- Surface-mount base
- 1 lever
- 1 cable entry
- Versions with / without cable gland

**EPIC® H-A 3 AGSV Open bottom**

- Surface-mount base
- 1 lever
- 2 cable entries
- Housing type: with open base
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**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

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**VDE-tested**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
<b>H-A housing: surface-mount base</b>									
10512700	H-A 3 MAgsv		11	Zinc die-casting	grey			51.5	10
10424000	H-A 3 Agsv		11	Thermoplastic	grey			56.0	10
10424500	H-A 3 MAgsv		11	Zinc die-casting	grey	yes	6.5 - 12.0	57.5	10
10424200	H-A 3 Agsv		11	Thermoplastic	grey	yes	6.5 - 12.0	65.0	10
19512700	H-A 3 MAgsv M20	20		Zinc die-casting	grey			54.5	10
19421900	H-A 3 Agsv M20	20		Thermoplastic	grey	yes	3.0 - 13.5	56.0	10
19424500	H-A 3 MAgsv M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	60.5	10
<b>H-A housing: surface-mount base (with open base)</b>									
19517200	H-A 3 MAgsv M20	20		Zinc die-casting	grey				10
19515200	H-A 3 Agsv M20	20		Thermoplastic	grey				10

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

**Accessories**

**EPIC® H-A 3 AGSV**

- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST refer to page 728
- SKINTOP® ST-M refer to page 654
- EPIC® Protective cover H-A refer to page 606

**EPIC® H-A 3 AGSV Open bottom**

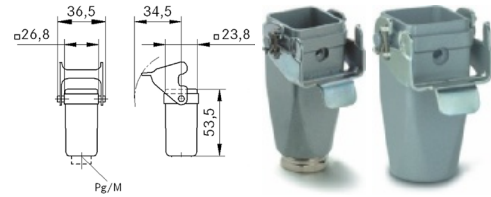
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST refer to page 728
- SKINTOP® ST-M refer to page 654
- EPIC® Protective cover H-A refer to page 606



**Info**

- Compact, robust metal housings size H-A 3

**EPIC® H-A 3 MTGVB**



**Info**

- Compact, robust plastic housings size H-A 3

**EPIC® H-A 3 TGVB**



**Benefits**

- Housing in plastic or metal version. For power supply in the smallest possible space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

- Cable coupler hood
- 1 lever
- Straight cable entry
- Versions with / without cable gland

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
**EPIC® H-A 3 MTGVB**  
 Housing: powder-coated zinc die-casting, grey  
 Lever: zinc-plated steel  
**EPIC® H-A 3 TGVB**  
 Housing: grey thermoplastic, black  
 Lever: zinc-plated steel

**IP** **Protection rating**  
 IP 65 (latched)  
**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** **VDE-tested**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
<b>H-A housing: cable coupler hood (straight cable entry)</b>									
10512900	H-A 3 MTgvb		11	Zinc die-casting	grey				10
10429500	H-A 3 MTgvb		11	Zinc die-casting	grey	yes	6.5 - 12.0	60.0	10
19512900	H-A 3 MTgvb M20	20		Zinc die-casting	grey				10
10429200	H-A 3 Tgvb		11	Thermoplastic	black				10
10429000	H-A 3 Tgvb		11	Thermoplastic	grey				10
10620300	H-A 3 Tgvb		11	Thermoplastic	black	yes	6.5 - 12.0	65.0	10
10429100	H-A 3 Tgvb		11	Thermoplastic	grey	yes	6.5 - 12.0	65.0	10
19429200	H-A 3 Tgvb M20	20		Thermoplastic	black				10
19429000	H-A 3 Tgvb M20	20		Thermoplastic	grey				10

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

**Accessories**

**EPIC® H-A 3 MTGVB**

- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

**EPIC® H-A 3 TGVB**

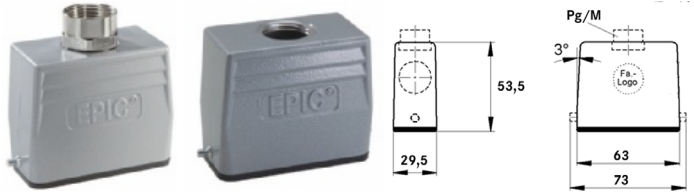
- EPIC® Protective cover H-A 3 refer to page 606
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

Rectangular connectors

EPIC® H-A 10 Housings



**EPIC® H-A 10 TG**



**Info**

- Compact, robust metal housings size H-A 10

**EPIC® H-A 10 TGH**



**Info**

- Compact, robust metal housings size H-A 10

**Benefits**

- Small and space-saving for narrow available space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 10 TG**

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-A 10 TGH**

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: hood (straight cable entry, bolts for single lever)</b>					
10446000	H-A 10 TG 13,5		13,5	yes	5
10446100	H-A 10 TG 16		16	yes	5
19446000	H-A 10 TG M20	20			5
19446100	H-A 10 TG M25	25			5
<b>H-A housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70460200	H-A 10 TGH 16		16	yes	5
70460400	H-A 10 TGH 21		21	yes	5
79460200	H-A 10 TGH M20	20			5
79460400	H-A 10 TGH M25	25			5

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

**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606

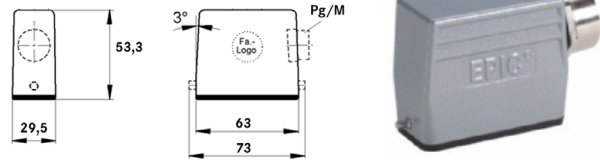




**Info**

- Compact, robust metal housings size H-A 10

**EPIC® H-A 10 TS**



**Info**

- Compact, robust metal housings size H-A 10

**EPIC® H-A 10 TSH**



**Benefits**

- Small and space-saving for narrow available space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 10 TS**

- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

**EPIC® H-A 10 TSH**

- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: hood (side cable entry, bolts for single lever)</b>					
10445000	H-A 10 TS 16		16	yes	5
10445500	H-A 10 TS 21		21	yes	5
19445000	H-A 10 TS M20	20		yes	5
19445500	H-A 10 TS M25	25		yes	5
<b>H-A housing: hood (side cable entry, bolts for single lever, high version)</b>					
70462200	H-A 10 TSH 16		16	yes	5
70462400	H-A 10 TSH 21		21	yes	5
79462200	H-A 10 TSH M20	20			5
79462400	H-A 10 TSH M25	25			5

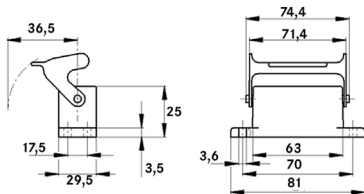
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



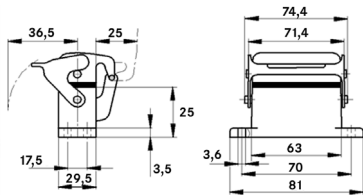
### EPIC® H-A 10 AG-LB



**Info**

- Compact, robust metal housings size H-A 10

### EPIC® H-A 10 AD-LB



**Info**

- Compact, robust metal housings size H-A 10

**Benefits**

- Small and space-saving for narrow available space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 10 AG-LB**

- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-A 10 AD-LB**

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	Pieces / PU
<b>H-A housing: panel-mount base (single lever)</b>		
10442000	H-A 10 AG-LB	5
<b>H-A housing: panel-mount base (cover, single lever)</b>		
70444000	H-A 10 AD-LB	5

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

**Accessories**

**EPIC® H-A 10 AG-LB**

- EPIC® Protective cover H-A refer to page 606

**EPIC® H-A 10 AD-LB**

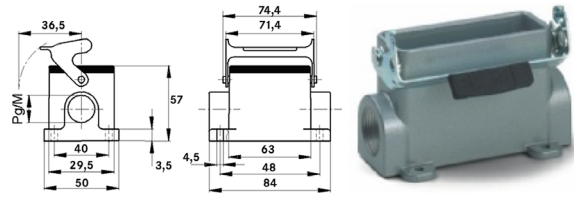
- EPIC® Protective cover H-A refer to page 606



**Info**

- Compact, robust metal housings size H-A 10

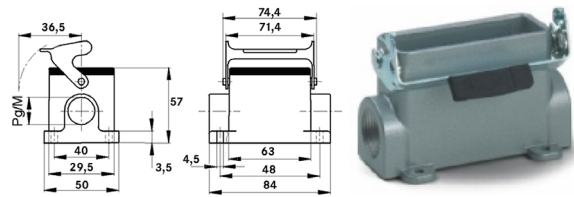
**EPIC® H-A 10 SGR-LB**



**Info**

- Compact, robust metal housings size H-A 10

**EPIC® H-A 10 SGRL-LB**



**Benefits**

- Small and space-saving for narrow available space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 10 SGR-LB**

- Surface-mount base
- Single lever
- 1 cable entry

**EPIC® H-A 10 SGRL-LB**

- Surface-mount base
- Single lever
- 2 cable entries

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-A housing: surface-mount base (1 cable entry, single lever)</b>				
10448100	H-A 10 SGR-LB 16		16	5
10448000	H-A 10 SGR-LB 21		21	5
19448100	H-A 10 SGR-LB M20	20		5
19448000	H-A 10 SGR-LB M25	25		5
<b>H-A housing: surface-mount base (2 cable entries, single lever)</b>				
10450100	H-A 10 SGRL-LB 16		16	5
19450100	H-A 10 SGRL-LB M20	20		5

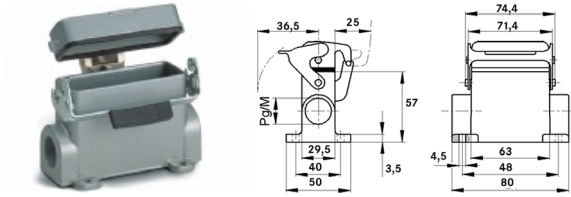
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



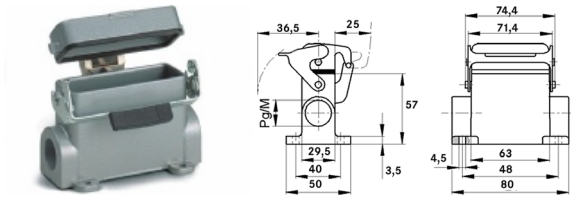
### EPIC® H-A 10 SDR-LB



**Info**

- Compact, robust metal housings size H-A 10

### EPIC® H-A 10 SDRL-LB



**Info**

- Compact, robust metal housings size H-A 10

#### Benefits

- Small and space-saving for narrow available space

#### Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

#### Product features

##### EPIC® H-A 10 SDR-LB

- Surface-mount base
- Single lever
- 1 cable entry
- Metal cover

##### EPIC® H-A 10 SDRL-LB

- Surface-mount base
- Single lever
- 2 cable entries
- Metal cover

#### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### Technical data

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE**  
 Certified production control:  
 VDE-REG. no.: B437  
 UL-tested:  
 UL File Number: E75770

Article number	Article	M	PG	Pieces / PU
<b>H-A housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
70455200	H-A 10 SDR-LB 16		16	5
70455400	H-A 10 SDR-LB 21		21	5
79455200	H-A 10 SDR-LB M20	20		5
79455400	H-A 10 SDR-LB M25	25		5
<b>H-A housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
70456200	H-A 10 SDRL-LB 16		16	5
70456400	H-A 10 SDRL-LB 21		21	5
79456200	H-A 10 SDRL-LB M20	20		5
79456400	H-A 10 SDRL-LB M25	25		5

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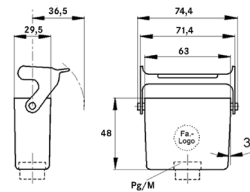
#### Accessories

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



**Info**

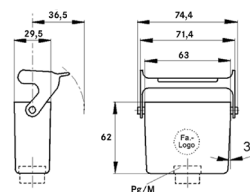
- Compact, robust metal housings size H-A 10



**EPIC® H-A 10 TBF-LB**

**Info**

- Compact, robust metal housings size H-A 10



**EPIC® H-A 10 TBFH-LB**

**Benefits**

- Small and space-saving for narrow available space

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 10 TBF-LB**

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-A 10 TBFH-LB**

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: cable coupler hood (straight cable entry, single lever)</b>					
10439000	H-A 10 TBF-LB 13,5		13,5	yes	5
70450000	H-A 10 TBF-LB 16		16	yes	5
19439000	H-A 10 TBF-LB M20	20			5
79450000	H-A 10 TBF-LB M25	25			5
<b>H-A housing: cable coupler hood (straight cable entry, single lever, high version)</b>					
70450400	H-A 10 TBFH-LB 21		21	yes	5
79450400	H-A 10 TBFH-LB M25	25			5

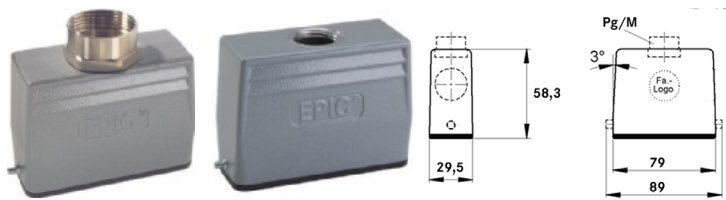
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**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666



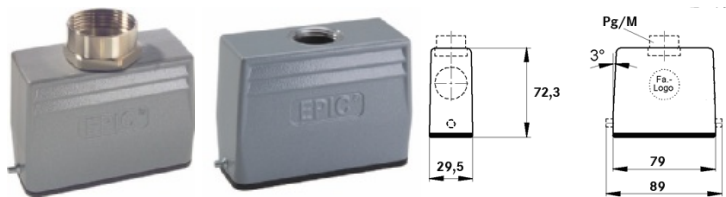
### EPIC® H-A 16 TG



**Info**

- Compact, robust metal housings size H-A 16

### EPIC® H-A 16 TGH



**Info**

- Compact, robust metal housings size H-A 16

**Benefits**

- Small and compact, for applications with high number of contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 16 TG**

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-A 16 TGH**

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: hood (straight cable entry, bolts for single lever)</b>					
10565000	H-A 16 TG 16		16	yes	5
10565300	H-A 16 TG 21		21	yes	5
19565000	H-A 16 TG M20	20			5
19565300	H-A 16 TG M25	25			5
<b>H-A housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70490200	H-A 16 TGH 16		16	yes	5
70490400	H-A 16 TGH 21		21	yes	5
79490200	H-A 16 TGH M20	20			5
79490400	H-A 16 TGH M25	25			5

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**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606

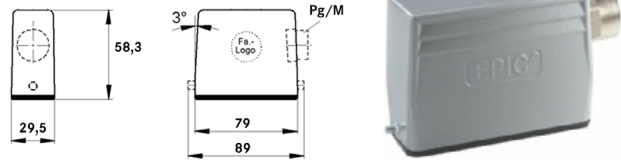
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 APPENDIX



**Info**

- Compact, robust metal housings size H-A 16

**EPIC® H-A 16 TS**



**Info**

- Compact, robust metal housings size H-A 16

**EPIC® H-A 16 TSH**



**Benefits**

- Small and compact, for applications with high number of contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 16 TS**

- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

**EPIC® H-A 16 TSH**

- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Sealing: NBR

**IP** **Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: hood (side cable entry, bolts for single lever)</b>					
10564000	H-A 16 TS 16		16	yes	5
10564500	H-A 16 TS 21		21	yes	5
19564000	H-A 16 TS M20	20		yes	5
19564500	H-A 16 TS M25	25		yes	5
<b>H-A housing: hood (side cable entry, bolts for single lever, high version)</b>					
70492200	H-A 16 TSH 16		16	yes	5
70492400	H-A 16 TSH 21		21	yes	5
79492200	H-A 16 TSH M20	20			5
79492400	H-A 16 TSH M25	25			5

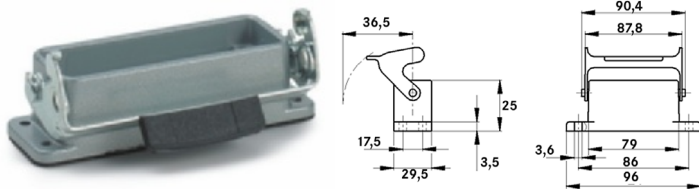
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**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



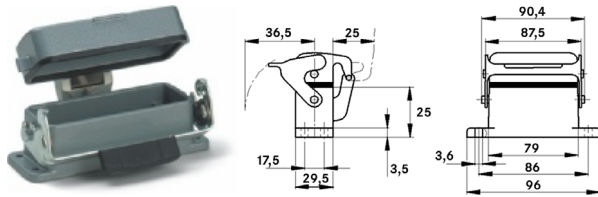
### EPIC® H-A 16 AG-LB



**Info**

- Compact, robust metal housings size H-A 16

### EPIC® H-A 16 AD-LB



**Info**

- Compact, robust metal housings size H-A 16

**Benefits**

- Small and compact, for applications with high number of contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 16 AG-LB**

- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-A 16 AD-LB**

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	Pieces / PU
<b>H-A housing: panel-mount base (single lever)</b>		
10462000	H-A 16 AG-LB	5
<b>H-A housing: panel-mount base (cover, single lever)</b>		
70474000	H-A 16 AD-LB	5

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

**Accessories**

**EPIC® H-A 16 AG-LB**

- EPIC® Flat gaskets for housings H-A und H-B refer to page 605
- EPIC® Protective cover H-A refer to page 606

**EPIC® H-A 16 AD-LB**

- EPIC® Flat gaskets for housings H-A und H-B refer to page 605

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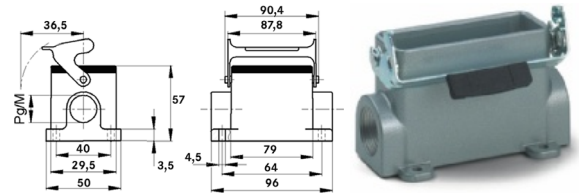




**Info**

- Compact, robust metal housings size H-A 16

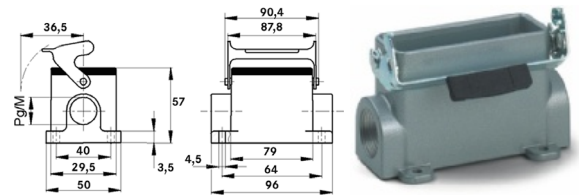
**EPIC® H-A 16 SGR-LB**



**Info**

- Compact, robust metal housings size H-A 16

**EPIC® H-A 16 SGRL-LB**



**Benefits**

- Small and compact, for applications with high number of contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 16 SGR-LB**

- Surface-mount base
- Single lever
- 1 cable entry

**EPIC® H-A 16 SGRL-LB**

- Surface-mount base
- Single lever
- 2 cable entries

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-A housing: surface-mount base (1 cable entry, single lever)</b>				
10567100	H-A 16 SGR-LB 16		16	5
10567000	H-A 16 SGR-LB 21		21	5
19567100	H-A 16 SGR-LB M20	20		5
19567000	H-A 16 SGR-LB M25	25		5
<b>H-A housing: surface-mount base (2 cable entries, single lever)</b>				
10568100	H-A 16 SGRL-LB 16		16	5
10568000	H-A 16 SGRL-LB 21		21	5
19568100	H-A 16 SGRL-LB M20	20		5
19568000	H-A 16 SGRL-LB M25	25		5

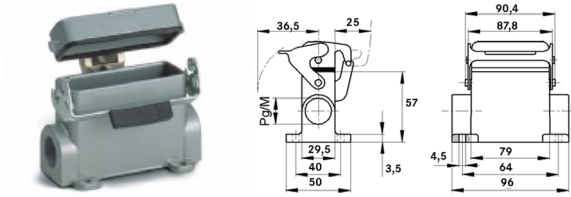
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**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



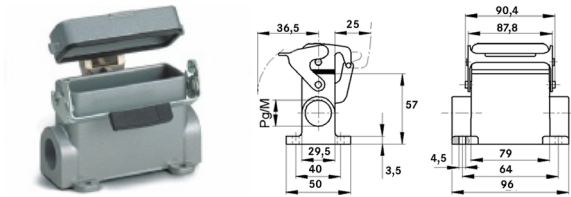
EPIC® H-A 16 SDR-LB



**Info**

- Compact, robust metal housings size H-A 16

EPIC® H-A 16 SDRL-LB



**Info**

- Compact, robust metal housings size H-A 16

■ Benefits

- Small and compact, for applications with high number of contacts

■ Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

■ Product features

EPIC® H-A 16 SDR-LB

- Surface-mount base
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-A 16 SDRL-LB

- Surface-mount base
- Single lever
- 2 cable entries
- Metal cover

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-A housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
70485200	H-A 16 SDR-LB 16		16	5
70485400	H-A 16 SDR-LB 21		21	5
79485200	H-A 16 SDR-LB M20	20		5
79485400	H-A 16 SDR-LB M25	25		5
<b>H-A housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
70486200	H-A 16 SDRL-LB 16		16	5
70486400	H-A 16 SDRL-LB 21		21	5
79486400	H-A 16 SDRL-LB M25	25		5

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■ Accessories

EPIC® H-A 16 SDR-LB

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666

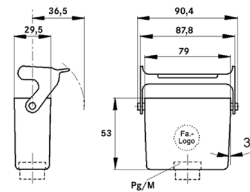
EPIC® H-A 16 SDRL-LB

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666



**Info**

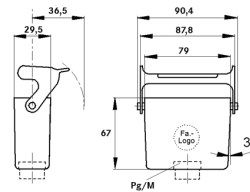
- Compact, robust metal housings size H-A 16



**EPIC® H-A 16 TBF-LB**

**Info**

- Compact, robust metal housings size H-A 16



**EPIC® H-A 16 TBFH-LB**

**Benefits**

- Small and compact, for applications with high number of contacts

**Application range**

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

**Product features**

**EPIC® H-A 16 TBF-LB**

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-A 16 TBFH-LB**

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-A housing: cable coupler hood (straight cable entry, single lever)</b>					
10563000	H-A 16 TBF-LB 16		16	yes	5
19563000	H-A 16 TBF-LB M20	20			5
19563200	H-A 16 TBF-LB M25	25			5
<b>H-A housing: cable coupler hood (straight cable entry, single lever, high version)</b>					
70480200	H-A 16 TBFH-LB 16		16	yes	5
70480400	H-A 16 TBFH-LB 21		21	yes	5
79480200	H-A 16 TBFH-LB M20	20			5
79480400	H-A 16 TBFH-LB M25	25			5

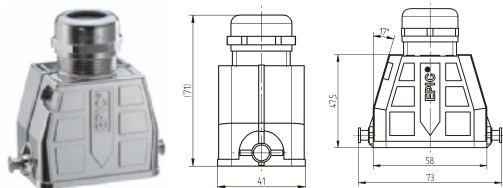
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**Accessories**

- SKINTOP® for industrial connectors refer to page 670
- SKINTOP® MS refer to page 731
- SKINTOP® MS-M refer to page 666
- SKINTOP® MSR refer to page 731
- SKINTOP® MSR-M refer to page 666
- EPIC® Protective cover H-A refer to page 606



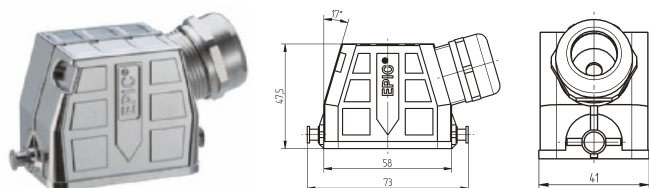
### EPIC® ULTRA H-B 6 TG LB



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

### EPIC® ULTRA H-B 6 TS LB



**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

#### Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

#### Technical data

**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

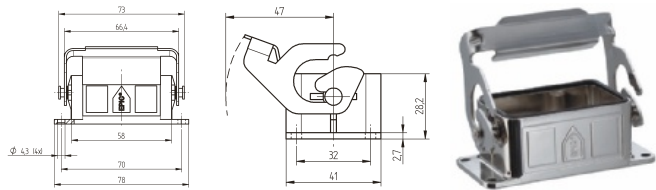
**Temperature range**  
 -40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for single lever)</b>				
70250200	ULTRA H-B 6 TG-LB 6-13	6 - 13		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	6	1
<b>H-B housing: hood (side cable entry, bolts for single lever)</b>				
70250203	ULTRA H-B 6 TS-LB 6-13	6 - 13		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	6	1

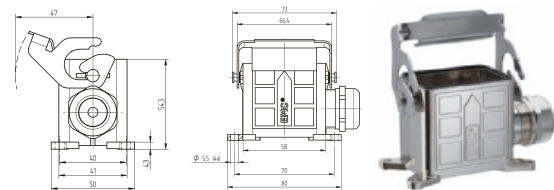
Photographs are not to scale and do not represent detailed images of the respective products.



**EPIC® ULTRA H-B 6 AG LB**



**EPIC® ULTRA H-B 6 SGR LB**



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

**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

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**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

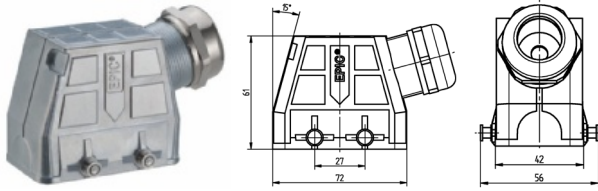
**Temperature range**  
 -40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
<b>H-B housing: panel-mount base (single lever)</b>				
70250206	ULTRA H-B 6 AG LB			1
<b>H-B housing: surface-mount base (1 cable entry, single lever)</b>				
70250207	ULTRA H-B 6 SGR LB 6-13	6 - 13		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	6	1

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



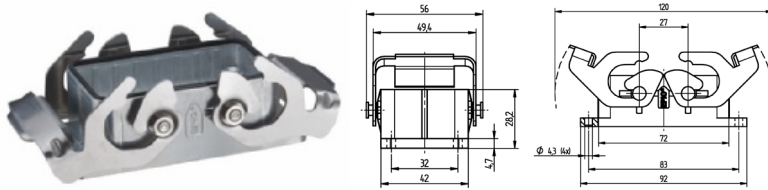
### EPIC® ULTRA H-B 10 TS QB



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

### EPIC® ULTRA H-B 10 AG QB



**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

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**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

**Temperature range**  
 -40°C to +100°C

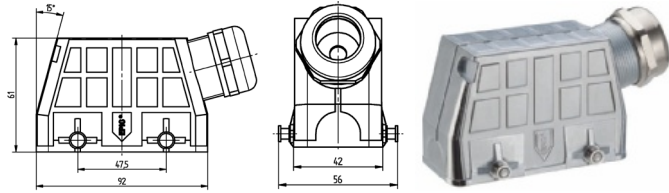
Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>				
70250210	ULTRA H-B 10 TS QB 7-15	7 - 15		1
70250211	ULTRA H-B 10 TS QB 11-21	11 - 21		1
70250212	ULTRA H-B 10 TS QB 11-21 BRUSH	11 - 21	8	1
<b>H-B housing: panel-mount base (double lever)</b>				
70250213	ULTRA H-B 10 AG QB			1

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

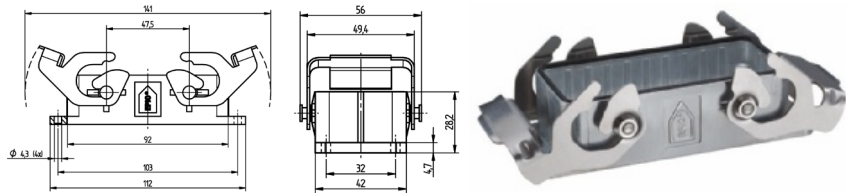
ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



EPIC® ULTRA H-B 16 TS QB



EPIC® ULTRA H-B 16 AG QB



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

**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**

- 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

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**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

**IP Protection rating**  
 IP 68

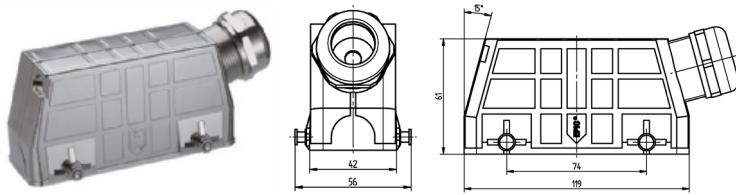
**Temperature range**  
 -40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>				
70250214	ULTRA H-B 16 TS QB 7-15	7 - 15		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	8	1
<b>H-B housing: panel-mount base (double lever)</b>				
70250217	ULTRA H-B 16 AG QB			1

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



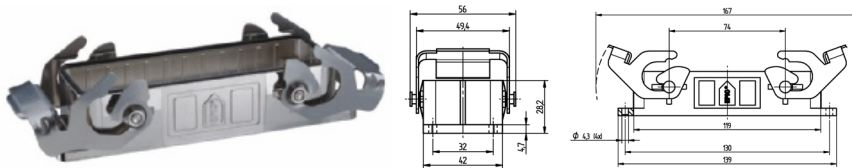
### EPIC® ULTRA H-B 24 TS QB



**Info**

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

### EPIC® ULTRA H-B 24 AG QB



**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

#### Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

#### Technical data

**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

**IP**  
 Protection rating  
 IP 65

**Temperature range**  
 -40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>				
70250219	ULTRA H-B 24 TS QB 7-15	7 - 15		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	8	1
<b>H-B housing: panel-mount base (double lever)</b>				
70250222	ULTRA H-B 24 AG QB			1

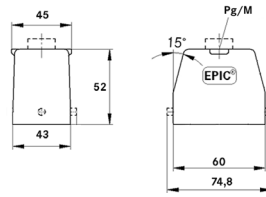
Photographs are not to scale and do not represent detailed images of the respective products.





**Info**

- Universal, robust metal housings size H-B 6

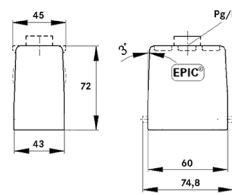


**EPIC® H-B 6 TG**



**Info**

- Universal, robust metal housings size H-B 6

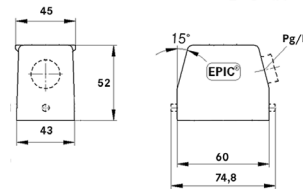


**EPIC® H-B 6 TGH**



**Info**

- Universal, robust metal housings size H-B 6



**EPIC® H-B 6 TS**



**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**

**EPIC® H-B 6 TG**

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 6 TGH**

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 6 TS**

- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for single lever)</b>					
10011000	H-B 6 TG 13,5		13,5	yes	10
10021000	H-B 6 TG 16		16	yes	10
19011000	H-B 6 TG M20	20			10
19021000	H-B 6 TG M25	25			10
<b>H-B housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70020200	H-B 6 TGH 21		21	yes	10
70020400	H-B 6 TGH 29		29	yes	10
79020200	H-B 6 TGH M25	25			10
79020400	H-B 6 TGH M32	32			10
<b>H-B housing: hood (side cable entry, bolts for single lever)</b>					
10012000	H-B 6 TS 13,5		13,5	yes	10
10022000	H-B 6 TS 16		16	yes	10
19012000	H-B 6 TS M20	20		yes	10
19022000	H-B 6 TS M25	25		yes	10

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

**Accessories**

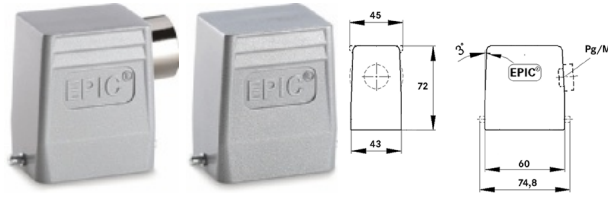
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 6 Housings



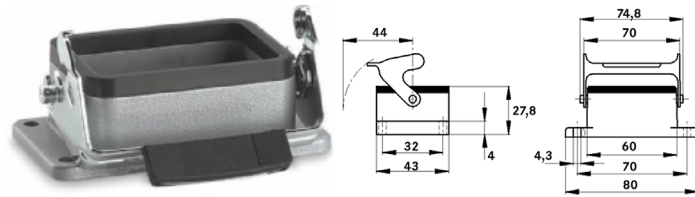
**EPIC® H-B 6 TSH**



**Info**

- Universal, robust metal housings size H-B 6

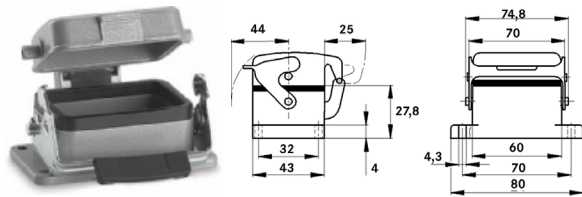
**EPIC® H-B 6 AG-LB**



**Info**

- Universal, robust metal housings size H-B 6

**EPIC® H-B 6 AD-LB**



**Info**

- Universal, robust metal housings size H-B 6

**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**

**EPIC® H-B 6 TSH**

- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

**EPIC® H-B 6 AG-LB**

- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-B 6 AD-LB**

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for single lever, high version)</b>					
70022200	H-B 6 TSH 21		21	yes	10
70022400	H-B 6 TSH 29		29	yes	10
79022200	H-B 6 TSH M25	25			10
79022400	H-B 6 TSH M32	32			10
<b>H-B housing: panel-mount base (single lever)</b>					
10003000	H-B 6 AG-LB				10
<b>H-B housing: panel-mount base (cover, single lever)</b>					
10004000	H-B 6 AD-LB				10

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

**Accessories**

**EPIC® H-B 6 TSH**

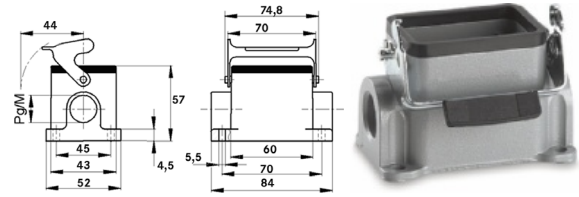
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 6

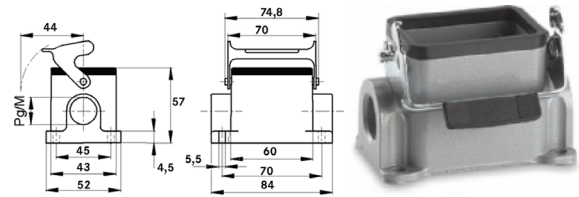
**EPIC® H-B 6 SGR-LB**



**Info**

- Universal, robust metal housings size H-B 6

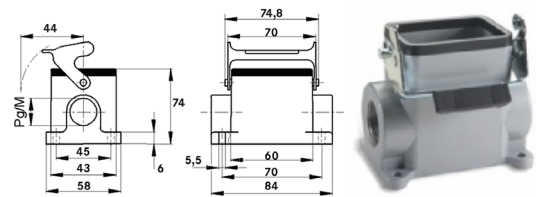
**EPIC® H-B 6 SGRL-LB**



**Info**

- Universal, robust metal housings size H-B 6

**EPIC® H-B 6 SGRH-LB**



**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**

**EPIC® H-B 6 SGR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry

**EPIC® H-B 6 SGRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries

**EPIC® H-B 6 SGRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever)</b>				
10005000	H-B 6 SGR 16		16	10
19005000	H-B 6 SGR M20	20		10
79005600	H-B 6 SGR M25	25		10
<b>H-B housing: surface-mount base (2 cable entries, single lever)</b>				
10006000	H-B 6 SGRL 16		16	10
19006000	H-B 6 SGRL M20	20		10
79006600	H-B 6 SGRL M25	25		10
<b>H-B housing: surface-mount base (1 cable entry, single lever, high version)</b>				
70005200	H-B 6 SGRH-LB 21		21	10
70005400	H-B 6 SGRH-LB 29		29	10
79005200	H-B 6 SGRH-LB M25	25		10
79005400	H-B 6 SGRH-LB M32	32		10

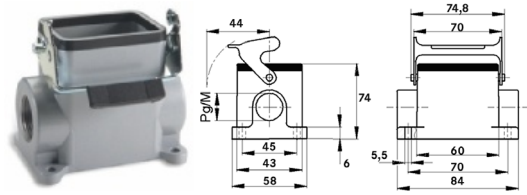
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



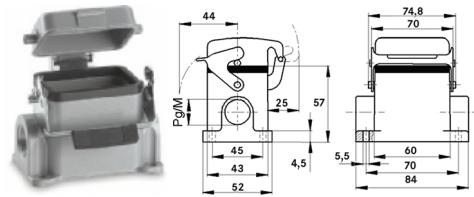
### EPIC® H-B 6 SGRLH-LB



**Info**

- Universal, robust metal housings size H-B 6

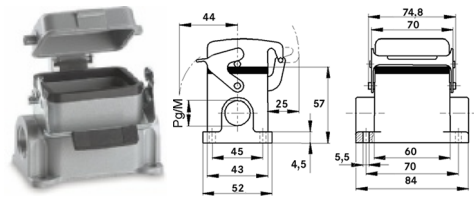
### EPIC® H-B 6 SDR-LB



**Info**

- Universal, robust metal housings size H-B 6

### EPIC® H-B 6 SDRL-LB



**Info**

- Universal, robust metal housings size H-B 6

#### 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

##### EPIC® H-B 6 SGRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries

##### EPIC® H-B 6 SDR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

##### EPIC® H-B 6 SDRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

#### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### Technical data



##### Material

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



##### Protection rating

IP 65 (latched)



##### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (2 cable entries, single lever, high version)</b>				
70006200	H-B 6 SGRLH 21		21	10
79006200	H-B 6 SGRLH M25	25		10
79006400	H-B 6 SGRLH M32	32		10
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
10007000	H-B 6 SDR 16		16	10
19007000	H-B 6 SDR M20	20		10
79015600	H-B 6 SDR M25	25		10
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
10009000	H-B 6 SDRL-LB 16		16	10
19009000	H-B 6 SDRL-LB M20	20		10
79016600	H-B 6 SDRL-LB M25	25		10

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

#### Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



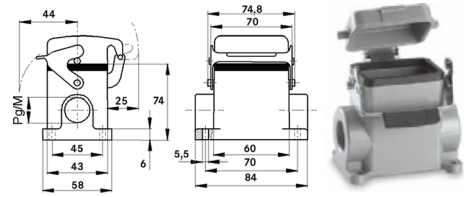
**Info**

- Universal, robust metal housings size H-B 6

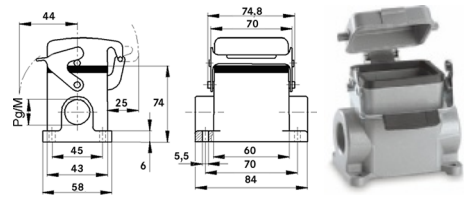
**Info**

- Universal, robust metal housings size H-B 6

**EPIC® H-B 6 SDRH-LB**



**EPIC® H-B 6 SDRLH-LB**



**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**

**EPIC® H-B 6 SDRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

**EPIC® H-B 6 SDRLH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)</b>				
70015200	H-B 10 SDRH-LB 21		21	10
79015200	H-B 10 SDRH-LB M25	25		10
79015400	H-B 10 SDRH-LB M32	32		10
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)</b>				
70016200	H-B 6 SDRLH-LB 21		21	10
79016200	H-B 6 SDRLH-LB M25	25		10
79016400	H-B 6 SDRLH-LB M32	32		10

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**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 6 Housings



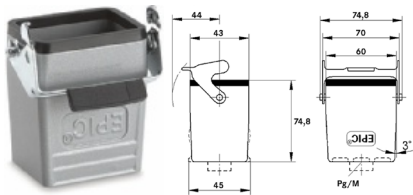
EPIC® H-B 6 TBF-LB



**Info**

- Universal, robust metal housings size H-B 6

EPIC® H-B 6 TBFH-LB



**Info**

- Universal, robust metal housings size H-B 6

■ 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

EPIC® H-B 6 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 6 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever)</b>					
10014000	H-B 6 TBF 13,5		13.5	yes	10
10024000	H-B 6 TBF 16		16	yes	10
19014000	H-B 6 TBF M20	20			10
19024000	H-B 6 TBF M25	25			10
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)</b>					
70010200	H-B 6 TBFH 21		21	yes	10
70010400	H-B 6 TBFH 29		29	yes	10
79010200	H-B 6 TBFH M25	25			10

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

■ Accessories

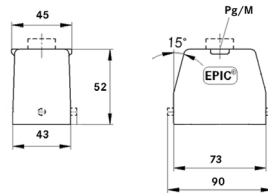
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

ÖLFLEX®  
 UNITRONIC®  
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 EPIC®  
 SKINTOP®  
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 APPENDIX



**Info**

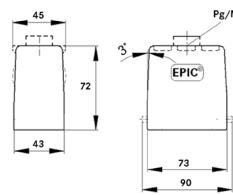
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TG-RO**

**Info**

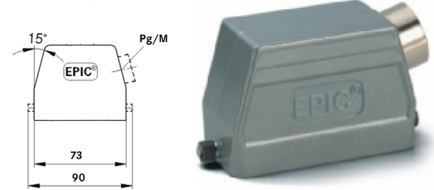
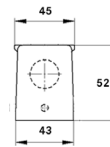
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TGH-RO**

**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TS-RO**

**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**

**EPIC® H-B 10 TG-RO**

- Hood, low version
- Reels for single lever
- Versions with / without neck

**EPIC® H-B 10 TGH-RO**

- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TS-RO**

- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for single lever)</b>					
10040900	H-B 10 TG-RO 16		16	yes	10
10040700	H-B 10 TG-RO 21		21	yes	10
19040900	H-B 10 TG-RO M20	20			10
19040700	H-B 10 TG-RO M25	25			10
<b>H-B housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70044200	H-B 10 TGH-RO 21		21	yes	10
70044400	H-B 10 TGH-RO 29		29	yes	10
79044200	H-B 10 TGH-RO M25	25			10
79044400	H-B 10 TGH-RO M32	32			10
<b>H-B housing: hood (side cable entry, bolts for single lever)</b>					
10042900	H-B 10 TS-RO 16		16	yes	10
10042800	H-B 10 TS-RO 21		21	yes	10
19042900	H-B 10 TS-RO M20	20		yes	10
19042800	H-B 10 TS-RO M25	25		yes	10

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

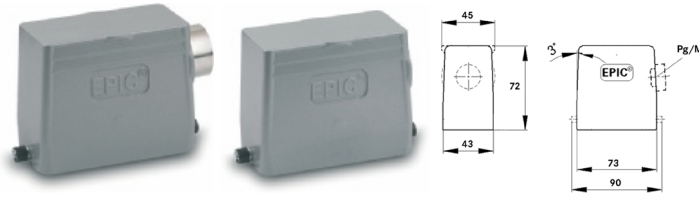
**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

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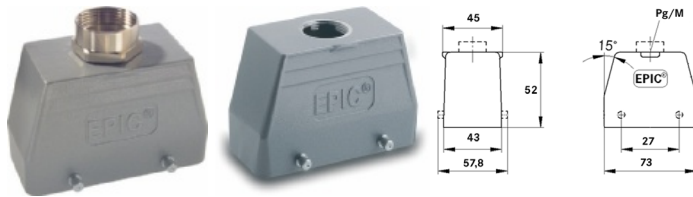
### EPIC® H-B 10 TSH-RO



**Info**

- Universal, robust metal housings size H-B 10

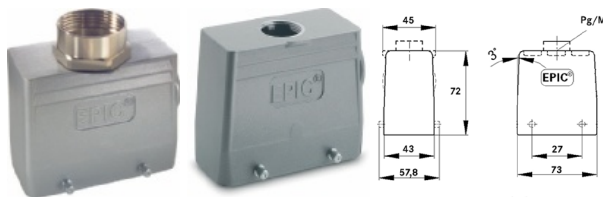
### EPIC® H-B 10 TG



**Info**

- Universal, robust metal housings size H-B 10

### EPIC® H-B 10 TGH



**Info**

- Universal, robust metal housings size H-B 10

**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**

**EPIC® H-B 10 TSH-RO**

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

**EPIC® H-B 10 TG**

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TGH**

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- IP** **Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- DIN VDE** Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for single lever, high version)</b>					
70054200	H-B 10 TSH-RO 21		21	yes	10
70054400	H-B 10 TSH-RO 29		29	yes	10
79054200	H-B 10 TSH-RO M25	25			10
79054400	H-B 10 TSH-RO M32	32			10
<b>H-B housing: hood (straight cable entry, bolts for double lever)</b>					
10040000	H-B 10 TG 16		16	yes	10
10040100	H-B 10 TG 21		21	yes	10
19040000	H-B 10 TG M20	20			10
19040100	H-B 10 TG M25	25			10
<b>H-B housing: hood (straight cable entry, bolts for double lever, high version)</b>					
70050400	H-B 10 TGH 21		21	yes	10
70050600	H-B 10 TGH 29		29	yes	10
79050400	H-B 10 TGH M25	25			10
79050600	H-B 10 TGH M32	32			10

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

**Accessories**

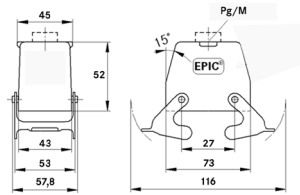
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731





**Info**

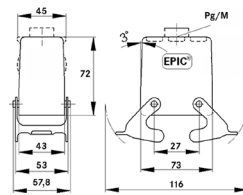
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TGB**

**Info**

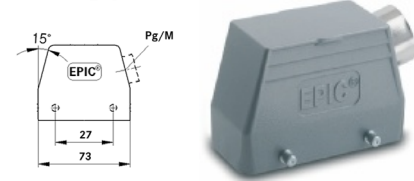
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TGBH**

**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TS**

**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**

**EPIC® H-B 10 TGB**

- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TGBH**

- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TS**

- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, double lever)</b>					
10041000	H-B 10 TGB 16		16	yes	10
19041000	H-B 10 TGB M20	20			10
79055700	H-B 10 TGB M25	25			10
<b>H-B housing: hood (straight cable entry, double lever, high version)</b>					
70055200	H-B 10 TGBH 21		21	yes	10
70055400	H-B 10 TGBH 29		29	yes	10
79055200	H-B 10 TGBH M25	25			10
79055400	H-B 10 TGBH M32	32			10
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>					
10042000	H-B 10 TS 16		16	yes	10
10042100	H-B 10 TS 21		21	yes	10
19042000	H-B 10 TS M20	20		yes	10
19042100	H-B 10 TS M25	25		yes	10

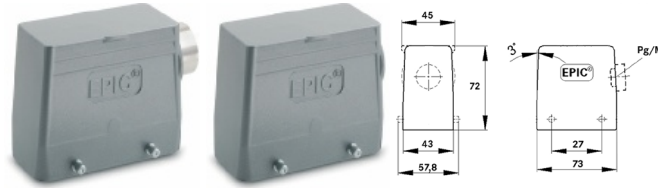
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



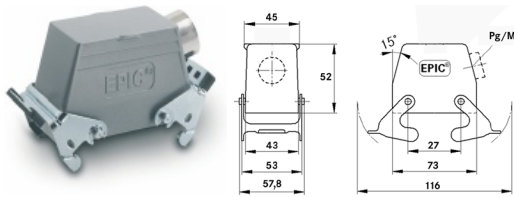
EPIC® H-B 10 TSH



**Info**

- Universal, robust metal housings size H-B 10

EPIC® H-B 10 TSB



**Info**

- Universal, robust metal housings size H-B 10

EPIC® H-B 10 TSBH



**Info**

- Universal, robust metal housings size H-B 10

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

- EPIC® H-B 10 TSH**
- Hood, high version
  - Bolts for double lever
  - Side cable entry
  - Versions with / without neck

EPIC® H-B 10 TSB

- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

EPIC® H-B 10 TSBH

- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

Technical data

- Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR
- Protection rating**  
 IP 65 (latched)
- Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C
- Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever, high version)</b>					
70052400	H-B 10 TSH 21		21	yes	10
70052600	H-B 10 TSH 29		29	yes	10
79052400	H-B 10 TSH M25	25			10
79052600	H-B 10 TSH M32	32			10
<b>H-B housing: hood (side cable entry, double lever)</b>					
10045000	H-B 10 TSB 16		16	yes	10
19045000	H-B 10 TSB M20	20		yes	10
79057700	H-B 10 TSB M25	25		yes	10
<b>H-B housing: hood (side cable entry, double lever, high version)</b>					
70057200	H-B 10 TSBH 21		21	yes	10
70057400	H-B 10 TSBH 29		29	yes	10
79057200	H-B 10 TSBH M25	25			10

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

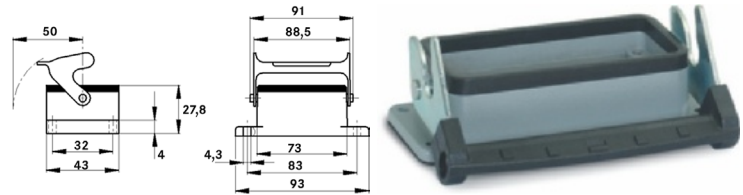
Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

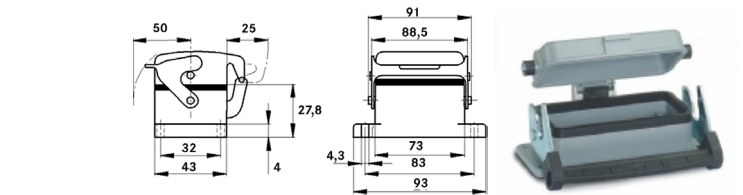
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 AG-LB**

**Info**

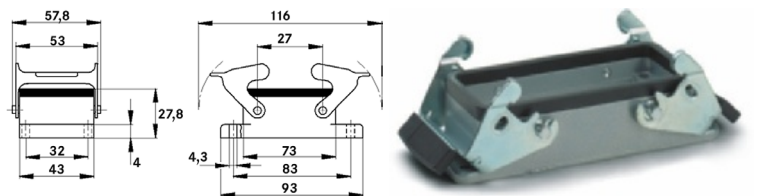
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 AD-LB**

**Info**

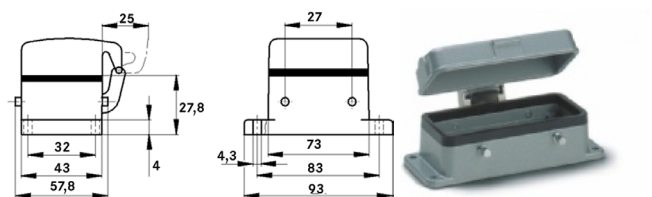
- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 AG**

**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 AD-BO**

**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**

**EPIC® H-B 10 AG-LB**

- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-B 10 AD-LB**

- Metal cover
- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-B 10 AG**

- Panel-mount base
- Dual levers
- Included: flat gasket

**EPIC® H-B 10 AD-BO**

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

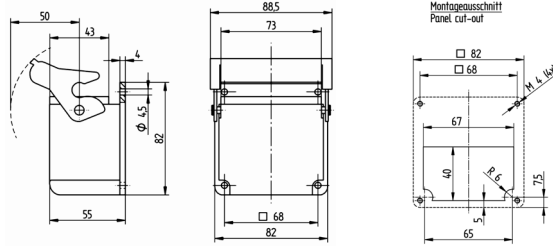
Article number	Article	Pieces / PU
<b>H-B housing: panel-mount base (single lever)</b>		
10032900	H-B 10 AG-LB	10
<b>H-B housing: panel-mount base (cover, single lever)</b>		
10033900	H-B 10 AD-LB	10
<b>H-B housing: panel-mount base (double lever)</b>		
10032000	H-B 10 AG	10
<b>H-B housing: panel-mount base (cover, bolts for double lever)</b>		
10033000	H-B 10 AD-BO	10

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



New

## EPIC® H-B 10 AGS-LB



Info

- Universal, robust metal housings size H-B 10
- Housing for motor termination

### Benefits

- Small angle housing for drives and control cabinets with single lever

### Application range

- Plant engineering
- Drive systems
- Light & sound technology
- Plastics industry

### Product features

- Panel-mount base
- Single lever
- Angled version
- Included: flat gasket

### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

### Technical data



#### Material

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



#### Protection rating

IP 65 (latched)



#### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	Pieces / PU
<b>H-B housing: panel-mount base (angled, single lever)</b>		
44423026	H-B 10 AGS-LB	5

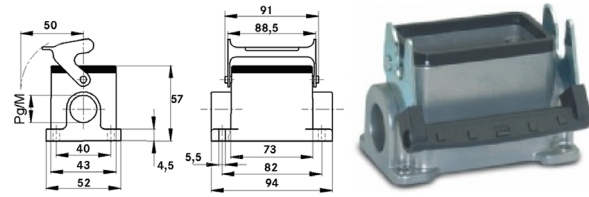
Photographs are not to scale and do not represent detailed images of the respective products.



**Info**

- Universal, robust metal housings size H-B 10

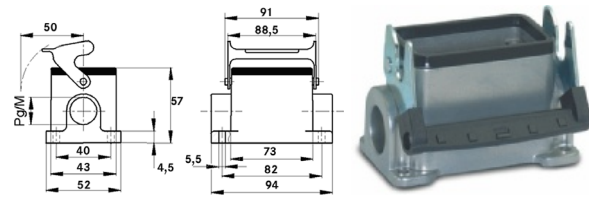
**EPIC® H-B 10 SGR-LB**



**Info**

- Universal, robust metal housings size H-B 10

**EPIC® H-B 10 SGRL-LB**



**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**

**EPIC® H-B 10 SGR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry

**EPIC® H-B 10 SGRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever)</b>				
10034900	H-B 10 SGR-LB 16		16	10
10034700	H-B 10 SGR-LB 21		21	10
19034900	H-B 10 SGR-LB M20	20		10
19034700	H-B 10 SGR-LB M25	25		10
<b>H-B housing: surface-mount base (2 cable entries, single lever)</b>				
10035900	H-B 10 SGRL-LB 16		16	10
19035900	H-B 10 SGRL-LB M20	20		10
79061600	H-B 10 SGRL-LB M25	25		10

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**Accessories**

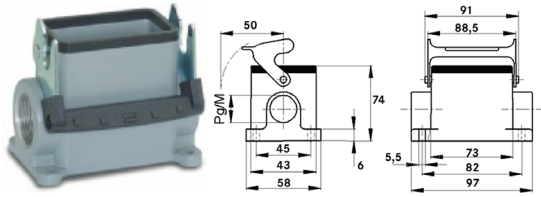
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 10 Housings



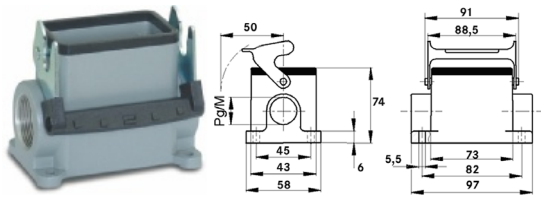
**EPIC® H-B 10 SGRH-LB**



**Info**

- Universal, robust metal housings size H-B 10

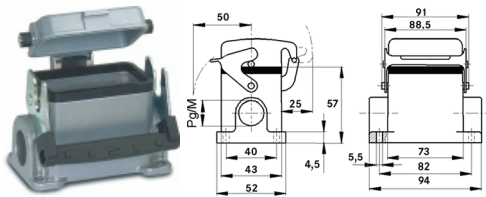
**EPIC® H-B 10 SGR LH-LB**



**Info**

- Universal, robust metal housings size H-B 10

**EPIC® H-B 10 SDR-LB**



**Info**

- Universal, robust metal housings size H-B 10

**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**

**EPIC® H-B 10 SGRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry

**EPIC® H-B 10 SGR LH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries

**EPIC® H-B 10 SDR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- IP Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- Certified production control:**  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever, high version)</b>				
70060200	H-B 10 SGRH-LB 21		21	10
70060400	H-B 10 SGRH-LB 29		29	10
79060200	H-B 10 SGRH-LB M25	25		10
79060400	H-B 10 SGRH-LB M32	32		10
<b>H-B housing: surface-mount base (2 cable entries, single lever, high version)</b>				
70061200	H-B 10 SGR LH-LB 21		21	10
70061400	H-B 10 SGR LH-LB 29		29	10
79061200	H-B 10 SGR LH-LB M25	25		10
79061400	H-B 10 SGR LH-LB M32	32		10
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
10036900	H-B 10 SDR-LB 16		16	10
19036900	H-B 10 SDR-LB M20	20		10
79064600	H-B 10 SDR-LB M25	25		10

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 10

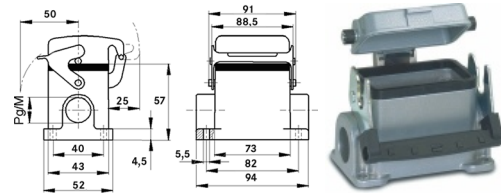
**Info**

- Universal, robust metal housings size H-B 10

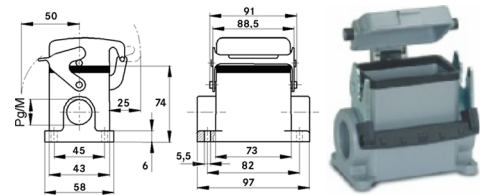
**Info**

- Universal, robust metal housings size H-B 10

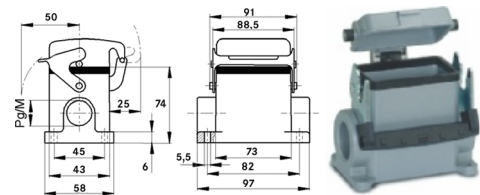
**EPIC® H-B 10 SDRL-LB**



**EPIC® H-B 10 SDRH-LB**



**EPIC® H-B 10 SDRLH-LB**



**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**

**EPIC® H-B 10 SDRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

**EPIC® H-B 10 SDRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

**EPIC® H-B 10 SDRLH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
10038900	H-B 10 SDRL-LB 16		16	10
19038900	H-B 10 SDRL-LB M20	20		10
79065600	H-B 10 SDRL-LB M25	25		10
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)</b>				
70064200	H-B 10 SDRH-LB 21		21	5
70064400	H-B 10 SDRH-LB 29		29	5
79064200	H-B 10 SDRH-LB M25	25		5
79064400	H-B 10 SDRH-LB M32	32		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)</b>				
70065200	H-B 10 SDRLH-LB 21		21	5
70065400	H-B 10 SDRLH-LB 29		29	5
79065200	H-B 10 SDRLH-LB M25	25		5
79065400	H-B 10 SDRLH-LB M32	32		5

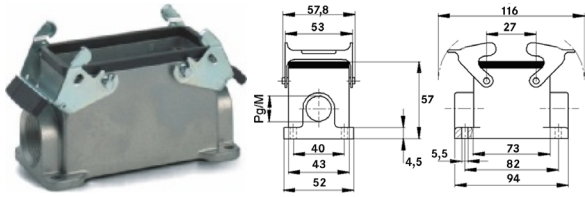
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



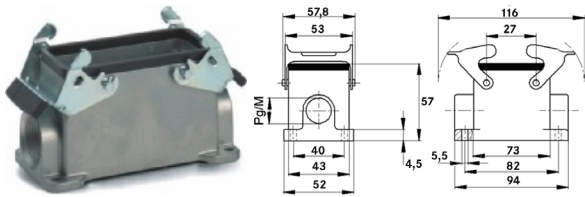
### EPIC® H-B 10 SGR



**Info**

- Universal, robust metal housings size H-B 10

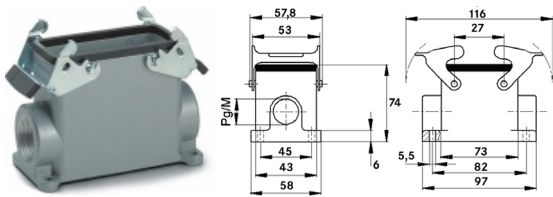
### EPIC® H-B 10 SGRL



**Info**

- Universal, robust metal housings size H-B 10

### EPIC® H-B 10 SGRH



**Info**

- Universal, robust metal housings size H-B 10

**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**

**EPIC® H-B 10 SGR**

- Surface-mount base, low version
- Dual levers
- 1 cable entry

**EPIC® H-B 10 SGRL**

- Surface-mount base, low version
- Dual levers
- 2 cable entries

**EPIC® H-B 10 SGRH**

- Surface-mount base, high version
- Dual levers
- 1 cable entry

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, double lever)</b>				
10034000	H-B 10 SGR 16		16	10
19034000	H-B 10 SGR M20	20		10
19034100	H-B 10 SGR M25	25		10
<b>H-B housing: surface-mount base (2 cable entries, double lever)</b>				
10035000	H-B 10 SGRL 16		16	10
19035000	H-B 10 SGRL M20	20		10
19035100	H-B 10 SGRL M25	25		10
<b>H-B housing: surface-mount base (1 cable entry, double lever, high version)</b>				
70035200	H-B 10 SGRH 21		21	10
70035400	H-B 10 SGRH 29		29	10
79035200	H-B 10 SGRH M25	25		10
79035400	H-B 10 SGRH M32	32		10

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

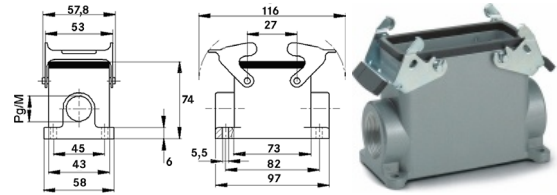




**Info**

- Universal, robust metal housings size H-B 10

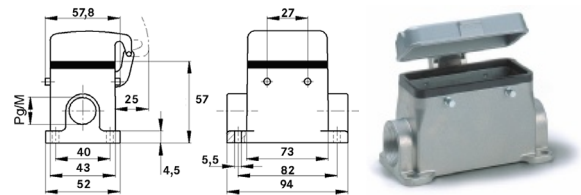
**EPIC® H-B 10 SGRLH**



**Info**

- Universal, robust metal housings size H-B 10

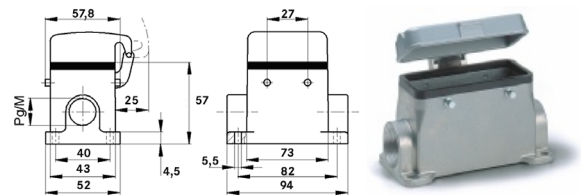
**EPIC® H-B 10 SDR-BO**



**Info**

- Universal, robust metal housings size H-B 10

**EPIC® H-B 10 SDRL-BO**



**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**

- EPIC® H-B 10 SGRLH
  - Surface-mount base, high version
  - Dual levers
  - 2 cable entries

**EPIC® H-B 10 SDR-BO**

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

**EPIC® H-B 10 SDRL-BO**

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (2 cable entries, double lever, high version)</b>				
70036200	H-B 10 SGRLH 21		21	10
70036400	H-B 10 SGRLH 29		29	10
79036200	H-B 10 SGRLH M25	25		10
79036400	H-B 10 SGRLH M32	32		10
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)</b>				
10036000	H-B 10 SDR-BO 16		16	10
19036000	H-B 10 SDR-BO M20	20		10
19036100	H-B 10 SDR-BO M25	25		10
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)</b>				
10038000	H-B 10 SDRL-BO 16		16	10
19038000	H-B 10 SDRL-BO M20	20		10
79046600	H-B 10 SDRL-BO M25	25		10

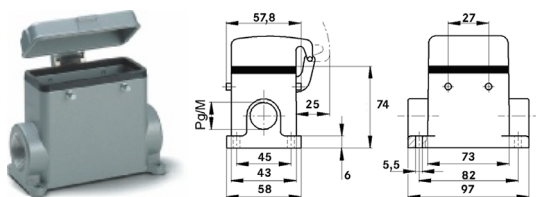
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



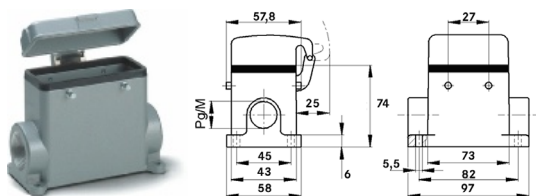
### EPIC® H-B 10 SDRH-BO



**Info**

- Universal, robust metal housings size H-B 10

### EPIC® H-B 10 SDRLH-BO



**Info**

- Universal, robust metal housings size H-B 10

**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**

**EPIC® H-B 10 SDRH-BO**

- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

**EPIC® H-B 10 SDRLH-BO**

- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)</b>				
70045200	H-B 10 SDRH-BO 21		21	5
70045400	H-B 10 SDRH-BO 29		29	5
79045200	H-B 10 SDRH-BO M25	25		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)</b>				
70046200	H-B 10 SDRLH-BO 21		21	5
79046200	H-B 10 SDRLH-BO M25	25		5
79046400	H-B 10 SDRLH-BO M32	32		5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TBF-LB**

**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TBFH-LB**

**Info**

- Universal, robust metal housings size H-B 10



**EPIC® H-B 10 TBF**

**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**

**EPIC® H-B 10 TBF-LB**

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TBFH-LB**

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 10 TBF**

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever)</b>					
10046900	H-B 10 TBF-LB 16		16	yes	10
70042200	H-B 10 TBF-LB 21		21	yes	10
19046900	H-B 10 TBF-LB M20	20			10
79042200	H-B 10 TBF-LB M25	25			10
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)</b>					
70042400	H-B 10 TBFH-LB 21		21	yes	10
70042600	H-B 10 TBFH-LB 29		29	yes	10
79042400	H-B 10 TBFH-LB M25	25			10
79042600	H-B 10 TBFH-LB M32	32			10
<b>H-B housing: cable coupler hood (straight cable entry, double lever)</b>					
10046000	H-B 10 TBF 16		16	yes	10
70040200	H-B 10 TBF 21		21	yes	10
19046000	H-B 10 TBF M20	20			10
79040200	H-B 10 TBF M25	25			10

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

**Accessories**

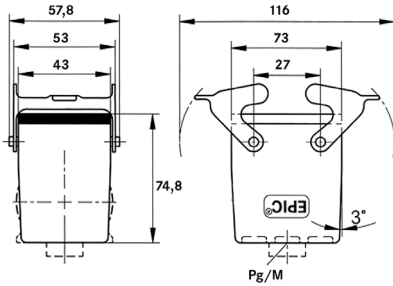
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 10 Housings



EPIC® H-B 10 TBFH



**Info**

- Universal, robust metal housings size H-B 10

■ 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

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- IP** **Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- DIN VDE** Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (straight cable entry, double lever, high version)</b>					
70040400	H-B 10 TBFH 21		21	yes	10
70040600	H-B 10 TBFH 29		29	yes	10
79040400	H-B 10 TBFH M25	25			10
79040600	H-B 10 TBFH M32	32			10

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

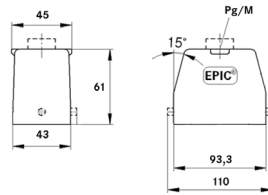
■ Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

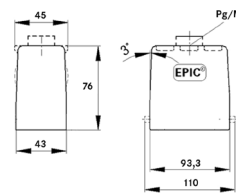
- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TG-RO**

**Info**

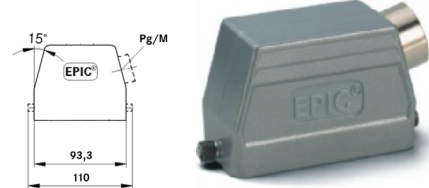
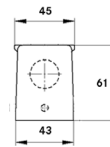
- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TGH-RO**

**Info**

- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TS-RO**

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 TG-RO**

- Hood, low version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TGH-RO**

- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TS-RO**

- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**



**Material**

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



**Protection rating**

IP 65 (latched)



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for single lever)</b>					
10080900	H-B 16 TG-RO 21		21	yes	5
19080900	H-B 16 TG-RO M25	25			5
<b>H-B housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70094200	H-B 16 TGH-RO 21		21	yes	5
70094400	H-B 16 TGH-RO 29		29	yes	5
79094200	H-B 16 TGH-RO M25	25			5
79094400	H-B 16 TGH-RO M32	32			5
79094600	H-B 16 TGH-RO M40	40			5
<b>H-B housing: hood (side cable entry, bolts for single lever)</b>					
10082900	H-B 16 TS-RO 21		21	yes	5
10092900	H-B 16 TS-RO 29		29	yes	5
19082900	H-B 16 TS-RO M25	25		yes	5
19092900	H-B 16 TS-RO M32	32		yes	5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



### EPIC® H-B 16 TSH-RO



**Info**

- Universal, robust metal housings size H-B 16

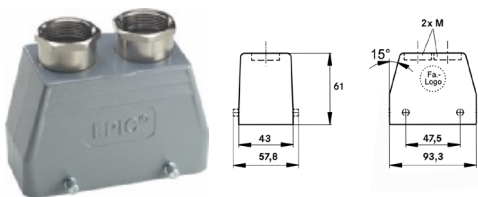
### EPIC® H-B 16 TG



**Info**

- Universal, robust metal housings size H-B 16

### EPIC® H-B 16 TG 2X



**Info**

- Universal, robust metal housings size H-B 16

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 TSH-RO**

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

**EPIC® H-B 16 TG**

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TG 2X**

- Hood, low version
- Bolts for double lever
- 2 straight cable entries
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for single lever, high version)</b>					
70104200	H-B 16 TSH-RO 21		21	yes	5
70104400	H-B 16 TSH-RO 29		29	yes	5
79104200	H-B 16 TSH-RO M25	25			5
79104400	H-B 16 TSH-RO M32	32			5
79104800	H-B 16 TSH-RO M40	40			5
<b>H-B housing: hood (straight cable entry, bolts for double lever)</b>					
10080000	H-B 16 TG 21		21	yes	5
10090000	H-B 16 TG 29		29	yes	5
19080000	H-B 16 TG M25	25			5
19090000	H-B 16 TG M32	32			5
<b>H-B housing: hood (2 straight cable entries, bolts for double lever)</b>					
19080500	H-B 16 TG 2XM25	2 x 25		yes	5

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

**Accessories**

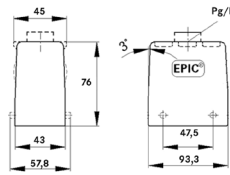
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Universal, robust metal housings size H-B 16

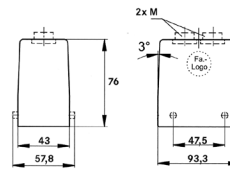


**EPIC® H-B 16 TGH**



**Info**

- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TGH 2X**



**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 TGH**

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TGH 2X**

- Hood, high version
- Bolts for double lever
- 2 straight cable entries
- Versions without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for double lever, high version)</b>					
70100200	H-B 16 TGH 21		21	yes	5
70100400	H-B 16 TGH 29		29	yes	5
79100200	H-B 16 TGH M25	25			5
79100400	H-B 16 TGH M32	32			5
79100800	H-B 16 TGH M40	40			5
<b>H-B housing: hood (2 straight cable entries, bolts for double lever, high version)</b>					
44422018	H-B 16 TGH 2XM25	2 x 25			5
79128600	H-B 16 TGH 2XM32	2 x 32			5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



### EPIC® H-B 16 TGB



**Info**

- Universal, robust metal housings size H-B 16

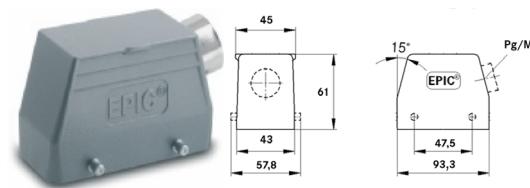
### EPIC® H-B 16 TGBH



**Info**

- Universal, robust metal housings size H-B 16

### EPIC® H-B 16 TS



**Info**

- Universal, robust metal housings size H-B 16

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 TGB**

- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TGBH**

- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TS**

- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- Certified production control:**  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, double lever)</b>					
10081000	H-B 16 TGB 21		21	yes	5
19081000	H-B 16 TGB M25	25			5
<b>H-B housing: hood (straight cable entry, double lever, high version)</b>					
70105200	H-B 16TGBH 21		21	yes	5
70105400	H-B 16TGBH 29		29	yes	5
79105200	H-B 16TGBH M25	25			5
79105400	H-B 16TGBH M32	32			5
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>					
10082000	H-B 16 TS 21		21	yes	5
10092000	H-B 16 TS 29		29	yes	5
19082000	H-B 16 TS M25	25		yes	5
19092000	H-B 16 TS M32	32		yes	5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

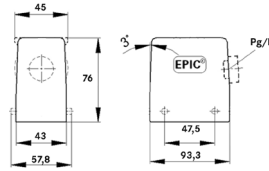
ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
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ACCESSORIES  
APPENDIX





**Info**

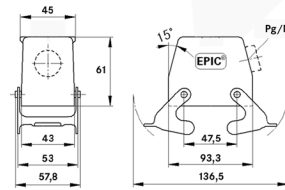
- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TSH**

**Info**

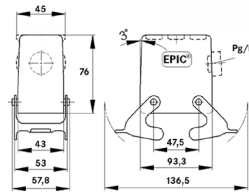
- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TSB**

**Info**

- Universal, robust metal housings size H-B 16



**EPIC® H-B 16 TSBH**

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

- EPIC® H-B 16 TSH
  - Hood, high version
  - Bolts for double lever
  - Side cable entry
  - Versions with / without neck

**EPIC® H-B 16 TSB**

- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

**EPIC® H-B 16 TSBH**

- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever, high version)</b>					
70102200	H-B 16 TSH 21		21	yes	5
70102400	H-B 16 TSH 29		29	yes	5
79102200	H-B 16 TSH M25	25			5
79102400	H-B 16 TSH M32	32			5
79102800	H-B 16 TSH M40	40			5
<b>H-B housing: hood (side cable entry, double lever)</b>					
10083000	H-B 16 TSB 21		21	yes	5
19083000	H-B 16 TSB M25	25		yes	5
<b>H-B housing: hood (side cable entry, double lever, high version)</b>					
70107200	H-B 16 TSBH 21		21	yes	5
70107400	H-B 16 TSBH 29		29	yes	5
79107200	H-B 16 TSBH M25	25			5
79107400	H-B 16 TSBH M32	32			5

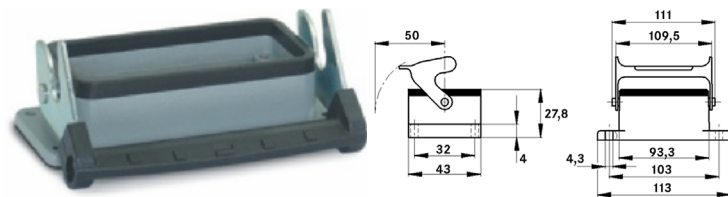
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



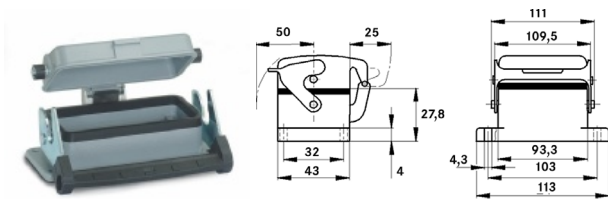
### EPIC® H-B 16 AG-LB



**Info**

- Universal, robust metal housings size H-B 16

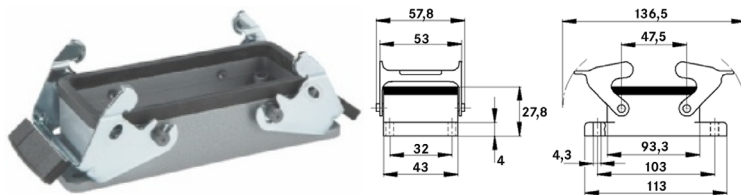
### EPIC® H-B 16 AD-LB



**Info**

- Universal, robust metal housings size H-B 16

### EPIC® H-B 16 AG



**Info**

- Universal, robust metal housings size H-B 16

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 AG-LB**

- Panel-mount base
- Single lever
- Included: flat gasket

**EPIC® H-B 16 AD-LB**

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

**EPIC® H-B 16 AG**

- Panel-mount base
- Dual levers
- Included: flat gasket

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	Pieces / PU
<b>H-B housing: panel-mount base (single lever)</b>		
10072900	H-B 16 AG-LB	5
<b>H-B housing: panel-mount base (cover, single lever)</b>		
10073900	H-B 16 AD-LB	5
<b>H-B housing: panel-mount base (double lever)</b>		
10072000	H-B 16 AG	5

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

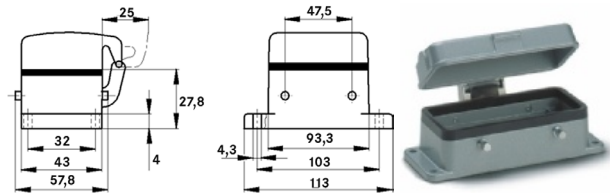
ÖLFLEX®  
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 ACCESSORIES  
 APPENDIX



**Info**

- Universal, robust metal housings size H-B 16

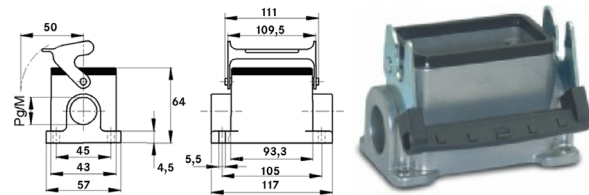
**EPIC® H-B 16 AD-BO**



**Info**

- Universal, robust metal housings size H-B 16

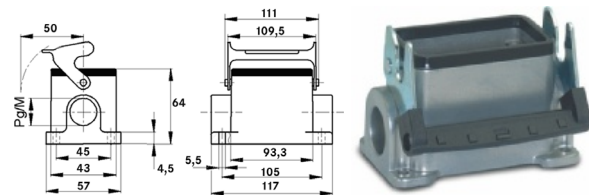
**EPIC® H-B 16 SGR-LB**



**Info**

- Universal, robust metal housings size H-B 16

**EPIC® H-B 16 SGRL-LB**



**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 AD-BO**

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

**EPIC® H-B 16 SGR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry

**EPIC® H-B 16 SGRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: panel-mount base (cover, bolts for double lever)</b>				
10073000	H-B 16 AD-BO			5
<b>H-B housing: surface-mount base (1 cable entry, single lever)</b>				
10074900	H-B 16 SGR-LB 21		21	5
19074900	H-B 16 SGR-LB M25	25		5
<b>H-B housing: surface-mount base (2 cable entries, single lever)</b>				
10075900	H-B 16 SGRL-LB 21		21	5
19075900	H-B 16 SGRL-LB M25	25		5

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

**Accessories**

**EPIC® H-B 16 SGR-LB**

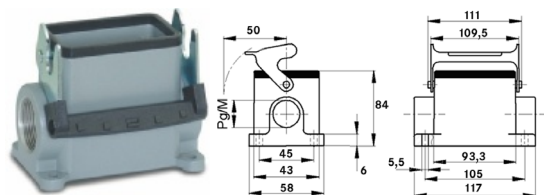
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

**EPIC® H-B 16 SGRL-LB**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



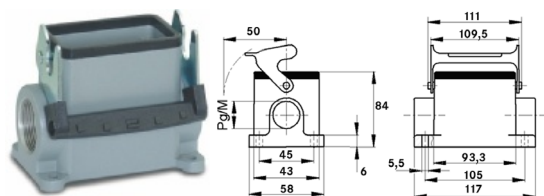
### EPIC® H-B 16 SGRH-LB



**Info**

- Universal, robust metal housings size H-B 16

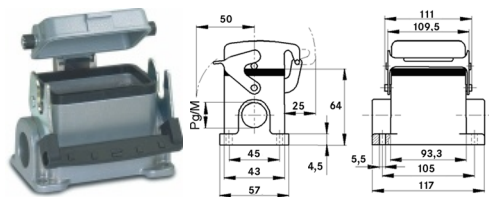
### EPIC® H-B 16 SGR LH-LB



**Info**

- Universal, robust metal housings size H-B 16

### EPIC® H-B 16 SDR-LB



**Info**

- Universal, robust metal housings size H-B 16

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 SGRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry

**EPIC® H-B 16 SGR LH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries

**EPIC® H-B 16 SDR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**



**Material**

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



**Protection rating**

IP 65 (latched)



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever, high version)</b>				
70110200	H-B 16 SGRH-LB 21		21	5
70110400	H-B 16 SGRH-LB 29		29	5
79110200	H-B 16 SGRH-LB M25	25		5
79110400	H-B 16 SGRH-LB M32	32		5
<b>H-B housing: surface-mount base (2 cable entries, single lever, high version)</b>				
70111200	H-B 16 SGR LH-LB 21		21	5
70111400	H-B 16 SGR LH-LB 29		29	5
79111200	H-B 16 SGR LH-LB M25	25		5
79111400	H-B 16 SGR LH-LB M32	32		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
10076900	H-B 16 SDR-LB 21		21	5
19076900	H-B 16 SDR-LB M25	25		5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**Info**

- Universal, robust metal housings size H-B 16

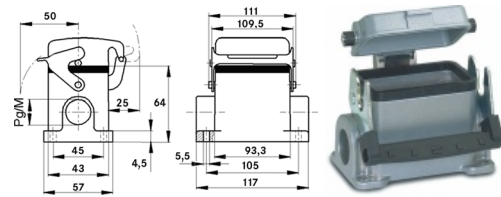
**Info**

- Universal, robust metal housings size H-B 16

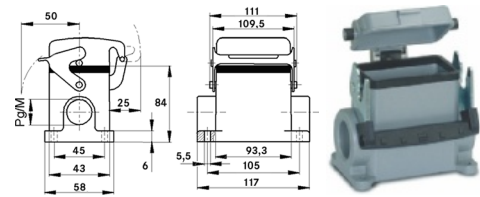
**Info**

- Universal, robust metal housings size H-B 16

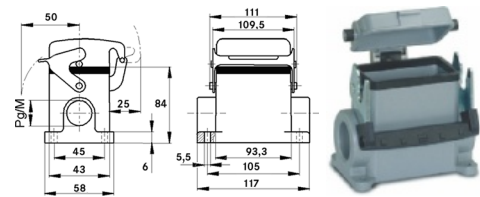
**EPIC® H-B 16 SDRL-LB**



**EPIC® H-B 16 SDRH-LB**



**EPIC® H-B 16 SDRLH-LB**



**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 SDRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

**EPIC® H-B 16 SDRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

**EPIC® H-B 16 SDRLH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**



**Material**

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



**Protection rating**

IP 65 (latched)



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
10078900	H-B 16 SDRL-LB 21		21	5
19078900	H-B 16 SDRL-LB M25	25		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)</b>				
70114200	H-B 16 SDRH-LB 21		21	5
70114400	H-B 16 SDRH-LB 29		29	5
79114200	H-B 16 SDRH-LB M25	25		5
79114400	H-B 16 SDRH-LB M32	32		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)</b>				
70115200	H-B 16 SDRLH-LB 21		21	5
70115400	H-B 16 SDRLH-LB 29		29	5
79115200	H-B 16 SDRLH-LB M25	25		5
79115400	H-B 16 SDRLH-LB M32	32		5

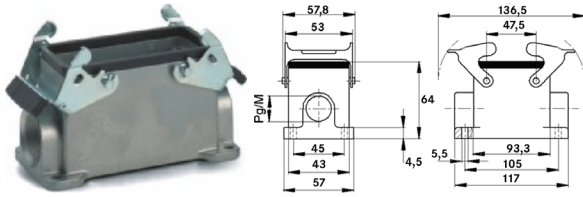
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



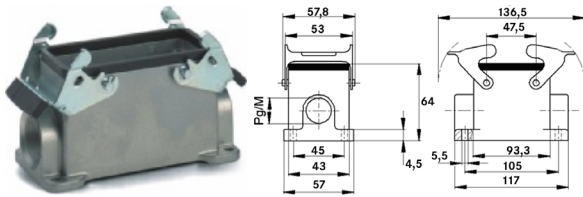
### EPIC® H-B 16 SGR



**Info**

- Universal, robust metal housings size H-B 16

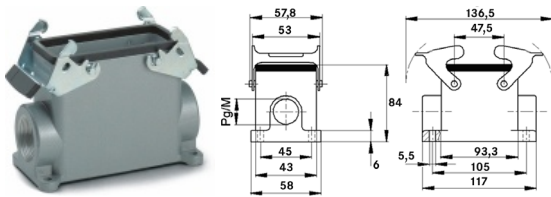
### EPIC® H-B 16 SGRL



**Info**

- Universal, robust metal housings size H-B 16

### EPIC® H-B 16 SGRH



**Info**

- Universal, robust metal housings size H-B 16

#### Benefits

- The housing standard. Wide choice for all applications

#### Application range

- Plant engineering
- Light & sound technology
- Plastics industry

#### Product features

##### EPIC® H-B 16 SGR

- Surface-mount base, low version
- Dual levers
- 1 cable entry

##### EPIC® H-B 16 SGRL

- Surface-mount base, low version
- Dual levers
- 2 cable entries

##### EPIC® H-B 16 SGRH

- Surface-mount base, high version
- Dual levers
- 1 cable entry

#### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### Technical data



##### Material

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



##### Protection rating

IP 65 (latched)



##### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, double lever)</b>				
10074000	H-B 16 SGR 21		21	5
19074000	H-B 16 SGR M25	25		5
<b>H-B housing: surface-mount base (2 cable entries, double lever)</b>				
10075000	H-B 16 SGRL 21		21	5
19075000	H-B 16 SGRL M25	25		5
<b>H-B housing: surface-mount base (1 cable entry, double lever, high version)</b>				
70085200	H-B 16 SGRH 21		21	5
70085400	H-B 16 SGRH 29		29	5
79085200	H-B 16 SGRH M25	25		5
79085400	H-B 16 SGRH M32	32		5

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

#### Accessories

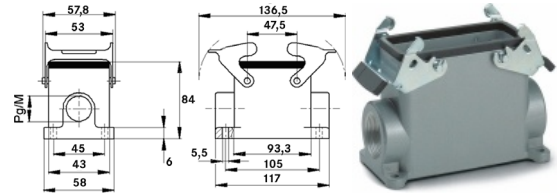
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 16

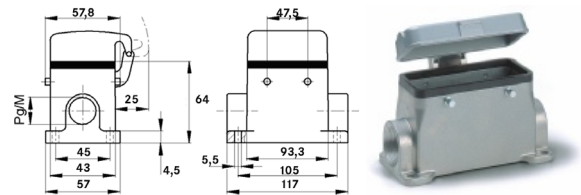
**EPIC® H-B 16 SGRLH**



**Info**

- Universal, robust metal housings size H-B 16

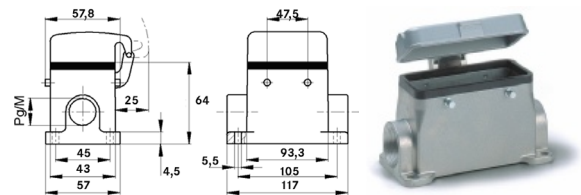
**EPIC® H-B 16 SDR-BO**



**Info**

- Universal, robust metal housings size H-B 16

**EPIC® H-B 16 SDRL-BO**



**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 SGRLH**

- Surface-mount base, high version
- Dual levers
- 2 cable entries

**EPIC® H-B 16 SDR-BO**

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

**EPIC® H-B 16 SDRL-BO**

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP** **Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (2 cable entries, double lever, high version)</b>				
70086200	H-B 16 SGRLH 21		21	5
70086400	H-B 16 SGRLH 29		29	5
79086200	H-B 16 SGRLH M25	25		5
79086400	H-B 16 SGRLH M32	32		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)</b>				
10076000	H-B 16 SDR-BO 21		21	5
19076000	H-B 16 SDR-BO M25	25		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)</b>				
70096000	H-B 16 SDRL-BO 21		21	5
79096000	H-B 16 SDRL-BO M25	25		5

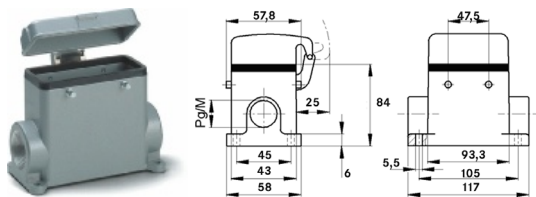
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



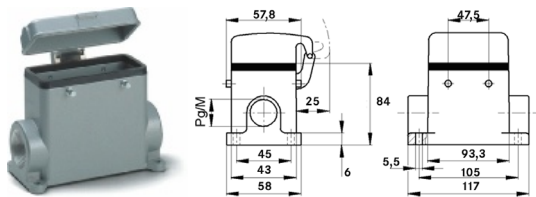
EPIC® H-B 16 SDRH-BO



**Info**

- Universal, robust metal housings size H-B 16

EPIC® H-B 16 SDRLH-BO



**Info**

- Universal, robust metal housings size H-B 16

■ Benefits

- The housing standard. Wide choice for all applications

■ Application range

- Plant engineering
- Light & sound technology
- Plastics industry

■ Product features

EPIC® H-B 16 SDRH-BO

- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 16 SDRLH-BO

- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: B437  
 UL-tested:  
 UL File Number: E75770

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)</b>				
70095200	H-B 16 SDRH-BO 21		21	5
70095400	H-B 16 SDRH-BO 29		29	5
79095200	H-B 16 SDRH-BO M25	25		5
79095400	H-B 16 SDRH-BO M32	32		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)</b>				
70096200	H-B 16 SDRLH-BO 21		21	5
79096200	H-B 16 SDRLH-BO M25	25		5
79096400	H-B 16 SDRLH-BO M32	32		5

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

■ Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

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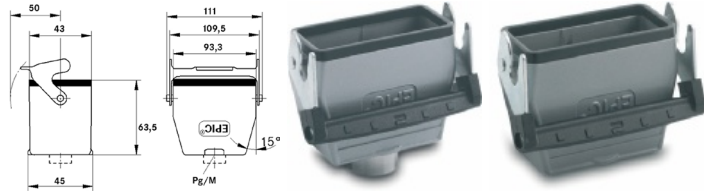




**Info**

- Universal, robust metal housings size H-B 16

**EPIC® H-B 16 TBF-LB**



**Info**

- Universal, robust metal housings size H-B 16

**EPIC® H-B 16 TBFH-LB**



**Info**

- Universal, robust metal housings size H-B 16

**EPIC® H-B 16 TBF**



**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Light & sound technology
- Plastics industry

**Product features**

**EPIC® H-B 16 TBF-LB**

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TBFH-LB**

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 16 TBF**

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE**  
 Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever)</b>					
10086900	H-B 16 TBF-LB 21		21	yes	5
19086900	H-B 16 TBF-LB 25	25			5
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)</b>					
70092200	H-B 16 TBFH-LB 21		21	yes	5
70092400	H-B 16 TBFH-LB 29		29	yes	5
79092200	H-B 16 TBFH-LB M25	25			5
79092400	H-B 16 TBFH-LB M32	32			5
<b>H-B housing: cable coupler hood (straight cable entry, double lever)</b>					
10086000	H-B 16 TBF 21		21	yes	5
19086000	H-B 16 TBF M25	25			5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

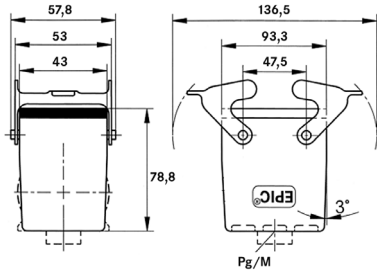
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Rectangular connectors

EPIC® H-B 16 Housings



**EPIC® H-B 16 TBFH**



**Info**

- Universal, robust metal housings size H-B 16

**Benefits**

- The housing standard. Wide choice for all applications

**Application range**

- Plant engineering
- Plastics industry
- Light & sound technology

**Product features**

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (straight cable entry, double lever, high version)</b>					
70090200	H-B 16 TBFH 21		21	yes	5
70090400	H-B 16 TBFH 29		29	yes	5
79090200	H-B 16 TBFH M25	25			5
79090400	H-B 16 TBFH M32	32			5
79090401	H-B 16 TBFH 2xM32	2 x 32			5

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**Accessories**

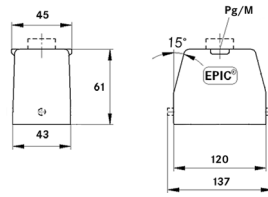
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

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**Info**

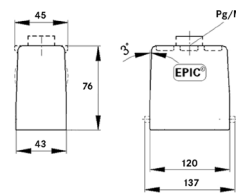
- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TG-RO**

**Info**

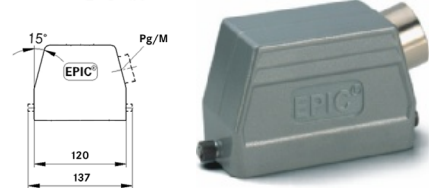
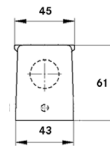
- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TGH-RO**

**Info**

- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TS-RO**

**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**

**EPIC® H-B 24 TG-RO**

- Hood, low version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TGH-RO**

- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TS-RO**

- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for single lever)</b>					
10121900	H-B 24 TG-RO 21		21	yes	5
10111900	H-B 24 TG-RO 29		29	yes	5
19121900	H-B 24 TG-RO M25	25			5
19111900	H-B 24 TG-RO M32	32			5
<b>H-B housing: hood (straight cable entry, bolts for single lever, high version)</b>					
70144400	H-B 24 TGH-RO 21		21	yes	5
70144600	H-B 24 TGH-RO 29		29	yes	5
79144400	H-B 24 TGH-RO M25	25			5
79144600	H-B 24 TGH-RO M32	32			5
79144800	H-B 24 TGH-RO M40	40			5
<b>H-B housing: hood (side cable entry, bolts for single lever)</b>					
10113900	H-B 24 TS-RO 21		21	yes	5
10123900	H-B 24 TS-RO 29		29	yes	5
19113900	H-B 24 TS-RO M25	25		yes	5
19123900	H-B 24 TS-RO M32	32		yes	5

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

**Similar products**

**EPIC® H-B 24 TG-RO**

- Further products for two inserts in the internet. (H-B 32, H-B 48)

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



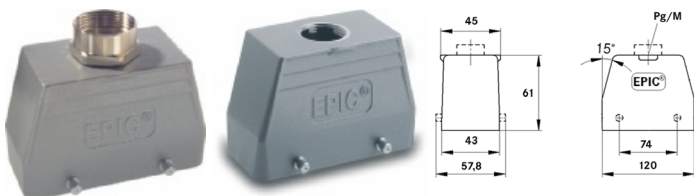
### EPIC® H-B 24 TSH-RO



**Info**

- Universal, robust metal housings size H-B 24

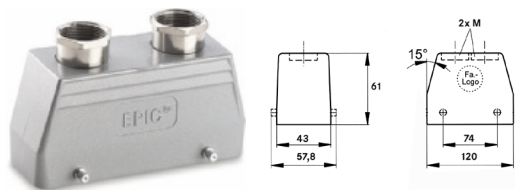
### EPIC® H-B 24 TG



**Info**

- Universal, robust metal housings size H-B 24

### EPIC® H-B 24 TG 2X



**Info**

- Universal, robust metal housings size H-B 24

#### 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

##### EPIC® H-B 24 TSH-RO

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

##### EPIC® H-B 24 TG

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

##### EPIC® H-B 24 TG 2X

- Hood, low version
- Bolts for double lever
- 2 straight cable entries
- Versions with neck

#### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### Technical data

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for single lever, high version)</b>					
70154400	H-B 24 TSH-RO 21		21	yes	5
70154600	H-B 24 TSH-RO 29		29	yes	5
79154400	H-B 24 TSH-RO M25	25			5
79154600	H-B 24 TSH-RO M32	32			5
79154800	H-B 24 TSH-RO M40	40			5
<b>H-B housing: hood (straight cable entry, bolts for double lever)</b>					
10121000	H-B 24 TG 21		21	yes	5
10111000	H-B 24 TG 29		29	yes	5
19121000	H-B 24 TG M25	25			5
19111000	H-B 24 TG M32	32			5
<b>H-B housing: hood (2 straight cable entries, bolts for double lever)</b>					
44422019	H-B 24 TG 2XM25	2 x 25		yes	5
44422020	H-B 24 TG 2XM32	2 x 32		yes	5

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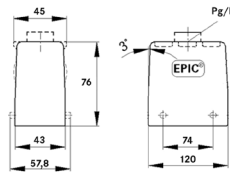
#### Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 24

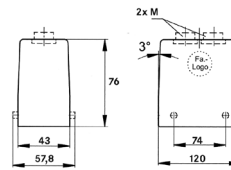


**EPIC® H-B 24 TGH**



**Info**

- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TGH 2X**



**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**

**EPIC® H-B 24 TGH**

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TGH 2X**

- Hood, high version
- Bolts for double lever
- 2 straight cable entries
- Versions without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, bolts for double lever, high version)</b>					
70150400	H-B 24 TGH 21		21	yes	5
70150600	H-B 24 TGH 29		29	yes	5
79150400	H-B 24 TGH M25	25			5
79150600	H-B 24 TGH M32	32			5
79150800	H-B 24 TGH M40	40			5
<b>H-B housing: hood (2 straight cable entries, bolts for double lever, high version)</b>					
44422021	H-B 24 TGH 2XM25	2 x 25			5
79178500	H-B 24 TGH 2XM32	2 x 32			5

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

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 24 Housings



**EPIC® H-B 24 TGB**



**Info**

- Universal, robust metal housings size H-B 24

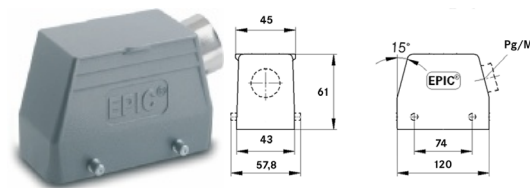
**EPIC® H-B 24 TGBH**



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 TS**



**Info**

- Universal, robust metal housings size H-B 24

**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**

**EPIC® H-B 24 TGB**

- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TGBH**

- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TS**

- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- IP** **Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- DIN VDE** Certified production control:  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (straight cable entry, double lever)</b>					
10122000	H-B 24 TGB 21		21	yes	5
10112000	H-B 24 TGB 29		29	yes	5
19122000	H-B 24 TGB M25	25			5
19112000	H-B 24 TGB M32	32			5
<b>H-B housing: hood (straight cable entry, double lever, high version)</b>					
70155400	H-B 24 TGBH 21		21	yes	5
70155600	H-B 24 TGBH 29		29	yes	5
79155400	H-B 24 TGBH M25	25			5
79155600	H-B 24 TGBH M32	32			5
<b>H-B housing: hood (side cable entry, bolts for double lever)</b>					
10113000	H-B 24 TS 21		21	yes	5
10123000	H-B 24 TS 29		29	yes	5
19113000	H-B 24 TS M25	25		yes	5
19123000	H-B 24 TS M32	32		yes	5

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**Accessories**

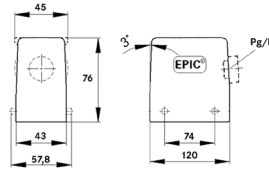
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

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**Info**

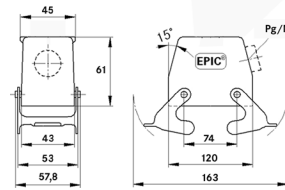
- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TSH**

**Info**

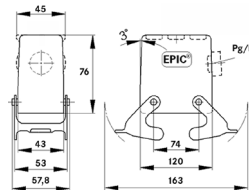
- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TSB**

**Info**

- Universal, robust metal housings size H-B 24



**EPIC® H-B 24 TSBH**

**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**

**EPIC® H-B 24 TSH**

- Hood, high version
- Bolts for double lever
- Side cable entry
- Versions with / without neck

**EPIC® H-B 24 TSB**

- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

**EPIC® H-B 24 TSBH**

- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**



**Material**

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



**Protection rating**

IP 65 (latched)



**Temperature range**

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: hood (side cable entry, bolts for double lever, high version)</b>					
70152400	H-B 24 TSH 21		21	yes	5
70152600	H-B 24 TSH 29		29	yes	5
79152400	H-B 24 TSH M25	25			5
79152600	H-B 24 TSH M32	32			5
79152800	H-B 24 TSH M40	40			5
<b>H-B housing: hood (side cable entry, double lever)</b>					
10114000	H-B 24 TSB 21		21	yes	5
10124000	H-B 24 TSB 29		29	yes	5
19114000	H-B 24 TSB M25	25		yes	5
19124000	H-B 24 TSB M32	32		yes	5
<b>H-B housing: hood (side cable entry, double lever, high version)</b>					
70157400	H-B 24 TSBH 21		21	yes	5
70157600	H-B 24 TSBH 29		29	yes	5
79157400	H-B 24 TSBH M25	25			5
79157600	H-B 24 TSBH M32	32			5

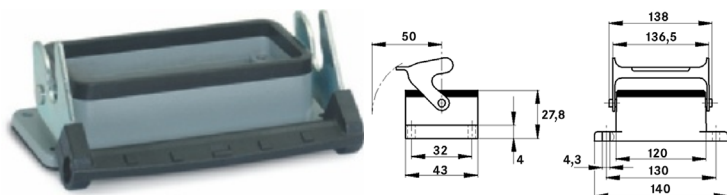
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



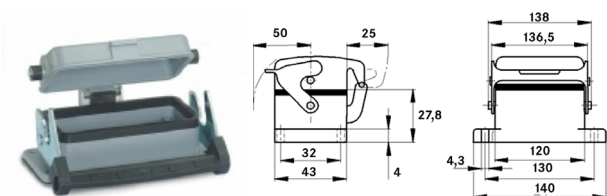
### EPIC® H-B 24 AG-LB



**Info**

- Universal, robust metal housings size H-B 24

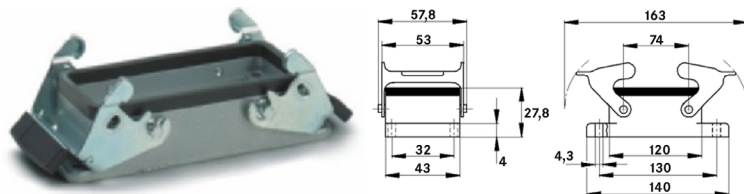
### EPIC® H-B 24 AD-LB



**Info**

- Universal, robust metal housings size H-B 24

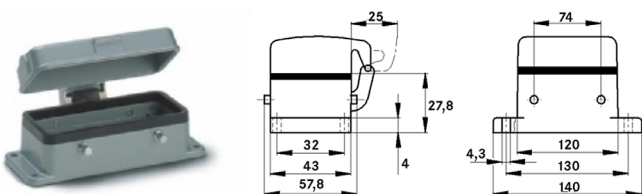
### EPIC® H-B 24 AG



**Info**

- Universal, robust metal housings size H-B 24

### EPIC® H-B 24 AD-BO



**Info**

- Universal, robust metal housings size H-B 24

#### 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

##### EPIC® H-B 24 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

##### EPIC® H-B 24 AD-LB

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

##### EPIC® H-B 24 AG

- Panel-mount base
- Dual levers
- Included: flat gasket

##### EPIC® H-B 24 AD-BO

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

#### Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### Technical data

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	Pieces / PU
<b>H-B housing: panel-mount base (single lever)</b>		
10102900	H-B 24 AG-LB	5
<b>H-B housing: panel-mount base (cover, single lever)</b>		
10103900	H-B 24 AD-LB	5
<b>H-B housing: panel-mount base (double lever)</b>		
10102000	H-B 24 AG	5
<b>H-B housing: panel-mount base (cover, bolts for double lever)</b>		
10103000	H-B 24 AD-BO	5

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 ACCESSORIES  
 APPENDIX

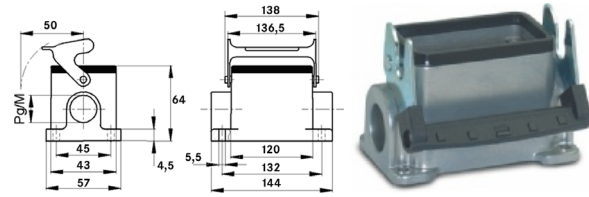




**Info**

- Universal, robust metal housings size H-B 24

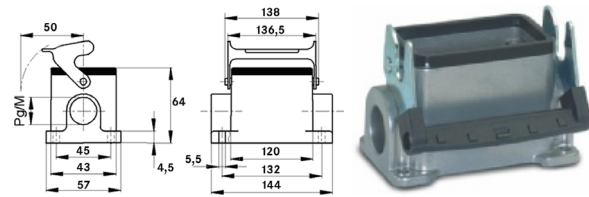
**EPIC® H-B 24 SGR-LB**



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 SGRL-LB**



**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**

**EPIC® H-B 24 SGR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry

**EPIC® H-B 24 SGRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries

**Suitable inserts**

- Refer to Selection Table A10 to select the required inserts and housings

**Technical data**



**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR



**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C



Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**



**Protection rating**  
 IP 65 (latched)

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever)</b>				
10104900	H-B 24 SGR-LB 21		21	5
19104900	H-B 24 SGR-LB M25	25		5
<b>H-B housing: surface-mount base (2 cable entries, single lever)</b>				
10105900	H-B 24 SGRL-LB 21		21	5
19105900	H-B 24 SGRL-LB M25	25		5

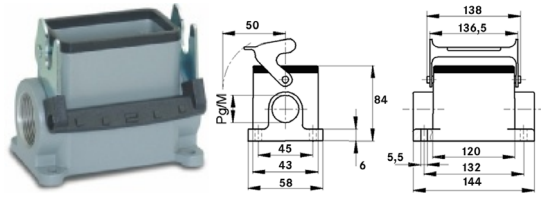
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



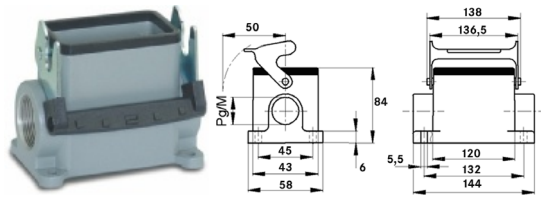
### EPIC® H-B 24 SGRH-LB



**Info**

- Universal, robust metal housings size H-B 24

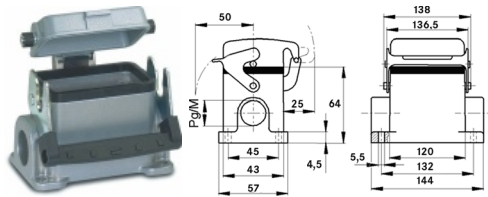
### EPIC® H-B 24 SGRLH-LB



**Info**

- Universal, robust metal housings size H-B 24

### EPIC® H-B 24 SDR-LB



**Info**

- Universal, robust metal housings size H-B 24

**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**

**EPIC® H-B 24 SGRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry

**EPIC® H-B 24 SGRLH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries

**EPIC® H-B 24 SDR-LB**

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

- Material**  
Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR
- Protection rating**  
IP 65 (latched)
- Temperature range**  
-40 °C to +100 °C, short-term up to +125 °C
- Certified production control:**  
VDE-REG. no.: **B437**  
UL-tested:  
UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, single lever, high version)</b>				
70160200	H-B 24 SGRH-LB 21		21	5
70160400	H-B 24 SGRH-LB 29		29	5
79160200	H-B 24 SGRH-LB M25	25		5
79160400	H-B 24 SGRH-LB M32	32		5
<b>H-B housing: surface-mount base (2 cable entries, single lever, high version)</b>				
70161200	H-B 24 SGRLH-LB 21		21	5
70161400	H-B 24 SGRLH-LB 29		29	5
79161200	H-B 24 SGRLH-LB M25	25		5
79161400	H-B 24 SGRLH-LB M32	32		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever)</b>				
10107900	H-B 24 SDR-LB 21		21	5
19107900	H-B 24 SDR-LB M25	25		5

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**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 24

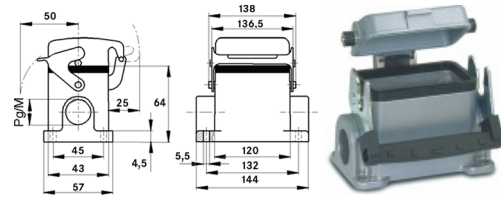
**Info**

- Universal, robust metal housings size H-B 24

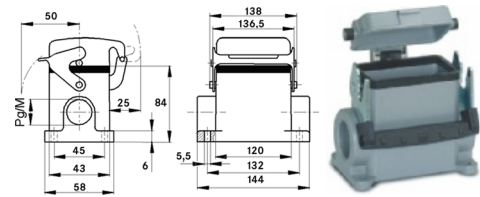
**Info**

- Universal, robust metal housings size H-B 24

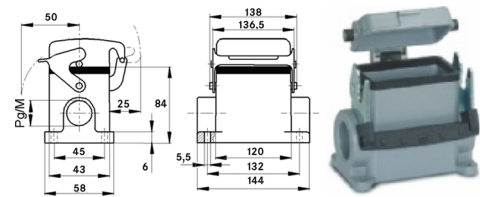
**EPIC® H-B 24 SDRL-LB**



**EPIC® H-B 24 SDRH-LB**



**EPIC® H-B 24 SDRLH-LB**



**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**

**EPIC® H-B 24 SDRL-LB**

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

**EPIC® H-B 24 SDRH-LB**

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

**EPIC® H-B 24 SDRLH-LB**

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever)</b>				
10109900	H-B 24 SDRL-LB 21		21	5
19109900	H-B 24 SDRL-LB M25	25		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)</b>				
70164200	H-B 24 SDRH-LB 21		21	5
70164400	H-B 24 SDRH-LB 29		29	5
79164200	H-B 24 SDRH-LB M25	25		5
79164400	H-B 24 SDRH-LB M32	32		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)</b>				
70165200	H-B 24 SDRLH-LB 21		21	5
70165400	H-B 24 SDRLH-LB 29		29	5
79165200	H-B 24 SDRLH-LB M25	25		5
79165400	H-B 24 SDRLH-LB M32	32		5

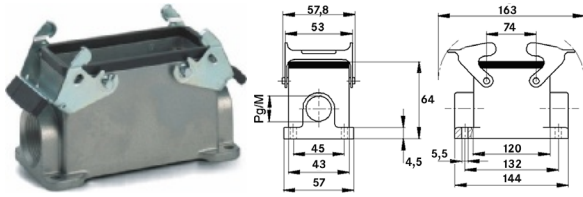
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



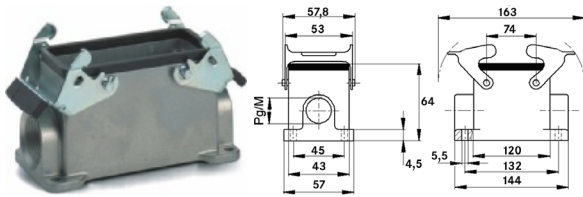
### EPIC® H-B 24 SGR



**Info**

- Universal, robust metal housings size H-B 24

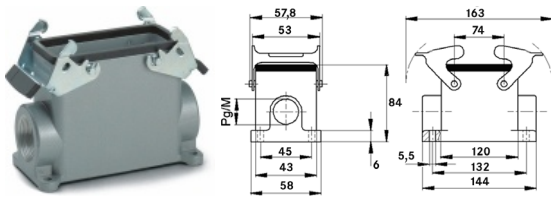
### EPIC® H-B 24 SGRL



**Info**

- Universal, robust metal housings size H-B 24

### EPIC® H-B 24 SGRH



**Info**

- Universal, robust metal housings size H-B 24

#### ■ 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

##### EPIC® H-B 24 SGR

- Surface-mount base, low version
- Dual levers
- 1 cable entry

##### EPIC® H-B 24 SGRL

- Surface-mount base, low version
- Dual levers
- 2 cable entries

##### EPIC® H-B 24 SGRH

- Surface-mount base, high version
- Dual levers
- 1 cable entry

#### ■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

#### ■ Technical data



##### Material

Housing: powder-coated aluminium alloy, grey  
Lever: zinc-plated steel  
Sealing: NBR



##### Protection rating

IP 65 (latched)



##### Temperature range

-40 °C to +100 °C, short-term up to +125 °C



Certified production control:

VDE-REG. no.: **B437**

UL-tested:

UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (1 cable entry, double lever)</b>				
10104000	H-B 24 SGR 21		21	5
19104000	H-B 24 SGR M25	25		5
<b>H-B housing: surface-mount base (2 cable entries, double lever)</b>				
10105000	H-B 24 SGRL 21		21	5
19105000	H-B 24 SGRL M25	25		5
<b>H-B housing: surface-mount base (1 cable entry, double lever, high version)</b>				
70135200	H-B 24 SGRH 21		21	5
70135400	H-B 24 SGRH 29		29	5
79135200	H-B 24 SGRH M25	25		5
79135400	H-B 24 SGRH M32	32		5

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

#### ■ Accessories

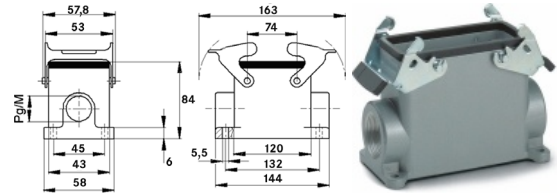
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 24

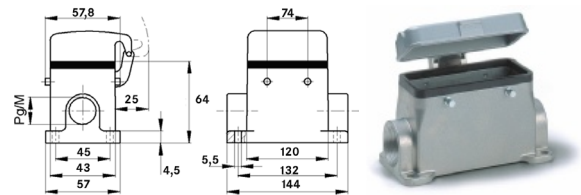
**EPIC® H-B 24 SGRLH**



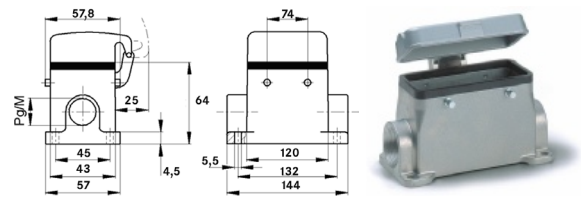
**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 SDR-BO**



**EPIC® H-B 24 SDRL-BO**



**Info**

- Universal, robust metal housings size H-B 24

**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**

**EPIC® H-B 24 SGRLH**

- Surface-mount base, high version
- Dual levers
- 2 cable entries

**EPIC® H-B 24 SDR-BO**

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

**EPIC® H-B 24 SDRL-BO**

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (2 cable entries, double lever, high version)</b>				
70136200	H-B 24 SGRLH 21		21	5
70136400	H-B 24 SGRLH 29		29	5
79136200	H-B 24 SGRLH M25	25		5
79136400	H-B 24 SGRLH M32	32		5
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)</b>				
10107000	H-B 24 SDR-BO 21		21	5
19107000	H-B 24 SDR-BO M25	25		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)</b>				
10109000	H-B 24 SDRL-BO 21		21	5
19109000	H-B 24 SDRL-BO M25	25		5

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**Accessories**

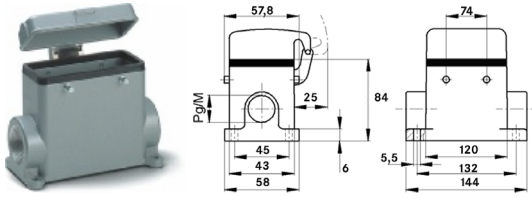
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 24 Housings



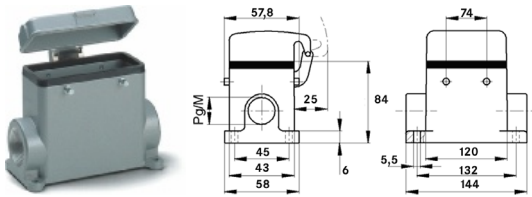
**EPIC® H-B 24 SDRH-BO**



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 SDRLH-BO**



**Info**

- Universal, robust metal housings size H-B 24

**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**

**EPIC® H-B 24 SDRH-BO**

- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

**EPIC® H-B 24 SDRLH-BO**

- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Pieces / PU
<b>H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)</b>				
70145200	H-B 24 SDRH-BO 21		21	5
70145400	H-B 24 SDRH-BO 29		29	5
79145400	H-B 24 SDRH-BO M32	32		5
<b>H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)</b>				
70146200	H-B 24 SDRLH-BO 21		21	5
70146400	H-B 24 SDRLH-BO 29		29	5
79146400	H-B 24 SDRLH-BO M32	32		5

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**Accessories**

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 TBF-LB**



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 TBFH-LB**



**Info**

- Universal, robust metal housings size H-B 24

**EPIC® H-B 24 TBF**



**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**

**EPIC® H-B 24 TBF-LB**

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TBFH-LB**

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

**EPIC® H-B 24 TBF**

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

**Suitable inserts**

- Refer to Selection Table A 10 to select the required inserts and housings

**Technical data**

**Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR

**IP Protection rating**  
 IP 65 (latched)

**Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C

**DIN VDE** Certified production control:  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever)</b>					
10127900	H-B 24 TBF-LB 21		21	yes	5
10117900	H-B 24 TBF-LB 29		29	yes	5
19127900	H-B 24 TBF-LB M25	25			5
19117900	H-B 24 TBF-LB M32	32			5
<b>H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)</b>					
70142400	H-B 24 TBFH-LB 21		21	yes	5
79142400	H-B 24 TBFH-LB M25	25			5
79142600	H-B 24 TBFH-LB M32	32			5
<b>H-B housing: cable coupler hood (straight cable entry, double lever)</b>					
10127000	H-B 24 TBF 21		21	yes	5
10117000	H-B 24 TBF 29		29	yes	5
19127000	H-B 24 TBF M25	25			5
19117000	H-B 24 TBF M32	32			5

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

**Accessories**

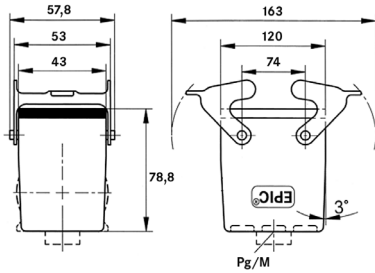
- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

Rectangular connectors

EPIC® H-B 24 Housings



EPIC® H-B 24 TBFH



**Info**

- Universal, robust metal housings size H-B 24

■ 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

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

■ Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

■ Technical data

- Material**  
 Housing: powder-coated aluminium alloy, grey  
 Lever: zinc-plated steel  
 Sealing: NBR
- Protection rating**  
 IP 65 (latched)
- Temperature range**  
 -40 °C to +100 °C, short-term up to +125 °C
- Certified production control:**  
 VDE-REG. no.: **B437**  
 UL-tested:  
 UL File Number: **E75770**

Article number	Article	M	PG	Neck	Pieces / PU
<b>H-B housing: cable coupler hood (straight cable entry, double lever, high version)</b>					
70140400	H-B 24 TBFH 21		21	yes	5
70140600	H-B 24 TBFH 29		29	yes	5
79140400	H-B 24 TBFH M25	25			5
79140600	H-B 24 TBFH M32	32			5

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■ Accessories

- SKINTOP® MS-M refer to page 666
- SKINTOP® for industrial connectors refer to page 670
- Easy to install refer to page 731

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APPENDIX





## EPIC® Flat gaskets for housings H-A und H-B



## EPIC® Fixing screws



### Application range

- Accessories for an effective use of EPIC® rectangular connectors

### Product features

#### EPIC® Flat gasket for panel-mount base

- Flat gaskets as spare parts for panel-mount base

#### EPIC® Fixing screws

- Spare parts for fastening inserts in H-A 3 housings

Article number	Article	Pieces / PU
<b>Flat gasket for panel-mount base H-A</b>		
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
<b>Flat gasket for panel-mount base H-B</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
<b>Fastening screws</b>		
44423017	Screw with O-ring for EPIC H-A 3/4, H-D7/8, H-Q 5	10
44423018	EPIC® STA Screw	10

Photographs 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.

- 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.

Article number	Article	Pieces / PU
<b>H-A 3 / 4 Codepin</b>		
10451400	EPIC® H-A 3/4 Codepin (50)	50
<b>Key pin</b>		
10019000	EPIC® Key pin (50)	50
<b>Guide pin, guide socket</b>		
11281000	EPIC® Guide socket (50)	50
11280000	EPIC® Guide pin (50)	50

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



### EPIC® Protective cover H-A 3



### EPIC® Protective cover H-A



### EPIC® Protective cover H-B



**Product features**

**EPIC® Protective cover H-A 3**

- Protective cover made of thermoplastics and metal for H-A 3 housings

**EPIC® Protective cover H-A**

- Protective cover made of thermoplastics for H-A 10, H-A 16, H-A 32, H-A 48 housings

**EPIC® Protective cover H-B**

- 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	Version	Bolts	Securing cord	Clamp	Material	Pieces / PU
<b>For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male or female inserts</b>							
10513000	H-A 3 MDBF-S	for housing H-A 3 with male inserts	2	with cable lug	with male inserts	Metal	10
10513100	H-A 3 MDBF-B	for housing H-A 3 with female inserts	2	with cable lug		Metal	10
<b>For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male inserts</b>							
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
<b>For H-A 3 panel-mount base, surface-mount base, cable coupler hood with female inserts</b>							
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
<b>with bolts for H-A 10-32 panel-mount base, surface-mount base, cable coupler hood</b>							
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
<b>with lever for H-A 10-32 hoods</b>							
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
<b>with bolts for H-B 6-24 panel-mount base, surface-mount base, cable coupler hood</b>							
10015000	H-B 6 KDB	for housing H-B 6	2	with cable lug		Plastic	10
10047000	H-B 10 KDB	for housing H-B 10	4	with cable lug		Plastic	10
10087000	H-B 16 KDB	for housing H-B 16	4	with cable lug		Plastic	5
10118000	H-B 24 KDB	for housing H-B 24	4	with cable lug		Plastic	5
<b>with lever for H-B 6-24 hood with bolts</b>							
10016500	H-B 6 KDT	for H-B 6 hood		with loop	2 snap-in hooks	Plastic	10
10048500	H-B 10 KDT	for H-B 10 hood		with loop	4 snap-in hooks	Plastic	10
10088500	H-B 16 KDT	for H-B 16 hood		with loop	4 snap-in hooks	Plastic	5
10119500	H-B 24 KDT	for H-B 24 hood		with loop	4 snap-in hooks	Plastic	5
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
<b>with bolts for H-B 10-32 panel-mount base, surface-mount base, cable coupler hood</b>							
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
<b>with lever for H-B 10-24 hood with bolts</b>							
10048600	H-B 10 KDTF	for H-B 10 hood		with loop	2 snap-in hooks	Plastic	10
10088600	H-B 16 KDTF	for H-B 16 hood		with loop	2 snap-in hooks	Plastic	10
10118600	H-B 24 KDTF	for H-B 24 hood		with loop	2 snap-in hooks	Plastic	10

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



## EPIC® Cover plates



## EPIC® Adapter plates for 1 D-Sub insert



## EPIC® Adapter plates for 2 D-Sub inserts



## EPIC® Locking levers



### Product features

#### EPIC® Cover plates

- For coverage of panel cut-outs for panel-mount base housings type 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

- Locking levers as spare parts for H-A and H-B housings

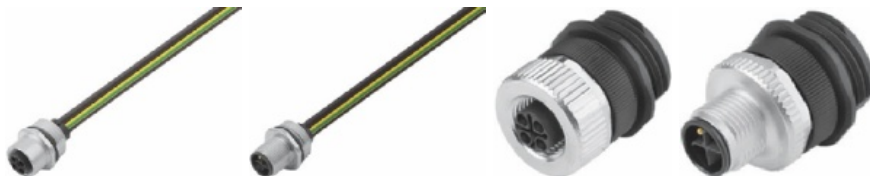
Article number	Article	Version	Material	Pieces / PU
<b>Cover plates for mounting cut-out H-B</b>				
10018920	H-B 6	for H-B 6 panel-mount base housing		10
10018921	H-B 10	for H-B 10 panel-mount base housing		10
10018922	H-B 16	for H-B 16 panel-mount base housing		10
10018923	H-B 24	for H-B 24 panel-mount base housing		10
<b>Adapter plates for 1 D-Sub insert</b>				
11764200	H-B 6 / M-D 9	for 1 x D-Sub 9-pin		10
11764202	H-B 6 / M-D 15	for 1 x D-Sub 15-pin		10
11764300	H-B 10 / M-D 25	for 1 x D-Sub 25-pin		10
11764400	H-B 16 / M-D 25	for 1 x D-Sub 25-pin		10
<b>Adapter plates for 2 D-Sub inserts</b>				
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
<b>Single and double levers for H-A and H-B housings</b>				
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
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

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



New

## EPIC® M12 POWER panel base



### 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 without N

### Technical data

#### Rated voltage (V)

630 V

#### Rated impulse voltage

6 kV

#### Rated current (A)

12 A

#### Degree of soiling

3

#### Contact resistance

< 3 mOhm

### Info

- Simply screw in given metric thread

#### Number of contacts

3 + PE  
S-coded

#### Termination methods

Screw termination: 0.75 - 1.5mm<sup>2</sup>  
with 0,2m PP-wire, 4x1.5mm<sup>2</sup>



#### Protection rating

IP 67

#### Cycle of mechanical operation

100



#### Temperature range

-40 °C to +85 °C

Article number	Article	Fastening type	Pieces / PU
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
44423144	Panel base with pin contacts	M20	1
44423145	Panel base with socket contacts	M20	1

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



New

## EPIC® M12 POWER cable connector



### Benefits

- To terminate only screw driver is necessary
- 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 without N

### Technical data

#### Rated voltage (V)

630 V

#### Rated impulse voltage

6 kV

#### Rated current (A)

12 A

#### Degree of soiling

3

#### Contact resistance

< 3 mOhm

#### Number of contacts

3 + PE  
S-coded

#### Termination methods

Screw termination: 0.75 - 1.5mm<sup>2</sup>



#### Protection rating

IP 67

#### Cycle of mechanical operation

100



#### Temperature range

-40 °C to +85 °C

Article number	Article	Cable clamping range (mm)	Pieces / PU
44423140	Cable connector with socket contacts	8 - 10	1
44423141	Cable coupler with pin contacts	8 - 10	1
44423142	Cable connector with socket contacts, angled	8 - 10	1
44423143	Cable coupler with pin contacts, angled	8 - 10	1

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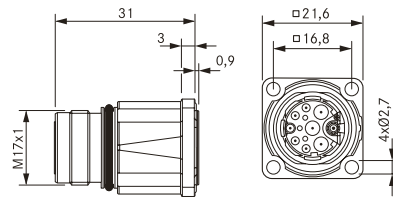


**New**

**EPIC® M17 POWER A1**

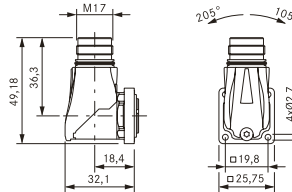
**Info**

- High Power with smallest space requirements



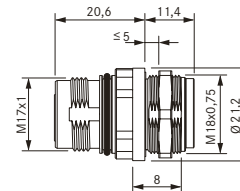
**New**

**EPIC® M17 POWER A3**



**New**

**EPIC® M17 POWER G4**



**Technical data**

**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

**Degree of soiling**  
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: 0.5-2.5mm<sup>2</sup>,  
5+PE/6+PE/7+PE: 0.06-1mm<sup>2</sup>, 3+P+5:  
0.06-1/0.06-0.5mm<sup>2</sup>

**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

**Suitable contacts:**

- EPIC® M17 Contacts Page 613
- The contacts have to be ordered separately

**Benefits**

- Version with less contacts for higher current
- Small design
- EMC protection

**Application range**

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>Type M17 A1, front wall mounting</b>				
44423075	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE	5
44423070	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE	5
44423079	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE+5	5
44423074	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE+5	5
44423076	EPIC® M17 female	Ø 2.7 mm (4x)	5+PE	5
44423071	EPIC® M17 male	Ø 2.7 mm (4x)	5+PE	5
44423077	EPIC® M17 female	Ø 2.7 mm (4x)	6+PE	5
44423072	EPIC® M17 male	Ø 2.7 mm (4x)	6+PE	5
44423078	EPIC® M17 female	Ø 2.7 mm (4x)	7+PE	5
44423073	EPIC® M17 male	Ø 2.7 mm (4x)	7+PE	5
<b>Type M17 A3, angled and rotatable</b>				
44423085	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE	5
44423080	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE	5
44423086	EPIC® M17 female	Ø 2.7 mm (4x)	5+PE	5
44423081	EPIC® M17 male	Ø 2.7 mm (4x)	5+PE	5
44423087	EPIC® M17 female	Ø 2.7 mm (4x)	6+PE	5
44423082	EPIC® M17 male	Ø 2.7 mm (4x)	6+PE	5
44423088	EPIC® M17 female	Ø 2.7 mm (4x)	7+PE	5
44423083	EPIC® M17 male	Ø 2.7 mm (4x)	7+PE	5
44423089	EPIC® M17 female	Ø 2.7 mm (4x)	4+PE	5
44423084	EPIC® M17 male	Ø 2.7 mm (4x)	4+PE	5
<b>Type M17 G4, front wall mounting</b>				
44423095	EPIC® M17 female	M18x0,75 (with counternut)	3+PE	5
44423090	EPIC® M17 male	M18x0,75 (with counternut)	3+PE	5
44423099	EPIC® M17 female	M18x0,75 (with counternut)	5+PE	5
44423094	EPIC® M17 male	M18x0,75 (with counternut)	5+PE	5
44423096	EPIC® M17 female	M18x0,75 (with counternut)	6+PE	5
44423091	EPIC® M17 male	M18x0,75 (with counternut)	6+PE	5
44423097	EPIC® M17 female	M18x0,75 (with counternut)	7+PE	5
44423092	EPIC® M17 male	M18x0,75 (with counternut)	7+PE	5
44423098	EPIC® M17 female	M18x0,75 (with counternut)	3+PE+5	5
44423093	EPIC® M17 male	M18x0,75 (with counternut)	3+PE+5	5

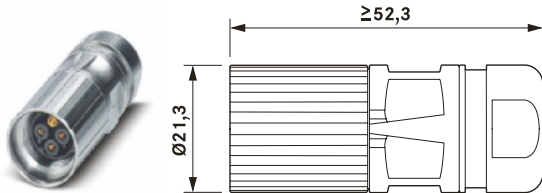
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APPENDIX



New

## EPIC® M17 POWER D6

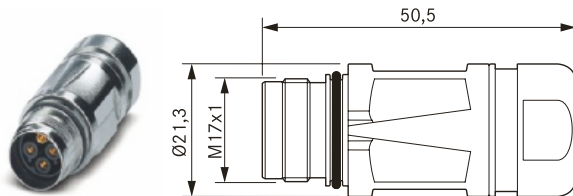


Info

- High Power with smallest space requirements

New

## EPIC® M17 POWER F6



### Suitable contacts:

- EPIC® M17 Contacts Page 613
- The contacts have to be ordered separately

### Benefits

- Small design
- Version with less contacts for higher current
- EMC protection

### Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

### Technical data

#### 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

#### Degree of soiling

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: 0.5-2.5mm<sup>2</sup>,  
5+PE/6+PE/7+PE: 0.06-1mm<sup>2</sup>, 3+P+5:  
0.06-1/0.06-0.5mm<sup>2</sup>



#### Material

Housing: nickel-plated zinc die-casting,  
nickel-plated brass  
Insert: PA,  
Seal: FPM



#### Protection rating

IP 67

#### Cycle of mechanical operation

100

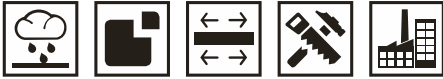


#### Temperature range

-40°C to +125°C

Article number	Article	Cable clamping range (mm)	Pin configuration	Pieces / PU
<b>Type M17 D6, cable connector</b>				
44423050	EPIC® M17 female	3,5 - 11	3+PE	5
44423055	EPIC® M17 male	3,5 - 11	3+PE	5
44423051	EPIC® M17 female	3,5 - 11	5+PE	5
44423056	EPIC® M17 male	3,5 - 11	5+PE	5
44423052	EPIC® M17 female	3,5 - 11	6+PE	5
44423057	EPIC® M17 male	3,5 - 11	6+PE	5
44423053	EPIC® M17 female	3,5 - 11	7+PE	5
44423058	EPIC® M17 male	3,5 - 11	7+PE	5
44423054	EPIC® M17 female	3,5 - 11	3+PE+5	5
44423059	EPIC® M17 male	3,5 - 11	3+PE+5	5
<b>Type M17 F6, cable coupler</b>				
44423065	EPIC® M17 female	3,5 - 11	3+PE	5
44423060	EPIC® M17 male	3,5 - 11	3+PE	5
44423066	EPIC® M17 female	3,5 - 11	5+PE	5
44423061	EPIC® M17 male	3,5 - 11	5+PE	5
44423067	EPIC® M17 female	3,5 - 11	6+PE	5
44423062	EPIC® M17 male	3,5 - 11	6+PE	5
44423068	EPIC® M17 female	3,5 - 11	7+PE	5
44423063	EPIC® M17 male	3,5 - 11	7+PE	5
44423069	EPIC® M17 female	3,5 - 11	3+PE+5	5
44423064	EPIC® M17 male	3,5 - 11	3+PE+5	5

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**New**

## EPIC® M17 SIGNAL A1



**New**

## EPIC® M17 SIGNAL A3



**New**

## EPIC® M17 SIGNAL G4



**Info**

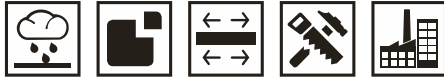
- Connector for shielded data cables

- Suitable contacts:**
  - EPIC® M17 Contacts Page 613
  - The contacts have to be ordered separately
- Benefits**
  - Small design
  - EMC protection
- Application range**
  - Feedback / signal cables

■ Technical data	
<b>Rated voltage (V)</b> 60 V	<b>Termination methods</b> Crimp termination: 0.06 - 0.56 mm <sup>2</sup> (0,6mm contacts) Crimp termination: 0.06 - 1.0 mm <sup>2</sup> (1mm contacts)
<b>Rated impulse voltage</b> 1.5 kV	<b>Material</b> Housing: nickel-plated zinc die-casting, nickel-plated brass Insert: PA, Seal: FPM
<b>Rated current (A)</b> 3.6 A	<b>IP</b> <b>Protection rating</b> IP 67
<b>Degree of soiling</b> 3	<b>Cycle of mechanical operation</b> 100
<b>Contacts</b> Gold-plated brass	<b>Temperature range</b> -40°C to +125°C
<b>Number of contacts</b> Contacts: 8(1mm), 17(0.6mm)	

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>Type M17 A1, front wall mounting</b>				
44423111	EPIC® M17 female	Ø 2.7 mm (4x)	17	5
44423109	EPIC® M17 male	Ø 2.7 mm (4x)	17	5
44423110	EPIC® M17 female	Ø 2.7 mm (4x)	8	5
44423108	EPIC® M17 male	Ø 2.7 mm (4x)	8	5
<b>Type M17 A3, angled and rotateable</b>				
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
<b>Type M17 G4, front wall mounting</b>				
44423118	EPIC® M17 female	M18x0,75 (with counternut)	8	5
44423116	EPIC® M17 male	M18x0,75 (with counternut)	8	5
44423119	EPIC® M17 female	M18x0,75 (with counternut)	17	5
44423117	EPIC® M17 male	M18x0,75 (with counternut)	17	5

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New

## EPIC® M17 SIGNAL D6



Info

- Connector for shielded data cables

New

## EPIC® M17 SIGNAL F6



### ■ Suitable contacts:

- EPIC® M17 Contacts Page 613
- The contacts have to be ordered separately

### ■ Benefits

- Small design
- EMC protection

### ■ Application range

- Feedback / signal cables

### ■ Technical data

**Rated voltage (V)**  
60 V

**Rated impulse voltage**  
1.5 kV

**Rated current (A)**  
3.6 A

**Degree of soiling**  
3

**Contacts**  
Gold-plated brass

**Number of contacts**  
Contacts: 8(1mm), 17(0.6mm)

### Termination methods

Crimp termination: 0.06 - 0.56 mm<sup>2</sup>  
(0,6mm contacts)

Crimp termination: 0.06 - 1.0 mm<sup>2</sup>  
(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	Cable clamping range (mm)	Pin configuration	Pieces / PU
<b>Type M17 D6, cable connector</b>				
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
<b>Type M17 F6, cable coupler</b>				
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 are not to scale and do not represent detailed images of the respective products.



**New**

**EPIC® M17 Contacts**



**New**

**EPIC® M17 Tools  
EPIC® M17 Accessories**

Article number	Article	Version	Inserts	Version	Pieces / PU
<b>0.6mm contacts female</b>					
44423125	M17 BCM 0,6mm 0,06-0,25			0.06-0.25mm <sup>2</sup>	10
44423126	M17 BCM 0.6mm 0.06-0.34			0.06-0.34mm <sup>2</sup>	10
44423127	M17 BCM 0,6mm 0,34-0,5			0.34-0.5mm <sup>2</sup>	10
<b>1mm contacts female</b>					
44423122	M17 BCM 1mm 0,06-0,25			0.06-0.25mm <sup>2</sup>	10
44423123	M17 BCM 1mm 0,34-0,5			0.34-0.5mm <sup>2</sup>	10
44423124	M17 BCM 1mm 0,5-1,0			0.5-1.0mm <sup>2</sup>	10
<b>2mm contacts female</b>					
44423120	M17 BCM 2mm 0,25-1,0			0.25-1.0mm <sup>2</sup>	10
44423121	M17 BCM 2mm 1,0-2,5			1.0-2.5mm <sup>2</sup>	10
<b>0.6mm contacts male</b>					
44423133	M17 SCM 0,6mm 0,06-0,25			0.06-0.25mm <sup>2</sup>	10
44423134	M17 SCM 0,6mm 0,06-0,34			0.06-0.34mm <sup>2</sup>	10
44423135	M17 SCM 0,6mm 0,34-0,5			0.34-0.5mm <sup>2</sup>	10
<b>1mm contacts male</b>					
44423130	M17 SCM 1mm 0,06-0,25			0.06-0.25mm <sup>2</sup>	10
44423131	M17 SCM 1mm 0,34-0,5			0.34-0.5mm <sup>2</sup>	10
44423132	M17 SCM 1mm 0,5-1,0				10
<b>2mm contacts male</b>					
44423128	M17 SCM 2mm 0,25-1,0			0.25-1.0mm <sup>2</sup>	10
44423129	M17 SCM 2mm 1,0-2,5			1.0-2.5mm <sup>2</sup>	10
<b>Crimping tool</b>					
44423136	Crimptool M17	Crimpzange with Locator for EPIC® M17	for EPIC® M17 POWER and SIGNAL		1

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ACCESSORIES

APPENDIX



### EPIC® M23 A1



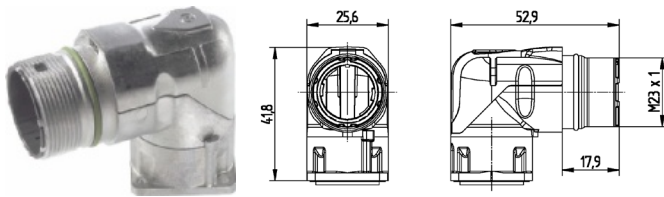
**Info**

- Colour coding for easy connecting

### EPIC® M23 A1 D3,2



### EPIC® M23 A3



**Info**

- Rotateable with clearly defined adjustment positions

**Benefits**

**EPIC® M23 A1**

- Safe fixing with 4 screws
- Permanent vibration protection

**EPIC® 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® 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

**Technical data**

**Material**  
 Housing: nickel-plated zinc die-casting  
 Sealing: FPM

**IP Protection rating**  
**EPIC® M23 A1**  
 IP68 (10h / 1m)  
**EPIC® M23 A1 D3,2**  
 IP68 (10h / 1m)  
**EPIC® M23 A3**  
 IP 65

**Temperature range**  
 -25°C - +125°C

**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

Article number	Article	Coding	Fastening type	Pieces / PU
<b>Type M23 A1 panel-mount box, front wall mounting</b>				
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
<b>Type M23 A1 D3.2 panel-mount box, front wall mounting</b>				
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
44420019	M23 A1 D3,2	red (+20°)	Ø 3.2 mm (4x)	20
44420016	M23 A1 D3,2	blue (-20°)	Ø 3.2 mm (4x)	5
44420015	M23 A1 D3,2	blue (-20°)	Ø 3.2 mm (4x)	20
<b>Type M23 A3 panel-mount connector, angled, rotateable, front wall mounting</b>				
24420055	M23 A3	black (N)	Ø 2.7 mm (4x)	5
24420054	M23 A3	black (N)	Ø 2.7 mm (4x)	20

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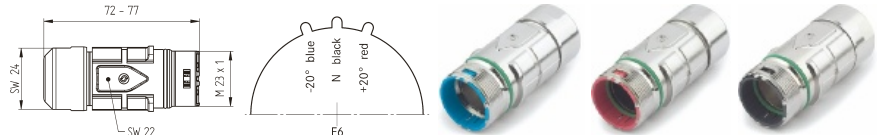
**EPIC® M23 D6**

**Info**

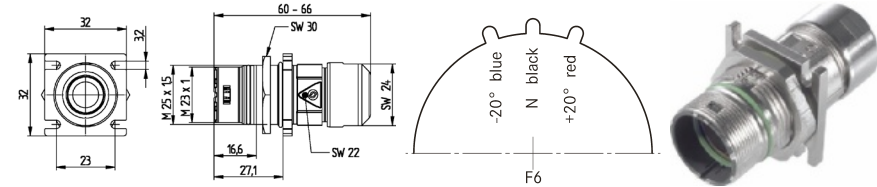
- Robust metal connector with integrated EMC cable gland



**EPIC® M23 F6**



**EPIC® M23 F7**



**Technical data**

- Material**  
Housing: nickel-plated zinc die-casting  
Sealing: FPM
- Protection rating**  
IP68 (10h / 1m)
- Temperature range**  
-25°C - +125°C
- 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

**Benefits**

- Low-resistance screen contact, optimum EMC protection
- Use of high quality materials for increased reliability

**Application range**

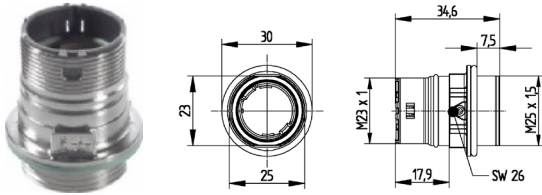
- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

Article number	Article	Coding	Cable clamping range	Fastening type	Pieces / PU
<b>Type M23 D6 cable connector</b>					
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
<b>Type M23 F6 coupling connector</b>					
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
72064210	M23 F6	red (+20°)	9.5 - 13.5		20
44420039	M23 F6	blue (-20°)	7.0 - 13.5		5
72064130	M23 F6	blue (-20°)	7.0 - 10.0		5
72064120	M23 F6	blue (-20°)	7.0 - 10.0		20
72064100	M23 F6	blue (-20°)	9.5 - 13.5		5
<b>Type M23 F7 panel-mount connector, front/rear wall mounting</b>					
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
44420002	M23 F7	red (+20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420003	M23 F7	red (+20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420004	M23 F7	red (+20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420005	M23 F7	blue (-20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420006	M23 F7	blue (-20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420007	M23 F7	blue (-20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420008	M23 F7	blue (-20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20

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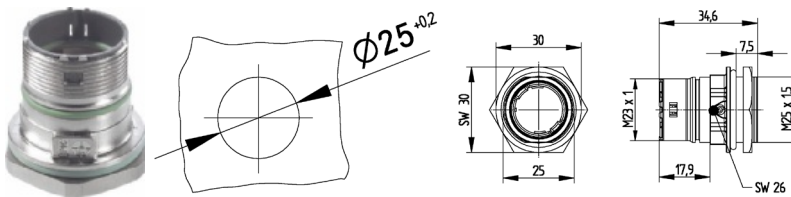
### EPIC® M23 G4



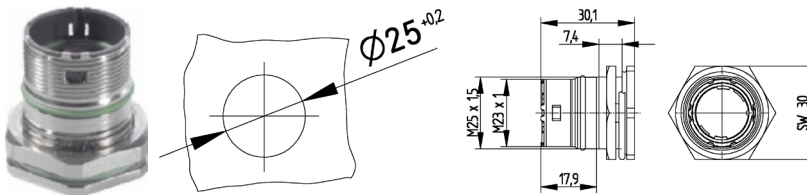
**Info**

- For mounting in existing M25 threads or boreholes

### EPIC® M23 G5



### EPIC® M23 G6



#### 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

**Material**  
Housing: nickel-plated zinc die-casting  
Sealing: FPM

**Protection rating**  
IP68 (10h / 1m)

**Temperature range**  
-25°C - +125°C

**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

Article number	Article	Coding	Fastening type	Pieces / PU
<b>Type M23 G4 panel-mount box, front wall mounting</b>				
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
44420033	M23 G4	red (+20°)	M25 x 1.5	20
44420030	M23 G4	blue (-20°)	M25 x 1.5	5
44420029	M23 G4	blue (-20°)	M25 x 1.5	20
<b>Type M23 G5 panel-mount box, front wall mounting</b>				
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
44420047	M23 G5	red (+20°)	M25 x 1.5 (with nut)	20
44420044	M23 G5	blue (-20°)	M25 x 1.5 (with nut)	5
44420043	M23 G5	blue (-20°)	M25 x 1.5 (with nut)	20
<b>Type M23 G6 panel-mount box, rear wall mounting</b>				
44420071	M23 G6	black (N)	M25 x 1.5 (with nut)	5
44420073	M23 G6	black (N)	M25 x 1.5 (with nut)	20

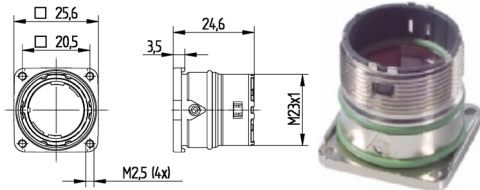
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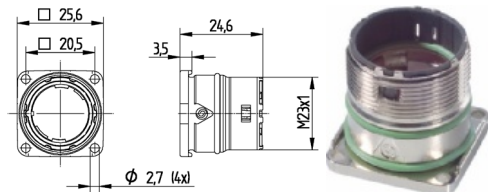
**Info**

- Housing for mounting at inner side to save space outside of device

**EPIC® M23 B1**



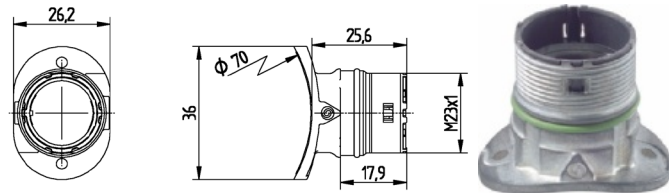
**EPIC® M23 B2**



**Info**

- For use with convex surfaces like encoders and spindle drives

**EPIC® M23 O1**



**Benefits**

**EPIC® 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® 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

**EPIC® M23 O1**

- 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**

- Material**  
Housing: nickel-plated zinc die-casting  
Sealing: FPM
- Protection rating**  
IP68 (10h / 1m)
- Temperature range**  
-25°C - +125°C
- 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

Article number	Article	Coding	Fastening type	Pieces / PU
<b>Type M23 B1 panel-mount box, rear wall mounting</b>				
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
44420025	M23 B1	red (+20°)	M2.5 (4x)	20
44420022	M23 B1	blue (-20°)	M2.5 (4x)	5
44420021	M23 B1	blue (-20°)	M2.5 (4x)	20
<b>Type M23 B2 panel-mount box, rear wall mounting</b>				
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
44420049	M23 B2	red (+20°)	Ø 2.7 mm (4x)	20
44420052	M23 B2	blue (-20°)	Ø 2.7 mm (4x)	5
44420053	M23 B2	blue (-20°)	Ø 2.7 mm (4x)	20
<b>Type M23 O1 panel-mount box with radius, front wall mounting</b>				
44420083	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 50 mm	5
44420082	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 50 mm	20
44420085	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 58 mm	5
44420084	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 58 mm	20
44420087	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 70 mm	5
44420086	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 70 mm	20
44420028	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 90 mm	5
44420027	M23 O1	black (N)	Ø 3.2 mm (2x), mounting Ø 90 mm	20

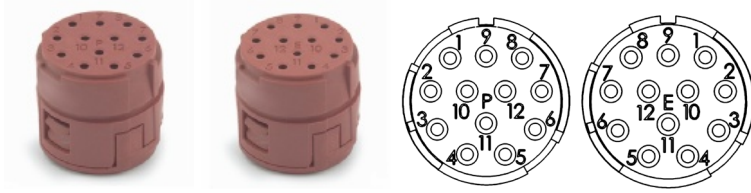
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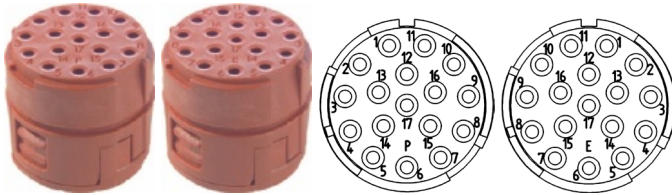
## EPIC® M23 Inserts 12 pole D-Sub



**Info**

- For D-Sub ribbon contacts

## EPIC® M23 Inserts 17 pole D-Sub



**Info**

- For D-Sub ribbon contacts

### Suitable housing:

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 A3 Page 614
- EPIC® M23 D6 Page 615
- EPIC® M23 F6 Page 615
- EPIC® M23 F7 Page 615
- EPIC® M23 G4 Page 616
- EPIC® M23 G5 Page 616
- EPIC® M23 G6 Page 616
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- EPIC® M23 O1 Page 617

### Suitable contacts:

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel Page 524

### 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

#### Rated voltage (V)

EPIC® M23 Inserts 12 pole D-Sub according to IEC 61984: 100 V  
 EPIC® M23 Inserts 17 pole D-Sub according to IEC 61984: 50 V

#### Rated impulse voltage

EPIC® M23 Inserts 12 pole D-Sub 1.5 kV  
 EPIC® M23 Inserts 17 pole D-Sub 0,8 kV

#### Rated current (A)

4 A

#### Degree of soiling

3

#### Contact resistance

< 4 mOhm

#### Contacts

Partly gold-plated brass

#### Number of contacts

EPIC® M23 Inserts 12 pole D-Sub 12  
 EPIC® M23 Inserts 17 pole D-Sub 17

#### Termination methods

Crimp termination: 0.08 - 0.56 mm<sup>2</sup>

#### Cycle of mechanical operation

50



#### Temperature range

-25°C - +125°C

Article number	Article	Inserts	Pin configuration	Pieces / PU
<b>12-pin inserts, E-part = rotation to the right (clockwise)</b>				
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
<b>12-pin inserts, P-part = rotation to the left (anticlockwise)</b>				
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
<b>17-pin inserts, E-part = rotation to the right (clockwise)</b>				
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
<b>17-pin inserts, P-part = rotation to the left (anticlockwise)</b>				
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

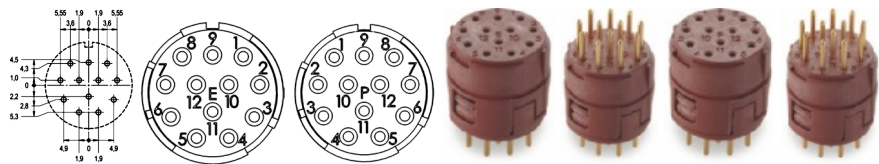
The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)  
 Photographs are not to scale and do not represent detailed images of the respective products.



**Info**

- With solder pins for PCB boards
- Only for housing type A 1, B 1, B 2

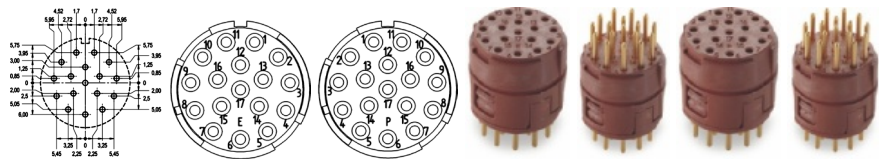
### EPIC® M23 Inserts 12 pole PCB-soldering



**Info**

- With solder pins for PCB boards
- Only for housing type A 1, B 1, B 2

### EPIC® M23 Inserts 17 pole PCB-soldering



**Suitable housing:**

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- Designed for housing type B1/B2

**Benefits**

- Inserts with solder pins at the connection side for soldering in PCB boards. Ideal in combination with M23 housings of type B1/B2 for rear wall-mounting.

**Application range**

- Plant engineering
- Measurement and control technology
- Apparatus construction

**Technical data**

**Rated voltage (V)**

EPIC® M23 Inserts 12 pole PCB-soldering according to IEC 61984: 100 V  
 EPIC® M23 Inserts 17 pole PCB-soldering according to IEC 61984: 50 V

**Rated impulse voltage**

EPIC® M23 Inserts 12 pole PCB-soldering 1,5 kV  
 EPIC® M23 Inserts 17 pole PCB-soldering 0,8 kV

**Rated current (A)**

7 A

**Degree of soiling**

3

**Contact resistance**

< 4 mOhm

**Contacts**

Gold-plated brass

**Number of contacts**

EPIC® M23 Inserts 12 pole PCB-soldering 12  
 EPIC® M23 Inserts 17 pole PCB-soldering 17

**Termination methods**

Solder pins with Ø 1.0 mm for PCB soldering. Pin length from rear edge of housing B1/B2: 4 mm

**Cycle of mechanical operation**

100

**Temperature range**

-25°C - +125°C



Article number	Article	Inserts	Contacts included	Pin configuration	Pieces / PU
<b>12-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
44420107	P-part	+ male contacts, PCB solder	12	12	5
44420108	P-part	+ female contacts, PCB solder	12	12	5
<b>12-pin inserts, E-part = rotation to the right (clockwise)</b>					
44420066	E-Part	+ male contacts, PCB solder	12	12	5
44420106	E-Part	+ female contacts, PCB solder	12	12	5
<b>17-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
44420160	P-part	+ male contacts, PCB solder	17	17	5
44420161	P-part	+ female contacts, PCB solder	17	17	5
<b>17-pin inserts, E-part = rotation to the right (clockwise)</b>					
44420162	E-Part	+ male contacts, PCB solder	17	17	5
44420163	E-Part	+ female contacts, PCB solder	17	17	5

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

Circular connectors

EPIC® CIRCON M23 Inserts



**EPIC® M23 Inserts 6 pole**



**EPIC® M23 Inserts 7 pole**



**Suitable housing:**

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 A3 Page 614
- EPIC® M23 D6 Page 615
- EPIC® M23 F6 Page 615
- EPIC® M23 F7 Page 615
- EPIC® M23 G4 Page 616
- EPIC® M23 G5 Page 616
- EPIC® M23 G6 Page 616
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- EPIC® M23 O1 Page 617
- All inserts fit into all housings

**Suitable contacts:**

- EPIC® M23 Contacts male Page 624
- EPIC® M23 Contacts female Page 624
- 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

**Technical data**

- Rated voltage (V)**  
according to IEC 61984: 150 V
- Rated impulse voltage**  
4 kV
- Rated current (A)**  
18 A
- Degree of soiling**  
3
- Contact resistance**  
< 4 mOhm
- Contacts**  
Gold-plated brass
- Number of contacts**  
**EPIC® M23 Inserts 6 pole**  
6  
**EPIC® M23 Inserts 7 pole**  
7

**Termination methods**

Crimp termination: 1.0 - 2.5 mm<sup>2</sup>  
Solder termination: up to 2.5 mm<sup>2</sup>

**Cycle of mechanical operation**  
100



**Temperature range**  
-25°C - +125°C



**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

**Application range**

- Plant engineering
- Measurement and control technology
- Apparatus construction

Article number	Article	Inserts	Contacts included	Pin configuration	Pieces / PU
<b>6-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>6-pin inserts, E-part = rotation to the right (clockwise)</b>					
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
<b>7-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>7-pin inserts, E-part = rotation to the right (clockwise)</b>					
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 are not to scale and do not represent detailed images of the respective products.

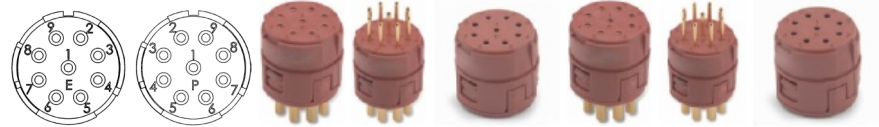




EPIC® M23 Inserts 8+1 pole



EPIC® M23 Inserts 9 pole



Suitable housing:

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 A3 Page 614
- EPIC® M23 D6 Page 615
- EPIC® M23 F6 Page 615
- EPIC® M23 F7 Page 615
- EPIC® M23 G4 Page 616
- EPIC® M23 G5 Page 616
- EPIC® M23 G6 Page 616
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- EPIC® M23 O1 Page 617
- All inserts fit into all housings

Suitable contacts:

- EPIC® M23 Contacts male Page 624
- EPIC® M23 Contacts female Page 624

EPIC® M23 Inserts 8+1 pole

- 8+1: 8\*1 mm contact, 1\*2 mm contact

EPIC® 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

Technical data

**Rated voltage (V)**  
according to IEC 61984: 150 V

**Rated impulse voltage**  
EPIC® M23 Inserts 8+1 pole  
2.5 kV  
EPIC® M23 Inserts 9 pole  
1.5 kV

**Rated current (A)**  
EPIC® M23 Inserts 8+1 pole  
20 A (2 mm contact)  
7 A (1 mm contacts)  
EPIC® M23 Inserts 9 pole  
7 A

**Degree of soiling**  
3

**Contact resistance**  
< 4 mOhm

**Contacts**  
Gold-plated brass

**Number of contacts**  
EPIC® M23 Inserts 8+1 pole  
8 + 1  
EPIC® M23 Inserts 9 pole  
9

**Termination methods**  
EPIC® M23 Inserts 8+1 pole  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup>  
(1.0 - 2.5 mm<sup>2</sup> for 2-mm contact)  
Solder termination: up to 1.0 mm<sup>2</sup>  
(up to 2.5 mm<sup>2</sup> for 2-mm contact)

**EPIC® M23 Inserts 9 pole**  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup>  
Solder termination: up to 1.0 mm<sup>2</sup>

**Cycle of mechanical operation**  
100

**Temperature range**  
-25°C - +125°C

**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



Article number	Article	Inserts	Contacts included	Pin configuration	Pieces / PU
<b>8+1-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>8+1-pin inserts, E-part = rotation to the right (clockwise)</b>					
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
<b>9-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>9-pin inserts, E-part = rotation to the right (clockwise)</b>					
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)

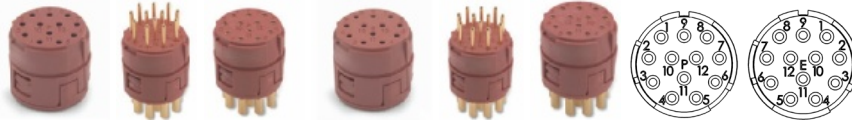
Photographs are not to scale and do not represent detailed images of the respective products.

Circular connectors

EPIC® CIRCON M23 Inserts



EPIC® M23 Inserts 12 pole



EPIC® M23 Inserts 16 pole



**Suitable housing:**

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 A3 Page 614
- EPIC® M23 D6 Page 615
- EPIC® M23 F6 Page 615
- EPIC® M23 F7 Page 615
- EPIC® M23 G4 Page 616
- EPIC® M23 G5 Page 616
- EPIC® M23 G6 Page 616
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- EPIC® M23 O1 Page 617
- All inserts fit into all housings

**Suitable contacts:**

- EPIC® M23 Contacts male Page 624
- EPIC® M23 Contacts female Page 624

**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

**Technical data**

- Rated voltage (V)**  
according to IEC 61984: 100 V
- Rated impulse voltage**  
1.5 kV
- Rated current (A)**  
7 A
- Degree of soiling**  
3
- Contact resistance**  
< 4 mOhm
- Contacts**  
Gold-plated brass
- Number of contacts**  
EPIC® M23 Inserts 12 pole  
12  
EPIC® M23 Inserts 16 pole  
16

**Termination methods**

- Crimp termination: 0.14 - 1.0 mm<sup>2</sup>
- Solder termination: up to 1.0 mm<sup>2</sup>

**Cycle of mechanical operation**

100



**Temperature range**  
-25°C - +125°C



**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

**Application range**

- Plant engineering
- Measurement and control technology
- Apparatus construction

Article number	Article	Inserts	Contacts included	Pin configuration	Pieces / PU
<b>12-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>12-pin inserts, E-part = rotation to the right (clockwise)</b>					
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
<b>16-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>16-pin inserts, E-part = rotation to the right (clockwise)</b>					
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 are not to scale and do not represent detailed images of the respective products.



**EPIC® M23 Inserts 17 pole**



**Suitable housing:**

- EPIC® M23 A1 Page 614
- EPIC® M23 A1 D3,2 Page 614
- EPIC® M23 A3 Page 614
- EPIC® M23 D6 Page 615
- EPIC® M23 F6 Page 615
- EPIC® M23 F7 Page 615
- EPIC® M23 G4 Page 616
- EPIC® M23 G5 Page 616
- EPIC® M23 G6 Page 616
- EPIC® M23 B1 Page 617
- EPIC® M23 B2 Page 617
- EPIC® M23 O1 Page 617
- All inserts fit into all housings

**Suitable contacts:**

- EPIC® M23 Contacts male Page 624
- EPIC® M23 Contacts female Page 624

**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**

**Rated voltage (V)**  
according to IEC 61984: 50 V

**Rated impulse voltage**  
0,8 kV

**Rated current (A)**  
7 A

**Degree of soiling**  
3

**Contact resistance**  
< 4 mOhm

**Contacts**  
Gold-plated brass

**Number of contacts**  
17

**Termination methods**  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup>  
Solder termination: up to 1.0 mm<sup>2</sup>

**Cycle of mechanical operation**  
100

 **Temperature range**  
-25°C - +125°C

 **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

Article number	Article	Inserts	Contacts included	Pin configuration	Pieces / PU
<b>17-pin inserts, P-part = rotation to the left (anticlockwise)</b>					
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
<b>17-pin inserts, E-part = rotation to the right (clockwise)</b>					
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 are not to scale and do not represent detailed images of the respective products.

Circular connectors

EPIC® CIRCON M23 Contacts, tools, accessories

EPIC® M23 Contacts male



EPIC® M23 Contacts female



Article number	Article designation	Version	For design	Pieces / PU
<b>1mm contacts male</b>				
72400001	EPIC® M23 SCEM 1 mm AU 0,14 - 1,0 (10)	1 mm male crimp	M23 inserts (not D-Sub)	10
72400000	EPIC® M23 SCEM 1 mm AU 0,14 - 1,0 (100)	1 mm male crimp	M23 inserts (not D-Sub)	100
72402001	EPIC® M23 SLEM 1 mm AU 1.0 (10)	1 mm male solder	M23 inserts (not D-Sub)	10
72402000	EPIC® M23 SLEM 1 mm AU 1.0 (100)	1 mm male solder	M23 inserts (not D-Sub)	100
<b>2mm contacts male</b>				
72401000	EPIC® M23 SCEM 2 mm AU 1,0 - 2,5 (100)	2 mm male crimp	M23 inserts (not D-Sub)	100
72403100	EPIC® M23 SLEM 2 mm AU (10)	2 mm male solder	M23 inserts (not D-Sub)	10
72403000	EPIC® M23 SLEM 2 mm AU (100)	2 mm male solder	M23 inserts (not D-Sub)	100
<b>1mm contacts female</b>				
74020601	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female slot 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	10
74200600	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female slot 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	100
72402601	EPIC® M23 BLEMS 1 mm 1.0 AU (10)	1 mm female slot solder	M23 inserts (not D-Sub)	10
72402600	EPIC® M23 BLEMS 1 mm 1.0 AU (100)	1 mm female slot solder	M23 inserts (not D-Sub)	100
74034500	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female hyperboloid 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	100
74034501	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female hyperboloid 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	10
<b>2mm contacts female</b>				
72401601	EPIC® M23 BCEMS 2 mm AU 1,0 - 2,5 (10)	2 mm female crimp	M23 inserts (not D-Sub)	10
72401600	EPIC® M23 BCEMS 2 mm AU 1,0 - 2,5 (100)	2 mm female crimp	M23 inserts (not D-Sub)	100
72404100	EPIC® M23 BLEMS 2 mm AU 1,0 - 2,5 (10)	2 mm female solder	M23 inserts (not D-Sub)	10
72404000	EPIC® M23 BLEMS 2 mm AU 1,0 - 2,5 (100)	2 mm female solder	M23 inserts (not D-Sub)	100

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

EPIC® M23 Tools



Article number	Article	Inserts	Pieces / PU
<b>Tools</b>			
11148000	Crimping tool	In tool case, without locator	1
11148001	4-mandrel digital crimping tool	In tool case, without locator	1
11148002	Crimping machine	Pneumatic for 5 - 10 bar, locator not included	1
11148300	Locator for EPIC® CIRCON		1
44420078	M23 removal tool for inserts	For housing type A, B, G, O	1

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

EPIC® M23 Accessories



Article number	Article	Inserts	Pieces / PU
<b>Accessories</b>			
75018310	LS1 A, G, F protection cap, plastic cord with cable lug	Metal cap for A1, F6, F7, G5	20
75007810	M23-LS1 A, B, F, G protective cap	Plastic cap for A1, F6	20
75007710	M23-LS1 D protective cap	Plastic cap for D6, A6	20
75018010	M23 A, B, F, G protective cap, plastic cord with cable lug	Metal cap for A1, F6	20
75018110	M23 A protective cap, plastic cord with grommet	Metal cap for A1	20
55001312	SILVYN ADAPTER M23/M20x1,5	For clamping range 8.5 - 11 mm and 10.5 - 15.5 mm	1

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

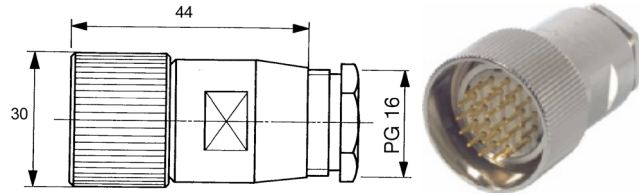
ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



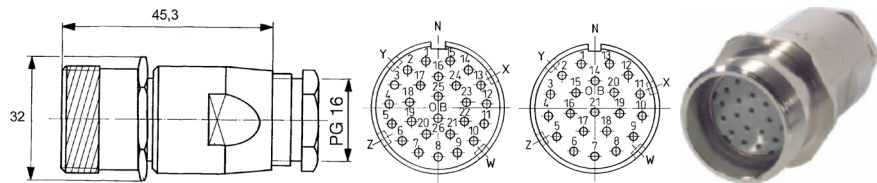
**Info**

- Compact and reliable connector for multicore signal cables

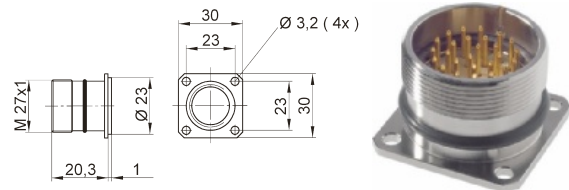
**EPIC® ZYLIN R 3.0 D PG16**



**EPIC® ZYLIN R 3.0 F PG16**



**EPIC® ZYLIN R 3.0 A**



**Benefits**

- Highest contact density at small space requirements
- Connector in solder version for easy maintenance

**Application range**

- Machine and equipment manufacturing
- Measurement and control technology

**Technical data**

**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 mm<sup>2</sup>



**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
<b>R 3.0 D PG16</b>								
00009045	ZYLIN R 3.0 D	male	1 - 21	E-Part	N	6.5 - 16.0		5
00008899	ZYLIN R 3.0 D	male	1 - 26	E-Part	N	6.5 - 16.0		5
00008749	ZYLIN R 3.0 D	female	1 - 21	P-Part	N	6.5 - 16.0		5
00008829	ZYLIN R 3.0 D	female	1 - 26	P-Part	N	6.5 - 16.0		5
<b>R 3.0 F PG16</b>								
00008854	ZYLIN R 3.0 F	male	1 - 21	E-Part	N	6.5 - 16.0		5
00008822	ZYLIN R 3.0 F	male	1 - 26	E-Part	N	6.5 - 16.0		5
00008779	ZYLIN R 3.0 F	female	1 - 21	P-Part	N	6.5 - 16.0		5
00008979	ZYLIN R 3.0 F	female	1 - 26	P-Part	N	6.5 - 16.0		5
<b>R 3.0 A</b>								
00008747	ZYLIN R 3.0 A	male	1 - 21	E-Part	N		Ø 3.2 mm (4x)	5
00008825	ZYLIN R 3.0 A	male	1 - 26	E-Part	N		Ø 3.2 mm (4x)	5
00008867	ZYLIN R 3.0 A	female	1 - 21	P-Part	N		Ø 3.2 mm (4x)	5
00008746	ZYLIN R 3.0 A	female	1 - 26	P-Part	N		Ø 3.2 mm (4x)	5

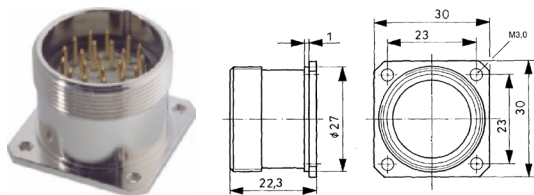
The housing is available with male or female inserts. The contact photographs are not to scale and do not represent detailed images of the respective products.

Circular connectors

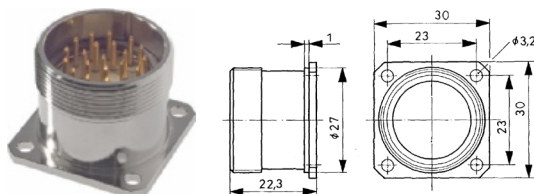
EPIC® ZYLIN R 3.0



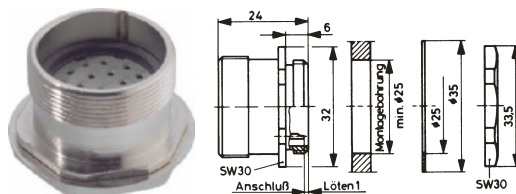
EPIC® ZYLIN R 3.0 B1



EPIC® ZYLIN R 3.0 B2



EPIC® ZYLIN R 3.0 G1



**Info**

- Compact and reliable connector for multicore signal cables

Benefits

- Highest contact density at small space requirements
- Connector in solder version for easy maintenance

Application range

- Machine and equipment manufacturing
- Measurement and control technology

Technical data

**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 mm<sup>2</sup>



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
<b>R 3.0 B1</b>							
00009082	ZYLIN R 3.0 B1	male	1 - 21	E-Part	N	M3 (4x)	5
00009135	ZYLIN R 3.0 B1	female	1 - 21	P-Part	N	M3 (4x)	5
00008978	ZYLIN R 3.0 B1	female	1 - 26	P-Part	N	M3 (4x)	5
<b>R 3.0 B2</b>							
00008939	ZYLIN R 3.0 B2	male	1 - 26	E-Part	N	Ø 3.2 mm (4x)	5
00009470	ZYLIN R 3.0 B2	female	1 - 26	P-Part	N	Ø 3.2 mm (4x)	5
<b>R 3.0 G1</b>							
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 contact photographs are not to scale and do not represent detailed images of the respective products.

EPIC® Industrial connectors

Circular connectors

EPIC® ZYLIN R3.0 tools, accessories

EPIC® ZYLIN R 3.0 Tools



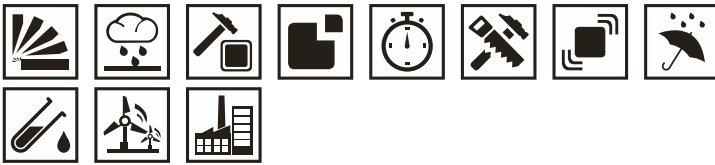
EPIC® ZYLIN R 3.0 Accessories



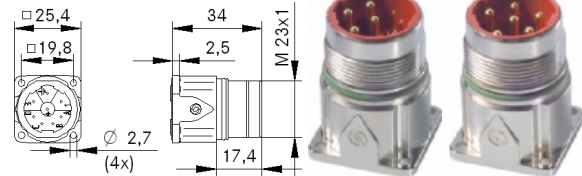
Article number	Article designation	For design	Pieces / PU
50200800	R3.0 assembly/disassembly tool	for type D, F	1
<b>Flat gasket</b>			
50201203	R3.0 A flat gasket	for type A1	5
50202203	R3.0 B flat gasket	for type B	5
<b>Metal cap</b>			
50201120	R3.0 A metal screw-cap	for type A1	5

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

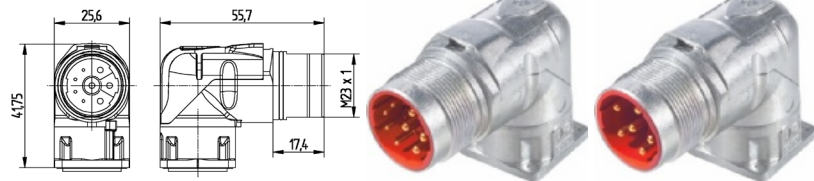
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**EPIC® LS1 A1**



**EPIC® LS1 A3**



**Info**

- Rotateable with clearly defined adjustment positions

**Suitable contacts:**

- EPIC® LS1 Contacts male Page 631
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm<sup>2</sup>
- PU = 20 pieces: the contacts must be ordered separately

**Benefits**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised
- Safety use in field environment by high protection class

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Technical data**

**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)

**Degree of soiling**  
3

**Contact resistance**  
< 4 mOhm

**Contacts**  
Gold-plated brass

**Number of contacts**  
3 + PE + 4  
5 + PE

**Termination methods**  
Crimp termination: 0.5 - 2.5 mm<sup>2</sup> (2 mm contacts)  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup> (1 mm contacts)

**Material**  
Housing: nickel-plated zinc die-casting, nickel-plated brass  
Insert: PA,  
Seal: FPM

**IP Protection rating**  
**EPIC® LS1 A1**  
IP68 (10h / 1m)  
**EPIC® LS1 A3**  
IP 65

**Cycle of mechanical operation**  
500

**Temperature range**  
-25°C - +125°C

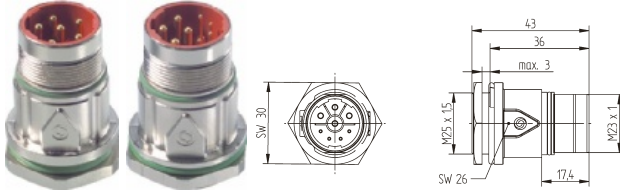
**VDE-tested**  
**EPIC® LS1 A1**  
Certified production control:  
VDE-REG. no. B25

Article number	Article	Contacts included	Fastening type	Pin configuration	Pieces / PU
<b>Type LS1 A1, front wall mounting, 6-pin, for male contacts</b>					
76003000	LS1 A1	6	Ø 2.7 mm (4x)	5+PE	5
76003510	LS1 A1		Ø 2.7 mm (4x)	5+PE	20
<b>Type LS1 A1, front wall mounting, 8-pin, for male contacts</b>					
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
<b>Type LS1 A3, angled, rotatable, 6-pin, for male contacts</b>					
24420058	LS1 A3	6	Ø 2.7 mm (4x)	5+PE	5
24420059	LS1 A3		Ø 2.7 mm (4x)	5+PE	20
<b>Type LS1 A3, angled, rotatable, 8-pin, for male contacts</b>					
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

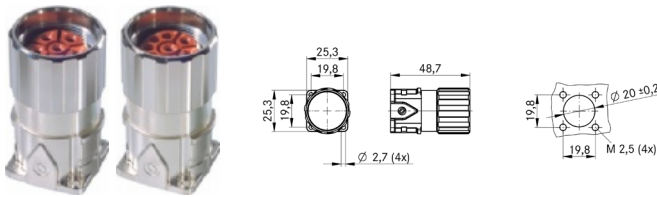
Photographs are not to scale and do not represent detailed images of the respective products.



## EPIC® LS1 G5



## EPIC® LS1 A6



**Info**

- Allows a electrical disconnecting point directly at power source

**Suitable contacts:**

**EPIC® LS1 G5**

- EPIC® LS1 Contacts male Page 631

**EPIC® LS1 A6**

- EPIC® LS1 Contacts male Page 631
- PU = 5 pieces: the contacts are included.
- 2 mm contact crimp range is 0.5 - 2.5 mm<sup>2</sup>
- PU = 20 pieces: the contacts must be ordered separately

**Benefits**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised
- Safety use in field environment by high protection class

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Technical data**

**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)

**Degree of soiling**

3

**Contact resistance**

< 4 mOhm

**Contacts**

Gold-plated brass

**Number of contacts**

- 3 + PE + 4
- 5 + PE

**Termination methods**

- Crimp termination: 0.5 - 2.5 mm<sup>2</sup> (2 mm contacts)
- Crimp termination: 0.14 - 1.0 mm<sup>2</sup> (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



**Temperature range**

-25°C - +125°C



**VDE-tested**

Certified production control:  
VDE-REG. no. B25

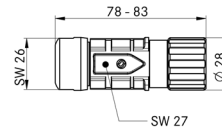
Article number	Article	Contacts included	Fastening type	Pin configuration	Pieces / PU
<b>Type LS1 G5, front wall mounting, 6-pin, for male contacts</b>					
76153000	LS1 G5	6	M25 x 1.5 (with nut)	5+PE	5
76153510	LS1 G5		M25 x 1.5 (with nut)	5+PE	20
<b>Type LS1 G5, front wall mouning, 8-pin, for male contacts</b>					
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
<b>Type LS1 A6, front wall mounting, 6-pin, for female contacts</b>					
76083000	LS1 A6	6	Ø 2.7 mm (4x)	5+PE	5
76083510	LS1 A6		Ø 2.7 mm (4x)	5+PE	20
<b>Type LS1 A6, front wall mounting, 8-pin, for female contacts</b>					
76084000	LS1 A6	8	Ø 2.7 mm (4x)	3+PE+4	5

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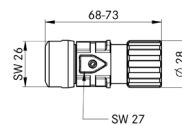




**EPIC® LS1 D6**



**EPIC® LS1 D6 (short)**



**Info**

- Reduced length for cables which are easy to assemble

**Suitable contacts:**

- EPIC® LS1 Contacts female Page 631
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm<sup>2</sup>
- PU = 20 pieces: the contacts must be ordered separately

**Benefits**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised
- Safety use in field environment by high protection class

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Technical data**

**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)

**Degree of soiling**  
3

**Contact resistance**  
< 4 mOhm

**Contacts**  
Gold-plated brass

**Number of contacts**  
3 + PE + 4  
5 + PE

**Termination methods**

Crimp termination: 0.5 - 4.0 mm<sup>2</sup> (2 mm contacts)  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup> (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



**Temperature range**

-25°C - +125°C



**VDE-tested**

Certified production control:  
VDE-REG. no. B25

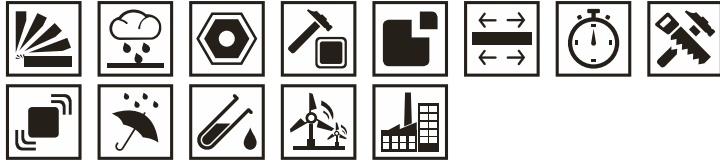
Article number	Article	Contacts included	Cable clamping range (mm)	Pin configuration	Pieces / PU
<b>Type LS1 D6, cable connector, 6-pin, for female contacts</b>					
73000004	LS1 D6	6	8,5 - 11	5+PE	5
73000006	LS1 D6		8,5 - 11	5+PE	20
73000005	LS1 D6	6	10,5 - 15,5	5+PE	5
73000007	LS1 D6		10,5 - 15,5	5+PE	20
76123000	LS1 D6	6	7,5 - 15,5	5+PE	5
76123510	LS1 D6		7,5 - 15,5	5+PE	20
44420091	LS1 D6 with 2mm contact for 4mm <sup>2</sup> termination	6	14 - 17	5+PE	5
44420090	LS1 D6		14 - 17	5+PE	20
<b>Type LS1 D6, cable connector, 8-pin, for female contacts</b>					
73000000	LS1 D6	8	8,5 - 11	3+PE+4	5
73000002	LS1 D6		8,5 - 11	3+PE+4	20
73000001	LS1 D6	8	10,5 - 15,5	3+PE+4	5
73000003	LS1 D6		10,5 - 15,5	3+PE+4	20
76124000	LS1 D6	8	7,5 - 15,5	3+PE+4	5
76124510	LS1 D6		7,5 - 15,5	3+PE+4	20
44420089	LS1 D6 with 2mm contact for 4mm <sup>2</sup> termination	8	14 - 17	3+PE+4	5
44420088	LS1 D6		14 - 17	3+PE+4	20
<b>Type LS1 D6 short, cable connector, 6-pin, for female contacts</b>					
73000028	LS1 D6	6	8,5 - 11	5+PE	5
73000030	LS1 D6		8,5 - 11	5+PE	20
73000029	LS1 D6	6	10,5 - 15,5	5+PE	5
73000031	LS1 D6		10,5 - 15,5	5+PE	20
76123100	LS1 D6	6	7,5 - 15,5	5+PE	5
76123610	LS1 D6		7,5 - 15,5	5+PE	20
<b>Type LS1 D6 short, cable connector, 8-pin, for female contacts</b>					
73000024	LS1 D6	8	8,5 - 11	3+PE+4	5
73000026	LS1 D6		8,5 - 11	3+PE+4	20
73000025	LS1 D6	8	10,5 - 15,5	3+PE+4	5
73000027	LS1 D6		10,5 - 15,5	3+PE+4	20
76124100	LS1 D6	8	7,5 - 15,5	3+PE+4	5
76124610	LS1 D6		7,5 - 15,5	3+PE+4	20

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Circular connectors

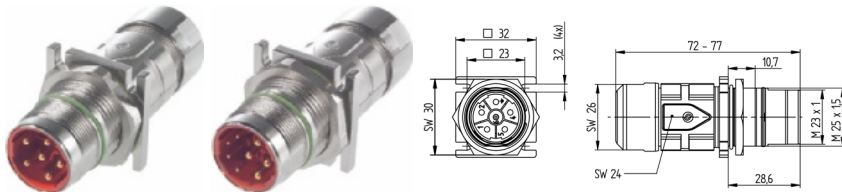
EPIC® CIRCON LS1



EPIC® LS1 F6



EPIC® LS1 F7



**Info**

- For fast and safe wall mounting of a cable extension

**Suitable contacts:**

- EPIC® LS1 Contacts male Page 631
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm<sup>2</sup>
- PU = 20 pieces: the contacts must be ordered separately

**Benefits**

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised
- Safety use in field environment by high protection class

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Technical data**

**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)

**Degree of soiling**

3

**Contact resistance**

< 4 mOhm

**Contacts**

Gold-plated brass

**Number of contacts**

3 + PE + 4  
5 + PE

**Termination methods**

Crimp termination: 0.5 - 4.0 mm<sup>2</sup>  
(2 mm contacts)  
Crimp termination: 0.14 - 1.0 mm<sup>2</sup>  
(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



**Temperature range**

-25°C - +125°C



**VDE-tested**

EPIC® LS1 F6

Certified production control:  
VDE-REG. no. B25

Article number	Article	Contacts included	Cable clamping range (mm)	Fastening type	Pin configuration
<b>Type LS1 F6, cable coupler, 6-pin, for male contacts</b>					
73000012	LS1 F6	6	8.5 - 11		5+PE
73000014	LS1 F6		8.5 - 11		5+PE
73000013	LS1 F6	6	10.5 - 15.5		5+PE
73000015	LS1 F6		10.5 - 15.5		5+PE
76133000	LS1 F6	6	7.5 - 15.5		5+PE
76133510	LS1 F6		7.5 - 15.5		5+PE
44420095	LS1 F6 with 2mm contact for 4mm <sup>2</sup> termination	6	14 - 17		5+PE
44420094	LS1 F6		14 - 17		5+PE
<b>Type LS1 F6, cable coupler, 8-pin, for male contacts</b>					
73000008	LS1 F6	8	8.5 - 11		3+PE+4
73000010	LS1 F6		8.5 - 11		3+PE+4
73000009	LS1 F6	8	10.5 - 15.5		3+PE+4
73000011	LS1 F6		10.5 - 15.5		3+PE+4
76134000	LS1 F6	8	7.5 - 15.5		3+PE+4
76134510	LS1 F6		7.5 - 15.5		3+PE+4
44420093	LS1 F6 with 2mm contact for 4mm <sup>2</sup> termination	8	14 - 17		3+PE+4
44420092	LS1 F6		14 - 17		3+PE+4
<b>Type LS1 F7, cable coupler with mounting flange, 6-pin, for male contacts</b>					
73000020	LS1 F7	6	8.5 - 11	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE
73000021	LS1 F7	6	10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE
73000023	LS1 F7		10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE
76143000	LS1 F7	6	7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE
<b>Type LS1 F7, 8-pin, for male contacts</b>					
73000016	LS1 F7	8	8.5 - 11	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4
73000017	LS1 F7	8	10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4
76144000	LS1 F7	8	7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4
76144510	LS1 F7		7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4

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**EPIC® LS1 Contacts male**

**EPIC® LS1 Contacts female**



Article number	Article designation	Version	For design	Pieces / PU
<b>1mm contacts male</b>				
74033001	LS1 A SCEM 1 mm AU 0.14 - 1.0 (10)	1 mm male 0.14 - 1.0 mm <sup>2</sup>	LS1 A1, A3, G5	10
74033000	LS1 A SCEM 1 mm AU 0.14 - 1.0 (100)	1 mm male 0.14 - 1.0 mm <sup>2</sup>	LS1 A1, A3, G5	100
74034001	LS1 F SCEM 1 mm AU 0.14 - 1.0 (10)	1 mm male 0.14 - 1.0 mm <sup>2</sup>	LS1 F6, F7	10
74034000	LS1 F SCEM 1 mm AU 0.14 - 1.0 (100)	1 mm male 0.14 - 1.0 mm <sup>2</sup>	LS1 F6, F7	100
<b>2mm contacts male</b>				
74033101	LS1 A SCEM 2 mm AU 0.5 - 2.5 (10)	2 mm male 0.5 - 2.5 mm <sup>2</sup>	LS1 A1, A3, G5	10
74033100	LS1 A SCEM 2 mm AU 0.5 - 2.5 (100)	2 mm male 0.5 - 2.5 mm <sup>2</sup>	LS1 A1, A3, G5	100
74034101	LS1 F SCEM 2 mm AU 0.5 - 2.5 (10)	2 mm male 0.5 - 2.5 mm <sup>2</sup>	LS1 F6, F7	10
74034100	LS1 F SCEM 2 mm AU 0.5 - 2.5 (100)	2 mm male 0.5 - 2.5 mm <sup>2</sup>	LS1 F6, F7	100
44420103	LS1 F SCEM 2 mm AU 4,0 (100)	2 mm male 4.0 mm <sup>2</sup>	LS1 F6, F7	100
<b>1mm contacts female</b>				
74020601	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female slot 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	10
74200600	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female slot 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	100
74034501	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female hyperboloid 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	10
74034500	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female hyperboloid 0.14 - 1.0 mm <sup>2</sup>	per inserts M23 (not D-Sub), LS1 D6, A6	100
<b>2mm contacts female</b>				
44429371	LS1 D BCEMF 2 mm AU 0.5 - 2.5 (10)	2 mm female spring 0.5-2.5mm <sup>2</sup>	LS1 D6, A6	10
44429370	LS1 D BCEMF 2 mm AU 0.5 - 2.5 (100)	2 mm female spring 0.5-2.5mm <sup>2</sup>	LS1 D6, A6	100
44420104	LS1 D BCEMD 2 mm AU 4,0 (10)	2 mm female hyperboloid 4 mm <sup>2</sup>	LS1 D6	10
44420105	LS1 D BCEMD 2 mm AU 4,0 (100)	2 mm female hyperboloid 4 mm <sup>2</sup>	LS1 D6	100
44429001	EPIC CIRCON BCBG 2MM 1.0-2.5 (3000) RE	2 mm female crimp	LS1 D6, A6	1

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

**EPIC® LS1 Tools**



Article number	Article	Version	Pieces / PU
<b>Tools</b>			
11148000	Crimping tool	In tool case, without locator	1
11148001	4-mandrel digital crimping tool	In tool case, without locator	1
11148002	Crimping machine	Pneumatic for 5 - 10 bar, locator not included	1
11148300	Locator for EPIC® CIRCON		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

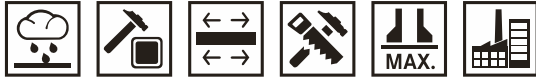
Photographs are not to scale and do not represent detailed images of the respective products.

**EPIC® LS1 Accessories**

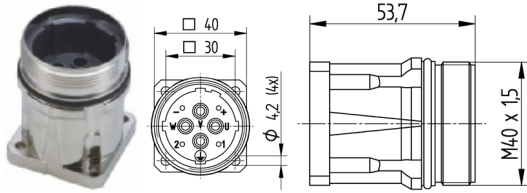


Article number	Article	Version	Pieces / PU
<b>Accessories</b>			
75018310	LS1 A, G, F protection cap, plastic cord with cable lug	Metal cap for A1, F6, F7, G5	20
75007810	M23-LS1 A, B, F, G protective cap	Plastic cap for A1, F6	20
75007710	M23-LS1 D protective cap	Plastic cap for D6, A6	20
75018010	M23 A, B, F, G protective cap, plastic cord with cable lug	Metal cap for A1, F6	20
75018110	M23 A protective cap, plastic cord with grommet	Metal cap for A1	20
55001310	SILVYN Adapter LS1/M25x1,5	For clamping range 8.5 - 11 mm and 10.5 - 15.5 mm	1

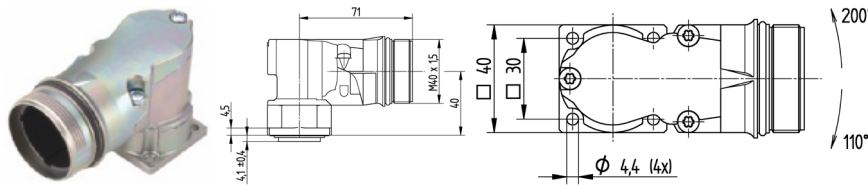
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### EPIC® LS1.5 A1



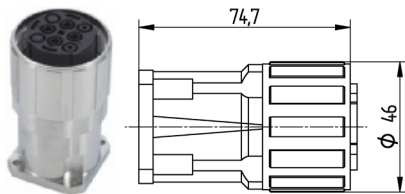
### EPIC® LS1.5 A3



Info

- Rotateable with 310° cable outlet

### EPIC® LS1.5 A6



#### ■ Suitable contacts:

##### EPIC® LS1.5 A1

- EPIC® LS1.5 Contacts male Page 634

##### EPIC® LS1.5 A3

- EPIC® LS1.5 Contacts male Page 634

##### EPIC® LS1.5 A6

- EPIC® LS1.5 Contacts male Page 634
- The contacts have to be ordered separately

#### ■ Benefits

- More power for servo motors
- With the proven vibrationsafe contacts
- EMC version for cables with large cross-sections

#### ■ Application range

- Plant engineering
- Servo drives and servo assemblies

#### ■ Suitable tools

- EPIC® LS1.5 Tools refer to page 634

#### ■ Technical data

##### 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

##### Degree of soiling

3

##### Contacts

Gold-plated brass

##### Number of contacts

3 + PE + 2  
3 + PE + 4

##### Termination methods

###### EPIC® LS1.5 A1

Crimp termination: 0.75 - 10 mm<sup>2</sup>  
(3.6 mm contacts)  
Crimp termination: 0.14 - 4.0 mm<sup>2</sup>  
(2 mm contacts)

###### EPIC® LS1.5 A3

Crimp termination: 0.75 - 10 mm<sup>2</sup>  
(3.6 mm contacts)  
Crimp termination: 0.14 - 4.0 mm<sup>2</sup>  
(2 mm contacts)

###### EPIC® LS1.5 A6

Crimp termination: 0.75 - 16 mm<sup>2</sup>  
(3.6 mm contacts)  
Crimp termination: 0.14 - 4.0 mm<sup>2</sup>  
(2 mm contacts)



##### Material

Housing: nickel-plated zinc die-casting,  
nickel-plated brass  
Insert: PA,  
Seal: FPM



##### Protection rating

IP67

##### Cycle of mechanical operation

50



##### Temperature range

-20°C to +125°C

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>Type LS1.5 A1 for male contacts</b>				
44429308	EPIC® LS1.5 A1	Ø 4.2 mm (4x)	3+PE+2	1
44429309	EPIC® LS1.5 A1	Ø 4.2 mm (4x)	3+PE+4	1
<b>Type LS1.5 A3 for male contacts</b>				
44429306	EPIC® LS1.5 A3	Ø 4.2 mm (4x)	3+PE+2	1
44429307	EPIC® LS1.5 A3	Ø 4.2 mm (4x)	3+PE+4	1
<b>Type LS1.5 A6 for female contacts</b>				
44429316	EPIC® LS1.5 A6	Ø 4.2 mm (4x)	3+PE+2	1
44429317	EPIC® LS1.5 A6	Ø 4.2 mm (4x)	3+PE+4	1

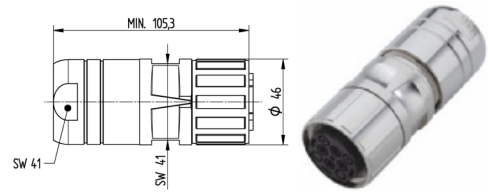
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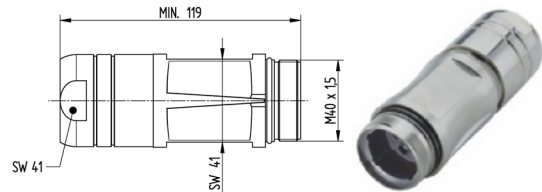
**Info**

- EMC protection

**EPIC® LS1.5 D6**



**EPIC® LS1.5 F6**



**Suitable contacts:**

**EPIC® LS1.5 D6**

- EPIC® LS1.5 Contacts female Page 634

**EPIC® LS1.5 F6**

- EPIC® LS1.5 Contacts female Page 634
- The contacts have to be ordered separately

**Benefits**

- More power for servo motors
- With the proven vibrationsafe contacts
- EMC version for cables with large cross-sections

**Application range**

- Plant engineering
- Servo drives and servo assemblies

**Suitable tools**

- EPIC® LS1.5 Tools refer to page 634

**Technical data**

**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

**Degree of soiling**

3

**Contacts**

Gold-plated brass

**Number of contacts**

3 + PE + 2  
3 + PE + 4

**Termination methods**

Crimp termination: 0.75 - 16 mm<sup>2</sup>  
(3.6 mm contacts)  
Crimp termination: 0.14 - 4.0 mm<sup>2</sup>  
(2 mm contacts)



**Material**

Housing: nickel-plated zinc die-casting,  
nickel-plated brass  
Insert: PA,  
Seal: FPM



**Protection rating**

IP67

**Cycle of mechanical operation**

50



**Temperature range**

-20°C to +125°C

Article number	Article	Cable clamping range (mm)	Pin configuration	Pieces / PU
<b>Type LS 1.5 D6 for female contacts</b>				
44429310	EPIC® LS1.5 D6	9 - 14	3+PE+2	1
44429311	EPIC® LS1.5 D6	14 - 20.5	3+PE+2	1
44429312	EPIC® LS1.5 D6	20.5 - 26.5	3+PE+2	1
44429313	EPIC® LS1.5 D6	9 - 14	3+PE+4	1
44429314	EPIC® LS1.5 D6	14 - 20.5	3+PE+4	1
44429315	EPIC® LS1.5 D6	20.5 - 26.5	3+PE+4	1
<b>Type LS 1.5 F6 for male contacts</b>				
44429300	EPIC® LS1.5 F6	9 - 14	3+PE+2	1
44429301	EPIC® LS1.5 F6	14 - 20.5	3+PE+2	1
44429302	EPIC® LS1.5 F6	20.5 - 26.5	3+PE+2	1
44429303	EPIC® LS1.5 F6	9 - 14	3+PE+4	1
44429304	EPIC® LS1.5 F6	14 - 20.5	3+PE+4	1
44429305	EPIC® LS1.5 F6	20.5 - 26.5	3+PE+4	1

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

Circular connectors

EPIC® LS1.5 Contacts, tools, accessories



EPIC® LS1.5 Contacts male



EPIC® LS1.5 Contacts female



EPIC® LS1.5 Tools



■ Suitable tools

EPIC® LS1.5 Contacts female

- Crimping tool for termination of 16 mm<sup>2</sup> wires are available upon request

Article number	Article designation	Description	Version	For design	Pieces / PU
<b>3.6 mm male contacts</b>					
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
44429335	LS1.5 A SCEM 3,6MM AU 1,0-2,5		3.6 mm male 1.0 - 2.5 mm <sup>2</sup>	for type A1, A3	10
44429336	LS1.5 A SCEM 3,6MM AU 1,5-4,0		3.6 mm male 1.5 - 4.0 mm <sup>2</sup>	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 mm <sup>2</sup>	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 mm <sup>2</sup>	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 mm <sup>2</sup>	for type F6	10
44429327	LS1.5 F SCEM 3,6MM AU 2,5-4,0		3.6 mm male 2.5 - 4.0 mm <sup>2</sup>	for type F6	10
44429328	LS1.5 F SCEM 3,6MM AU 4,0-6,0		3.6 mm male 4.0 - 6.0 mm <sup>2</sup>	for type F6	10
44429329	LS1.5 F SCEM 3,6MM AU 6,0-16,0		3.6 mm male 6.0 - 16.0 mm <sup>2</sup>	for type F6	10
<b>2 mm male contacts</b>					
44429339	LS1.5 A SCEM 2MM AU 0,14-0,25		2 mm male 0.14 - 0.25 mm <sup>2</sup>	for type A1, A3	10
44429340	LS1.5 A SCEM 2MM AU 0,25-1,0		2 mm male 0.25 - 1.0 mm <sup>2</sup>	for type A1, A3	10
44429341	LS1.5 A SCEM 2MM AU 0,75-1,5		2 mm male 0.75 - 1.5 mm <sup>2</sup>	for type A1, A3	10
44429342	LS1.5 A SCEM 2MM AU 1,0-2,5		2 mm male 1.0 - 2.5 mm <sup>2</sup>	for type A1, A3	10
44429343	LS1.5 A SCEM 2MM AU 4,0		2 mm male 2.5-4.0 mm <sup>2</sup>	for type A1, A3	10
44429330	LS1.5 F SCEM 2MM AU 0,25-1,0		2 mm male 0.25 - 1.0 mm <sup>2</sup>	for type F6	10
44429331	LS1.5 F SCEM 2MM AU 0,75-1,5		2 mm male 0.75 - 1.5 mm <sup>2</sup>	for type F6	10
44429332	LS1.5 F SCEM 2MM AU 1,0-2,5		2 mm male 1.0 - 2.5 mm <sup>2</sup>	for type F6	10
44429333	LS1.5 F SCEM 2MM AU 2,5-4,0		2 mm male 2.5-4.0 mm <sup>2</sup>	for type F6	10
<b>3.6 mm female contacts</b>					
44429318	LS1.5 D BCEM 3,6MM AU 1,0-2,5		3.6 mm female 1.0 - 2.5 mm <sup>2</sup>	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 mm <sup>2</sup>	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 mm <sup>2</sup>	for type D6, A6	10
44429321	LS1.5 D BCEM 3,6MM AU 6,0-16,0		3.6 mm female 6.0 - 16.0 mm <sup>2</sup>	for type D6, A6	10
<b>2 mm female contacts</b>					
44429322	LS1.5 D BCEM 2MM AU 0,25-1,0		2 mm female 0.25 - 1.0 mm <sup>2</sup>	for type D6, A6	10
44429323	LS1.5 D BCEM 2MM AU 0,75-1,5		2 mm female 0.75 - 1.5 mm <sup>2</sup>	for type D6, A6	10
44429324	LS1.5 D BCEM 2MM AU 1,0-2,5		2 mm female 1.0 - 2.5 mm <sup>2</sup>	for type D6, A6	10
44429325	LS1.5 D BCEM 2MM AU 4,0		2 mm female 4.0 mm <sup>2</sup>	for type D6, A6	10
<b>Crimping tool</b>					
44429367	LS1.5 CRIMPING TOOL 0.08 - 6.0	4-mandrel digital crimping tool including locator	0.14 - 6.0 mm <sup>2</sup>	for LS1.5, LS3	1
44429368	LS1.5 CRIMPING TOOL 6.0 - 10.0	4-mandrel digital crimping tool including locator	6.0 - 10.0 mm <sup>2</sup>	for LS1.5	1

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

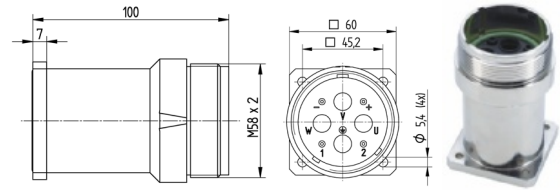
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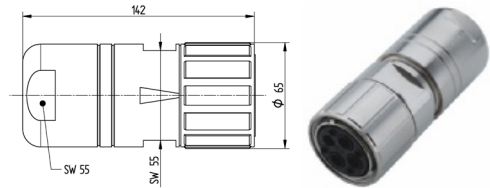
**Info**

- Robust power supply connector

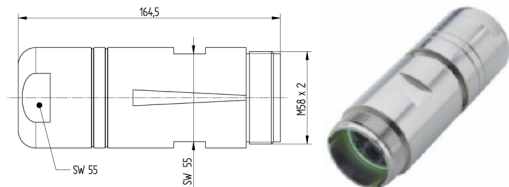
**EPIC® LS3 A1**



**EPIC® LS3 D6**



**EPIC® LS3 F6**



**Suitable contacts:**

**EPIC® LS3 A1**

- EPIC® LS3 male contacts Page 636

**EPIC® LS3 D6**

- EPIC® LS3 male contacts Page 636

**EPIC® LS3 F6**

- EPIC® LS3 male contacts Page 636
- 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® LS3 Tools refer to page 636

**Technical data**

**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

**Degree of soiling**

3

**Contacts**

Silver-plated brass  
Gold-plated brass

**Number of contacts**

3 + PE + 2  
3 + PE + 4

**Termination methods**

Crimp termination 10 - 50 mm<sup>2</sup>  
(10 mm contacts)  
Crimp termination 0.75 - 1.5 mm<sup>2</sup>  
(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 - +120°C

Article number	Article	Cable clamping range (mm)	Fastening type	Pin configuration	Pieces / PU
<b>Type LS3 A1 for male contacts</b>					
44429352	LS3 A1		Ø 4.2 mm (4x)	3+PE+2	1
44429353	LS3 A1		Ø 4.2 mm (4x)	3+PE+4	1
<b>Type LS3 D6 for female contacts</b>					
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
<b>Type LS3 F6 for male contacts</b>					
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® LS3 male contacts



### EPIC® LS3 female contacts



### EPIC® LS3 Tools



Article number	Article designation	Description	Version	For design	Pieces / PU
<b>EPIC® LS3 male contacts</b>					
44429360	LS3 A, F SCEM 10MM AG 10		10 mm male 10 mm <sup>2</sup>	for type A1, F6	4
44429361	LS3 A, F SCEM 10MM AG 16		10 mm male 16 mm <sup>2</sup>	for type A1, F6	4
44429362	LS3 A, F SCEM 10MM AG 25		10 mm male 25 mm <sup>2</sup>	for type A1, F6	4
44429363	LS3 A, F SCEM 10MM AG 35		10 mm male 35 mm <sup>2</sup>	for type A1, F6	4
44429364	LS3 A, F SCEM 10MM AG 50		10 mm male 50 mm <sup>2</sup>	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 mm <sup>2</sup>	for type A1, F6	4
<b>EPIC® LS3 female contacts</b>					
44429354	LS3 D BCEM 10MM AG 10		10 mm female 10 mm <sup>2</sup>	for type D6	4
44429355	LS3 D BCEM 10MM AG 16		10 mm female 16 mm <sup>2</sup>	for type D6	4
44429356	LS3 D BCEM 10MM AG 25		10 mm female 25 mm <sup>2</sup>	for type D6	4
44429357	LS3 D BCEM 10MM AG 35		10 mm female 50 mm <sup>2</sup>	for type D6	4
44429358	LS3 D BCEM 10MM AG 50		10 mm female 50 mm <sup>2</sup>	for type D6	4
44429359	LS3 D BCEM 1.6MM AU 0.75-1.5		1.6 mm female 0.75 - 1.5 mm <sup>2</sup>	for type D6	4
<b>Crimping tool</b>					
44429366	LS3 crimping tool 10.0 - 50.0	Electro-hydraulic crimping tool includes charging device, accumulator and crimping dies for 10 - 50 mm <sup>2</sup>	10.0 - 50.0 mm <sup>2</sup>	for LS3	1
44429367	LS1.5 CRIMPING TOOL 0.08 - 6.0	4-mandrel digital crimping tool including locator	0.14 - 6.0 mm <sup>2</sup>	for LS1.5, LS3	1

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APPENDIX





**Info**

- Connector for unscreened single-core power cables

**Suitable contacts:**

- EPIC® POWERLOCK Crimp contacts Page 640
- 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
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

**Technical data**

**Rated voltage (V)**  
1000 V

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
Max. crimp 660 A

**Degree of soiling**  
3

**Contacts**  
Crimp termination: copper, silver-plated

**Number of contacts**  
1

**Termination methods**  
Crimp termination: 35 - 240 mm<sup>2</sup>

**Material**  
Housing: PBT  
Contact retention pin: PA

**IP** **Protection rating**  
IP 67 (maximum, dependant on cable gland used)  
IP 20 (unmated)

**Cycle of mechanical operation**  
500

**Temperature range**  
-25°C - +125°C

**DIN VDE** **VDE-tested**  
VDE Reg. No. D42

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>Type POWERLOCK A1, panel-mount box, drain for contact with M 12 threaded post</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420316	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
<b>Type POWERLOCK A6, panel-mount box, source for contact with M 12 threaded post</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420317	POWERLOCK A6 L1/RD	Ø 5.5 mm (4x)	L1, Red	1

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Circular connectors

EPIC® POWERLOCK CRIMP 660A



**EPIC® POWERLOCK D6 C**



**EPIC® POWERLOCK F6 C**



**Info**

- Connector for unscreened single-core power cables

**Suitable contacts:**

- EPIC® POWERLOCK Crimp contacts Page 640
- 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**

**Rated voltage (V)**  
1000 V

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
Max. crimp 660 A

**Degree of soiling**  
3

**Contacts**

Crimp termination: copper, silver-plated

**Number of contacts**  
1

**Termination methods**

Crimp termination: 35 - 240 mm<sup>2</sup>



**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



**Temperature range**

-25°C - +125°C



**VDE-tested**

VDE Reg. No. D42

Article number	Article	M	Pin configuration	Pieces / PU
<b>Type POWERLOCK D6, cable connector, source for crimp contact</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420319	POWERLOCK D6 L1/RD	40	L1, Red	1
<b>Type POWERLOCK F6, coupling connector, drain for crimp contact</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420318	POWERLOCK F6 L1/RD	40	L1, Red	1

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

**Accessories**

- SKINTOP® Standard refer to page 654



**Info**

- Can be locked to prevent unauthorised disconnection

**POWERLOCK BOX C\***



**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**

**Rated voltage (V)**  
1000 V

**Rated current (A)**  
Max. crimp 660 A

**Degree of soiling**  
3

**Contacts**  
Crimp termination: copper, silver-plated

**Number of contacts**  
4 + PE

**Termination methods**  
Crimp termination: 35 - 240 mm<sup>2</sup>

**IP Protection rating**  
IP 65 (latched)

**Cycle of mechanical operation**  
500

**Temperature range**  
-25°C - +85°C

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>POWERLOCK BOX A1, panel-mount base, drain with M12 threaded post</b>				
44420288	POWERLOCK BOX A1 C	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A1, panel-mount base with cover, drain with M12 threaded post</b>				
44420289	POWERLOCK BOX A1 CD	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A6, panel-mount base, source with M12 threaded post</b>				
44420284	POWERLOCK BOX A6 C	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A6, panel-mount base with cover, source with M12 threaded post</b>				
44420285	POWERLOCK BOX A6 CD	Ø 6.5 mm (4x)	4+PE	1

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.

Circular connectors

EPIC® POWERLOCK Contacts, tools, accessories

EPIC® POWERLOCK Crimp contacts



Info

- Max. crimp 660 A
- Do not plug with screw-type (400 A)

Article number	Article	Version	PU
<b>Drain - contact with M12 threaded post, for type POWERLOCK A1 C</b>			
44420260	POWERLOCK SP M12	Contact Drain, M12 Thread for cable lugs	1
<b>Source - contact with M12 threaded post for type POWERLOCK A6 C</b>			
44420261	POWERLOCK QP M12	Lamella contact source, M12 thread for cable lug	1
<b>Source - crimp contact for type POWERLOCK D6 C</b>			
44420291	POWERLOCK QCM 50	50 mm <sup>2</sup>	1
44420292	POWERLOCK QCM 70	70 mm <sup>2</sup>	1
44420236	POWERLOCK QCM 95	95 mm <sup>2</sup>	1
44420238	POWERLOCK QCM 120	120 mm <sup>2</sup>	1
44420257	POWERLOCK QCM 150	150 mm <sup>2</sup>	1
44420239	POWERLOCK QCM 185	185 mm <sup>2</sup>	1
44420240	POWERLOCK QCM 240	240 mm <sup>2</sup>	1
<b>Drain - Crimp contact, for type POWERLOCK F6 C</b>			
44420294	POWERLOCK SCM 50	50 mm <sup>2</sup>	1
44420295	POWERLOCK SCM 70	70 mm <sup>2</sup>	1
44420231	POWERLOCK SCM 95	95 mm <sup>2</sup>	1
44420233	POWERLOCK SCM 120	120 mm <sup>2</sup>	1
44420256	POWERLOCK SCM 150	150 mm <sup>2</sup>	1
44420234	POWERLOCK SCM 185	185 mm <sup>2</sup>	1
44420235	POWERLOCK SCM 240	240 mm <sup>2</sup>	1

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EPIC® POWERLOCK Tools



Article number	Article	Version	PU
<b>Tools</b>			
44420243	POWERLOCK DISCONNECTION TOOL	for mated connection	1

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EPIC® POWERLOCK Accessories



Article number	Article	For design	Version	PU
<b>Protective caps</b>				
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
<b>Spare part: Contact retention pin</b>				
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

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APPENDIX



**EPIC® POWERLOCK A1 S**



**EPIC® POWERLOCK A6 S**



**Info**

- Connector for unscreened single-core power cables

**Suitable contacts:**

- EPIC® POWERLOCK Screw contacts Page 644
- 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
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

**Technical data**

<b>Rated voltage (V)</b>	1000 V
<b>Rated impulse voltage</b>	8 kV
<b>Rated current (A)</b>	Screw max. 400 A
<b>Degree of soiling</b>	3
<b>Contacts</b>	Screw termination: silver-plated brass
<b>Number of contacts</b>	1
<b>Termination methods</b>	Screw termination: 50 - 120 mm <sup>2</sup>
<b>Material</b>	Housing: PBT Contact retention pin: PA
<b>IP</b>	<b>Protection rating</b> IP 67 (maximum, dependant on cable gland used) IP 20 (unmated)
<b>Cycle of mechanical operation</b>	500
<b>Temperature range</b>	-25°C - +125°C
<b>DIN VDE</b>	<b>VDE-tested</b> VDE Reg. No. D42

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>Type POWERLOCK A1, panel-mount box, drain for contact with M12 threaded post</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420320	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
<b>Type POWERLOCK A6, panel-mount box, source for contact with M12 threaded post</b>				
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
<b>POWERLOCK A6 L1/RD</b>				
44420321	POWERLOCK A6 L1/BN	Ø 5.5 mm (4x)	L1, Red	1

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Circular connectors

EPIC® POWERLOCK SCREW 400A



EPIC® POWERLOCK D6 S



EPIC® POWERLOCK F6 S



**Info**

- Connector for unshielded single-core power cables

**Suitable contacts:**

- EPIC® POWERLOCK Screw contacts Page 644
- 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**

**Rated voltage (V)**  
1000 V

**Rated impulse voltage**  
8 kV

**Rated current (A)**  
Screw max. 400 A

**Degree of soiling**  
3

**Contacts**  
Screw termination: silver-plated brass

**Number of contacts**  
1

**Termination methods**  
Screw termination: 50 - 120 mm<sup>2</sup>

**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

**Temperature range**  
-25°C - +125°C

**VDE-tested**  
VDE Reg. No. D42

Article number	Article	M	Pin configuration	Pieces / PU
<b>Type POWERLOCK D6, cable connector, source for screw contact</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420305	POWERLOCK D6 L1/BN	40	L1, Red	1
<b>Type POWERLOCK F6, coupling connector, drain for screw contact</b>				
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
<b>L1/red for direct current applications in conjunction with L2/black</b>				
44420301	POWERLOCK F6 L1/RD	40	L1, Red	1

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

**Accessories**

- SKINTOP® Standard refer to page 654



**Info**

- Can be locked to prevent unauthorised disconnection

**POWERLOCK BOX S\***



**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**

**Rated voltage (V)**  
1000 V

**Rated current (A)**  
Screw max. 400 A

**Degree of soiling**  
3

**Contacts**  
Screw termination: silver-plated brass

**Number of contacts**  
4 + PE

**Termination methods**  
Screw termination: 50 - 120 mm<sup>2</sup>

**IP** **Protection rating**  
IP 67

**Cycle of mechanical operation**  
500

**Temperature range**  
-20°C - +85°C

Article number	Article	Fastening type	Pin configuration	Pieces / PU
<b>POWERLOCK BOX A1, panel-mount base, drain with M12 threaded post</b>				
44420282	POWERLOCK BOX A1 S	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A1, panel-mount base with cover, drain with M12 threaded post</b>				
44420283	POWERLOCK BOX A1 SD	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A6, panel-mount base, source with M12 threaded post</b>				
44420286	POWERLOCK BOX A6 S	Ø 6.5 mm (4x)	4+PE	1
<b>POWERLOCK BOX A6, panel-mount base with cover, source with M12 threaded post</b>				
44420287	POWERLOCK BOX A6 SD	Ø 6.5 mm (4x)	4+PE	1

\* Trade product, no Lapp product  
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**Circular connectors**

EPIC® POWERLOCK Contacts, tools, accessories

**EPIC® POWERLOCK Screw contacts**



Info

- Screw max. 400 A
- Do not plug with crimp-type (660 A)

Article number	Article	Version	Version	PU
<b>Drain - contact with M12 threaded post for type POWERLOCK A1 S</b>				
44420241	POWERLOCK SP M12	for type A1	Contact Drain, M12 Thread for cable lugs	1
<b>Source - contact with M12 threaded post for type POWERLOCK A6 S</b>				
44420242	POWERLOCK QP M12	for type A6	Lamella contact source, M12 thread for cable lug	1
<b>Source - screw contact for type POWERLOCK D6 S</b>				
44420237	POWERLOCK QS 120	for type D6	120 mm <sup>2</sup>	1
<b>Drain - screw contact for type POWERLOCK F6 S</b>				
44420232	POWERLOCK SS 120	for type F6	120 mm <sup>2</sup>	1

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**EPIC® POWERLOCK Tools**



Article number	Article	Version	PU
<b>Tools</b>			
44420243	POWERLOCK DISCONNECTION TOOL	for mated connection	1

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**EPIC® POWERLOCK Accessories**



Article number	Article	For design	Version	PU
<b>Protective caps</b>				
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
<b>Spare part: Contact retention pin</b>				
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
<b>Conductor end sleeves for POWERLOCK screw contact</b>				
44420244	POWERLOCK WIRE SLEEVE 120	Spare part for POWERLOCK 120 SS/QS contact	120 mm <sup>2</sup>	1
44420245	POWERLOCK WIRE SLEEVE SET 95	Reduction set for POWERLOCK 120 SS/QS screw contact	95 mm <sup>2</sup>	1
44420246	POWERLOCK WIRE SLEEVE SET 70	Reduction set for POWERLOCK 120 SS/QS screw contact	70 mm <sup>2</sup>	1
44420247	POWERLOCK WIRE SLEEVE SET 50	Reduction set for POWERLOCK 120 SS/QS screw contact	50 mm <sup>2</sup>	1

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APPENDIX





**Info**

- Plastic junction box for ambient resistant cabling and connecting of photovoltaic systems

**Info**

- Aluminium Junction box for ambient resistant cabling and connecting of photovoltaic systems

**New**

**EPIC® SOLAR PL008**



**New**

**EPIC® SOLAR AL008**



**Benefits**

**EPIC® SOLAR PL008**

- Cost-efficient plastic junction box
- Factory assembled and tested
- Traceability of every junction box ensured by barcode

**EPIC® SOLAR AL008**

- Extremely resistant and durable PV-junction box in aluminium
- Aluminum housing is an excellent cooling element for the diodes and significantly increases their lifetime
- Factory assembled and tested
- Traceability of every junction box ensured by barcode

**Application range**

- Photovoltaic plants

**Product features**

- Robust junction box for cabling of photovoltaic modules
- Version with 3 diodes for three-string modules
- PTFE membrane equalize the pressure balance and enables humidity to stay out of the junction box
- Assembled with EPIC® SOLAR 4 THIN and ÖLFLEX® SOLAR cable 4mm<sup>2</sup>
- By identical design, the AL008 and the PL008 junction box can be easily changed in production

**Technical data**

<b>Rated voltage (V)</b>	1000 V
<b>Rated current (A)</b>	EPIC® SOLAR PL008 11 A EPIC® SOLAR AL008 12 A
<b>IP</b>	<b>Protection rating</b> IP 67
	<b>Protection class</b> II
<b>Temperature range</b>	-40°C ... +105°C

Article number	Article	PU
<b>EPIC® SOLAR PL008</b>		
44428214	EPIC® SOLAR PL008/3/11 4THIN 4/1	1
<b>EPIC® SOLAR AL008</b>		
44428215	EPIC® SOLAR AL008/3/12 4THIN 4/1	1

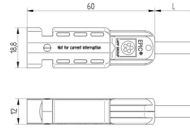
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Solar connectors

EPIC® SOLAR 4 THIN



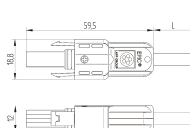
**EPIC® SOLAR 4 Thin M pre-assembled**



**Info**

- 4 mm connector system with double hook
- Non-resistant cable connection

**EPIC® SOLAR 4 THIN F pre-assembled**



**Info**

- 4 mm connector system with double hook
- Non-resistant cable connection

**Benefits**

- Non-resistant cable connection for efficient power transmission
- Innovative, patent-pending contact system, current leaves the connection cool
- High reliability and durability due to welded connections
- Extra-thin 12 mm for high packing density

**Application range**

- Pre-assembled connection cables for weatherproof cabling of photovoltaic systems

**Product features**

- 4 mm connector system with double hook
- Pre-assembled with 100 % automatic control
- Wide range of conductor cross-sections from 1.5 mm<sup>2</sup> to 6 mm<sup>2</sup>
- TÜV Rheinland certified
- UL pending

**Suitable connectors**

- EPIC® SOLAR 4 THIN M pre-assembled**
  - EPIC® SOLAR 4 F Page 647
- EPIC® SOLAR 4 THIN F pre-assembled**
  - EPIC® SOLAR 4 F Page 647

**Technical data**

<b>Rated voltage (V)</b>	1000 V AC/DC
<b>Rated impulse voltage</b>	8 kV
<b>Degree of soiling</b>	3
<b>Contact resistance</b>	< 0.2 mOhm
<b>Protection rating</b>	IP68 (10h / 1m)
<b>Protection class</b>	II
<b>Cycle of mechanical operation</b>	100
<b>Temperature range</b>	-40 °C to +105 °C

Article number	Article designation	Cross-section (mm <sup>2</sup> )	Rated current (A)	Length (m)	Copper index (kg/km)	Pieces / PU
<b>EPIC® SOLAR 4 THIN male with cable ÖLFLEX® SOLAR XLR</b>						
44428100	EPIC® SOLAR 4 THIN M XLR TF 1.5mm <sup>2</sup> 1m	1.5	17.0	1.0	14.4	100
44428101	EPIC® SOLAR 4 THIN M XLR TF 2.5 mm <sup>2</sup> 1 m	2.5	21.0	1.0	24.0	100
44428102	EPIC® SOLAR 4 THIN M XLR TF 4mm <sup>2</sup> 1m	4	25.0	1.0	38.4	100
44428103	EPIC® SOLAR 4 THIN M XLR 6mm <sup>2</sup> 1m	6	30.0	1.0	57.6	100
<b>EPIC® SOLAR 4 THIN male with cable ÖLFLEX® SOLAR XL multi</b>						
44428108	EPIC® SOLAR 4 THIN M XL multi 2.5 mm <sup>2</sup> 1 m	2.5	21.0	1.0	24.0	100
44428109	EPIC® SOLAR 4 THIN M XL multi 4mm <sup>2</sup> 1m	4	25.0	1.0	38.4	100
44428110	EPIC® SOLAR 4 THIN M XL multi 6mm <sup>2</sup> 1m	6	30.0	1.0	57.6	100
<b>EPIC® SOLAR 4 THIN female with cable ÖLFLEX® SOLAR XLR</b>						
44428104	EPIC® SOLAR 4 THIN F XLR TF 1.5 mm <sup>2</sup> 1 m	1.5	17.0	1.0	14.4	100
44428105	EPIC® SOLAR 4 THIN F XLR TF 2.5 mm <sup>2</sup> 1 m	2.5	21.0	1.0	24.0	100
44428106	EPIC® SOLAR 4 THIN F XLR TF 4mm <sup>2</sup> 1m	4	25.0	1.0	38.4	100
44428107	EPIC® SOLAR 4 THIN F XLR 6mm <sup>2</sup> 1m	6	30.0	1.0	57.6	100
<b>EPIC® SOLAR 4 THIN female with cable ÖLFLEX® SOLAR XL multi</b>						
44428111	EPIC® SOLAR 4 THIN F XL multi 2.5 mm <sup>2</sup> 1 m	2.5	21.0	1.0	24.0	100
44428112	EPIC® SOLAR 4 THIN F XL multi 4mm <sup>2</sup> 1m	4	25.0	1.0	38.4	100
44428113	EPIC® SOLAR 4 THIN F XL multi 6mm <sup>2</sup> 1m	6	30.0	1.0	57.6	100

Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Other lengths and cable terminations are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.

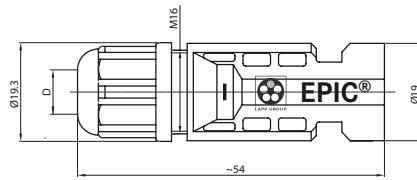


**New**

**EPIC® SOLAR 4 M**

**Info**

- 4 mm connector system with double hook
- Field-mountable solar connector

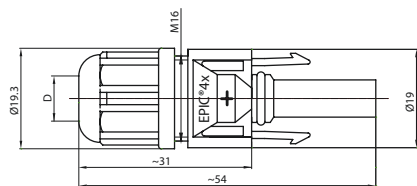


**New**

**EPIC® SOLAR 4 F**

**Info**

- 4 mm connector system with double hook
- Field-mountable solar connector



**Benefits**

- Low contact-resistance for efficient power transmission
- Crimp connection for field mounting
- Suitable for various ÖLFLEX® SOLAR cables

**Application range**

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

**Product features**

- 4 mm connector system with double hook
- TÜV Rheinland certified
- UL pending
- Inclusive contacts

**Suitable cables**

- ÖLFLEX® SOLAR XLR-R Page 138
- ÖLFLEX® SOLAR XLS-R Page 139
- ÖLFLEX® SOLAR XLR 4703 600V
- ÖLFLEX® SOLAR XLR 4703 2kV

**Suitable tools**

- EPIC® SOLAR TOOL refer to page 648
- For easier assembly EPIC® SOLAR 4 Assembly tool Set (44428224)

**Technical data**

- Rated voltage (V)**  
1000 V AC/DC
- Rated impulse voltage**  
8 kV
- Degree of soiling**  
3
- Contact resistance**  
< 0.5 mOhm
- Protection rating**  
IP 67
- Protection class**  
II
- Temperature range**  
-40°C ... +105°C

Article number	Article designation	Cross-section (mm²)	Cable clamping range (mm)	Rated current (A)	PU
<b>EPIC® SOLAR 4 male field-mountable</b>					
44428200	EPIC® SOLAR 4 M 2.5 mm²	2.5	4.8 - 6.0	22.0	100
44428201	EPIC® SOLAR 4 M 4mm² ... 6mm²	4 - 6	5.2 - 7.1	30.0	100
<b>EPIC® SOLAR 4 contacts</b>					
44428217	EPIC® SOLAR 4 PIN M 2.5mm²	2.5			100
44428219	EPIC® SOLAR 4 PIN M 4mm² ... 6mm²	4 - 6			100
<b>EPIC® SOLAR 4 female field-mountable</b>					
44428203	EPIC® SOLAR 4 F 2.5 mm²	2.5	5.2 - 6.5	22.0	100
44428204	EPIC® SOLAR 4 F 4mm² ... 6mm²	4 - 6	5.0 - 7.2	30.0	100
<b>EPIC® SOLAR 4 contacts</b>					
44428218	EPIC® SOLAR 4 PIN F 2.5mm²	2.5			100
44428220	EPIC® SOLAR 4 PIN F 4mm² ... 6mm²	4 - 6			100

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

## EPIC® CRIMPTOOL



New

## EPIC® SOLAR TOOL CSC



New

## EPIC® SOLAR TOOL



Info

- Cutting, stripping and crimping with just one tool



Info

- 3 cross section in one tool

### Application range

#### EPIC® SOLAR TOOL CSC

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

#### EPIC® SOLAR TOOL

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

### Product features

#### EPIC® SOLAR TOOL CSC

- Multifunctional die for cutting, stripping and crimping with just one tool
- Locator for the safe and accurate positioning of the crimping contacts

#### EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2.5mm<sup>2</sup>, 4mm<sup>2</sup> and 6mm<sup>2</sup>
- Locator for the safe and accurate positioning of the crimping contacts

### Suitable cables

#### EPIC® SOLAR TOOL CSC

- ÖLFLEX® SOLAR XLR-R Page 138
- ÖLFLEX® SOLAR XLS-R Page 139
- ÖLFLEX® SOLAR XLR 4703 600V
- ÖLFLEX® SOLAR XLR 4703 2kV

#### EPIC® SOLAR TOOL

- ÖLFLEX® SOLAR XLR-R Page 138
- ÖLFLEX® SOLAR XLS-R Page 139
- ÖLFLEX® SOLAR XLR 4703 600V
- ÖLFLEX® SOLAR XLR 4703 2kV

### Suitable tools

#### EPIC® SOLAR TOOL CSC

- EPIC® SOLAR 4 Page 647

#### EPIC® SOLAR TOOL

- EPIC® SOLAR 4 Page 647

Article number	Article	Cross-section (min) in mm <sup>2</sup>	Cross-section (max) in mm <sup>2</sup>	PU
<b>Multi-functional die CSC</b>				
44428992	EPIC® SOLAR TOOL CSC DIE 4mm <sup>2</sup>		4.00	1
44428993	EPIC® SOLAR Tool CSC DIE 6mm <sup>2</sup>		6.00	1
44428994	EPIC® SOLAR TOOL LOC 4, 6mm <sup>2</sup>	4.00	6.00	1
<b>Crimping die</b>				
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6mm <sup>2</sup>	2.50	6.00	1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6mm <sup>2</sup>	2.50	6.00	1

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



SKINTOP® metric plastic cable glands	
SKINTOP® Standard	654
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SKINTOP® halogen-free	660
SKINTOP® bending protection	661
SKINTOP® explosion-proof	664
SKINTOP® metric nickel-plated brass cable glands	
SKINTOP® MS-M	666
SKINTOP® COLD	669
SKINTOP® for industrial connectors	670
SKINTOP® explosion-proof	671
SKINTOP® EMC/Earthing	674
SKINTOP® cable glands stainless steel metric	
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SKINTOP® metric cable gland accessories	
SKINTOP® counter nuts	678
SKINTOP® multiple sealing inserts/dust protection	680
SKINDICHT® PG cable gland accessories	
SKINTOP® counter nuts	683
SKINTOP® multiple sealing inserts/dust protection	684
SKINTOP® cable bushing systems	
SKINTOP® cable bushing systems	686
SKINDICHT® metric plastic or metal cable glands	
SKINDICHT® standard metric cable gland	688
SKINDICHT® flat cable glands	690
SKINDICHT® strain relief/bending protection	692
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SKINDICHT® metric cable gland accessories	
SKINDICHT® counter nuts	704
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Cable glands - other thread types	
SKINTOP® NPT polyamide cable glands	724
SKINTOP® NPT nickel-plated brass cable glands	725
SKINTOP® PG polyamide cable glands	
Easy to install	728
SKINTOP® bending protection	730
SKINTOP® PG nickel-plated brass cable glands	
Easy to install	731
SKINDICHT® plastic or metal PG cable glands	
SKINDICHT® standard PG/DIN cable gland	734
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SKINDICHT® strain relief/bending protection	738
SKINDICHT® EMC/earthing	744
SKINDICHT® special sealing cable glands	746
SKINDICHT® angle cable glands	749
SKINDICHT® PG cable gland accessories	
SKINDICHT® counter nuts	751
SKINDICHT® blind plugs	753
SKINDICHT® reducers	755
SKINDICHT® enlargers	757
SKINDICHT® Adapter	758
SKINDICHT® fittings	760
SKINDICHT® dust protection	761
SKINDICHT® sealing rings/incised seals	762
SKINDICHT® earthing sleeves	764
SKINDICHT® anti-kink sleeves/sealing cones	765



## SKINTOP® metric plastic cable glands

SKINTOP® Standard		
SKINTOP® ST-M / SKINTOP® STR-M	New	654
SKINTOP® ST-M SORTIMO® T-BOXX	New	656
SKINTOP® CLICK System		
SKINTOP® CLICK / SKINTOP® CLICK-R	New	657
SKINTOP® CLICK SORTIMO® T-BOXX	New	658
SKINTOP® for photovoltaics		
SKINTOP® SOLAR / SKINTOP® SOLAR plus	New	659
SKINTOP® halogen-free		
SKINTOP® ST-HF-M	New	660
SKINTOP® bending protection		
SKINTOP® BS-M		661
SKINTOP® CLICK BS	New	662
SKINTOP® BT-M		663
SKINTOP® explosion-proof		
SKINTOP® K-M ATEX plus /		
SKINTOP® KR-M ATEX plus	New	664
SKINTOP® K-M ATEX plus blue /		
SKINTOP® KR-M ATEX plus blue	New	665

## SKINTOP® metric nickel-plated brass cable glands

SKINTOP® MS-M		
SKINTOP® MS-M / SKINTOP® MSR-M	New	666
SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL		667
SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL	New	668
SKINTOP® COLD		
SKINTOP® COLD / SKINTOP® COLD-R	New	669
SKINTOP® for industrial connectors		
SKINTOP® MS-IS-M		670
SKINTOP® explosion-proof		
SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX		671
SKINTOP® MS-M ATEX BRUSH	New	672
SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX		673
SKINTOP® EMC/Earthing		
SKINTOP® MS-SC-M		674
SKINTOP® MS-M BRUSH	New	675
SKINTOP® BRUSH ADD-ON	New	676

## SKINTOP® cable glands stainless steel metric

SKINTOP® stainless steel cable glands		
SKINTOP® INOX / SKINTOP® INOX-R	New	677

## SKINTOP® metric cable gland accessories

SKINTOP® counter nuts		
SKINTOP® GMP-GL-M		678
SKINTOP® GMP-HF-M		679
SKINTOP® multiple sealing inserts/dust protection		
SKINTOP® DIX-M		680
SKINTOP® DIX-M AUTOMATION	New	681
SKINTOP® DIX-DV / SKINTOP® SD-M / SKINTOP® DV-M		682

## SKINDICHT® PG cable gland accessories

SKINTOP® counter nuts		
SKINTOP® GMP-GL		683
SKINTOP® multiple sealing inserts/dust protection		
SKINTOP® DIX		684
SKINTOP® DIX-AUTOMATION		684
SKINTOP® DIX-DV / SKINTOP® SD / SKINTOP® DV		685

## SKINTOP® cable bushing systems

SKINTOP® cable bushing systems		
SKINTOP® CUBE	New	686
Cablefix		687

## SKINDICHT® metric plastic or metal cable glands

SKINDICHT® standard metric cable gland		
SKINDICHT® SVRN-M / SKINDICHT® SVRE-M		688
SKINDICHT® SVRX		689
SKINDICHT® flat cable glands		
SKINDICHT® SVFK-M		690
SKINDICHT® SVF-M		691
SKINDICHT® strain relief/bending protection		
SKINDICHT® SKZ-M		692
SKINDICHT® SHZ-M		693
SKINDICHT® SR-M		694
SKINDICHT® SR-SV-M		695
SKINDICHT® EMC/earthing		
SKINDICHT® SHVE-M		696
SKINDICHT® SRE-M		697

## SKINDICHT® special sealing cable glands

SKINDICHT® SHV-M		698
SKINDICHT® SHV-M-VITON®		699
SKINDICHT® MINI		699
SKINDICHT® CN-M		700
SKINDICHT® angle cable glands		
SKINDICHT® KW-M		701
SKINDICHT® RWV-M		701
SKINDICHT® RWV-M without E+D		702
SKINDICHT® SE-M		702
SKINDICHT® SE-M without E+D		703
SKINDICHT® SE-M 220/320		703

## SKINDICHT® metric cable gland accessories

SKINDICHT® counter nuts		
SKINDICHT® SM-M		704
SKINDICHT® SM-PE-M		704
SKINDICHT® blind plugs		
SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M		705
SKINTOP® CLICK BLK	New	706
SKINDICHT® BL-M		707
SKINDICHT® BL-M hexagonal		708
SKINDICHT® BL-M ATEX		708
SKINDICHT® Pressure compensation element		
SKINDICHT® VENT STAINLESS STEEL	New	709
SKINDICHT® VENT PLASTIC	New	710
SKINDICHT® reducers		
SKINDICHT® KU-M		711
SKINDICHT® MR-M		711
SKINDICHT® MR-M hexagonal	New	712
SKINDICHT® MR-M ATEX		712
SKINDICHT® enlargers		
SKINDICHT® EKU-M		713
SKINDICHT® ME-M		713
SKINDICHT® ME-M ATEX		714
SKINDICHT® Adapter		
SKINDICHT® MA-M/PG / SKINDICHT® MA-M/NPT		715
SKINDICHT® fittings		
SKINDICHT® ZS-M		716
SKINDICHT® ZSE-M		717
SKINDICHT® compression screws, washers		
SKINDICHT® D-M		718
SKINDICHT® U-M/U-PG		718
SKINDICHT® sealing rings/incised seals		
SKINDICHT® E-M		719
SKINDICHT® O-Ring Perbunan® metric		719
SKINDICHT® O-ring VITON® metric		720
SKINDICHT® JT PTFE metric		720
SKINDICHT® ducts		
SKINDICHT® WN-M		721
SKINDICHT® DTN		721
SKINDICHT® LA		721
SKINMATIC® mounting tools		
SKINMATIC® metric mounting tools		
SKINMATIC® QUICK Set 1	New	722
SKINMATIC® MH Set	New	722
SKINMATIC® KB-M		723
SKINMATIC® SB-M		723
SKINMATIC® GB-M		723
SKINMATIC® RZ		723
SKINMATIC® KB-M		723
SKINMATIC® SB-M		723
SKINMATIC® GB-M		723
SKINMATIC® RZ		723
Cable glands - other thread types		
SKINTOP® NPT polyamide cable glands		
SKINTOP® NPT		724
SKINTOP® NPT nickel-plated brass cable glands		
SKINTOP® MS NPT		725
SKINTOP® MS-SC NPT		726
SKINTOP® MS-NPT BRUSH	New	727
SKINTOP® PG polyamide cable glands		
Easy to install		
SKINTOP® ST / SKINTOP® STR		728
SKINTOP® BS		729

SKINTOP® BS	729	<b>SKINDICHT® PG cable gland accessories</b>	
SKINTOP® bending protection		SKINDICHT® counter nuts	
SKINTOP® BT	730	SKINDICHT® GMK	751
<b>SKINTOP® PG nickel-plated brass cable glands</b>		SKINDICHT® SM / SKINDICHT® SM-PE	752
Easy to install		<b>SKINDICHT® blind plugs</b>	
SKINTOP® MS / SKINTOP® MSR	731	SKINDICHT® BLK / BLK-GL	753
SKINTOP® MS-XL / SKINTOP® MSR-XL	732	SKINDICHT® BL	754
SKINTOP® MS-SC	733	<b>SKINDICHT® reducers</b>	
<b>SKINDICHT® plastic or metal PG cable glands</b>		SKINDICHT® KU, KUS, KUK	755
SKINDICHT® standard PG/DIN cable gland		SKINDICHT® MR	756
SKINDICHT® SVRN / SKINDICHT® SVRE	734	<b>SKINDICHT® enlargers</b>	
SKINDICHT® flat cable glands		SKINDICHT® EKU	757
SKINDICHT® SVFK	735	SKINDICHT® ME	757
SKINDICHT® SVF	736	<b>SKINDICHT® Adapter</b>	
SKINDICHT® FL	737	SKINDICHT® A-PG/M	758
SKINDICHT® strain relief/bending protection		SKINDICHT® MA-PG/M	759
SKINDICHT® SH	738	<b>SKINDICHT® fittings</b>	
SKINDICHT® SHZ	739	SKINDICHT® ZS/ZS-XL	760
SKINDICHT® SK	740	<b>SKINDICHT® dust protection</b>	
SKINDICHT® SKZ	741	SKINDICHT® STK	761
SKINDICHT® SR	742	SKINDICHT® E	761
SKINDICHT® SR-SV	743	SKINDICHT® STK	761
SKINDICHT® EMC/earthing		SKINDICHT® E	761
SKINDICHT® SHVE	744	<b>SKINDICHT® sealing rings/incised seals</b>	
SKINDICHT® SRE	745	SKINDICHT® EV	762
SKINDICHT® special sealing cable glands		SKINDICHT® O-Ring Perbunan® PG	762
SKINDICHT® SHV	746	SKINDICHT® O-Ring VITON® PG	763
SKINDICHT® SHV VITON®	747	SKINDICHT® JT PTFE PG	763
SKINDICHT® CN	748	<b>SKINDICHT® earthing sleeves</b>	
SKINDICHT® angle cable glands		SKINDICHT® EH	764
SKINDICHT® RWV	749	<b>SKINDICHT® anti-kink sleeves/sealing cones</b>	
SKINDICHT® SE	750	SKINDICHT® SHV cone seal	765
		SKINDICHT® SNR	766

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®


SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

At a glance

	Characteristics														Approvals	
	Protection class IP/NEMA	Connection thread metric	Connection thread PG	Connection thread NPT	for round cables	for flat cables	Metal	Plastic	Angle	Strain relief	Vibration protection	Antikink protection	Screen connection	Use for hazardous areas		Halogen free
<b>Cable glands</b>																
SKINTOP® ST-M/STR-M/ST(R) M ISO	68/69K	•			•			•		•	•					cULus, cURus, TÜV, VDE, DNV
SKINTOP® CLICK/CLICK-R	68				•			•		•	•					VDE, cULus, cURus, DNV
SKINTOP® CLICK BS	68				•		•			•	•	•				VDE, cULus, cURus, DNV
SKINTOP® COLD/COLD-R	68	•			•		•			•	•					VDE
SKINTOP® CUBE	64/ NEMA 12				•			•		•	•					
SKINTOP® ST and STR	68		•		•			•		•	•					UL, UR, CSA, TÜV
SKINTOP® ST (NPT) and STR (NPT)	68			•	•			•		•	•					UL, UR, CSA
SKINTOP® ST-HF-M	68	•			•			•		•	•			•		VDE
SKINTOP® SOLAR (plus)	68	•			•			•		•	•					cULus, cURus
SKINTOP® BS-M/BS M ISO	68	•			•			•		•	•	•				cULus, cURus, VDE, DNV
SKINTOP® BS	68		•		•			•		•	•	•				UL, UR, CSA
SKINTOP® BS (NPT)	68			•	•			•		•	•	•				
SKINTOP® BT and BT-M	68	•	•		•			•		•	•	•				
SKINTOP® MS-M and MSR-M/MS-M-XL and MSR-M-XL	68/69K NEMA 4x/6	•			•		•			•	•					cULus, cURus, VDE, DNV
SKINTOP® MS and MSR	68		•		•		•			•	•					
SKINTOP® BS-M METAL	68/69K	•			•		•			•	•	•				
SKINTOP® MS (NPT) and MSR (NPT)	68			•	•		•			•	•					UL, UR, CSA
SKINTOP® MS-IS-M	68	•			•		•			•	•					
SKINTOP® MS-SC-M	68	•			•		•			•	•		•			cULus, cURus, DNV
SKINTOP® MS-M BRUSH/BRUSH plus	68/69K	•			•		•			•	•		•			VDE, cULus, DNV
SKINTOP® BRUSH ADD-ON	68	•			•		•			•	•		•			
SKINTOP® INOX	68/69K	•			•		•			•	•					
SKINTOP® MS-SC/MS-SC NPT	68		•	•	•		•			•	•		•			
SKINTOP® MS-NPT BRUSH	68			•	•		•			•	•		•			cULus
SKINTOP® K-M ATEX plus/plus blue	68	•			•		•		•	•	•		•			DNV, ATEX
SKINTOP® KR-M ATEX plus/plus blue	68	•			•		•		•	•	•		•			DNV, ATEX
SKINTOP® MS-M ATEX/MS-M-XL ATEX	68	•			•		•			•	•		•			cULus, cURus, DNV, ATEX
SKINTOP® MSR-M ATEX	68	•			•		•			•	•		•			cULus, cURus, DNV, ATEX
SKINTOP® MS-M BRUSH ATEX/SKINDICHT® SHVE-M ATEX	68	•			•		•			•	•		•	•		ATEX, DNV
SKINDICHT® MINI	68	•			•		•			•	•					
SKINDICHT® CN and CN-M	68	•	•		•		•			•	•					
SKINDICHT® SHV-M	68	•			•		•			•	•					
SKINDICHT® SHV	68		•		•		•			•	•					
SKINDICHT® SHV-M-Viton®	68	•			•		•			•	•					
SKINDICHT® SHV-Viton®	68		•		•		•			•	•					
SKINDICHT® SHVE-M	68	•			•		•			•	•		•			
SKINDICHT® SHVE	68		•		•		•			•	•		•			
SKINDICHT® SR-SV-M	65	•			•		•			•	•		•			
SKINDICHT® SR-SV	65		•		•		•			•	•		•			
SKINDICHT® FL	65				•		•			•	•					
SKINDICHT® SRE-M	65	•			•		•			•	•		•			
SKINDICHT® SRE	65		•		•		•			•	•		•			
SKINDICHT® SR-M	65	•			•		•			•	•		•			
SKINDICHT® SR	65		•		•		•			•	•		•			
SKINDICHT® KW-M	55	•			•		•		•	•	•					
SKINDICHT® SE and SE-M	55	•	•		•		•			•	•					
SKINDICHT® SE-M 220/320	55	•	•		•		•			•	•					
SKINDICHT® RWV-M	55	•			•		•			•	•					
SKINDICHT® RWV	55		•		•		•			•	•					
SKINDICHT® SKZ-M	55	•			•		•			•	•					
SKINDICHT® SKZ	55		•		•		•			•	•					
SKINDICHT® SHZ-M	55	•			•		•			•	•					
SKINDICHT® SHZ	55		•		•		•			•	•					
SKINDICHT® SVF and SVF-M	54	•	•		•		•			•	•					
SKINDICHT® SVFK	54		•		•		•		•	•	•					
SKINDICHT® SVRE-M	54	•			•		•			•	•					
SKINDICHT® SVRE	54		•		•		•			•	•					
SKINDICHT® SVRN-M	54	•			•		•			•	•					
SKINDICHT® SVRN	54		•		•		•			•	•					
SKINDICHT® SVRX-W	54	•			•		•			•	•					
SKINDICHT® SVRX-Z	54	•			•		•			•	•		•			
SKINDICHT® SK	20		•		•		•			•	•					
SKINDICHT® SH	20		•		•		•			•	•					

VITON® is a registered trademark of DuPont de Nemour

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



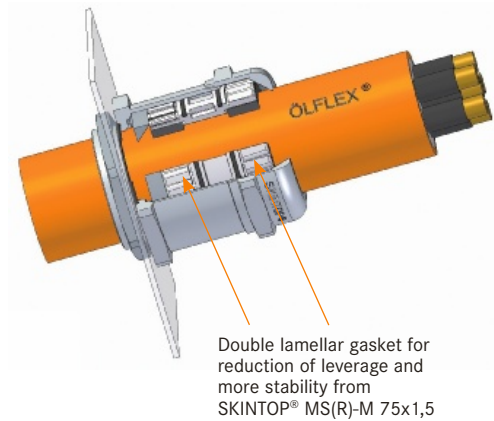
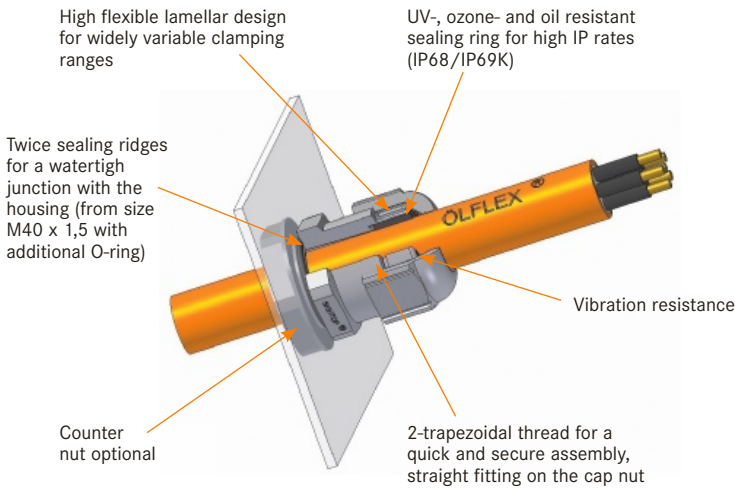
## SKINTOP® Single entry system

Secured by a single turn of the hand



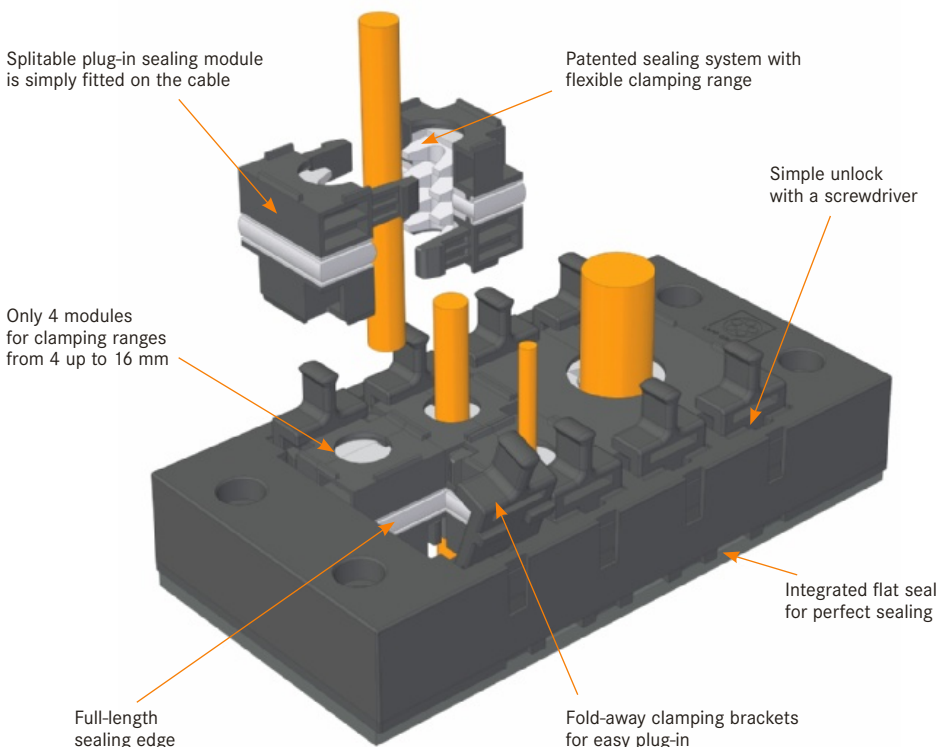
With SKINTOP® you can fix the cable in an instant. Just feed it in, turn till tight – ready. So your cable is fixed, centered, hermetically sealed and completely strainrelieved with a turn of the hand. Either way, with SKINTOP® you can achieve maximum reliability.

To ensure that this remains so, SKINTOP® quality is continuously monitored. A quality which has brought us a great many international approvals.



## SKINTOP® CUBE multi cable entry systems

Modular system for harnessed cables



The SKINTOP® CUBE multi cable bushing system is made up of just a SKINTOP® CUBE FRAME and flexible SKINTOP® CUBE MODULES (clip sealing modules). These cubes can effortlessly be attached to the appropriate assembled cable. The cable is then clicked into the frame and is perfectly fixed in place, protected against vibrations, strain relieved and sealed in accordance with IP 64. It really couldn't be quicker and easier, as no additional parts are required to secure it.



**New**

## SKINTOP® ST-M / SKINTOP® STR-M



**Info**

- Now with IP 69 K approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

**Benefits**

**SKINTOP® ST-M**

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

**SKINTOP® STR-M**

- For the benefits, refer to SKINTOP® ST-M

**Application range**

**SKINTOP® ST-M**

- Used in areas where cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and ship-yards

**SKINTOP® STR-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 EN 50262

**Note**

**SKINTOP® ST-M**

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® ST M ISO types have an extra-long connection thread
- SKINTOP® ST M ISO versions with extra-long connection thread, see table, no DNV approval

**SKINTOP® STR-M**

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® STR M ISO types have an extra-long connection thread
- SKINTOP® STR M ISO versions with extra-long connection thread, see table, no DNV approval

**Suitable cables**

- The following cables are recommended for IP 69 K applications:  
ÖLFLEX® ROBUST 200  
H07RN8-F  
H07RN-F

**Suitable tools**

**SKINTOP® ST-M**

- SKINMATIC® QUICK Set 1 refer to page 722
- SKINMATIC® RZ refer to page 723
- SKINMATIC® Torque wrench refer to page 722

**Technical data**

**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  
IP 69 K

**Temperature range**  
Fixed: -40°C to +100°C  
Dynamic: -20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® ST-M silver grey</b>						
53111000	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111010	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111020	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111030	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111040	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111050	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111060	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111070	ST-M 63 x 1,5	34-45	66	71,0	12,0	5
<b>SKINTOP® ST-M black</b>						
53111200	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111210	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111220	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111230	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111240	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111250	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111260	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111270	ST-M 63 x 1,5	34-45	66	71,0	12,0	5

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Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® ST-M light grey</b>						
53111400	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111410	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111420	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111430	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111440	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111450	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111460	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111470	ST-M 63 x 1,5	34-45	66	71,0	12,0	5
<b>SKINTOP® ST M ISO silver-grey (with long metric connecting thread)</b>						
53017010	ST M 16 x 1,5	3,5-8	19	40,0	12,0	100
53017030	ST M 20 x 1,5	5-12	24	45,0	13,0	100
53017040	ST M 25 x 1,5	9-14	27	47,0	13,0	50
<b>SKINTOP® ST M ISO black (with long metric connecting thread)</b>						
53010000	ST-M 12 x 1,5	3,5-7	15	36,7	15,0	100
53017210	ST M 16 x 1,5	3,5-8	19	40,0	12,0	100
53017230	ST M 20 x 1,5	5-12	24	45,0	13,0	100
53017240	ST M 25 x 1,5	9-14	27	47,0	13,0	50
<b>SKINTOP® STR-M silver grey</b>						
53111100	STR-M 12 x 1,5	1-5	15	30,0	8,0	100
53111110	STR-M 16 x 1,5	2-7	19	34,0	8,0	100
53111120	STR-M 20 x 1,5	5-10	25	37,0	9,0	100
53111130	STR-M 25 x 1,5	6-13	30	40,0	10,0	50
53111140	STR-M 32 x 1,5	7-15	36	47,0	10,0	25
53111150	STR-M 40 x 1,5	15-23	46	52,0	10,0	10
53111160	STR-M 50 x 1,5	22-29	55	62,0	12,0	5
53111170	STR-M 63 x 1,5	28-39	66	71,0	12,0	5
<b>SKINTOP® STR-M black</b>						
53111300	STR-M 12 x 1,5	1-5	15	30,0	8,0	100
53111310	STR-M 16 x 1,5	2-7	19	34,0	8,0	100
53111320	STR-M 20 x 1,5	5-10	25	37,0	9,0	100
53111330	STR-M 25 x 1,5	6-13	30	40,0	10,0	50
53111340	STR-M 32 x 1,5	7-15	36	47,0	10,0	25
53111350	STR-M 40 x 1,5	15-23	46	52,0	10,0	10
53111360	STR-M 50 x 1,5	22-29	55	62,0	12,0	5
53111370	STR-M 63 x 1,5	28-39	66	71,0	12,0	5
<b>SKINTOP® STR-M light grey</b>						
53111500	STR-M 12 x 1,5	1-5	15	30,0	8,0	100
53111510	STR-M 16 x 1,5	2-7	19	34,0	8,0	100
53111520	STR-M 20 x 1,5	5-10	25	37,0	9,0	100
53111530	STR-M 25 x 1,5	6-13	30	40,0	10,0	50
53111540	STR-M 32 x 1,5	7-15	36	47,0	10,0	25
53111550	STR-M 40 x 1,5	15-23	46	52,0	10,0	10
53111560	STR-M 50 x 1,5	22-29	55	62,0	12,0	5
53111570	STR-M 63 x 1,5	28-39	66	71,0	12,0	5
<b>SKINTOP® STR M ISO silver-grey (with long metric connecting thread)</b>						
53017110	STR M 16 x 1,5	2-6	19	40,0	12,0	100
53017130	STR M 20 x 1,5	4-9	24	45,0	13,0	100
53017140	STR M 25 x 1,5	6-12	27	47,0	13,0	50
<b>SKINTOP® STR M ISO black (with long metric connecting thread)</b>						
53017310	STR M 16 x 1,5	2-6	19	40,0	12,0	100
53017330	STR M 20 x 1,5	4-9	24	45,0	13,0	100
53017340	STR M 25 x 1,5	6-12	27	47,0	13,0	50

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**■ Accessories**

**SKINTOP® ST-M**

- SKINTOP® DIX-M refer to page 680
- SKINTOP® GMP-GL-M refer to page 678
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® SDV-M ATEX refer to page 673
- SKINTOP® SD-M refer to page 682
- SKINTOP® DV-M refer to page 682

**SKINTOP® STR-M**

- SKINTOP® DIX-M refer to page 680
- SKINTOP® GMP-GL-M refer to page 678
- SKINTOP® DIX-M AUTOMATION refer to page 681



**New**

## SKINTOP® ST-M SORTIMO® T-BOXX



**Info**

- Optimal order in the practical SORTIMO® T-BOXX
- The brand for universal cable gland according to the principle: quickly fixed, centered and hermetically sealed

**Benefits**

- High oil-resistance for maximum reliability
- Wide, variable clamping ranges
- Easy to install
- Permanent vibration protection
- Optimum strain relief

**Application range**

- Control cabinet manufacturing
- Automation technology
- Measurement, control and electrical applications
- Air-conditioning technology

**Product features**

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use E.g. on site

**Norm references / Approvals**

- UL File Nr. E79903

**Note**

- To refill standard packaging units are available

**Included**

- Delivery in SORTIMO® T-BOXX
- Inclusive counter nuts SKINTOP® GMP-GL-M
- Assembly instructions
- 50 Pcs. SKINTOP® ST-M M12 Art.No. 53111400
- 50 Pcs. SKINTOP® ST-M M16 Art.No. 53111410
- 40 Pcs. SKINTOP® ST-M M20 Art.No. 53111420
- 25 Pcs. SKINTOP® ST-M M25 Art.No. 53111430
- 9 Pcs. SKINTOP® ST-M M32 Art.No. 53111440

**Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**Colour delivered**

Light grey (RAL 7035)



**Material**

Body: Polyamide  
Seal: CR

**Tests**

GGVS: TÜ.EGG.020-95



**Protection rating**

IP 68 - 5 bar  
IP 69 K



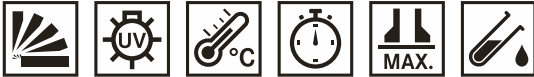
**Temperature range**

Dynamic: -20°C to +100°C  
Fixed: -40°C to +100°C

Article number	Article designation / size	Pieces / PU
53110030	SKINTOP® ST-M SORTIMO® T-BOXX	1

Other colours are available upon request.  
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**New**

**SKINTOP® CLICK / SKINTOP® CLICK-R**

**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**

**SKINTOP® CLICK**

- 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

**SKINTOP® CLICK-R**

- For the benefits, refer to SKINTOP® CLICK

**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

**Technical data**

- RAL Colour delivered**  
Silver grey (RAL 7001)  
Light grey (RAL 7035)  
Black (RAL 9005), UV-resistant
- Material**  
Body: special polyamide  
Seal: special elastomer
- IP Protection rating**  
**SKINTOP® CLICK**  
IP 68 - 4 bar (M12)  
IP 68 - 5 bar (M16 - M32)
- Temperature range**  
Dynamic: -20°C to +100°C  
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
<b>SKINTOP® CLICK light grey</b>								
53112692	CLICK 12	3,5 - 7	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112686	CLICK 16	5 - 9	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112687	CLICK 20	7 - 13	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112688	CLICK 25	9 - 17	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112694	CLICK 32	11 - 21	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25
<b>SKINTOP® CLICK silver grey</b>								
53112921	CLICK 12	3,5 - 7	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112876	CLICK 16	5 - 9	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112877	CLICK 20	7 - 13	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112878	CLICK 25	9 - 17	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112922	CLICK 32	11 - 21	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25
<b>SKINTOP® CLICK black</b>								
53112923	CLICK 12	3,5 - 7	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112882	CLICK 16	5 - 9	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112883	CLICK 20	7 - 13	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112884	CLICK 25	9 - 17	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112924	CLICK 32	11 - 21	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25
<b>SKINTOP® CLICK-R light grey</b>								
53112925	CLICK-R 12	1 - 5	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112689	CLICK-R 16	4 - 7	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112690	CLICK-R 20	5 - 10	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112691	CLICK-R 25	6 - 13	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112926	CLICK-R 32	7 - 15	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25
<b>SKINTOP® CLICK-R silver grey</b>								
53112927	CLICK-R 12	1 - 5	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112879	CLICK-R 16	4 - 7	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112880	CLICK-R 20	5 - 10	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112881	CLICK-R 25	6 - 13	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112928	CLICK-R 32	7 - 15	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25
<b>SKINTOP® CLICK-R black</b>								
53112929	CLICK-R 12	1 - 5	12,3 (-0,2)	15 / 18	40,0	8,0	1,0 - 4,0	50
53112885	CLICK-R 16	4 - 7	16,3 (-0,2)	19 / 22	42,0	8,0	1,0 - 4,0	50
53112886	CLICK-R 20	5 - 10	20,3 (-0,2)	25 / 27	45,5	8,0	1,0 - 4,0	25
53112887	CLICK-R 25	6 - 13	25,3 (-0,2)	30 / 34	48,5	8,0	1,0 - 4,0	25
53112931	CLICK-R 32	7 - 15	32,3 (-0,2)	36 / 40	55,0	8,0	1,0 - 4,0	25

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

**Accessories**

**SKINTOP® CLICK**

- SKINTOP® DIX-M refer to page 680
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® SDV-M ATEX refer to page 673
- SKINTOP® SD-M refer to page 682
- SKINTOP® DV-M refer to page 682

**SKINTOP® CLICK-R**

- SKINTOP® DIX-M refer to page 680

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**New**

## SKINTOP® CLICK SORTIMO® T-BOXX



**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.
- Optimal order in the practical SORTIMO® T-BOXX

### ■ 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

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Air-conditioning technology
- Measurement, control and electrical applications

### ■ Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use E.g. on site

### ■ Norm references / Approvals

- UL File Nr. E79903

### ■ Note

- To refill standard packaging units are available

### ■ Included

- Included in all sizes: disassembly tool
- Delivery in SORTIMO® T-BOXX
- Assembly instructions
- SKINTOP® CLICK M12 / 40 Piece (Part.No. 53112692)
- SKINTOP® CLICK M16 / 55 Piece (Part.No. 53112686)
- SKINTOP® CLICK M20 / 25 Piece (Part.No. 53112687)
- SKINTOP® CLICK M25 / 25 Piece (Part.No. 53112688)
- SKINTOP® CLICK M32 / 9 Piece (Part.No. 53112694)

### ■ Technical data

<b>RAL</b>	<b>Colour delivered</b> Light grey (RAL 7035)
<b>Material</b>	Body: special polyamide Seal: special elastomer
<b>IP</b>	<b>Protection rating</b> IP 68 - 4 bar (M12) IP 68 - 5 bar (M16 - M32)
<b>Temperature range</b>	Dynamic: -20°C to +100°C Fixed: -40°C to +100°C

Article number	Article designation / size	Pieces / PU
53112695	SKINTOP® CLICK SORTIMO® BOXX	1

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

### ■ Accessories

- SKINTOP® CLICK refer to page 657



**New**

**SKINTOP® SOLAR / SKINTOP® SOLAR plus**  
SKINTOP® for photovoltaics

**Info**

- Cable gland for photovoltaic applications, based on EN 50262, EN 50548 and UL 1703.



**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 and solar parks

**Norm references / Approvals**

- UL File Nr. E79903

**Product make-up**

- Metric connection thread acc. to EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Counter nut to be used: SKINTOP® GMP-GL-M

**Suitable cables**

- ÖLFLEX® SOLAR

**Suitable tools**

- SKINMATIC® RZ
- SKINMATIC® QUICK SET 1

**Technical data**

**Caution**  
Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**  
RAL 9005 black/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	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® SOLAR</b>						
53113300	SOLAR M12x1,5	3,5-7	15	36,0	15,0	100
53113310	SOLAR M16x1,5	7-9	19	34,0	8,0	100
<b>SKINTOP® SOLAR plus</b>						
53113321	SOLAR plus M12x1,5	3,5-7	15	36,0	15,0	100
53113331	SOLAR plus M16x1,5	7-9	19	34,0	8,0	100

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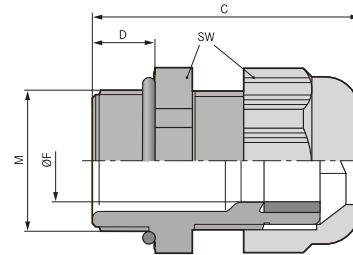
**New**

**SKINTOP® ST-HF-M**  
SKINTOP® halogen-free



**Info**

- Cable gland for railway applications
- Fire protection on railway vehicles
- Approval acc. to DIN EN 45545-2:2013



**Benefits**

- Maximum reliability
- Extremely flame-retardant according to UL 94 V0
- Completely halogen-free (including sealing material)
- Self-extinguishing, no dripping
- Permanent vibration protection

**Product make-up**

- Metric connection thread acc. to EN 50262

**Application range**

- When the protection of people and property is a priority.
- Public buildings
- Ventilation systems
- Tunnel construction
- Underground railways and trains

**Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**Colour delivered**

Light grey (RAL 7035)



**Material**

Polyamide UL 94V-0 - halogen-free  
Sealing ring: LSE 1 - halogen-free  
O-ring: LSE 1 - halogen-free

**Tests**

Filament wire test  
EN 60695-2-1/1  
+960°C



**Protection rating**

IP 68 - 5 bar



**Temperature range**

-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® ST-HF-M</b>						
53111407	ST-HF-M 12 x 1,5	4-5,5	15	30,0	8,0	100
53111417	ST-HF-M 16 x 1,5	4,5-9	19	34,0	8,0	100
53111427	ST-HF-M 20 x 1,5	7-13	25	37,0	9,0	100
53111437	ST-HF-M 25 x 1,5	9-17	30	40,0	10,0	50
53111447	ST-HF-M 32 x 1,5	11-21	36	47,0	10,0	25
53111457	ST-HF-M 40 x 1,5	19-28	46	52,0	10,0	10
53111467	ST-HF-M 50 x 1,5	27-35	55	62,0	12,0	5
53111477	ST-HF-M 63 x 1,5	34-45	66	71,0	12,0	5

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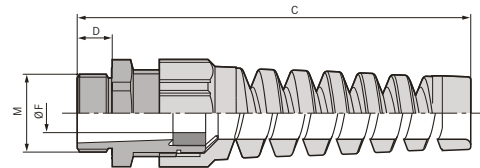
**Accessories**

- SKINTOP® GMP-HF-M refer to page 679





**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 EN 50262

**Note**

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- 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

**Technical data**

- 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  
IP 69 K pending
- Temperature range**  
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® BS-M silver grey</b>						
53111600	BS-M 12x1,5	3,5-7	15	64.0	8.0	100
53111610	BS-M 16x1,5	4,5-10	19	86.0	8.0	100
53111620	BS-M 20x1,5	7-13	25	101.0	8.0	50
53111630	BS-M 25x1,5	9-17	30	125.0	9.0	25
53111640	BS-M 32x1,5	11-21	36	149.0	10.0	25
<b>SKINTOP® BS-M black</b>						
53111700	BS-M 12x1,5	3,5-7	15	64.0	8.0	100
53111710	BS-M 16x1,5	4,5-10	19	86.0	8.0	100
53111720	BS-M 20x1,5	7-13	25	101.0	8.0	50
53111730	BS-M 25x1,5	9-17	30	125.0	9.0	25
53111740	BS-M 32x1,5	11-21	36	149.0	10.0	25
<b>SKINTOP® BS-M light grey</b>						
53111800	BS-M 12x1,5	3,5-7	15	64.0	8.0	100
53111810	BS-M 16x1,5	4,5-10	19	86.0	8.0	100
53111820	BS-M 20x1,5	7-13	25	101.0	8.0	50
53111830	BS-M 25x1,5	9-17	30	125.0	9.0	25
53111840	BS-M 32x1,5	11-21	36	149.0	10.0	25
<b>SKINTOP® BS M ISO silver-grey (with long metric connecting thread)</b>						
53017610	BS M 16 x 1,5 PG 9	3,5-8	19	77.5	12.0	100
53017630	BS M 20 x 1,5 PG 13,5	5-12	24	102.0	13.0	50
53017640	BS M 25 x 1,5 PG 16	9-14	27	114.5	13.0	50
<b>SKINTOP® BS M ISO black (with long metric connecting thread)</b>						
53017810	BS M 16 x 1,5 PG 9	3,5-8	19	77.5	12.0	100
53017830	BS M 20 x 1,5 PG 13,5	5-12	24	102.0	13.0	50
53017840	BS M 25 x 1,5 PG 16	9-14	27	114.5	13.0	50

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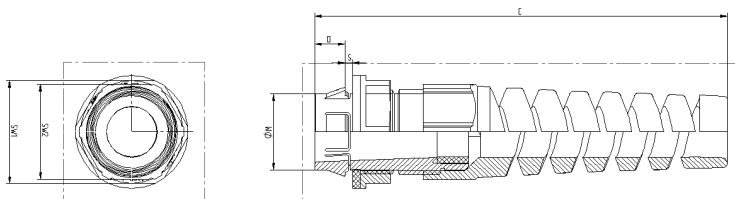
**Accessories**

- SKINTOP® GMP-GL-M refer to page 678



**New**

**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

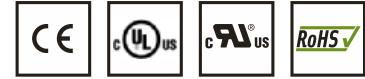
**Technical data**

- RAL Colour delivered**  
Silver grey (RAL 7001)  
Light grey (RAL 7035)  
Black (RAL 9005), UV-resistant
- Material**  
Body: special polyamide  
Seal: special elastomer
- IP Protection rating**  
IP 68 - 4 bar (M12)  
IP 68 - 5 bar (M16 - M32)
- Temperature range**  
-20°C to +100°C

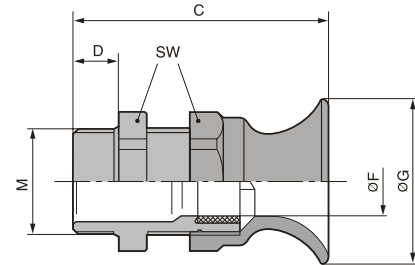
Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
<b>SKINTOP® CLICK BS light grey</b>								
53112932	CLICK BS 12	3,5-7	12.3 (-0.2)	18 / 15	74.0	8.0	1.0 - 4.0	50
53112888	CLICK BS 16	5-9	16.3 (-0.2)	22 / 19	94.0	8.0	1.0 - 4.0	50
53112889	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8.0	1.0 - 4.0	25
53112890	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8.0	1.0 - 4.0	25
53112933	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	155.0	8.0	1.0 - 4.0	25
<b>SKINTOP® CLICK BS silver grey</b>								
53112934	CLICK BS 12	3,5-7	12.3 (-0.2)	18 / 15	74.0	8.0	1.0 - 4.0	50
53112906	CLICK BS 16	5-9	16.3 (-0.2)	22 / 25	94.0	8.0	1.0 - 4.0	50
53112907	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8.0	1.0 - 4.0	25
53112908	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8.0	1.0 - 4.0	25
53112935	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	155.0	8.0	1.0 - 4.0	25
<b>SKINTOP® CLICK BS black</b>								
53112936	CLICK BS 12	3,5-7	12.3 (-0.2)	18 / 15	74.0	8.0	1.0 - 4.0	50
53112909	CLICK BS 16	5-9	16.3 (-0.2)	22 / 19	94.0	8.0	1.0 - 4.0	50
53112911	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8.0	1.0 - 4.0	25
53112912	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8.0	1.0 - 4.0	25
53112937	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	155.0	8.0	1.0 - 4.0	25

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**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 EN 50262

**Note**

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M

**Technical data**

**Caution**  
Refer to Appendix T21 for the installation dimensions and torques

**Approvals**  
Size M16 - UR  
Size M20/M25 - UL

**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	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® BT-M</b>						
53017420	16 x 1,5	3,5-8	19	45,0	12,0	100
53017430	20 x 1,5	5-12	24	54,0	13,0	50
53017440	25 x 1,5	9-14	27	57,0	13,0	50

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**Accessories**

- SKINTOP® GMP-GL-M refer to page 678

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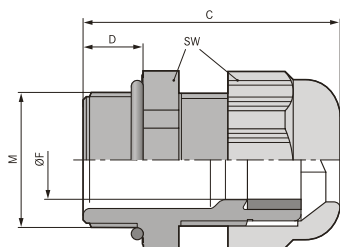


**New**

**SKINTOP® K-M ATEX plus / SKINTOP® KR-M ATEX plus**



SKINTOP® K-M ATEX plus



SKINTOP® KR-M ATEX plus

**Benefits**

**SKINTOP® K-M ATEX plus**

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

**SKINTOP® KR-M ATEX plus**

- For the benefits, refer to SKINTOP® K-M ATEX plus

**Application range**

**SKINTOP® K-M ATEX plus**

- Devices, machines and apparatus of enhanced safety protection type “e”
- 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 EN 50262

**Technical data**

**Caution**  
Refer to the instruction leaflet for the installation dimensions and torques

**Approvals**  
CE 0637 Ex II 2G  
Ex eb IIC Ex II 1D  
Ex ta IIIC  
IECEx IBE 13.0027X

**Colour delivered**  
RAL 9005 black/UV-resistant

**Material**  
Body: special polyamide  
Seal: special elastomer  
O-ring: CR

**Tests**  
DIN EN 60079-0  
DIN EN 60079-7

**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 (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® K-M ATEX plus</b>							
54115200	K-M 12 ATEX plus	3-5,5	12 x 1.5	15	26.5 - 30.0	8.0	50
54115210	K-M 16 ATEX plus	7-9	16 x 1.5	19	29.0 - 34.0	8.0	50
54115220	K-M 20 ATEX plus	7-13	20 x 1.5	25	34.0 - 37.0	9.0	50
54115230	K-M 25 ATEX plus	11-17	25 x 1.5	30	35.0 - 40.0	10.0	25
54115240	K-M 32 ATEX plus	12-21	32 x 1.5	36	39.0 - 47.0	10.0	25
54115250	K-M 40 ATEX plus	19-28	40 x 1.5	46	43.0 - 52.0	10.0	10
54115260	K-M 50 ATEX plus	27-35	50 x 1.5	55	54.0 - 62.0	12.0	5
54115270	K-M 63 ATEX plus	36-45	63 x 1.5	66	59.0 - 71.0	12.0	5
<b>SKINTOP® KR-M ATEX plus</b>							
54115205	KR-M 12 ATEX plus	2-4	12 x 1.5	15	26.5 - 30.0	8.0	50
54115215	KR-M 16 ATEX plus	4-6	16 x 1.5	19	29.0 - 34.0	8.0	50
54115225	KR-M 20 ATEX plus	5-10	20 x 1.5	25	34.0 - 37.0	9.0	50
54115235	KR-M 25 ATEX plus	6-13	25 x 1.5	30	35.0 - 40.0	10.0	25
54115245	KR-M 32 ATEX plus	9-15	32 x 1.5	36	39.0 - 47.0	10.0	25
54115255	KR-M 40 ATEX plus	16-23	40 x 1.5	46	43.0 - 52.0	10.0	10
54115265	KR-M 50 ATEX plus	22-29	50 x 1.5	55	54.0 - 62.0	12.0	5
54115275	KR-M 63 ATEX plus	29-39	63 x 1.5	66	59.0 - 71.0	12.0	5

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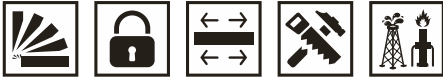
**Accessories**

**SKINTOP® K-M ATEX plus**

- SKINTOP® SDV-M ATEX refer to page 673

**SKINTOP® KR-M ATEX plus**

- SKINTOP® SDV-M ATEX refer to page 673

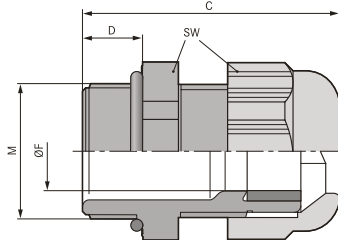


**New**

**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**

**SKINTOP® K-M ATEX plus blau**

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

**SKINTOP® KR-M ATEX plus blau**

- For the benefits, refer to SKINTOP® K-M ATEX plus blue

**Application range**

**SKINTOP® K-M ATEX plus blau**

- 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 blau**

- With reducing seal insert, to seal cables with smaller outer diameters.

**Product make-up**

- Metric connection thread acc. to EN 50262

**Technical data**

**Caution**  
Refer to the instruction leaflet for the installation dimensions and torques

**Approvals**  
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

**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 (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® K-M ATEX plus blue</b>							
54115400	K-M 12 ATEX plus blue	3-5,5	12 x 1,5	15	26,5 - 30,0	8,0	50
54115410	K-M 16 ATEX plus blue	7-9	16 x 1,5	19	29,0 - 34,0	8,0	50
54115420	K-M 20 ATEX plus blue	7-13	20 x 1,5	25	34,0 - 37,0	9,0	50
54115430	K-M 25 ATEX plus blue	11-17	25 x 1,5	30	35,0 - 40,0	10,0	25
54115440	K-M 32 ATEX plus blue	12-21	32 x 1,5	36	39,0 - 47,0	10,0	25
54115450	K-M 40 ATEX plus blue	19-28	40 x 1,5	46	43,0 - 52,0	10,0	10
54115460	K-M 50 ATEX plus blue	27-35	50 x 1,5	55	54,0 - 62,0	12,0	5
54115470	K-M 63 ATEX plus blue	36-45	63 x 1,5	66	59,0 - 71,0	12,0	5
<b>SKINTOP® KR-M ATEX plus blue</b>							
54115405	KR-M 12 ATEX plus blue	2-4	12 x 1,5	15	26,5 - 30,0	8,0	50
54115415	KR-M 16 ATEX plus blue	4-6	16 x 1,5	19	29,0 - 34,0	8,0	50
54115425	KR-M 20 ATEX plus blue	5-10	20 x 1,5	25	34,0 - 37,0	9,0	50
54115435	KR-M 25 ATEX plus blue	6-13	25 x 1,5	30	35,0 - 40,0	10,0	25
54115445	KR-M 32 ATEX plus blue	9-15	32 x 1,5	36	39,0 - 47,0	10,0	25
54115455	KR-M 40 ATEX plus blue	16-23	40 x 1,5	46	43,0 - 52,0	10,0	10
54115465	KR-M 50 ATEX plus blue	22-29	50 x 1,5	55	54,0 - 62,0	12,0	5
54115475	KR-M 63 ATEX plus blue	29-39	63 x 1,5	66	59,0 - 71,0	12,0	5

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**Accessories**

**SKINTOP® K-M ATEX plus blau**

- SKINTOP® SDV-M ATEX refer to page 673

**SKINTOP® KR-M ATEX plus blau**

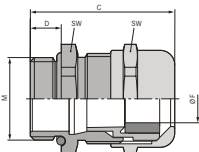
- SKINTOP® SDV-M ATEX refer to page 673

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**New**

**SKINTOP® MS-M / SKINTOP® MSR-M**



SKINTOP® MS-M

SKINTOP® MSR-M

**Benefits**

**SKINTOP® MS-M**

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges
- For cable diameters up to 98 mm

**SKINTOP® MSR-M**

- For the benefits, refer to SKINTOP® MS-M

**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 EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

**Suitable cables**

**SKINTOP® MS-M**

- The following cables are recommended for IP 69 K applications:  
ÖLFLEX® ROBUST 200  
H07RN8-F  
H07RN-F

**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.
- Now with IP 69 K approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

**Technical data**

**Caution**  
Refer to Appendix T21 for the installation dimensions and torques

**On request**  
In stainless steel V2A available

**Approvals**  
IP 69 K approval from size M75 x 1.5 pending.  
UL, CSA, DNV and VDE approval for sizes M90 x 2 to M110 x 2 pending.

**Material**  
Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR

**Protection rating**  
IP 68  
IP 69 K

**Temperature range**  
Dynamic: -30 °C to +100 °C  
Fixed: -40 °C to +100 °C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-M/SKINTOP® MSR-M</b>						
53112000	12 x 1,5	3-7	16	26,5	6,5	100
53112010	16 x 1,5	4,5-10	20	32,0	7,0	100
53112020	20 x 1,5	7-13	24	35,5	8,0	50
53112030	25 x 1,5	9-17	29	37,5	8,0	25
53112040	32 x 1,5	11-21	36	42,2	9,0	25
53112050	40 x 1,5	19-28	45	49,5	9,0	10
53112060	50 x 1,5	27-35	54	52,0	10,0	5
53112070	63 x 1,5	34-45	67	61,3	15,0	5
53112080	63 x 1,5 plus	44-55	75	65,5	15,0	5
53112510	75 x 1,5	58-68	95	105,0	15,0	1
53112512	90 x 2	66-78	115	136,0	20,0	1
53112514	110 x 2	86-98	135	154,0	25,0	1
<b>SKINTOP® MSR-M</b>						
53112100	12 x 1,5	1-5	16	26,5	6,5	100
53112110	16 x 1,5	2-7	20	32,0	7,0	100
53112120	20 x 1,5	5-10	24	35,5	8,0	50
53112130	25 x 1,5	6-13	29	37,5	8,0	25
53112140	32 x 1,5	7-15	36	42,2	9,0	25
53112150	40 x 1,5	15-23	45	49,5	9,0	10
53112160	50 x 1,5	22-29	54	52,0	10,0	5
53112170	63 x 1,5	28-39	67	61,3	15,0	5
53112511	75 x 1,5	53-63	95	105,0	15,0	1
53112515	110 x 2	76-88	135	154,0	25,0	1

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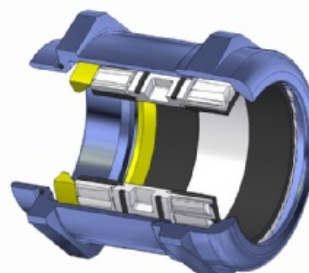
**Accessories**

**SKINTOP® MS-M**

- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINMATIC® MH Set refer to page 722
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® SDV-M ATEX refer to page 673
- SKINTOP® SD-M refer to page 682
- SKINTOP® DV-M refer to page 682

**SKINTOP® MSR-M**

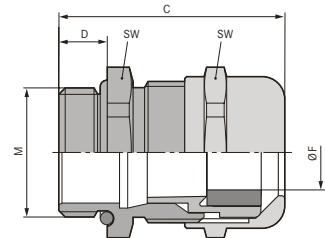
- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINMATIC® MH Set refer to page 722



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**SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL**



**Benefits**

**SKINTOP® MS-M-XL**

- Especially for thick walls
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

**SKINTOP® MSR-M-XL**

- For the benefits, refer to SKINTOP® MS-M-XL

**Application range**

**SKINTOP® MS-M-XL**

- With long connection thread for applications involving a thicker wall.

**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 EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

**Technical data**

- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- On request**  
In stainless steel V2A available
- Material**  
Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR
- IP Protection rating**  
IP 69 K  
IP 68 - 10 bar
- Temperature range**  
Dynamic: -30 °C to +100 °C  
Fixed: -40 °C to +100 °C

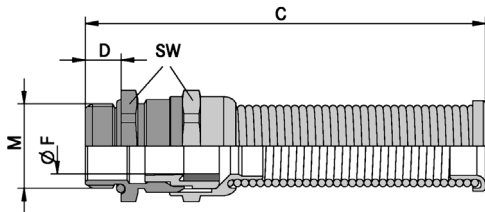
Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-M-XL</b>						
53112005	12 x 1,5	3-7	16	32.8	12.0	100
53112015	16 x 1,5	4,5-10	20	37.0	12.0	50
53112025	20 x 1,5	7-13	24	39.5	12.0	50
53112035	25 x 1,5	9-17	29	41.5	12.0	25
53112045	32 x 1,5	11-21	36	48.2	15.0	25
53112055	40 x 1,5	19-28	45	53.5	15.0	10
53112065	50 x 1,5	27-35	54	57.0	15.0	5
<b>SKINTOP® MSR-M-XL</b>						
53112105	12 x 1,5	1-5	16	32.8	12.0	100
53112115	16 x 1,5	2-7	20	37.0	12.0	50
53112125	20 x 1,5	5-10	24	39.5	12.0	50
53112135	25 x 1,5	6-13	29	41.5	12.0	25
53112145	32 x 1,5	7-15	36	48.2	15.0	25
53112155	40 x 1,5	15-23	45	53.5	15.0	10
53112165	50 x 1,5	22-29	54	57.0	15.0	5

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



**New**

**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 EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

**Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**Material**

Body: nickel-plated brass  
 Insert: polyamide  
 Sealing ring: CR  
 O-ring: NBR  
 Spiral - springs made of stainless steel



**Protection rating**

IP 68  
 IP 69 K



**Temperature range**

Dynamic: -30 °C to +100 °C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW (mm)	Overall length, C (mm)	Pieces / PU
<b>SKINTOP® BS-M METAL</b>						
53806761	20x1,5	7-13	8	24	95.0	25
53806762	25x1,5	9-17	8	29	105.0	25
<b>SKINTOP® BSR-M METAL</b>						
53806771	20x1,5	5-10	8	24	95.0	25
53806772	25x1,5	6-13	8	29	105.0	25

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

**Accessories**

- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINMATIC® MH Set refer to page 722
- SKINTOP® DIX-M AUTOMATION refer to page 681



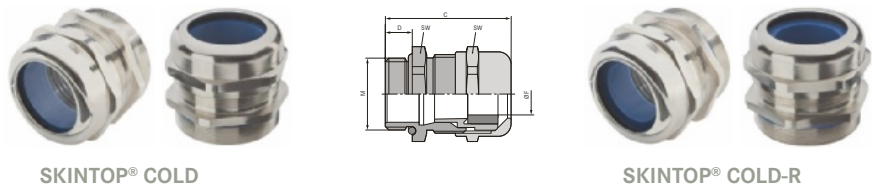




**New**

**SKINTOP® COLD / SKINTOP® COLD-R**

**Info**  
 • For extreme sub-zero temperatures



**Benefits**

**SKINTOP® COLD**

- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

**SKINTOP® COLD-R**

- For the benefits, refer to SKINTOP® COLD

**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.

**Product make-up**

- Metric connection thread acc. to EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

**Technical data**

- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- On request**  
In stainless steel V2A available
- Material**  
Body: nickel-plated brass  
Insert: special polyamide  
Sealing ring: silicone  
O-ring: silicone
- IP**  
**Protection rating**  
IP 68 - 10 bar (M12 x 1.5 - M20 x 1.5)  
IP 68 - 5 bar (M25 x 1.5 - M63 x 1.5)
- Temperature range**  
-70°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® COLD</b>						
53113500	12 x 1,5	3-7	16	26.5	6.5	100
53113510	16 x 1,5	4,5-10	20	32.0	7.0	100
53113520	20 x 1,5	7-13	24	35.5	8.0	50
53113530	25 x 1,5	9-17	29	37.5	8.0	25
53113540	32 x 1,5	11-21	36	42.2	9.0	25
53113550	40 x 1,5	19-28	45	49.5	9.0	10
53113560	50 x 1,5	27-35	54	52.0	10.0	5
53113570	63 x 1,5	34-45	67	61.3	15.0	5
<b>SKINTOP® COLD-R</b>						
53113600	12 x 1,5	1-5	16	26.5	6.5	100
53113610	16 x 1,5	2-7	20	32.0	7.0	100
53113620	20 x 1,5	5-10	24	35.5	8.0	50
53113630	25 x 1,5	6-13	29	37.5	8.0	25
53113640	32 x 1,5	7-15	36	42.2	9.0	25
53113650	40 x 1,5	15-23	45	49.5	9.0	10
53113660	50 x 1,5	22-29	54	52.0	10.0	5
53113670	63 x 1,5	28-39	67	61.3	15.0	5

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

**Accessories**

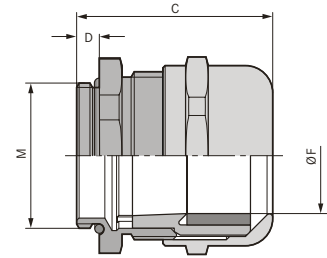
**SKINTOP® COLD**

- SKINDICHT® SM-M refer to page 704

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## 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 EN 50262

### ■ Note

- For suitable multiple seal inserts please see SKINTOP® DIX PG 21 (25 x 1.5) and DIX PG 29 (32 x 1.5)

### ■ Technical data



#### Caution

Refer to Appendix T21 for the installation dimensions and torques



#### On request

In stainless steel V2A available



#### Material

Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR



#### Protection rating

IP 68 - 5 bar

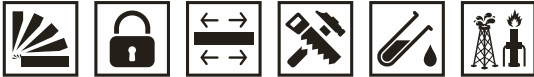


#### Temperature range

-30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-IS-M</b>						
53112780	25 x 1,5	11-18	30	37.0	5.0	25
53112790	32 x 1,5	16-25	40	43.0	5.0	25

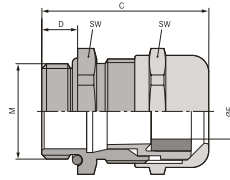
Photographs are not to scale and do not represent detailed images of the respective products.



**SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX**



SKINTOP® MS-M ATEX



SKINTOP® MSR-M ATEX

**Benefits**

**SKINTOP® MS-M ATEX**

- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Anti-static
- Maximum reliability

**SKINTOP® MSR-M ATEX**

- For the benefits, refer to SKINTOP® MS-M ATEX

**Application range**

**SKINTOP® MS-M ATEX**

- Devices, machines and apparatus of enhanced safety protection type “e”
- 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 EN 50262

**Note**

**SKINTOP® MS-M ATEX**

- Refer to SKINTOP® SDV-M ATEX for suitable accessories

**SKINTOP® MSR-M ATEX**

- Refer to SKINTOP® SDVR-M ATEX for suitable accessories

**Technical data**



**Caution**

Refer to the instruction leaflet for the installation dimensions and torques



**Approvals**

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 ring: CR  
O-ring: NBR

**Tests**

DIN EN 60079-0  
DIN EN 60079-7



**Protection rating**

IP 68 - 10 bar



**Temperature range**

-30°C to +90°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-M ATEX</b>						
53112700	12 x 1,5	3 - 7	16	26,5	6,5	100
53112710	16 x 1,5	4,5 - 10	20	33,0	7,0	100
53112720	20 x 1,5	7 - 13	24	37,0	8,0	50
53112730	25 x 1,5	9 - 17	29	38,5	8,0	25
53112740	32 x 1,5	11 - 21	36	45,5	9,0	25
53112750	40 x 1,5	19 - 28	45	48,0	9,0	10
53112760	50 x 1,5	26 - 35	54	55,5	10,0	5
53112770	63 x 1,5	34 - 45	67	67,0	15,0	5
53112779	63 x 1,5 plus	44 - 55	75	65,5	15,0	1
<b>SKINTOP® MS-M-XL ATEX</b>						
53112800	12 x 1,5	3 - 7	16	32,8	12,0	100
53112810	16 x 1,5	4,5 - 10	20	37,0	12,0	100
53112820	20 x 1,5	7 - 13	24	39,5	12,0	50
53112830	25 x 1,5	9 - 17	29	41,5	12,0	25
53112840	32 x 1,5	11 - 21	36	48,2	15,0	25
53112850	40 x 1,5	19 - 28	45	53,5	15,0	10
53112860	50 x 1,5	26 - 35	54	57,5	15,0	5
<b>SKINTOP® MSR-M ATEX</b>						
53112705	12 x 1,5	2 - 5	16	26,5	6,5	100
53112715	16 x 1,5	4 - 7	20	33,0	7,0	100
53112725	20 x 1,5	5 - 10	24	37,0	8,0	50
53112735	25 x 1,5	6 - 13	29	38,5	8,0	25
53112745	32 x 1,5	7 - 15	36	45,5	9,0	25
53112755	40 x 1,5	16 - 23	45	48,0	9,0	10
53112765	50 x 1,5	19 - 29	54	55,5	10,0	5
53112775	63 x 1,5	32 - 39	67	67,0	15,0	5

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

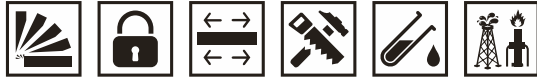
**Accessories**

**SKINTOP® MS-M ATEX**

- SKINTOP® SDV-M ATEX refer to page 673
- SKINDICHT® SM-M refer to page 704
- SKINDICHT® SM-PE-M refer to page 704

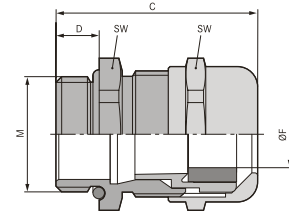
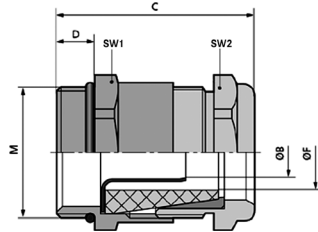
**SKINTOP® MSR-M ATEX**

- SKINTOP® SDV-M ATEX refer to page 673



**New**

## 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, or for cables with copper shaft sheath
- Chemical and petrochemical industry
- Plant engineering
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus of enhanced safety protection type “e”

### Product make-up

- Metric connection thread acc. to EN 50262

### Note

- SKINDICHT® SHVE-M 20 x 1.5 ATEX design with EMC earthing sleeve to cover smaller cable clamping ranges

### Technical data

**Caution**  
Refer to the instruction leaflet for the installation dimensions and torques

**Approvals**  
DIN VDE  
DNV for SKINDICHT® SHVE-M ATEX pending

**Note**  
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

**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 (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHVE-M ATEX</b>						
52107102	20 x 1,5	6.9 - 8.9	5.0	22	6.0	10
<b>SKINTOP® MS-M ATEX BRUSH</b>						
52110023	25 x 1,5	9.0 - 17.0	6.0	29	8.0	10
52110024	32 x 1,5	11.0 - 21.0	8.0	36	9.0	1
52110025	40 x 1,5	19.0 - 28.0	10.0	45	9.0	1
52110026	50 x 1,5	27.0 - 35.0	14.0	54	10.0	1
52110027	63 x 1,5	34.0 - 45.0	20.0	67	15.0	1
52110028	63 x 1,5 plus	44.0 - 55.0	25.0	75	15.0	1

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

### Accessories

- SKINDICHT® SM-M refer to page 704
- SKINDICHT® SM-PE-M refer to page 704



**SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX**



SKINTOP® SDV-M ATEX

■ **Benefits**

**SKINTOP® SDV-M ATEX**

- Permanent and secure sealing for areas with risks of explosion
- Easy to assemble
- High degree of protection

**SKINTOP® SDVR-M ATEX**

- For the benefits, refer to SKINTOP® SDV-M ATEX

■ **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**



**Caution**

Refer to the instruction leaflet for the installation dimensions and torques



**Material**

CR



**Protection rating**

**SKINTOP® SDV-M ATEX**  
IP 68 - sizes M12, M16, M20, M25, M32  
IP 66 - sizes M40, M50, M63  
**SKINTOP® SDVR-M ATEX**  
IP 68



**Temperature range**

-30°C to +70°C  
Short-term: up to +90°C

Article number	Article designation / size	Visible height (mm)	Pieces / PU
<b>SKINTOP® SDV-M ATEX</b>			
54113002	12 ATEX	SDV-M ATEX 3	50
54113012	16 ATEX	SDV-M ATEX 3	50
54113022	20 ATEX	SDV-M ATEX 3	50
54113032	25 ATEX	SDV-M ATEX 3	50
54113042	32 ATEX	SDV-M ATEX 4	25
54113052	40 ATEX	SDV-M ATEX 4	25
54113062	50 ATEX	SDV-M ATEX 4	10
54113072	63 ATEX	SDV-M ATEX 4	5
<b>SKINTOP® SDVR-M ATEX</b>			
54113013	16 ATEX	SDVR-MATEX 4	50
54113023	20 ATEX	SDVR-MATEX 5	50
54113033	25 ATEX	SDVR-MATEX 5	50
54113043	32 ATEX	SDVR-MATEX 5	25

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

■ **Accessories**

**SKINTOP® SDV-M ATEX**

- SKINDICHT® SM-M refer to page 704
- SKINDICHT® SM-PE-M refer to page 704

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



**SKINTOP® MS-SC-M**



**Benefits**

- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- 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**

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- 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 EN 50262

**Note**

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Refer to SKINTOP® metric accessories for suitable accessories
- As an alternative for thick-walled housings, we recommend SKINTOP® MS-SC-M-XL with long connection thread in the sizes M16 to M50

**Technical data**

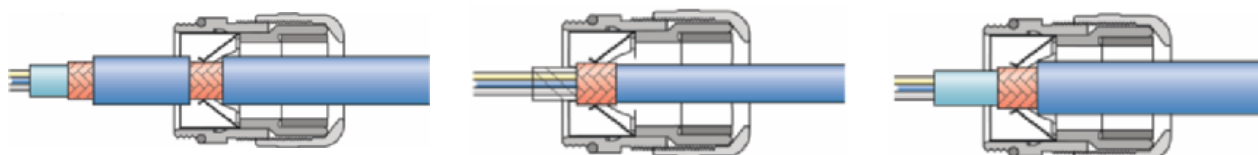
- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- On request**  
In stainless steel V2A available
- Material**  
Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR
- IP**  
IP 68 - 10 bar
- Temperature range**  
-30°C to +100°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-SC-M</b>						
53112610	12 x 1,5	3.5 - 7.0	2.0	16	6.5	50
53112620	16 x 1,5	4.5 - 9.0	4.0	20	7.0	50
53112630	20 x 1,5	7.0 - 12.5	5.0	24	8.0	25
53112640	25 x 1,5	9.0 - 16.5	7.5	29	8.0	25
53112650	32 x 1,5	11.0 - 21.0	9.0	36	9.0	25
53112660	40 x 1,5	19.0 - 28.0	15.0	45	9.0	10
53112670	50 x 1,5	27.0 - 35.0	21.0	54	10.0	5
<b>SKINTOP® MS-SC-M-XL</b>						
53112625	16 x 1,5	4.5 - 9.0	4.0	20	12.0	50
53112635	20 x 1,5	7.0 - 12.5	5.0	24	12.0	25
53112645	25 x 1,5	9.0 - 16.5	7.5	29	12.0	25
53112655	32 x 1,5	11.0 - 21.0	9.0	36	15.0	25
53112665	40 x 1,5	19.0 - 28.0	15.0	45	15.0	10
53112675	50 x 1,5	27.0 - 35.0	21.0	54	15.0	5

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

**Accessories**

- SKINDICHT® SM-PE-M refer to page 704

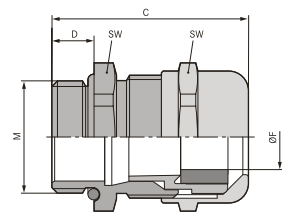


ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**New**

**SKINTOP® MS-M BRUSH**



**Benefits**

- Faster, easier screen contact
- 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, or for cables with copper shaft sheath
- 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 EN 50262

**Note**

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings



**Info**

- SKINTOP® MS-M BRUSH sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.

**Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**On request**

In stainless steel V2A available



**Approvals**

VDE, UL, CSA, DNV approval for size M90 x 2 and 110 x 2 pending SKINTOP® MSR-M BRUSH 25 x 1,5 approvals pending



**Material**

Body: nickel-plated brass  
EMC brush: brass  
Sealing ring: special elastomer  
O-ring: special elastomer



**Protection rating**

IP 68  
IP 69 K (M25x1,5 - M63x1,5)



**Temperature range**

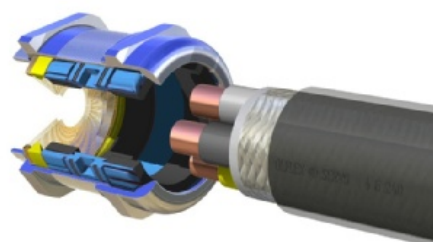
Dynamic: -30 °C to +100 °C  
Fixed: -40°C to +100°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-M BRUSH</b>						
53112676	25 x 1,5	9.0 - 17.0	6.0	29	8.0	10
53112677	32 x 1,5	11.0 - 21.0	8.0	36	9.0	1
53112678	40 x 1,5	19.0 - 28.0	10.0	45	9.0	1
53112679	50 x 1,5	27.0 - 35.0	14.0	54	10.0	1
53112680	63 x 1,5	34.0 - 45.0	20.0	67	15.0	1
53112681	63 x 1,5 plus	44.0 - 55.0	25.0	75	15.0	1
53112501	75 x 1,5	53.0 - 63.0	35.0	95	15.0	1
53112500	75 x 1,5 plus	58.0 - 68.0	35.0	95	15.0	1
53112503	90 x 2	66.0 - 78.0	45.0	115	20.0	1
53112505	110 x 2	76.0 - 88.0	55.0	135	25.0	1
53112504	110 x 2 plus	86.0 - 98.0	55.0	135	25.0	1

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**Accessories**

- SKINDICHT® SM-PE-M refer to page 704



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**New**

## 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, or for cables with copper shaft sheath
- For EMC-contact at through bore-holes
- Control cabinet manufacturing
- Automation systems
- Conveyor and transport systems

### ■ Product make-up

- Metric connection thread acc. to EN 50262



### Info

- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

### ■ Technical data



#### Caution

Refer to Appendix T21 for the installation dimensions and torques  
Apply SKINTOP® ST-M torques



#### On request

In stainless steel V2A available



#### Approvals

UL pending



#### Material

Body: nickel-plated brass  
EMC brush: brass



#### Temperature range

-70°C to +200°C

Article number	Article designation / size	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
54110839	M 12 x 1,5	4.0	24	10.0	25
54110840	M 16 x 1,5	5.0	24	10.0	25
54110841	M 20 x 1,5	5.0	24	10.0	10
54110842	M 25 x 1,5	5.0	30	10.0	10
54110843	M 32 x 1,5	8.0	39	12.0	10
54110844	M 40 x 1,5	10.0	47	12.0	5
54110845	M 50 x 1,5	14.0	56	12.0	5
54110846	M 63 x 1,5	14.0	63	12.0	5

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### ■ Accessories

- SKINTOP® BS-M refer to page 661
- SKINTOP® ST-M refer to page 654
- SKINTOP® STR-M refer to page 654
- SKINTOP® ST-HF-M refer to page 660
- SKINTOP® COLD refer to page 669
- SKINTOP® COLD-R refer to page 669







**New**

**SKINTOP® INOX / SKINTOP® INOX-R**



**Info**

- Stainless steel version with compact design

**Benefits**

- High corrosion-resistance
- Smooth surfaces - no edges
- Compact design
- Sea water-resistant
- Wide, variable clamping ranges

**Application range**

- Pharmaceutical industry
- Food industry (product-free zone, splash zone)
- Onshore and offshore applications
- Bottling plants and breweries

**Norm references / Approvals**

- DIN EN ISO 14 159**  
Security of machinery – Hygienic requirements for the design of machinery
- DIN EN 1672-2**  
Guideline for the design of machinery
- EHEDG**  
Hygienic design for machinery and components

**Product make-up**

- Metric connection thread acc. to EN 50262

**Note**

- Size M12 available on request

**Technical data**

**Material**  
 Body: Stainless steel - V4A (1.4404 / 316L)  
 Insert: Polyamide  
 Sealing ring: Silicone  
 O-Ring: Silicone

**IP Protection rating**  
 IP 68 - 5 bar  
 IP 69 K

**Temperature range**  
 -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW (mm)	Overall length, C (mm)	Pieces / PU
<b>SKINTOP® INOX</b>						
53806740	16x1,5	4,5-10	7	20	32,4	5
53806741	20x1,5	7-13	8	24	35,8	5
53806742	25x1,5	9-17	8	29	37,8	5
53806743	32x1,5	11-21	9	36	43,3	5
<b>SKINTOP® INOX-R</b>						
53806750	16x1,5	2-7	7	20	32,4	5
53806751	20x1,5	5-10	8	24	35,8	5
53806752	25x1,5	6-13	8	29	37,8	5
53806753	32x1,5	7-15	9	36	43,3	5

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**Similar products**

- SKINDICHT® CN-M

**Accessories**

- Suitable counter nut SKINDICHT® SM-PE-M





## SKINTOP® GMP-GL-M



### ■ 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

- Metric connection thread acc. to EN 50262

### ■ Note

- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands
- Designed for use with metric SKINTOP® plastic cable glands

### ■ Technical data

- i On request**  
Available without collar (without surface for assembling tool)
- RAL 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 (mm)	Pieces / PU
<b>SKINTOP® GMP-GL-M silver grey</b>			
53119000	12 x 1,5	17	100
53119010	16 x 1,5	22	100
53119020	20 x 1,5	27	100
53119030	25 x 1,5	34	100
53119040	32 x 1,5	41	100
53119050	40 x 1,5	50	25
53119060	50 x 1,5	60	25
53119070	63 x 1,5	75	25
<b>SKINTOP® GMP-GL-M black</b>			
53119100	12 x 1,5	17	100
53119110	16 x 1,5	22	100
53119120	20 x 1,5	27	100
53119130	25 x 1,5	34	100
53119140	32 x 1,5	41	100
53119150	40 x 1,5	50	25
53119160	50 x 1,5	60	25
53119170	63 x 1,5	75	25
<b>SKINTOP® GMP-GL-M light grey</b>			
53119003	12 x 1,5	17	100
53119013	16 x 1,5	22	100
53119023	20 x 1,5	27	100
53119033	25 x 1,5	34	100
53119043	32 x 1,5	41	100
53119053	40 x 1,5	50	25
53119063	50 x 1,5	60	25
53119073	63 x 1,5	75	25

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



**Info**

- Cable gland for railway applications
- Fire protection on railway vehicles
- Approval acc. to DIN EN 45545-2:2013

**Benefits**

- Halogen-free
- Extremely flame-retardant according to UL 94 V0
- Self-extinguishing, no dripping

**Application range**

- For locking SKINTOP® cable glands in boreholes without thread.
- Airports
- Tunnel construction
- Underground railways
- Public buildings

**Product make-up**

- Metric connection thread acc. to EN 50262

**Note**

- Designed for use with SKINTOP® ST-HF-M

**Technical data**

- Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polyamide UL 94V-0 - halogen-free
- Temperature range**  
-20°C to +100°C

**SKINTOP® GMP-HF-M**



Article number	Article designation / size	SW (mm)	PU
<b>SKINTOP® GMP-HF-M</b>			
53119200	12 x 1,5	17	100
53119210	16 x 1,5	22	100
53119220	20 x 1,5	27	100
53119230	25 x 1,5	34	100
53119240	32 x 1,5	41	100
53119250	40 x 1,5	50	25
53119260	50 x 1,5	60	25
53119270	63 x 1,5	75	25

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

**Accessories**

- SKINTOP® ST-HF-M refer to page 660



## 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.

### ■ 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

<b>i</b> On request	Special shapes
<b>RAL</b> Colour delivered	Black, RAL 9005
<b>Material</b>	NBR VITON®
<b>IP</b> Protection rating	IP 54
<b>Temperature range</b>	-40°C to +100°C

### ■ Product make-up

- SKINTOP® DIX-M VITON® is resistant to oil, water, alkaline solutions, acids, solvents etc.

Article number	Article designation / size	Size M	Number of cables x cable Ø	Pieces / PU
<b>SKINTOP® DIX-M</b>				
53316220	16,220	M 16	2 x 2.0	100
53316230	16,230	M 16	2 x 3.0	100
53316240	16,240	M 16	2 x 4.0	100
53316420	16,420	M 16	4 x 2.0	100
53320250	20,250	M 20	2 x 5.0	100
53320260	20,260	M 20	2 x 6.0	100
53320340	20,340	M 20	3 x 4.0	100
53320353	20,353	M 20	3 x 5.3	100
53320440	20,440	M 20	4 x 4.0	100
53320920	20,920	M 20	9 x 2.0	100
53320430	20,430	M 20	4 x 3.0	100
53325260	25,260	M 25	2 x 6.0	50
53325350	25,350	M 25	3 x 5.0	50
53325360	25,360	M 25	3 x 6.0	50
53325370	25,370	M 25	3 x 7.0	50
53325450	25,450	M 25	4 x 5.0	50
53325540	25,540	M 25	5 x 4.0	50
53325640	25,640	M 25	6 x 4.0	50
53332270	32,270	M 32	2 x 7.0	50
53332280	32,280	M 32	2 x 8.0	50
53332290	32,290	M 32	2 x 9.0	50
53332370	32,370	M 32	3 x 7.0	50
53332380	32,380	M 32	3 x 8.0	50
53332460	32,460	M 32	4 x 6.0	50
53332470	32,470	M 32	4 x 7.0	50
53332560	32,560	M 32	5 x 6.0	50
53332650	32,650	M 32	6 x 5.0	50
53332840	32,840	M 32	8 x 4.0	50
53332850	32,850	M 32	8 x 5.0	50
53332940	32,940	M 32	9 x 4.0	50
53340290	40,290	M 40	2 x 9.0	25
53340310	40,310	M 40	3 x 10.0	25
53340480	40,480	M 40	4 x 8.0	25
53340490	40,490	M 40	4 x 9.0	25
53340580	40,580	M 40	5 x 8.0	25
53340590	40,590	M 40	5 x 9.0	25
53340670	40,670	M 40	6 x 7.0	25
53340860	40,860	M 40	8 x 6.0	25
53340969	40,969	M 40	9 x 6.9	25
53350118	50,118	M 50	11 x 8.0	10
53350680	50,680	M 50	6 x 8.0	10
53350780	50,780	M 50	7 x 8.0	10
53350870	50,870	M 50	8 x 7.0	10
53350147	50,147	M 50	14 x 7.0	10
53350164	50,164	M 50	16 x 4.0	10
53350166	50,166	M 50	16 x 6.0	10
<b>SKINTOP® DIX-M VITON®</b>				
53420250	20,250	M 20	2 x 5.0	100
53420260	20,260	M 20	2 x 6.0	100
53440969	40,969	M 40	9 x 6.9	25

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### ■ Accessories

- SKINTOP® CLICK refer to page 657
- SKINTOP® ST-M refer to page 654
- SKINTOP® DIX-DV refer to page 682



**New**

**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**

- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications
- 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 RJ45 network cables
- Seal with hole and cut for easy insertion of pre-assembled field bus cables
- Multiple seal inserts with holes and slits for easy insertion of pre-assembled cables

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> Black, RAL 9005
	<b>Material</b> NBR
<b>IP</b>	<b>Protection rating</b> IP 54
	<b>Temperature range</b> -40°C to +100°C

Article number	Article designation / size	Number of cables x cable Ø	Pieces / PU
<b>SKINTOP® DIX-M ASI</b>			
53611001	M 20	1 x AS-I	50
<b>SKINTOP® DIX-M ASI DUO</b>			
53611004	M 25	2 x AS-I	50
<b>SKINTOP® DIX-M RJ-45</b>			
53440980	M 25	1 x 5.4	50
<b>SKINTOP® DIX-M FIELDBUS</b>			
53440970	M 32	1 x 6.5	50
<b>SKINTOP® DIX-M CUT</b>			
53310444	M 40	3 x 10.0	25

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**Accessories**

- SKINTOP® CLICK refer to page 657
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST-M refer to page 654
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

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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 SKINTOP® cable glands.
- 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**

**RAL 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

Article number	Article designation / size	Ø-F mm	Height (mm)	Pieces / PU
<b>SKINTOP® DIX-DV</b>				
53100003	DIX-DV 3 x 9	3.0	9	100
53100004	DIX-DV 4 x 9	4.0	9	100
53100005	DIX-DV 5 x 11	5.0	11	100
53100055	DIX-DV 5,5 x 11	5.5	11	100
53100006	DIX-DV 6 x 14	6.0	14	100
53100007	DIX-DV 7 x 14	7.0	14	100
53100008	DIX-DV 8 x 14	8.0	14	100
53100009	DIX-DV 9 x 14	9.0	14	100
<b>SKINTOP® SD-M</b>				
54113100	12	11.5	2	100
54113110	16	15.0	2	100
54113120	20	20.0	2	100
54113130	25	25.0	2	50
54113140	32	30.0	2	50
54113150	40	40.0	2	25
54113160	50	49.0	2	25
54113170	63	58.0	2	25
<b>SKINTOP® DV-M</b>				
54113000	12	7.2	7	500
54113010	16	10.0	8	500
54113020	20	13.2	8.4	250
54113030	25	17.2	9.5	250
54113040	32	21.2	12	250
54113050	40	28.2	14.5	100
54113060	50	35.8	18	100
54113070	63	45.6	20	50

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■ **Accessories**

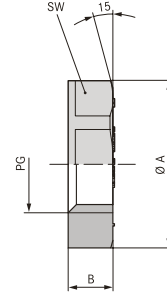
**SKINTOP® DIX-DV**

- SKINTOP® CLICK refer to page 657
- SKINTOP® DIX-M refer to page 680
- SKINTOP® MS-M refer to page 666
- SKINTOP® ST-M refer to page 654
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 668

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**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**

**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 (mm)	Pieces / PU
<b>SKINTOP® GMP-GL silver grey with collar</b>			
53019000	GMP-GL 7	19	100
53019010	GMP-GL 9	22	100
53019020	GMP-GL 11	24	100
53019030	GMP-GL 13,5	27	100
53019040	GMP-GL 16	30	100
53019050	GMP-GL 21	36	50
53019060	GMP-GL 29	46	50
53019070	GMP-GL 36	60	25
53019080	GMP-GL 42	65	25
53019090	GMP-GL 48	70	25
<b>SKINTOP® GMP-GL black with collar</b>			
53019200	GMP-GL 7	19	100
53019210	GMP-GL 9	22	100
53019220	GMP-GL 11	24	100
53019230	GMP-GL 13,5	27	100
53019240	GMP-GL 16	30	100
53019250	GMP-GL 21	36	50
53019260	GMP-GL 29	46	50
53019270	GMP-GL 36	60	25
53019280	GMP-GL 42	65	25
53019290	GMP-GL 48	70	25
<b>SKINTOP® GMP-GL light grey with collar</b>			
53019001	GMP-GL 7	19	100
53019011	GMP-GL 9	22	100
53019021	GMP-GL 11	24	100
53019031	GMP-GL 13,5	27	100
53019041	GMP-GL 16	30	100
53019051	GMP-GL 21	36	50
53019061	GMP-GL 29	46	50
53019071	GMP-GL 36	60	25
53019081	GMP-GL 42	65	25
53019091	GMP-GL 48	70	25

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**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**

<b>RAL</b>	<b>Colour delivered</b> natural
	<b>Material</b> Silicone
<b>IP</b>	<b>Protection rating</b> IP 54
	<b>Temperature range</b> -40°C to +100°C



Article number	Article designation / size	PG size	Number of cables x cable Ø	Pieces / PU
<b>SKINTOP® DIX</b>				
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	100
53611225	DIX 11225	11	2 x 2.5	100
53611330	DIX 11330	11	3 x 3	100
53611240	DIX 11240	11	2 x 4	100
53611430	DIX 11430	11	4 x 3	100
53613250	DIX 13250	13.5	2 x 5	100
53613340	DIX 13340	13.5	3 x 4	100
53613440	DIX 13440	13.5	4 x 4	100
53616140	DIX 16140	16	1 x 4	50
53616225	DIX 16225	16	2 x 2.5	50
53616240	DIX 16240	16	2 x 4	50
53616340	DIX 16340	16	3 x 4	50
53616350	DIX 16350	16	3 x 5	50
53616440	DIX 16440	16	4 x 4	50
53616540	DIX 16540	16	5 x 4	50
53616450	DIX 16450	16	4 x 5	50
53616356	DIX 16356	16	3 x 5.6	50
53616260	DIX 16260	16	2 x 6	50
53616360	DIX 16360	16	3 x 6	50
53621550	DIX 21550	21	5 x 5	50
53621460	DIX 21460	21	4 x 6	50
53621640	DIX 21640	21	6 x 4	50
53621270	DIX 21270	21	2 x 7	50
53621370	DIX 21370	21	3 x 7	50
53621280	DIX 21280	21	2 x 8	50
53621380	DIX 21380	21	3 x 8	50
53629556	DIX 29556	29	5 x 5.6	50
53629470	DIX 29470	29	4 x 7	50
53629570	DIX 29570	29	5 x 7	50
53629480	DIX 29480	29	4 x 8	50
53629290	DIX 29290	29	2 x 9	50
53629390	DIX 29390	29	3 x 9	50
53629490	DIX 29490	29	4 x 9	50
53629675	DIX 29675	29	6 x 7.5	50

Photographs 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**

- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications

**Note**

- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I cables

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> Black, RAL 9005
	<b>Material</b> NBR
<b>IP</b>	<b>Protection rating</b> IP 54
	<b>Temperature range</b> -40°C to +100°C

**Product make-up**

- Precise cut for AS-I bus cables



Article number	Article designation / size	Pieces / PU
<b>SKINTOP® DIX ASI</b>		
53611000	DIX ASI 11	50

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For current information see: [www.lappgroup.com](http://www.lappgroup.com)





**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 SKINTOP® cable glands.
- 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

**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**

<b>RAL</b>	<b>Colour delivered</b> SKINTOP® DIX-DV natural SKINTOP® SD Black SKINTOP® DV Black
	<b>Material</b> SKINTOP® DIX-DV Polyamide SKINTOP® SD PE foam SKINTOP® DV CR

Article number	Article designation / size	Ø-F mm	Height (mm)	Pieces / PU
<b>SKINTOP® DIX-DV</b>				
53100003	DIX-DV 3 x 9	3.0	9	100
53100004	DIX-DV 4 x 9	4.0	9	100
53100005	DIX-DV 5 x 11	5.0	11	100
53100055	DIX-DV 5,5 x 11	5.5	11	100
53100006	DIX-DV 6 x 14	6.0	14	100
53100007	DIX-DV 7 x 14	7.0	14	100
53100008	DIX-DV 8 x 14	8.0	14	100
53100009	DIX-DV 9 x 14	9.0	14	100
<b>SKINTOP® SD</b>				
52025235	SD 7	10.5	2	500
52025240	SD 9	13.5	2	500
52025250	SD 11	17.0	2	250
52025260	SD 13,5	18.5	2	250
52025270	SD 16	20.5	2	250
52025280	SD 21	26.0	2	100
52025290	SD 29	34.5	2	100
52025291	SD 36	44.5	2	100
<b>SKINTOP® DV</b>				
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	250
53800643	DV 21	18.5	11	100

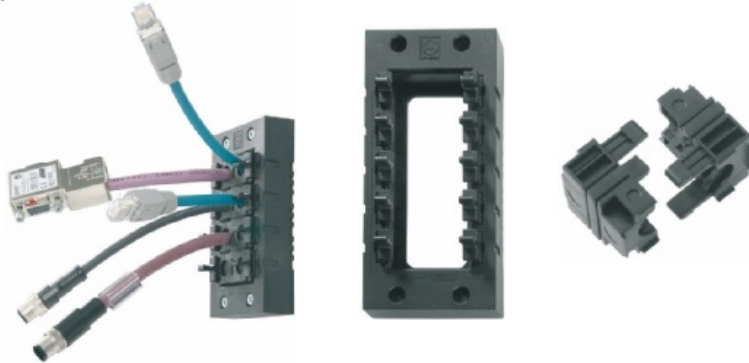
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**New**

**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 range of clamping force
- 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 cables and wires need to be safely inserted into housings
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

**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

**Included**

- SKINTOP® CUBE FRAME including mounting material

**Suitable tools**

- Kraftform Kompakt® 10

**Technical data**



**Approvals**

UL in pending



**Material**

Frame: glass fibre-reinforced polyamide  
 Frame seal: CR  
 Clip module: special polypropylene  
 Clip module seal: LSE 2



**Protection rating**

IP 64  
 NEMA 12



**Temperature range**

-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. number of executions	Pieces / PU
<b>SKINTOP® CUBE Frame</b>				
52220000	SKINTOP® CUBE FRAME 16		8	1
52220001	SKINTOP® CUBE FRAME 24		10	1
<b>SKINTOP® CUBE clip modules</b>				
52220004	SKINTOP® CUBE MODULE 20x20 BLIND	1 - 3		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4 - 6		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6 - 9		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS	AS-I BUS		5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9 - 12		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12 - 16		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

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**Similar products**

- SKINDICHT® CABLEFIX cable bushing system

**Accessories**

- FLEXIMARK® LB-10 W





**Cablefix**

**Benefits**

- Time-saving installation
- High packing density
- Strain relief closes automatically when the cable is pushed through
- Each individual cable can be easily detached and replaced with the use of a spring clamp during repairs, maintenance or upgrades

**Application range**

- Housing opening for connecting sensor/ actuator cables and bus cables.

**Note**

- Cable installation is only possible without pre-assembled connectors

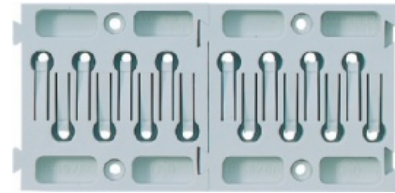
**Included**

- Included: blind plugs, for use on unused sockets

**Technical data**

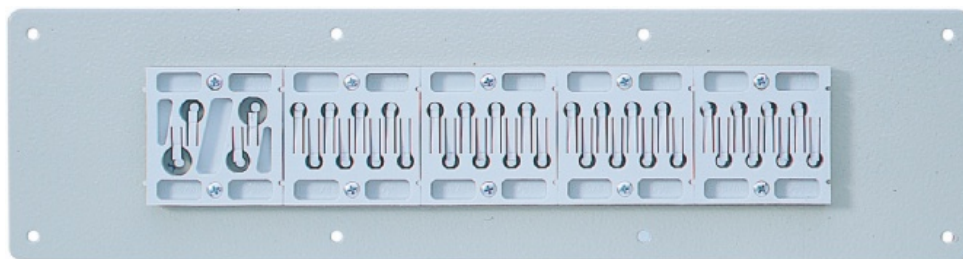
**Material**  
 Flange: PA 6.6  
 Seal: SBR/NBR 45

**Protection rating**  
 IP 55



Article number	Article designation / size	Number of cables x cable Ø	Cut-out W x H	Dimensions: L x W x H (mm)	Pieces / PU
<b>Sensor/actuator flange (S/A)</b>					
62130000	1 x S/A	8 x 3,8 - 6,3	46.0 x 46.0	50 x 50 x 10	5
<b>Bus/Vcc flange (B/V) + sensor/actuator flange (S/A)</b>					
62130070	1 x B/V	2 x 6,1 - 8,8 + 2 x 7,8 - 10,7	46.0 x 46.0	50 x 50 x 10	5

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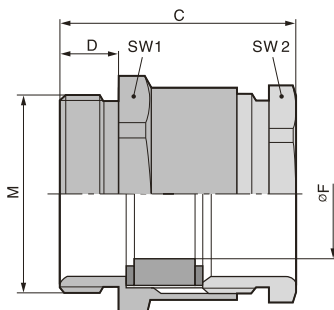
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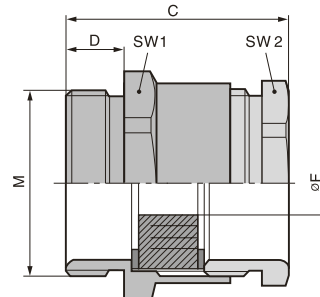
**SKINDICHT® SVRN-M / SKINDICHT® SVRE-M**



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 EN 50262

■ **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

■ **Product make-up**

**SKINDICHT® SVRN-M**

- For connection thread M 50 x 1.5 and M 63 x 1.5, refer to SKINDICHT® SVRE-M

■ **Technical data**



**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 VITON® 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
<b>SKINDICHT® SVRN-M</b>									
52104800	12 x 1,5			7	14 / 13	20.6	5.0	5	100
52104810	12 x 1,5			7	14 / 13	20.6	5.0	6	100
52104820	12 x 1,5			7	14 / 13	20.6	5.0	7	100
52104830	16 x 1,5			9	18 / 15	21.6	5.0	7	100
52104840	16 x 1,5			9	18 / 15	21.6	5.0	8	100
52104850	16 x 1,5			9	18 / 15	21.6	5.0	9	100
52104860	20 x 1,5			11	22 / 18	23.6	6.0	10	50
52104870	20 x 1,5			11	22 / 18	23.6	6.0	11	50
52104880	20 x 1,5			13.5	22 / 20	25.6	6.0	11	50
52104890	20 x 1,5			13.5	22 / 20	25.6	6.0	12	50
52104900	20 x 1,5			16	24 / 22	26.6	6.0	13	50
52104910	20 x 1,5			16	24 / 22	26.6	6.0	14	50
52104920	25 x 1,5			21	30 / 28	29.6	7.0	18	50
52104930	32 x 1,5			29	40 / 37	32.6	8.0	27	50
52104940	40 x 1,5			36	50 / 47	37.6	8.0	34	20
<b>SKINDICHT® SVRE-M</b>									
52104980	16 x 1,5	5/8	12.0	9	18 / 15	21.6	5.0		100
52104990	20 x 1,5	7/10/12.5	15.0	11	22 / 18	22.6	6.0		50
52105000	20 x 1,5	7/10.5/13/16	15.0	13.5	22 / 20	25.6	6.0		50
52105010	20 x 1,5	8/10.5/13.5/16	15.0	16	24 / 22	26.6	6.0		50
52105002	25 x 1,5	11/15/18/20	20.0	21	30 / 28	29.6	7.0		50
52105003	32 x 1,5	19/23/27/31	27.0	29	40 / 37	32.6	8.0		50
52105004	40 x 1,5	25/28/31/35	34.0	36	50 / 47	37.6	8.0		20
52105005	50 x 1,5	35.5/39/42.5/46	44.0	42	57 / 54	42.6	9.0		5
52105006	63 x 1,5	40.5/44/47/50.5	54.0	48	66 / 60	45.1	10.0		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**

**DIN VDE Approvals**  
DIN 89280

**Material**  
Body: Blank brass  
Seal: EPDM

**IP Protection rating**  
IP 56

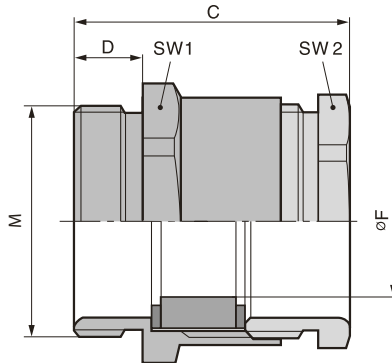
**Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Thread	SW (mm)	Clear opening F (mm)	Pieces / PU
<b>SKINDICHT® SVRX - version W</b>					
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
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
52006564	SVRX 8059	M 80 x 2	85	56 - 59	1
<b>SKINDICHT® SVRX - version Z</b>					
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
<b>SKINDICHT® SM/SVRX Counter nuts</b>					
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 EN 50262

### ■ Note

- Counter nut to be used: SKINTOP® GMP-GL-M
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

### ■ Technical data

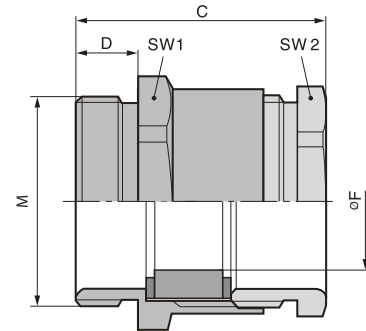
- Caution**  
The installation dimensions can be found in appendix T21
- Colour delivered**  
Light grey (RAL 7035)
- Material**  
Body: Polyamide  
Special sealing insert: CR
- Temperature range**  
-30°C to +80°C

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
<b>SKINDICHT® SVFK-M</b>							
52107900	SVFK-M 25 x 1,5	- / 15.0	-- 5.0	27 / 23	41.0	11.0	25
52107901	SVFK-M 32 x 1,5	10.0 / 21.0	3.0 - 8.0	36 / 30	39.0	10.0	25
52107902	SVFK-M 40 x 1,5	16.0 / 28.0	4.0 - 11.5	42 / 40	44.0	11.0	25
52107903	SVFK-M 50 x 1,5	26.0 / 35.0	4.0 - 11.5	53 / 50	50.5	11.0	5
52107904	SVFK-M 50 x 1,5	30.0 / 40.0	5.0 - 12.0	60 / 55	53.5	11.0	5
52107905	SVFK-M 63 x 1,5	36.0 / 45.0	5.0 - 12.0	65 / 60	54.5	11.0	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 EN 50262

**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**

**Caution**  
The installation dimensions can be found in appendix T21

**Material**  
Body: nickel-plated brass  
Seal: CR

**Temperature range**  
-30°C to +100°C

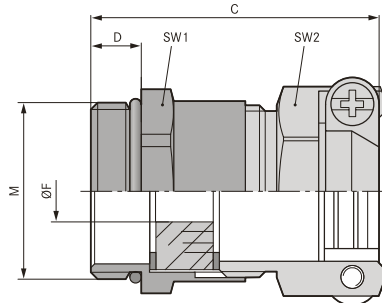
Article number	Article designation / size	Min./max. flat cable width	Min./max. cable thickness (mm)	Pieces / PU
<b>SKINDICHT® SVF-M</b>				
52107320	M 20 / 16	- / 15.0	- / 5	25
52107340	M 25 / 21	9.0 / 20.0	3 / 8	25
52107350	M 32 / 29	14.0 / 27.0	4 / 11	10
52107360	M 40 / 36	24.0 / 34.0	4 / 11	10
52107370	M 50 / 42	29.0 / 44.0	5 / 12	5
52107380	M 63 / 48	34.0 / 50.0	5 / 12	5

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## 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 EN 50262

### ■ 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

- 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	Ø-F mm	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SKZ-M</b>								
52106800	16 x 1,5	5.0 - 8.0	24	9	18 / 17	29.0	5.0	50
52106810	20 x 1,5	7.0 - 12.0	27	11	22 / 20	30.0	6.0	50
52106820	20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	33.5	6.0	25
52106830	20 x 1,5	13.0 - 15.0	33	16	24 / 24	34.5	6.0	25
52106840	25 x 1,5	16.0 - 19.3	42	21	30 / 30	41.0	7.0	25
52106850	32 x 1,5	19.0 - 27.0	58	29	40 / 41	46.0	8.0	10
<b>SKINDICHT® SKZ-M-XL</b>								
52106805	16 x 1,5	5.0 - 8.0	24	9	18 / 17	34.0	10.0	50
52106815	20 x 1,5	7.0 - 12.0	27	11	22 / 20	34.0	10.0	50
52106825	20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	37.5	10.0	25
52106835	20 x 1,5	13.0 - 15.0	33	16	24 / 24	38.5	10.0	25
52106845	25 x 1,5	16.0 - 19.3	42	21	30 / 30	45.0	11.0	25
52106855	32 x 1,5	19.0 - 27.0	58	29	40 / 41	51.0	13.0	10

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

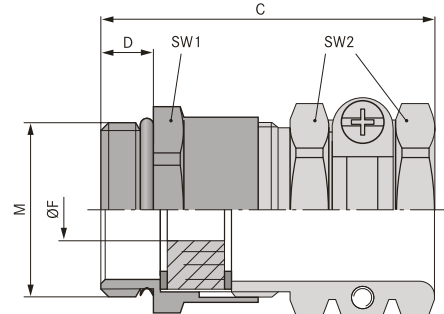
### ■ Accessories

- SKINDICHT® E refer to page 761
- SKINDICHT® EV refer to page 762





**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 EN 50262

**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**

- 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

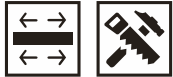
Article number	Article designation / size	Ø-F mm	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHZ-M</b>								
52106700	12 x 1,5	5.5 - 6.5	21	7	14 / 15	30.0	5.0	50
52106710	16 x 1,5	5.0 - 8.0	25	9	18 / 17	33.0	5.0	50
52106720	20 x 1,5	8.0 - 12.0	28	11	22 / 20	35.0	6.0	25
52106730	20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	39.5	6.0	25
52106740	20 x 1,5	8.0 - 15.0	35	16	24 / 24	41.5	6.0	25
52106750	25 x 1,5	14.0 - 19.3	46	21	30 / 30	47.0	7.0	25
52106760	32 x 1,5	19.0 - 27.0	58	29	40 / 41	53.0	8.0	10
52106770	40 x 1,5	27.0 - 34.0	70	36	50 / 50	60.0	8.0	10
52106780	50 x 1,5	35.0 - 43.0	78	42	57 / 57	65.0	9.0	5
52106790	63 x 1,5	40.0 - 47.5	86	48	66 / 64	68.0	10.0	5
<b>SKINDICHT® SHZ-M-XL</b>								
52106705	12 x 1,5	5.5 - 6.5	21	7	14 / 15	35.0	10.0	50
52106715	16 x 1,5	5.0 - 8.0	25	9	18 / 17	38.0	10.0	50
52106725	20 x 1,5	8.0 - 12.0	28	11	22 / 20	39.0	10.0	25
52106735	20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	43.5	10.0	25
52106745	20 x 1,5	8.0 - 15.0	35	16	24 / 24	45.5	10.0	25
52106755	25 x 1,5	14.0 - 19.3	46	21	30 / 30	51.0	11.0	25
52106765	32 x 1,5	19.0 - 27.0	58	29	40 / 41	58.0	13.0	10
52106775	40 x 1,5	27.0 - 34.0	70	36	50 / 50	67.0	13.0	10
52106785	50 x 1,5	35.0 - 43.0	78	42	57 / 57	70.0	14.0	5
52106795	63 x 1,5	40.0 - 47.5	86	48	66 / 64	73.0	14.0	5

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

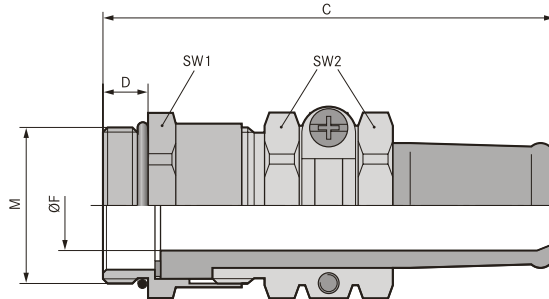
**Accessories**

- SKINDICHT® E refer to page 761
- SKINDICHT® EV refer to page 762

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## 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 EN 50262

### ■ 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

- ⚠ Caution**  
The installation dimensions can be found in appendix T21
- ℹ On request**  
Available with long connection thread
- 🧩 Material**  
Metal parts: nickel-plated brass  
O-ring: NBR  
Anti-kink protection: CR/NBR
- IP Protection rating**  
IP 65
- 🌡 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)	Clear opening F (mm)	Pieces / PU
<b>SKINDICHT® SR-M</b>									
52106410	12 x 1,5	4 - 5	23	7	14 / 15	49,0	5,0	5	50
52106420	16 x 1,5	5,5 - 7	25	9	18 / 17	50,0	5,0	7	50
52106430	20 x 1,5	5,5 - 7	28	11	22 / 20	55,0	6,0	7	25
52106440	20 x 1,5	7,5 - 9	28	11	22 / 20	55,0	6,0	9	25
52106450	20 x 1,5	7,5 - 9	32	13,5	22 / 22	60,0	6,0	9	25
52106460	20 x 1,5	9 - 11	32	13,5	22 / 22	60,0	6,0	11	25
52106470	20 x 1,5	11 - 13	32	13,5	22 / 22	60,0	6,0	13	25
52106480	20 x 1,5	12 - 13	35	16	24 / 24	65,0	6,0	13	25
52106481	20 x 1,5	13 - 15	35	16	24 / 24	66,0	6,0	15	25
52106490	25 x 1,5	12,5 - 15	46	21	30 / 30	78,5	7,0	15	25
52106500	25 x 1,5	14 - 17	46	21	30 / 30	78,5	7,0	17	25
52106510	25 x 1,5	17 - 19	46	21	30 / 30	78,5	7,0	19	25
52106520	25 x 1,5	17 - 20	46	21	30 / 30	78,5	7,0	20	25
52106530	32 x 1,5	19 - 20	59	29	40 / 41	90,5	8,0	20	10
52106540	32 x 1,5	22 - 23	59	29	40 / 41	90,5	8,0	23	10
52106550	32 x 1,5	23 - 25	59	29	40 / 41	90,5	8,0	25	10
52106560	40 x 1,5	24 - 26	70	36	50 / 50	108,0	8,0	26	5
52106570	40 x 1,5	28 - 30	70	36	50 / 50	108,0	8,0	30	5
52106580	40 x 1,5	31 - 33	70	36	50 / 50	108,0	8,0	33	5
52106590	40 x 1,5	33 - 34,5	70	36	50 / 50	108,0	8,0	35	5
52106600	50 x 1,5	31 - 34,5	75	42	57 / 57	111,0	9,0	35	5
52106610	50 x 1,5	32 - 38	75	42	57 / 57	111,0	9,0	38	5
52106620	50 x 1,5	37 - 40	75	42	57 / 57	111,0	9,0	40	5
52106630	63 x 1,5	32 - 40	83	48	66 / 64	118,0	10,0	40	1
52106640	63 x 1,5	36 - 44	83	48	66 / 64	118,0	10,0	44	1

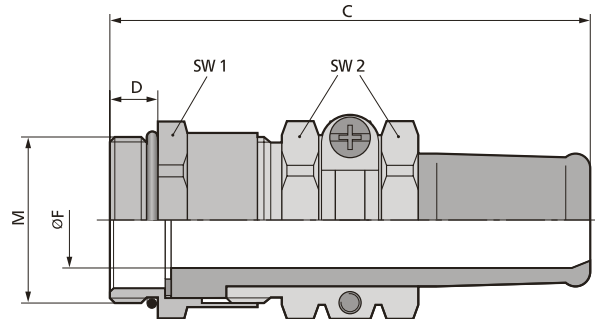
Photographs are not to scale and do not represent detailed images of the respective products.

### ■ Accessories

- SKINDICHT® SNR refer to page 766



**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 VITON® anti-kink sleeve. Our own reinforced acid-resistant VITON® 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 EN 50262

**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**

- 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**  
-15°C to +165°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)	Clear opening F (mm)	Pieces / PU
<b>SKINDICHT® SR-SV-M</b>									
52105820	20 x 1,5	5.5 - 7	28	11	22 / 20	56.0	6.0	7	25
52105830	20 x 1,5	7.5 - 9	28	11	22 / 20	56.0	6.0	9	25
52105840	20 x 1,5	7.5 - 9	32	13.5	22 / 22	61.5	6.0	9	25
52105850	20 x 1,5	8.5 - 11	32	13.5	22 / 22	61.5	6.0	11	25
52105860	20 x 1,5	10.5 - 13	32	13.5	22 / 22	61.5	6.0	13	25
52105870	20 x 1,5	11 - 13	35	16	24 / 24	66.5	6.0	13	10
52105880	20 x 1,5	12 - 15	35	16	24 / 24	66.5	6.0	15	10
52105890	25 x 1,5	13.5 - 15	40	21	30 / 30	79.0	7.0	15	10
52105900	25 x 1,5	15.5 - 17	46	21	30 / 30	79.0	7.0	17	10
52105910	25 x 1,5	16.5 - 19	46	21	30 / 30	79.0	7.0	19	10

Viton® is a registered trademark of DuPont de Nemours  
Photographs 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  
11 = Clear width of earthing sleeve

### Technical data

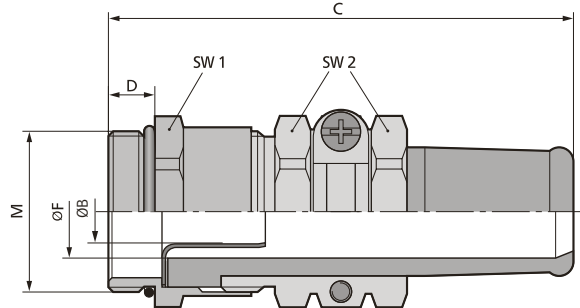
- Caution**  
The installation dimensions can be found in appendix T21
- Material**  
Body: nickel-plated brass  
Earthing sleeve: blank brass  
Sealing cone: CR  
O-ring: NBR
- Protection rating**  
IP 68 - 10 bar
- Temperature range**  
-20°C to +80°C

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
<b>SKINDICHT® SHVE-M</b>										
52106860	16 x 1,5	9	4,5 - 5,8	2,2 - 3,11	18 / 17	26,5	5,0	3,2	6	25
52106870	16 x 1,5	9	4,5 - 6,8	2,2 - 3,23	18 / 17	26,5	5,0	3,2	7	25
52106880	16 x 1,5	9	5,5 - 5,8	2,6 - 3,17	18 / 17	26,5	5,0	3,6	6	25
52106890	16 x 1,5	9	5,5 - 6,8	2,6 - 3,67	18 / 17	26,5	5,0	3,6	7	25
52106910	20 x 1,5	11	3 - 6,8	3,5 - 4,52	22 / 20	31,0	6,0	4,5	7	25
52106920	20 x 1,5	11	6 - 8,8	3,5 - 4,45	22 / 20	31,0	6,0	4,5	9	25
52106930	20 x 1,5	13,5	6,5 - 8,8	3,5 - 5	22 / 22	32,0	6,0	5,0	9	25
52106940	20 x 1,5	13,5	6 - 8,8	4,5 - 5,95	22 / 22	32,0	6,0	6,0	9	25
52106950	20 x 1,5	13,5	8 - 10,8	5,5 - 6,92	22 / 22	32,0	6,0	7,0	11	25
52106960	20 x 1,5	16	8,5 - 10,8	6 - 7,93	24 / 24	34,5	6,0	8,0	11	25
52106970	20 x 1,5	16	10 - 12,8	7 - 9	24 / 24	34,5	6,0	9,0	13	25
52106980	20 x 1,5	16	10 - 12,8	8 - 10	24 / 24	34,5	6,0	10,0	13	25
52106990	20 x 1,5	16	12,5 - 14,8	9 - 11,03	24 / 24	34,5	6,0	11,0	15	25
52107000	25 x 1,5	21	13 - 15,8	10 - 12,15	30 / 30	39,0	7,0	12,0	16	25
52107010	25 x 1,5	21	13 - 15,8	11 - 13	30 / 30	39,0	7,0	13,0	16	25
52107020	25 x 1,5	21	15,5 - 17,8	12 - 14	30 / 30	39,0	7,0	14,0	18	25
52107030	25 x 1,5	21	15 - 17,8	13 - 15	30 / 30	39,0	7,0	15,0	18	25
52107040	25 x 1,5	21	17,5 - 19,8	14 - 16	30 / 30	39,0	7,0	16,0	20	25
52107050	32 x 1,5	29	19 - 21,8	15 - 17,02	40 / 40	45,5	8,0	17,0	22	10
52107060	32 x 1,5	29	18 - 23,8	16 - 18	40 / 40	45,5	8,0	18,0	22	10
52107070	32 x 1,5	29	20 - 23,8	17 - 19	40 / 40	45,5	8,0	19,0	24	10
52107080	32 x 1,5	29	23 - 25,8	17 - 19	40 / 40	45,5	8,0	19,0	26	10

Photographs 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 EN 50262

**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
- Example description:  
SRE-M 20 / 13.5 / 9 / 6  
20 = connection thread  
13.5 = PG function thread  
9 = clear opening of anti-kink sleeve  
6 = clear opening of earthing sleeve

**Technical data**

- 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)	SW 1 / SW 2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening earthing sleeve ØB	Clear opening F (mm)	Pieces / PU
<b>SKINDICHT® SRE-M</b>										
52105600	20 x 1,5	13,5	7,5 - 9	4,5 - 6	22 / 22	59,5	6,0	6,0	9	25
52105610	20 x 1,5	13,5	9 - 11	5,5 - 7	22 / 22	59,5	6,0	7,0	11	25
52105620	20 x 1,5	16	11 - 13	7 - 9	24 / 24	64,5	6,0	9,0	13	25
52105630	20 x 1,5	16	11 - 13	8 - 10	24 / 24	64,5	6,0	10,0	13	25
52105640	20 x 1,5	16	13,5 - 15	9 - 11	24 / 24	64,5	6,0	11,0	15	25
52105650	25 x 1,5	21	13,5 - 15	10 - 12	30 / 30	78,0	7,0	12,0	15	25
52105660	25 x 1,5	21	15 - 17	12 - 14	30 / 30	78,0	7,0	14,0	17	25
52105670	25 x 1,5	21	17 - 19	13 - 15	30 / 30	78,0	7,0	15,0	19	25
52105680	25 x 1,5	21	18 - 20	14 - 16	30 / 30	78,0	7,0	16,0	20	25
52105690	32 x 1,5	29	18 - 20	15 - 17	40 / 40	90,0	8,0	17,0	20	10
52105700	32 x 1,5	29	21 - 23	17 - 19	40 / 40	90,0	8,0	19,0	23	10
52105710	40 x 1,5	36	23,5 - 26	20 - 22	50 / 50	108,0	8,0	22,0	26	5
52105720	40 x 1,5	36	27 - 30	22 - 24	50 / 50	108,0	8,0	24,0	30	5
52105730	40 x 1,5	36	30 - 33	26 - 28	50 / 50	108,0	8,0	28,0	33	5
52105740	40 x 1,5	36	32 - 35	28 - 30	50 / 50	108,0	8,0	30,0	35	5

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

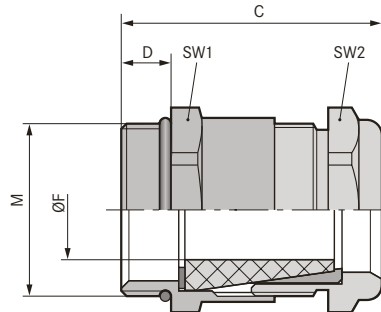
**Accessories**

- SKINDICHT® SNR refer to page 766

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## 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 EN 50262

### ■ 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

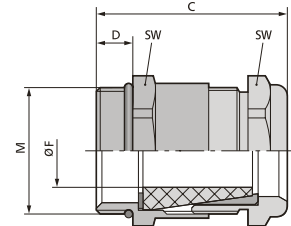
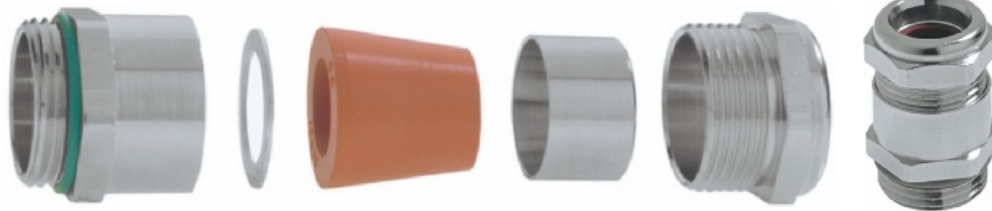
- ⚠ Caution**  
The installation dimensions can be found in appendix T21
- 🔧 Material**  
Body: nickel-plated brass  
Sealing cone: CR  
O-ring: NBR
- IP Protection rating**  
IP 68 - 10 bar
- 🌡 Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening seal	Pieces / PU
<b>SKINDICHT® SHV-M</b>								
52105270	12 x 1,5	3 - 4,8	7.0	14 / 14	26.0	5.0	5	50
52105280	16 x 1,5	4,5 - 5,8	9.0	18 / 17	26,5	5.0	6	50
52105290	16 x 1,5	4,5 - 6,8	9.0	18 / 17	26,5	5.0	7	50
52105300	20 x 1,5	6 - 6,8	11.0	22 / 20	31.0	6.0	7	25
52105310	20 x 1,5	6,5 - 8,8	11.0	22 / 20	31.0	6.0	9	25
52105320	20 x 1,5	6,5 - 8,8	13.5	22 / 22	32,5	6.0	9	25
52105330	20 x 1,5	9 - 10,8	13.5	22 / 22	32,5	6.0	11	25
52105340	20 x 1,5	9 - 10,8	16.0	24 / 24	34,5	6.0	11	25
52105350	20 x 1,5	9,5 - 12,8	16.0	24 / 24	34,5	6.0	13	25
52105360	20 x 1,5	13 - 14,8	16.0	24 / 24	34,5	6.0	15	25
52105370	25 x 1,5	13,5 - 15,8	21.0	30 / 30	38,5	7.0	16	25
52105380	25 x 1,5	15 - 17,8	21.0	30 / 30	38,5	7.0	18	25
52105390	25 x 1,5	17,5 - 19,8	21.0	30 / 30	38,5	7.0	20	25
52105400	32 x 1,5	17,5 - 21,8	29.0	40 / 40	42,5	8.0	22	10
52105410	32 x 1,5	19 - 23,8	29.0	40 / 40	42,5	8.0	24	10
52105420	32 x 1,5	23 - 25,8	29.0	40 / 40	42,5	8.0	26	10

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



**SKINDICHT® SHV-M-VITON®**



**Benefits**

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Watertight
- High strain relief
- Robust

**Product make-up**

- 1 fitting
- 2 washers
- 3 VITON® sealing cone
- 4 brass cones
- 5 compression screws

**Note**

- Counter nut to be used: SKINDICHT® SM-M
- Example description:  
SHV-M-Viton® 20/11/7  
20 = metric connection thread  
11 = PG function thread  
7 = clear opening of sealing cone

**Technical data**

**Caution**  
The installation dimensions can be found in appendix T21

**Material**  
Body: nickel-plated brass  
Sealing cone: FKM  
O-ring: FKM

**IP Protection rating**  
IP 68 - 10 bar

**Temperature range**  
-15°C to +200°C

**Application range**

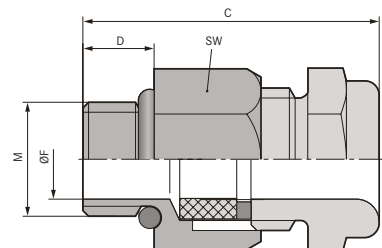
- Watertight and high temperature-resistant cable gland with special conical VITON® sealing element.
- Brickworks
- Sewage treatment plants
- Car wash sites

Article number	Article designation / size	Clamping range ØF (mm)	Function thread PG	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
<b>SKINDICHT® SHV-M-VITON®</b>								
52105430	12 x 1,5	3,8 - 4,8	7.0	14 / 14	26.0	5.0	5	50
52105440	16 x 1,5	4,8 - 5,8	9.0	18 / 17	27.5	5.0	6	50
52105450	16 x 1,5	5,8 - 6,8	9.0	18 / 17	27.5	5.0	7	50
52105460	20 x 1,5	5,8 - 6,8	11.0	22 / 20	31.0	6.0	7	25
52105470	20 x 1,5	6,8 - 8,8	11.0	22 / 20	31.0	6.0	9	25
52105480	20 x 1,5	8,5 - 10,8	13.5	22 / 22	32.5	6.0	11	25
52105490	20 x 1,5	6,8 - 8,8	13.5	22 / 22	32.5	6.0	9	25
52105500	20 x 1,5	10,8 - 12,8	16.0	24 / 24	34.5	6.0	13	25
52105510	20 x 1,5	13,8 - 14,8	16.0	24 / 24	34.5	6.0	15	25
52105520	25 x 1,5	15,8 - 17,8	21.0	30 / 30	38.0	7.0	18	25
52105530	25 x 1,5	17,5 - 19,8	21.0	30 / 30	38.0	7.0	20	25
52105540	32 x 1,5	19,5 - 21,8	29.0	40 / 40	44.5	8.0	22	10

Viton® is a registered trademark of DuPont de Nemours  
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**SKINDICHT® MINI**



**Technical data**

**Material**  
Body: nickel-plated brass  
Seal: CR/NBR

**IP Protection rating**  
IP 68

**Temperature range**  
-20°C to +100°C

**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
- Measuring technology

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® MINI</b>						
52001860	MINI 6 x 1	2 - 3	9	19.5	5.0	50
52001880	MINI 8 x 1	3,5 - 5,5	11	20.5	5.0	50

Photographs 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 VITON® 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 EN 50262

### Note

- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM CrNi M

### Technical data

- 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
- Temperature range**  
-25°C to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® CN-M</b>						
52032580	12 x 1,5/1	3,5 - 5	17	27,0	10,0	5
52032590	12 x 1,5/2	5 - 6,5	17	27,0	10,0	5
52032600	12 x 1,5/3	6,5 - 8	17	27,0	10,0	5
52032610	16 x 1,5	8 - 10,5	18	30,0	10,0	5
52032620	20 x 1,5	11 - 15	24	31,0	10,0	5
52032630	25 x 1,5	16 - 20,5	30	36,0	11,0	5
52032640	32 x 1,5	21 - 25,5	36	41,0	13,0	5
52032650	40 x 1,5	28,5 - 33	46	44,0	13,0	1
52032660	50 x 1,5	37 - 42	55	48,0	14,0	1
52032670	63 x 1,5	46 - 52	70	51,0	14,0	1
<b>SKINDICHT® SM CrNi M counter nuts</b>						
52032585	12 x 1,5	-	17	3,0	3,0	10
52032615	16 x 1,5	-	19	3,0	3,0	10
52032625	20 x 1,5	-	24	3,5	3,5	10
52032635	25 x 1,5	-	30	3,5	3,5	10
52032645	32 x 1,5	-	36	4,5	4,5	10
52032655	40 x 1,5	-	46	4,5	4,5	10
52032665	50 x 1,5	-	55	5,5	5,5	10
52032675	63 x 1,5	-	70	6,0	6,0	10

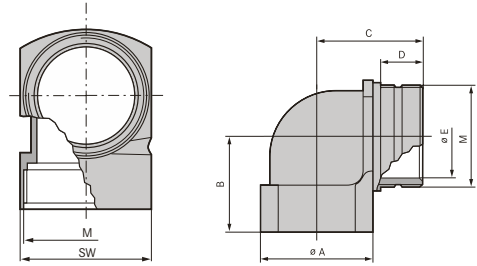
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ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





**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 EN 50262

**Note**

- Refer to SKINDICHT® O-ring Perbunan® 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**

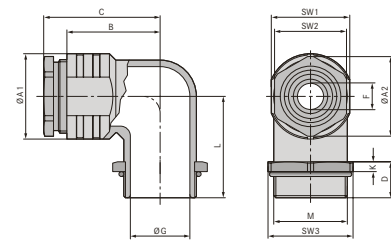
- RAL** Colour delivered: Silver grey (RAL 7001)
- Material**: Polyamide, glass fibre-reinforced
- IP** Protection rating: IP 55
- Temperature range**: -20°C to +80°C

Article number	Article designation / size	A mm	B in mm	Ø-E mm	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® KW-M</b>								
52106210	16 x 1,5	19,0	21,5	11	19	24,0	13,0	25
52106220	20 x 1,5	25,0	24,5	15	25	29,5	15,0	25
52106230	25 x 1,5	30,0	28,0	20	30	33,5	16,0	25
52106240	32 x 1,5	36,0	31,5	26	36	38,0	17,0	10

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**SKINDICHT® RWV-M**



**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**

- Metric connection thread acc. to EN 50262

**Note**

- Counter nut to be used: SKINDICHT® SM-M

**Technical data**

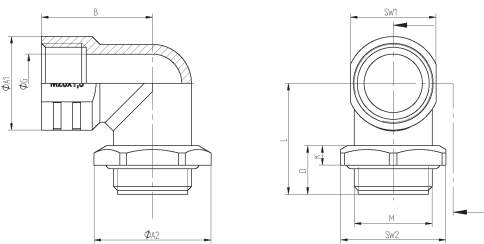
- Material**: Body: zinc die-casting, nickel-plated  
Compression screw and hexagon nut: nickel-plated brass  
Incised sealing ring: CR/NBR  
O-ring: NBR
- IP** Protection rating: IP 55
- Temperature range**: -20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	L	SW1	Ø A1	SW2	Ø A2	Ø G	Height (mm)	Overall length, C (mm)	Thread length, D (mm)	SW3	Pieces / PU
<b>SKINDICHT® RWV-M</b>													
52107800	12 x 1,5	5	20,5	14	16	12	13,2	8	5	26,1	11,5	17	25
52107810	16 x 1,5	9 - 3	23,5	18	20	16	17,6	12	5	28,6	11,5	22	25
52107820	20 x 1,5	13 - 4	28,5	22	24	20	22,2	15	5	35,1	12,5	27	25
52107830	25 x 1,5	17,5 - 8,5	31,0	27	29	25	27,5	20	5	38,1	13,5	32	10
52107840	32 x 1,5	25 - 16	33,0	34	36	32	35,2	27	5	44,6	13,5	41	10
52107850	40 x 1,5	32 - 23	43,0	42	45	40	43,5	35	5	53,1	15,5	46	5

Photographs 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 EN 50262

### 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
- Cable glands are not included in scope of delivery

### Technical data



#### 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	Ø G	SW1	Ø A1	SW2	Ø A2	Pieces / PU
<b>SKINDICHT® RWV-M without E+D</b>											
52107801	12 x 1,5	21.0	11	5	21.0	8.0	14	16	17	18.9	25
52107811	16 x 1,5	23.0	11	5	24.0	12.0	18	20	22	24.5	25
52107821	20 x 1,5	28.5	12	5	29.0	15.0	22	24	27	30.1	25
52107831	25 x 1,5	30.0	13	5	31.0	20.0	27	29	32	35.7	10
52107841	32 x 1,5	33.5	13	5	33.0	27.0	34	33	41	45.6	10
52107851	40 x 1,5	43.0	15	5	43.0	35.0	42	43	46	50.6	5

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



## SKINDICHT® SE-M



### Benefits

- 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

- 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



#### Material

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 (mm)	Overall length, C (mm)	Overall width (mm)	Pieces / PU
<b>SKINDICHT® SE-M</b>							
52108000	M 20 x 1,5	4/7/10/13	31.0	20	49.2	42	10
52108010	M 25 x 1,5	8.5/11.5/14.5/17.5	40.0	25	68.2	60	5
52108020	M 32 x 1,5	16/19/22/25	51.5	32	84.2	66	1

Photographs 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.
- Cable glands are not included in scope of delivery

**Technical data**

- 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
<b>SKINDICHT® SE-M without E+D</b>					
52108001	20 x 1,5	31	42	42.0	10
52108011	25 x 1,5	40	60	60.0	5
52108021	32 x 1,5	51.5	66	76.0	1

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



**SKINDICHT® SE-M 220/320**



**Benefits**

- Combination of various conduit glands is possible depending on the type
- Low overall height
- High stability
- Two or three separate cable outlets

**Application range**

- For high mechanical stress
- When no connection thread is provided

**Note**

- Type SKINDICHT® SE-M 220/320 without E+D is without incised sealing ring and without compression screw
- Type SKINDICHT® SE-M 220/320 without E+D can be combined with all cable glands (incl. O-ring) such as sealing, strain-relief, anti-kink, conduit-connecting or earthing glands
- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.

**Technical data**

- Material**  
Body: zinc die-casting, hammer tone finish  
Compression screw: nickel-plated brass  
Incised sealing ring: CR/NBR  
Flat sealing ring: SBR
- Protection rating**  
IP 55
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Incised sealing ring ØF (mm)	Pieces / PU
<b>SKINDICHT® SE-M 220/320</b>			
52108040	2 x M20 x 1,5	2 x 4/7/10/13	1
52108050	3 x M20 x 1,5	3 x 4/7/10/13	1
<b>SKINDICHT® SE-M 220/320 without E+D</b>			
52108041	2 x M20 x 1,5		1
52108051	3 x M20 x 1,5		1

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



## SKINDICHT® SM-M



### 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 EN 50262

### Technical data

**Material**  
Nickel-plated brass

Article number	Article designation / size	Thickness (mm)	SW (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® SM-M</b>					
52103000	12 x 1,5	3.0	15	16.5	100
52103010	16 x 1,5	3.0	19	20.9	100
52103020	20 x 1,5	3.5	24	26.4	100
52103030	25 x 1,5	4.0	30	33.0	100
52103040	32 x 1,5	4.0	36	39.6	100
52103050	40 x 1,5	5.0	46	50.6	50
52103060	50 x 1,5	5.0	60	66.0	50
52103070	63 x 1,5	5.0	70	77.0	25
52103071	75 x 1,5	8.0	85	95.0	5
52103072	90 x 2	10.0	102	114.0	1
52103073	110 x 2	12.0	124	135.0	1

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



## SKINDICHT® SM-PE-M



### Benefits

- 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

- For lacquered, anodised or powder-coated housings.

### Product make-up

- Metric connection thread acc. to EN 50262

### Technical data

**Material**  
Nickel-plated brass

Article number	Article designation / size	Thickness (mm)	SW (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® SM-PE-M</b>					
52103300	12 x 1,5	3.5	15	16.5	100
52103310	16 x 1,5	3.5	19	20.9	100
52103320	20 x 1,5	3.7	24	26.4	100
52103330	25 x 1,5	4.2	30	33.0	50
52103340	32 x 1,5	4.7	36	39.6	50
52103350	40 x 1,5	5.5	46	50.6	25
52103360	50 x 1,5	5.5	60	66.0	10
52103370	63 x 1,5	7.0	70	77.0	10
52103371	75 x 1,5	8.0	85	95.0	5
52103372	90 x 2	10.0	102	114.0	1
52103373	110 x 2	12.0	124	135.0	1

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



**SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M**

**Info**  
 • SKINDICHT® BLK-M/BLK-GL-M will be renamed into SKINTOP® PLUG



**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 make-up**

- Metric connection thread acc. to EN 50262

**Technical data**

- On request**  
 SKINDICHT® BLK-M  
 BLK-M with O-ring, black RAL 9005
- 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
- Protection rating**  
 IP 54  
 IP 68 with O-ring
- Temperature range**  
 SKINDICHT® BLK-M  
 -25°C to +60°C  
 SKINDICHT® BLK-GL-M  
 -40°C to +100°C

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® BLK-M</b>			
52006600	12 x 1,5	6.0	100
52006610	16 x 1,5	6.0	100
52006620	20 x 1,5	6.0	100
52006630	25 x 1,5	8.0	100
52006640	32 x 1,5	8.0	50
52006650	40 x 1,5	8.0	25
52006660	50 x 1,5	10.0	25
52006670	63 x 1,5	12.0	25
<b>SKINDICHT® BLK-GL-M silver-grey</b>			
52006101	12 x 1,5	6.0	100
52006111	16 x 1,5	6.0	100
52006121	20 x 1,5	6.0	100
52006131	25 x 1,5	8.0	100
52006141	32 x 1,5	8.0	50
52006151	40 x 1,5	8.0	25
52006161	50 x 1,5	10.0	25
52006171	63 x 1,5	12.0	25
<b>SKINDICHT® BLK-GL-M light grey</b>			
52006100	12 x 1,5	6.0	100
52006110	16 x 1,5	6.0	100
52006120	20 x 1,5	6.0	100
52006130	25 x 1,5	8.0	100
52006140	32 x 1,5	8.0	50
52006150	40 x 1,5	8.0	25
52006160	50 x 1,5	10.0	25
52006170	63 x 1,5	12.0	25
<b>SKINDICHT® BLK-GL-M black</b>			
52006103	12 x 1,5	6.0	100
52006113	16 x 1,5	6.0	100
52006123	20 x 1,5	6.0	100
52006133	25 x 1,5	8.0	100
52006143	32 x 1,5	8.0	50
52006153	40 x 1,5	8.0	25
52006163	50 x 1,5	10.0	25
52006173	63 x 1,5	12.0	25

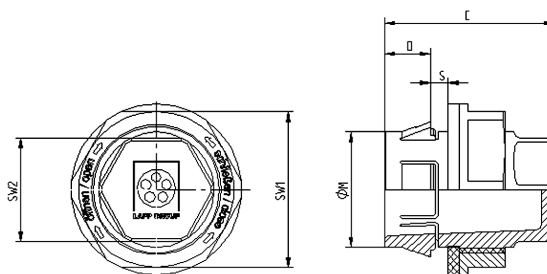
Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® BLK-GL-M silver-grey mounted with O-ring</b>			
52006109	12 x 1,5	6.0	100
52006119	16 x 1,5	6.0	100
52006129	20 x 1,5	6.0	100
52006139	25 x 1,5	8.0	100
52006149	32 x 1,5	8.0	50
52006159	40 x 1,5	8.0	25
52006169	50 x 1,5	10.0	25
52006179	63 x 1,5	12.0	25
<b>SKINDICHT® BLK-GL-M light grey mounted with O-ring</b>			
52006107	12 x 1,5	6.0	100
52006117	16 x 1,5	6.0	100
52006127	20 x 1,5	6.0	100
52006137	25 x 1,5	8.0	100
52006147	32 x 1,5	8.0	50
52006157	40 x 1,5	8.0	25
52006167	50 x 1,5	10.0	25
52006177	63 x 1,5	12.0	25
<b>SKINDICHT® BLK-GL-M black mounted with O-ring</b>			
52006106	12 x 1,5	6.0	100
52006116	16 x 1,5	6.0	100
52006126	20 x 1,5	6.0	100
52006136	25 x 1,5	8.0	100
52006146	32 x 1,5	8.0	50
52006156	40 x 1,5	8.0	25
52006166	50 x 1,5	10.0	25
52006176	63 x 1,5	12.0	25

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



**New**

## 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
- Captive

### Control cabinet manufacturing

- Measurement, control and electrical applications
- Automation technology
- Plant engineering, machinery manufacturing

### Included

- Included: disassembly tool

### 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.

### Technical data

- RAL** Colour delivered: Light grey (RAL 7035)
- Material**: Body: special polyamide; Seal: special elastomer
- IP** 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
<b>SKINTOP® CLICK BLK light grey</b>							
52109013	CLICK BLK 16	16.3 (-0.2)	14 / 22	28.5	8.0	1.0 - 4.0	50
52109014	CLICK BLK 20	20.3 (-0.2)	18 / 27	29.5	8.0	1.0 - 4.0	25
52109015	CLICK BLK 25	25.3 (-0.2)	22 / 14	30.5	8.0	1.0 - 4.0	25

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



**SKINDICHT® BL-M**



■ **Benefits**

- For closing pre-threaded holes
- Assembling with screwdriver

■ **Application range**

- Machine and equipment manufacturing
- Electric motor manufacturing

■ **Product make-up**

- Metric connection thread acc. to EN 50262

■ **Technical data**

- On request**  
Fitted with FKM O-ring
- Material**  
Body: nickel-plated brass  
Sea water-resistant
- Protection rating**  
IP 54  
IP 68 with O-ring
- Temperature range**  
With O-ring: -30°C to +100°C  
Without O-ring: -60°C to +200°C

Article number	Article designation / size	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® BL-M</b>			
52103100	12 x 1,5	14.0	100
52103110	16 x 1,5	18.0	100
52103120	20 x 1,5	22.0	100
52103130	25 x 1,5	28.0	100
52103140	32 x 1,5	35.0	50
52103150	40 x 1,5	44.0	25
52103160	50 x 1,5	54.0	10
52103170	63 x 1,5	70.0	10
<b>SKINDICHT® BL-M with O-ring</b>			
52103105	12 x 1,5	14.0	100
52103115	16 x 1,5	18.0	100
52103125	20 x 1,5	22.0	100
52103135	25 x 1,5	28.0	100
52103145	32 x 1,5	35.0	50
52103155	40 x 1,5	44.0	25
52103165	50 x 1,5	54.0	10
52103175	63 x 1,5	70.0	10
52103190	75 x 1,5	80.0	1

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



## SKINDICHT® BL-M hexagonal



### 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 EN 50262

### Note

- Dummy plug made of chromium nickel steel on request

### Technical data

- On request**  
VITON® O-ring  
-20 °C to +200 °C
- Material**  
Body: nickel-plated brass  
O-ring: NBR
- Protection rating**  
IP 68
- Temperature range**  
-30°C to +100°C

Article number	Article designation / size	SW (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® BL-M hexagon</b>				
52103405	12 x 1,5	16	17.8	50
52103415	16 x 1,5	20	22.0	50
52103425	20 x 1,5	24	26.4	50
52103435	25 x 1,5	29	31.9	50
52103445	32 x 1,5	36	39.6	25
52103455	40 x 1,5	45	49.5	25
52103465	50 x 1,5	54	59.0	10
52103475	63 x 1,5	67	73.5	10

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## 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 EN 50262

### Technical data

- Approvals**  
DIN VDE 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
- Protection rating**  
IP 68
- Temperature range**  
-30°C to +90°C

Article number	Article designation / size	SW (mm)	Thread length, D (mm)	Outer Ø (mm)	PU
<b>SKINDICHT® BL-M ATEX</b>					
52103103	12 x 1,5	16	5.0	17.8	50
52103113	16 x 1,5	20	5.0	22.0	50
52103123	20 x 1,5	24	6.0	26.4	50
52103133	25 x 1,5	29	7.0	31.9	50
52103143	32 x 1,5	36	8.0	39.6	25
52103153	40 x 1,5	45	8.0	49.5	25
52103163	50 x 1,5	54	9.0	59.0	10
52103173	63 x 1,5	67	10.0	73.5	10

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**New**

## SKINDICHT® VENT STAINLESS STEEL



**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**

- Simple installation in devices (e.g. cabinet)
- Manufacturing of control cabinets and equipment
- Measuring technology

**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**

**DIN VDE Approvals**  
Metric thread acc. to EN 60423

**Note**  
Membrane: Acryl - copolymere

**Material**  
Stainless steel 303  
O-Ring - NBR

**IP Protection rating**  
IP 66 ; IP 68 ; IP 69K

**Temperature range**  
Fixed: -40°C to +100°C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
51730204	SKINDICHT® VENT CN 12x1,5	21.0	10.0	10
51730205	SKINDICHT® VENT CN 12x,15 cURus	21.0	10.0	10

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SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



**New**

## SKINDICHT® VENT PLASTIC



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

- Simple installation in devices (e.g. cabinet)
- Manufacturing of control cabinets and equipment
- Measuring technology

### 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=0,8l/min - Standard version
- Air flow rates: 100mbar=3,5l/min - UL version

### Note

- Refer to data sheet for more details

### Technical data



#### Approvals

Metric thread acc. to EN 60423



#### Note

Membrane: Acryl - copolymere



#### Colour delivered

Light grey (RAL 7035)  
RAL 9005 black/UV-resistant



#### Material

Polyamide 6 - Standard version  
Polyamide 66 - UL Version  
Flat sealing NBR - Standard version  
O-Ring NBR - UL version



#### Protection rating

IP 66 ; IP 68 ; IP 69K



#### Temperature range

Fixed: -40°C to +100°C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
51730201	SKINDICHT® VENT UL 12x1,5 BK cURus	17.3	10.0	25
51730203	SKINDICHT® VENT UL 12x1,5 LGY cURus	17.3	10.0	25
51730200	SKINDICHT® VENT 12x1,5 BK	17.3	10.0	25
51730202	SKINDICHT® VENT 12x1,5 LGY	17.3	10.0	25

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**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 EN 50262

**Technical data**

- RAL Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polyamide, glass fibre-reinforced
- Temperature range**  
-40 °C to +100 °C



**SKINDICHT® KU-M**



Article number	Thread, male M 1	Thread, female M2	SW (mm)	Pieces / PU
<b>SKINDICHT® KU-M light grey</b>				
52104505	16 x 1.5	12 x 1.5	22	100
52104470	20 x 1.5	12 x 1.5	24	100
52104504	20 x 1.5	16 x 1.5	24	100
52104472	25 x 1.5	12 x 1.5	29	100
52104473	25 x 1.5	16 x 1.5	29	100
52104474	25 x 1.5	20 x 1.5	29	100
52104475	32 x 1.5	12 x 1.5	36	50
52104476	32 x 1.5	16 x 1.5	36	50
52104477	32 x 1.5	20 x 1.5	36	50
52104478	32 x 1.5	25 x 1.5	36	50
52104479	40 x 1.5	16 x 1.5	46	50
52104480	40 x 1.5	20 x 1.5	46	50
52104481	40 x 1.5	25 x 1.5	46	25
52104482	40 x 1.5	32 x 1.5	46	25
52104483	50 x 1.5	20 x 1.5	55	5
52104484	50 x 1.5	25 x 1.5	55	5
52104485	50 x 1.5	32 x 1.5	55	5
52104486	50 x 1.5	40 x 1.5	55	5
52104487	63 x 1.5	25 x 1.5	68	5
52104488	63 x 1.5	32 x 1.5	68	5
52104489	63 x 1.5	40 x 1.5	68	5
52104469	63 x 1.5	50 x 1.5	68	5

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



**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 EN 50262

**Technical data**

- On request**  
Also available with pre-installed O-ring
- Material**  
Nickel-plated brass
- Temperature range**  
-60 °C to +200 °C



**SKINDICHT® MR-M**



Article number	Thread, male M1	Thread, female M2	Overall length, C (mm)	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® MR-M</b>						
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
<b>SKINDICHT® MR-M, blank brass</b>						
52006579	80 x 2	75 x 1.5	19.0	12.0	86.0	1
<b>SKINDICHT® MR-M, nickel-plated brass</b>						
52006575	72 x 2	63 x 1.5	19.0	12.0	78.0	1

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



New

## SKINDICHT® MR-M hexagonal



### 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

- Machines
- Devices
- Housings

### Product make-up

- Metric connection thread acc. to EN 50262

### Technical data



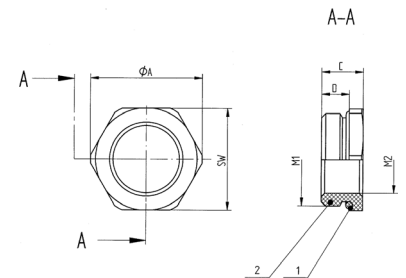
**On request**  
VITON® O-ring  
-20 °C to +200 °C



**Material**  
Body: nickel-plated brass  
O-ring: NBR



**Temperature range**  
-30°C to +100°C



Article number	Thread, male M1	Thread, female M2	SW (mm)	ØA [mm]	Overall length, C (mm)	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® MR-M hexagon</b>								
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	6.0		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	8.0		25
52101972	32 x 1.5	20 x 1.5	36	40.0	11.5	8.0		25
52101973	32 x 1.5	25 x 1.5	36	40.0	11.5	8.0		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	10.0		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	11.0		1
<b>SKINDICHT® MR-M, blank brass, with hexagon</b>								
52006572	80 x 2	63 x 1.5	85		23.0	15.0	93.5	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

### Product make-up

- Metric connection thread acc. to EN 50262

### Technical data



**Approvals**  
CE 0637 Ex II 2G  
Ex eb IIC  
Ex II 1D Ex ta IIC  
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)	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® MR-M ATEX</b>						
52104570	16 x 1.5	12 x 1.5	10.5	5.0	19.0	50
52104571	20 x 1.5	16 x 1.5	13.0	6.0	24.5	50
52104572	25 x 1.5	20 x 1.5	15.0	7.0	30.1	25
52104573	32 x 1.5	25 x 1.5	16.5	8.0	37.2	25
52104574	40 x 1.5	32 x 1.5	16.5	8.0	45.6	10
52104575	50 x 1.5	40 x 1.5	19.5	10.0	55.3	5
52104576	63 x 1.5	50 x 1.5	18.5	8.5	71.3	5

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**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 EN 50262

**Technical data**

- Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polyamide, glass fibre-reinforced
- Temperature range**  
-40°C to +100°C

**SKINDICHT® EKU-M**



Article number	Thread, male M1	Thread, female M2	SW (mm)	Pieces / PU
<b>SKINDICHT® EKU-M</b>				
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 are not to scale and do not represent detailed images of the respective products.



**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 EN 50262

**Technical data**

- On request**  
with O-ring fitted
- Material**  
Nickel-plated brass
- Temperature range**  
-60°C to +200°C

**SKINDICHT® ME-M**



Article number	Thread, male M1	Thread, female M2	Pieces / PU
<b>SKINDICHT® ME-M</b>			
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
<b>SKINDICHT® ME-M hexagon</b>			
52104463	63 x 1.5	75 x 1.5	25

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## 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

### ■ Product make-up

- Metric connection thread acc. to EN 50262

### ■ Technical data

**DIN VDE Approvals**  
 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 (mm)	Outer thread length (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® ME-M ATEX</b>							
52104580	12 x 1.5	16 x 1.5	17.0	18	5	20.0	50
52104581	16 x 1.5	20 x 1.5	20.0	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	23.0	42	7	46.0	25
52104585	40 x 1.5	50 x 1.5	26.0	54	8	59.0	25
52104586	50 x 1.5	63 x 1.5	32.0	67	9	73.0	10

Photographs 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 EN 50262

**Technical data**

- On request** with O-ring fitted
- Material** Nickel-plated brass

Article number	Thread, male M1	Thread, female PG/NPT	Pieces / PU
<b>SKINDICHT® MA-M / PG</b>			
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
<b>SKINDICHT® MA-M / NPT</b>			
54020100	16 x 1.5	1/4	50
54020110	20 x 1.5	1/4	50
54020120	25 x 1.5	1/4	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

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## SKINDICHT® ZS-M



### ■ 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

### ■ Product make-up

- Metric connection thread acc. to EN 50262

### ■ Note

- SKINDICHT® ZS-M-XL offers a long metric connection thread

### ■ Technical data

- Material**  
 Nickel-plated brass

Article number	Thread, male M1	Thread, female PG/NPT	SW (mm)	Outer thread length (mm)	Pieces / PU
<b>SKINDICHT® ZS-M</b>					
52104330	12 x 1.5	7	14	5	100
52104340	16 x 1.5	9	18	5	100
52104010	16 x 1.5	11	20	5	100
52104360	20 x 1.5	11	22	6	100
52104370	20 x 1.5	13.5	22	6	100
52104380	20 x 1.5	16	24	6	50
52104400	25 x 1.5	21	30	7	50
52104410	32 x 1.5	29	40	8	25
52104420	40 x 1.5	36	50	8	10
52104430	50 x 1.5	42	57	9	10
52104440	63 x 1.5	48	66	10	10
<b>SKINDICHT® ZS-M-XL</b>					
52104335	12 x 1.5	7	14	10	100
52104345	16 x 1.5	9	18	10	100
52104365	20 x 1.5	11	22	10	100
52104375	20 x 1.5	13.5	22	10	100
52104385	20 x 1.5	16	24	10	50
52104405	25 x 1.5	21	30	11	50
52104415	32 x 1.5	29	40	13	25
52104425	40 x 1.5	36	50	13	10
52104435	50 x 1.5	42	57	14	10
52104445	63 x 1.5	48	66	14	10

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





**SKINDICHT® ZSE-M**

**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

**Product make-up**

- Metric connection thread acc. to EN 50262

**Note**

- SKINDICHT® ZSE-M-XL offers a long metric connection thread

**Product make-up**

- These converters are used in our cable glands:
- SKINDICHT® SHV-M
- SKINDICHT® SHVE-M
- SKINDICHT® SRE-M
- SKINDICHT® SR-SV-M

**Technical data**



**Material**  
Body: nickel-plated brass



Article number	Thread, male M1	Thread, female PG/NPT	SW (mm)	Outer thread length (mm)	Pieces / PU
<b>SKINDICHT® ZSE-M</b>					
52106000	12 x 1.5	7	14	5	100
52106010	16 x 1.5	9	18	5	100
52106020	20 x 1.5	11	22	6	100
52106030	20 x 1.5	13.5	22	6	100
52106040	20 x 1.5	16	24	6	50
52104050	20 x 1.5	21	30	8	50
52106050	25 x 1.5	21	30	7	50
52106060	32 x 1.5	29	40	8	25
52106070	40 x 1.5	36	50	8	10
52106080	50 x 1.5	42	57	9	10
52106090	63 x 1.5	48	66	10	10
<b>SKINDICHT® ZSE-M-XL</b>					
52106005	12 x 1.5	7	14	10	100
52106015	16 x 1.5	9	18	10	100
52106025	20 x 1.5	11	22	13	100
52106035	20 x 1.5	13.5	22	13	100
52106045	20 x 1.5	16	24	13	50
52106055	25 x 1.5	21	30	13	50
52106065	32 x 1.5	29	40	13	25

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



## SKINDICHT® D-M



**Application range**

- SKINDICHT® D-M compression screws with thread in accordance with EN 50262.

**Technical data**

**Material**  
Nickel-plated brass

Article number	Article designation / size	SW (mm)	Pieces / PU
<b>SKINDICHT® D-M</b>			
52100600	12 x 1,5	12	100
52100601	16 x 1,5	16	100
52100602	20 x 1,5	20	100
52100603	25 x 1,5	25	50
52100604	32 x 1,5	32	25
52100605	40 x 1,5	40	25
52100606	50 x 1,5	50	10
52100607	63 x 1,5	65	10

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



## SKINDICHT® U-M/U-PG



**Application range**

- For use between compression screw and adapter.

**Note**

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**Technical data**

**Material**  
Steel, galvanized

Article number	Article designation / size	Outer Ø x inner Ø (mm)	Pieces / PU
<b>SKINDICHT® U-M</b>			
52100610	U-M 12	10.0 x 7.0	300
52100611	U-M 16	14.0 x 10.0	300
52100612	U-M 20	17.9 x 13.9	300
52100613	U-M 25	22.7 x 18.7	200
52100614	U-M 32	29.8 x 26.0	200
52100615	U-M 40	37.8 x 33.3	100
52100616	U-M 50	47.8 x 41.4	100
52100617	U-M 63	60.7 x 53.5	100

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**SKINDICHT® E-M**



**Benefits**

- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters

**Application range**

- Incised sealing ring for 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**

	<b>Colour delivered</b> Black
	<b>Material</b> CR
	<b>Temperature range</b> -20°C to +80°C

Article number	Article designation / size	Outer Ø x holes (mm)	Thickness (mm)	Pieces / PU
<b>SKINDICHT® E-M</b>				
52100620	E-M 12	10.00 x 5	5.0	250
52100621	E-M 16	13.80 x 3/6/9	5.5	250
52100622	E-M 20	17.60 x 4/7/10/13	6.0	250
52100623	E-M 25	22.60 x 8.5/11.5/14.5/17.5	7.5	100
52100624	E-M 32	29.60 x 16/19/22/25	9.5	100
52100625	E-M 40	37.60 x 23/26/29/32	12.0	50
52100626	E-M 50	47.60 x 30/33/36/39	14.0	50
52100627	E-M 63	60.60 x 36/39/42/45	14.0	50

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**SKINDICHT® O-Ring Perbunan® 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-M 12/16/20 x 1.5
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**Technical data**

	<b>Colour delivered</b> Black
	<b>Material</b> NBR Ozone and UV-resistant silicone-free
	<b>Temperature range</b> -30°C to +100°C

Article number	Article designation / size	Inner Ø (mm)	Cable thickness (mm)	Pieces / PU
<b>SKINDICHT® O-Ring Perbunan®</b>				
53102001	O M 12 x 1,5	9,0	1,5	100
53102000	O M 12 x 2,0	9,0	2,0	100
53102010	O M 16 x 2,0	13,0	2,0	100
53102021	O M 20 x 1,5	17,0	1,5	100
53102020	O M 20 x 2,0	17,0	2,0	100
53102030	O M 25 x 2,0	22,0	2,0	100
53102040	O M 32 x 2,0	28,0	2,0	50
53102050	O M 40 x 2,0	36,0	2,0	50
53102060	O M 50 x 2,0	46,0	2,0	25
53102070	O M 63 x 2,0	57,0	2,0	25

Perbunan® is a registered trademark of BAYER AG

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## SKINDICHT® O-ring VITON® 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

<b>RAL</b>	<b>Colour delivered</b> Green
	<b>Material</b> FKM
	<b>Temperature range</b> -20°C to +200°C

Article number	Article designation / size	Inner Ø (mm)	Cable thickness (mm)	Pieces / PU
<b>SKINDICHT® O-ring VITON® metric</b>				
52122000	OV M 12 x 2,0	9.0	2.0	100
52122001	OV M 12 x 1,5	9.0	1.5	100
52122010	OV M 16 x 2,0	13.0	2.0	100
52122020	OV M 20 x 2,0	17.0	2.0	100
52122021	OV M 20 x 1,5	17.0	1.5	100
52122030	OV M 25 x 2,0	22.0	2.0	100
52122040	OV M 32 x 2,0	28.0	2.0	50
52122050	OV M 40 x 2,0	36.0	2.0	50
52122060	OV M 50 x 2,0	46.0	2.0	25
52122070	OV M 63 x 2,0	57.0	2.0	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

<b>RAL</b>	<b>Colour delivered</b> White
	<b>Material</b> PTFE
	<b>Temperature range</b> -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
<b>SKINDICHT® JT PTFE</b>					
53801030	JT M 12	12.1	2.0	16.6	100
53801040	JT M 16	16.1	2.0	21.1	100
53801050	JT M 20	20.1	2.0	27.5	100
53801060	JT M 25	25.1	3.0	33.4	50
53801070	JT M 32	32.1	3.0	40.3	50
53801080	JT M 40	40.2	3.0	51.5	25
53801090	JT M 50	50.2	3.0	61.6	25
53801100	JT 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 EN 50262

**Technical data**

- RAL** Colour delivered  
Light grey (RAL 7035)
- Material**  
PE
- IP** Protection rating  
IP 54

Article number	Article designation / size	Opening (mm)	SW (mm)	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
<b>SKINDICHT® WN-M</b>						
52020513	16 x 1,5	5 - 10	15	10,0	20,0	200
52020523	20 x 1,5	8 - 13,5	19	12,0	24,0	200
52020533	25 x 1,5	9 - 16	24	12,0	28,0	100
52020543	32 x 1,5	11 - 22	30	14,0	37,0	50
52020553	40 x 1,5	17 - 34	37	16,0	45,0	50
52020563	50 x 1,5	22 - 35	46	18,0	55,5	20
52020573	63 x 1,5	24 - 43	56	20,0	68,5	10

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**Benefits**

- Can be used as multiple-duct sleeve
- Strain relief

**Application range**

- Grommets for cables from 4 to 32 mm cable diameter.

**Technical data**

- RAL** Colour delivered  
Black
- Material**  
CR
- Temperature range**  
-30°C to +100°C



**SKINDICHT® DTN**



Article number	Article designation / size	Clamping range ØF (mm)	Metal thickness (mm)	Hole in housing Ø (mm)	Sleeve inner Ø (mm)	Pieces / PU
<b>SKINDICHT® DTN</b>						
52105020	DTN 1	4 - 9	2,5	16	9	50
52105030	DTN 2	7 - 12	2,5	19	12	50
52105040	DTN 3	12 - 17,5	2,5	25	18	50
52105050	DTN 4	18 - 23	2,5	32	25	25
52105060	DTN 5	25 - 29	3,0	38	32	25

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**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**

- RAL** Colour delivered  
Black
- Material**  
CR
- Temperature range**  
-30°C to +90°C



**SKINDICHT® LA**



Article number	Article designation / size	Metal thickness (mm)	Sleeve outer Ø (mm)	Hole in housing Ø (mm)	Sleeve inner Ø (mm)	Pieces / PU
<b>SKINDICHT® LA</b>						
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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**New**

## SKINMATIC® QUICK Set 1



■ **Benefits**

- Optimum high packing density, easy installation in very tight spaces
- 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® ST(R)-M plastic cable glands.
- Optional SKINMATIC® TORQUE WRENCH with 9x12 mm adapter for use with SKINMATIC® QUICK SET 1
- The SKINMATIC® TORQUE WRENCH can also be used with a standard spanner wrench for 9x12 mm adapter

■ **Product features**

- Made of high-quality tool steel
- Included: a handy and strong box for storing the ratchet
- 1x R1 - ratchet
- 1x V1 - extension
- 4x open nut for wrench size (SW) 15, 19, 25, 30, suitable for ratchet head R1

Article number	Article designation / size	Width of flat surface (mm)	Pieces / PU
<b>SKINMATIC® QUICK SET 1</b>			
61610000	QUICK SET 1	15, 19, 25, 30	1
<b>SKINMATIC® TORQUE WRENCH</b>			
61610012	SKINMATIC® DMG 2-10 Nm		1
61610013	SKINMATIC® DMG 5-25 Nm		1

Not subjected to RoHS directive.  
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**New**

## 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:
  - SW 16/20 mm (M12/M16)
  - SW 24/29 mm (M20/M25)
  - SW 36/45 mm (M32/M40)

Article number	Width of flat surface (mm)	Brass gland sizes	Overall length (mm)	PU pieces (set)
<b>SKINMATIC® MH-Set</b>				
61791273	16/20, 24/29, 36/45	M 12, M 16, M 20, M 32, M 40	200 / 220 / 250	1
<b>SKINMATIC® MH single wrench</b>				
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**



**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
<b>SKINMATIC® KB-M</b>				
61791274	12 x 1,5	30	130.0	1
61791275	16 x 1,5	35	150.0	1
61791276	20 x 1,5	40	165.0	1
61791277	25 x 1,5	45	185.0	1
<b>SKINMATIC® SB-M</b>				
61791278	32 x 1,5	180	301.0	1
61791279	40 x 1,5	200	349.0	1
61791280	50 x 1,5	220	369.0	1
<b>SKINMATIC® GB-M</b>				
61791282	32 x 1,5	28	150.0	1
61791283	40 x 1,5	28	170.0	1
61791284	50 x 1,5	32	190.0	1

Not subjected to RoHS directive.

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■ **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 mounting of cable and conduit glands
- Suitable for polyamide and brass 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"

**SKINMATIC® RZ**



Article number	Article designation / size	Width of flat surface (mm)	Overall length (mm)	Pieces / PU
<b>SKINMATIC® RZ</b>				
61791260	SKINMATIC® RZ	14 - 33	250.0	1

Not subjected to RoHS directive.

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**Cable glands - other thread types**

SKINTOP® NPT polyamide cable glands



**SKINTOP® NPT**



**Benefits**

- Conical NPT thread
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

**Application range**

- Used in areas where cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Automation technology
- Devices
- Housings

**Norm references / Approvals**

- UL File Nr. E79903

**Product make-up**

- NPT connection thread acc. to ANSI B.1.20.2 - 1983

**Note**

- Refer to SKINTOP® PG accessories for suitable accessories. Note that SKINTOP® GMP-GL counter nut is not compatible with this model.
- 3/8" = PG9
- 1/2" = PG13.5
- 3/4" = PG21
- 1" = PG29

**Product make-up**

- SKINTOP® STR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters.

**Technical data**

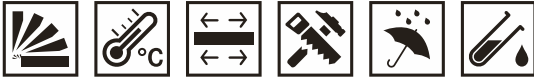
- RAL Colour delivered**  
Silver grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
Body: Polyamide  
Seal: CR
- IP Protection rating**  
IP 68 - 5 bar
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® ST silver grey</b>						
53016010	ST 3/8 NPT"	3,5 - 8	19	43.0	15.0	100
53016030	ST 1/2 NPT"	5 - 12	24	45.0	15.0	100
53016050	ST 3/4 NPT"	13 - 18	33	53.0	15.0	50
53016060	ST 1 NPT"	19 - 25,4	42	60.0	15.0	25
<b>SKINTOP® ST black</b>						
53016210	ST 3/8 NPT"	3,5 - 8	19	43.0	15.0	100
53016230	ST 1/2 NPT"	5 - 12	24	45.0	15.0	100
53016250	ST 3/4 NPT"	13 - 18	33	53.0	15.0	50
53016260	ST 1 NPT"	19 - 25,4	42	60.0	15.0	25
<b>SKINTOP® STR silver grey</b>						
53016110	STR 3/8 NPT"	2 - 6	19	43.0	15.0	100
53016130	STR 1/2 NPT"	4 - 9	24	45.0	15.0	100
53016150	STR 3/4 NPT"	9 - 16	33	53.0	15.0	50
<b>SKINTOP® STR black</b>						
53016310	STR 3/8 NPT"	2 - 6	19	43.0	15.0	100
53016330	STR 1/2 NPT"	4 - 9	24	45.0	15.0	100
53016350	STR 3/4 NPT"	9 - 16	33	53.0	15.0	50
<b>SKINTOP® BS silver grey</b>						
53016610	BS 3/8 NPT"	3,5 - 8	19	82.0	15.0	100
53016630	BS 1/2 NPT"	5 - 12	24	104.0	15.0	100
53016650	BS 3/4 NPT"	13 - 18	33	133.0	15.0	50
<b>SKINTOP® BS black</b>						
53016810	BS 3/8 NPT"	3,5 - 8	19	82.0	15.0	100
53016830	BS 1/2 NPT"	5 - 12	24	104.0	15.0	100
53016850	BS 3/4 NPT"	13 - 18	33	133.0	15.0	50

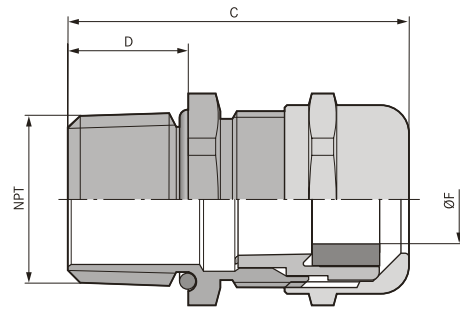
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SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





**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 ANSI B1.20.2 - 1983

**Note**

- Refer to SKINTOP® metric accessories for suitable accessories. Note that SKINDI-CHT® SM-M counter nut is not compatible with this model.
- 1/4" = M12, 3/8" = M16
- 1/2" = M20, 3/4" = M25
- 1" = M32, 1 1/4" = M40
- 1 1/2" = M50, 2" = M63

**Product make-up**

- SKINTOP® MSR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

**Technical data**

**Material**  
 Body: nickel-plated brass  
 Insert: polyamide  
 Sealing ring: CR  
 O-ring: NBR

**IP Protection rating**  
 IP 68 - 5 bar

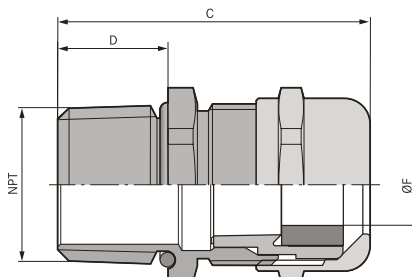
**Temperature range**  
 -30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-NPT</b>						
53112004	1/4"	3,5 - 7	16	36,0	15,0	100
53112014	3/8"	4,5 - 10	20	39,7	15,0	100
53112024	1/2"	7 - 13	24	42,5	15,0	50
53112034	3/4"	9 - 17	29	44,5	15,0	25
53112044	1"	11 - 21	36	49,0	15,0	25
53112054	1 1/4"	19 - 28	45	57,5	17,0	10
53112064	1 1/2"	27 - 35	54	61,5	17,0	5
53112074	2"	34 - 45	67	63,5	17,0	5
<b>SKINTOP® MSR-NPT</b>						
53112006	1/4"	1 - 5	16	36,0	15,0	100
53112016	3/8"	2 - 7	20	39,7	15,0	100
53112026	1/2"	5 - 10	24	42,5	15,0	50
53112036	3/4"	6 - 13	29	44,5	15,0	25
53112046	1"	7 - 15	36	49,0	15,0	25
53112056	1 1/4"	15 - 23	45	57,5	17,0	10
53112066	1 1/2"	22 - 29	54	61,5	17,0	5
53112076	2"	28 - 39	67	63,5	17,0	5

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## SKINTOP® MS-SC NPT



### Benefits

- Highly conductive, flexible EMC contact for clamping various screen diameters
- Low-resistance screen contact, optimum EMC protection
- Also suitable for continuing the cable screen to another connection
- Suitable for cables with and without inner sheath

### Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- 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 ANSI B1.20.2 - 1983

### Technical data

**Material**  
 Body: nickel-plated brass  
 Insert: polyamide  
 Sealing ring: CR  
 O-ring: NBR

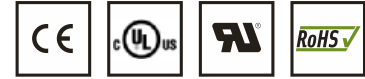
**IP Protection rating**  
 IP 68 - 5 bar

**Temperature range**  
 -30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-SC NPT</b>						
53112910	3/8"	4,5 - 10	20	39,7	15,0	100
53112920	1/2"	7 - 13	24	42,5	15,0	50
53112930	3/4"	9 - 17	29	44,5	15,0	25
53112940	1"	11 - 21	36	49,0	15,0	25
53112950	1 1/4"	19 - 28	45	57,5	17,0	10
53112960	1 1/2"	27 - 35	54	61,5	17,0	5

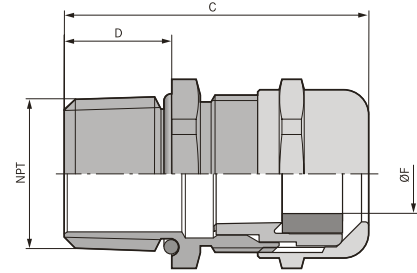
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**New**

**SKINTOP® MS-NPT BRUSH**



**Benefits**

- Faster, easier screen contact
- 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, or for cables with copper shaft sheath
- Automation technology
- Conveyor technology
- High-power drives
- Frequency converters

**Norm references / Approvals**

- UL File Nr. E79903

**Product make-up**

- NPT connection thread acc. to ANSI B1.20.2 - 1983

**Technical data**

**Material**  
 Body: nickel-plated brass  
 EMC brush: brass  
 Sealing ring: special elastomer  
 O-ring: special elastomer

**Protection rating**  
 IP 68 - 5 bar

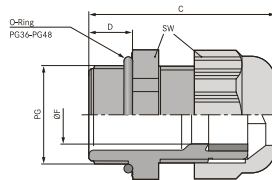
**Temperature range**  
 -30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-NPT BRUSH</b>						
53112037	3/4"	9 - 17	29	43.0	15.0	10
53112047	1"	11 - 21	36	48.0	15.0	1
53112057	1 1/4"	19 - 28	45	57.5	17.0	1
53112067	1 1/2"	27 - 35	54	59.0	17.0	1
53112077	2"	34 - 45	67	63.0	17.0	1
53112087	2" plus	44 - 55	75	72.0	17.0	1

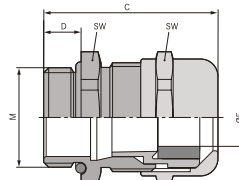
Photographs are not to scale and do not represent detailed images of the respective products.



**SKINTOP® ST / SKINTOP® STR**



SKINTOP® ST



SKINTOP® STR

**Benefits**

- Various accessories (e.g. multiple sealing inserts)
- High oil-resistance for maximum reliability
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges

**Application range**

**SKINTOP® ST**

- Used in areas where cables and wires need to be safely inserted into housings
- 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

**Note**

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

**Technical data**



**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



**Temperature range**

-20°C to +80°C

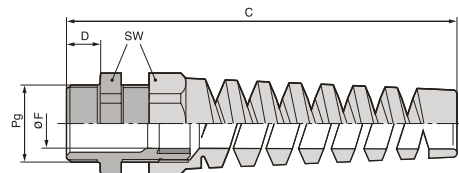
Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® ST silver grey</b>						
53015000	ST 7	2,5 - 6,5	15	32.0	8.0	100
53015010	ST 9	3,5 - 8	19	36.0	8.0	100
53015020	ST 11	4 - 10	22	38.0	8.0	100
53015030	ST 13,5	6 - 12	24	41.0	9.0	100
53015040	ST 16	9 - 14	27	44.0	10.0	50
53015050	ST 21	13 - 18	33	49.0	11.0	50
53015060	ST 29	14 - 25	42	56.0	11.0	25
53015070	ST 36	24 - 32	53	66.0	13.0	10
53015080	ST 42	35 - 38	60	68.0	13.0	5
53015090	ST 48	39 - 44	65	69.0	14.0	5
<b>SKINTOP® ST black</b>						
53015200	ST 7	2,5 - 6,5	15	32.0	8.0	100
53015210	ST 9	3,5 - 8	19	36.0	8.0	100
53015220	ST 11	4 - 10	22	38.0	8.0	100
53015230	ST 13,5	6 - 12	24	41.0	9.0	100
53015240	ST 16	9 - 14	27	44.0	10.0	50
53015250	ST 21	13 - 18	33	49.0	11.0	50
53015260	ST 29	14 - 25	42	56.0	11.0	25
53015270	ST 36	24 - 32	53	66.0	13.0	10
53015280	ST 42	35 - 38	60	68.0	13.0	5
53015290	ST 48	39 - 44	65	69.0	14.0	5
<b>SKINTOP® ST light grey</b>						
53018000	ST 7	2,5 - 6,5	15	32.0	8.0	100
53018010	ST 9	3,5 - 8	19	36.0	8.0	100
53018020	ST 11	4 - 10	22	38.0	8.0	100
53018030	ST 13,5	6 - 12	24	41.0	9.0	100
53018040	ST 16	9 - 14	27	44.0	10.0	50
53018050	ST 21	13 - 18	33	49.0	11.0	50
53018060	ST 29	14 - 25	42	56.0	11.0	25
53018070	ST 36	24 - 32	53	66.0	13.0	10
53018080	ST 42	35 - 38	60	68.0	13.0	5
53018090	ST 48	39 - 44	65	69.0	14.0	5
<b>SKINTOP® STR silver grey</b>						
53015100	STR 7	1,5 - 5	15	32.0	8.0	100
53015110	STR 9	2 - 6	19	36.0	8.0	100
53015120	STR 11	2 - 7	22	38.0	8.0	100
53015130	STR 13,5	4 - 9	24	41.0	9.0	100
53015140	STR 16	6 - 12	27	44.0	10.0	50
53015150	STR 21	9 - 16	33	49.0	11.0	50
53015160	STR 29	11 - 20	42	56.0	11.0	25
53015170	STR 36	17 - 26	53	66.0	13.0	10
53015180	STR 42	22 - 31	60	68.0	13.0	5
53015190	STR 48	26 - 35	65	69.0	14.0	5

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® STR black</b>						
53015300	STR 7	1,5 - 5	15	32,0	8,0	100
53015310	STR 9	2 - 6	19	36,0	8,0	100
53015320	STR 11	2 - 7	22	38,0	8,0	100
53015330	STR 13,5	4 - 9	24	41,0	9,0	100
53015340	STR 16	6 - 12	27	44,0	10,0	50
53015350	STR 21	9 - 16	33	49,0	11,0	50
53015360	STR 29	11 - 20	42	56,0	11,0	25
53015370	STR 36	17 - 26	53	66,0	13,0	10
53015380	STR 42	22 - 31	60	68,0	13,0	5
53015390	STR 48	26 - 35	65	69,0	14,0	5
<b>SKINTOP® STR light grey</b>						
53018100	STR 7	1,5 - 5	15	32,0	8,0	100
53018110	STR 9	2 - 6	19	36,0	8,0	100
53018120	STR 11	2 - 7	22	38,0	8,0	100
53018130	STR 13,5	4 - 9	24	41,0	9,0	100
53018140	STR 16	6 - 12	27	44,0	10,0	50
53018150	STR 21	9 - 16	33	49,0	11,0	50
53018160	STR 29	11 - 20	42	56,0	11,0	25
53018170	STR 36	17 - 26	53	66,0	13,0	10
53018180	STR 42	22 - 31	60	68,0	13,0	5
53018190	STR 48	26 - 35	65	69,0	14,0	5

Photographs 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

**Note**

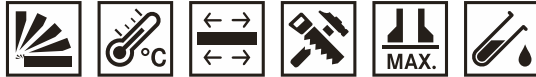
- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL
- Version with smaller insert to seal smaller cable cross-sections, SKINTOP® BSR, is available upon request

**Technical data**

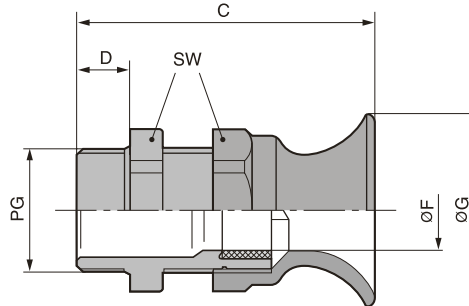
- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- Colour delivered**  
Silver grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
Body: Polyamide  
Seal: CR
- Protection rating**  
IP 68 - 5 bar
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® BS silver grey</b>						
53015600	BS 7	2,5 - 6,5	15	62,0	8,0	100
53015610	BS 9	3,5 - 8	19	73,5	8,0	100
53015620	BS 11	4 - 10	22	86,0	8,0	100
53015630	BS 13,5	6 - 12	24	98,0	9,0	50
53015640	BS 16	9 - 14	27	111,5	10,0	25
53015650	BS 21	13 - 18	33	129,0	11,0	25
<b>SKINTOP® BS black</b>						
53015800	BS 7	2,5 - 6,5	15	62,0	8,0	100
53015810	BS 9	3,5 - 8	19	73,5	8,0	100
53015820	BS 11	4 - 10	22	86,0	8,0	100
53015830	BS 13,5	6 - 12	24	98,0	9,0	50
53015840	BS 16	9 - 14	27	111,5	10,0	25
53015850	BS 21	13 - 18	33	129,0	11,0	25

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



## SKINTOP® BT



### ■ Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability

### ■ 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

### ■ Note

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

### ■ Technical data

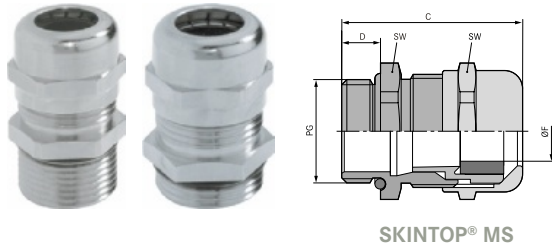
- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- Colour delivered**  
Silver grey (RAL 7001)
- Material**  
Body: Polyamide  
Seal: CR
- Protection rating**  
IP 68 - 5 bar
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® BT silver grey</b>						
53015410	9	3,5 - 8	19	42.9	8.0	100
53015420	11	4 - 10	22	47.7	8.0	100
53015430	13,5	5 - 12	24	52.0	9.0	50
53015440	16	9 - 14	27	55.9	10.0	50
53015450	21	13 - 18	33	64.4	11.0	50

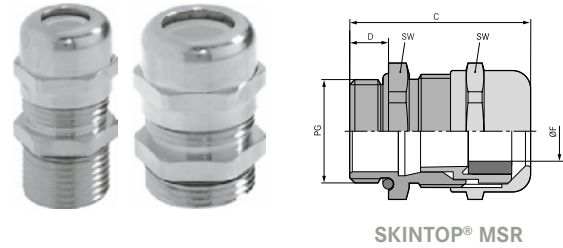
Photographs are not to scale and do not represent detailed images of the respective products.



**SKINTOP® MS / SKINTOP® MSR**



SKINTOP® MS



SKINTOP® MSR

■ **Benefits**

**SKINTOP® MS**

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

**SKINTOP® MSR**

- For the benefits, refer to SKINTOP® MS

■ **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

■ **Note**

- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

■ **Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**Material**

Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR



**Protection rating**

IP 68 - 5 bar



**Temperature range**

-30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS</b>						
52015700	MS 7	2 - 6.5	14	25.0	5.0	100
52015710	MS 9	4 - 8	17	29.0	6.0	100
52015720	MS 11	4 - 10	20	32.0	6.0	50
52015730	MS 13,5	5 - 12	22	34.0	6.5	50
52015740	MS 16	8 - 14	24	35.0	6.5	50
52015750	MS 21	11 - 18	30	40.0	7.0	25
52015760	MS 29	16 - 25	40	48.0	8.0	25
52015765	MS 36	19 - 32	50	62.0	15.0	10
52015766	MS 42	28 - 38	57	62.0	15.0	5
52015767	MS 48	34 - 44	64	62.0	15.0	5
<b>SKINTOP® MSR</b>						
52015770	MSR 7	2 - 5	14	25.0	5.0	100
52015780	MSR 9	2 - 6	17	29.0	6.0	100
52015790	MSR 11	3 - 7	20	32.0	6.0	50
52015800	MSR 13,5	4 - 9	22	34.0	6.5	50
52015810	MSR 16	6 - 13	24	35.0	6.5	50
52015820	MSR 21	8 - 16	30	40.0	7.0	25
52015830	MSR 29	10.5 - 20	40	48.0	8.0	25
52015831	MSR 36	19 - 26	50	62.0	15.0	10
52015832	MSR 42	24 - 31	57	62.0	15.0	5
52015833	MSR 48	28 - 35	64	62.0	15.0	5

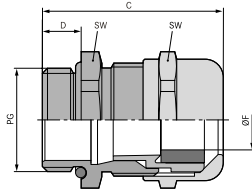
Photographs are not to scale and do not represent detailed images of the respective products.



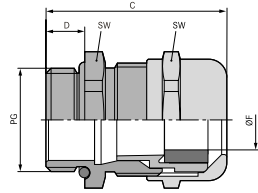
**SKINTOP® MS-XL / SKINTOP® MSR-XL**



SKINTOP® MS-XL



SKINTOP® MSR-XL



■ **Benefits**

**SKINTOP® MS-XL**

- Especially for thick walls
- Maximum reliability
- Wide, variable clamping ranges
- Optimum strain relief

**SKINTOP® MSR-XL**

- For the benefits, refer to SKINTOP® MS-XL

■ **Application range**

**SKINTOP® MS-XL**

- With long connection thread for applications involving a thicker wall.

**SKINTOP® MSR-XL**

- With reducing seal insert, to seal cables with smaller outer diameters.

■ **Product make-up**

- PG connection thread

■ **Note**

- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

■ **Technical data**



**Caution**

Refer to Appendix T21 for the installation dimensions and torques



**Material**

Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR



**Protection rating**

IP 68 - 5 bar



**Temperature range**

-30°C to +100°C

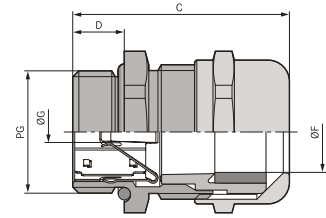
Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-XL</b>						
52115700	MS 7 XL	2 - 6,5	14	32,0	12,0	100
52115710	MS 9 XL	4 - 8	17	35,0	12,0	100
52115720	MS 11 XL	4 - 10	20	38,0	12,0	50
52115730	MS 13,5 XL	5 - 12	22	39,5	12,0	50
52115740	MS 16 XL	8 - 14	24	40,5	12,0	50
52115750	MS 21 XL	11 - 18	30	45,0	12,0	25
52115760	MS 29 XL	16 - 25	40	52,0	15,0	25
<b>SKINTOP® MSR-XL</b>						
52115770	MSR 7	2 - 5	14	32,0	12,0	100
52115780	MSR 9	2 - 6	17	35,0	12,0	100
52115790	MSR 11	3 - 7	20	38,0	12,0	50
52115800	MSR 13,5	4 - 9	22	39,5	12,0	50
52115810	MSR 16	6 - 13	24	40,5	12,0	50
52115820	MSR 21	8 - 16	30	45,0	12,0	25
52115830	MSR 29	10,5 - 20	40	52,0	15,0	25

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





**SKINTOP® MS-SC**



**Benefits**

- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- 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**

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation technology
- Telecommunication
- Measurement and control technology
- Industrial machinery and plant engineering

**Product make-up**

- PG connection thread

**Note**

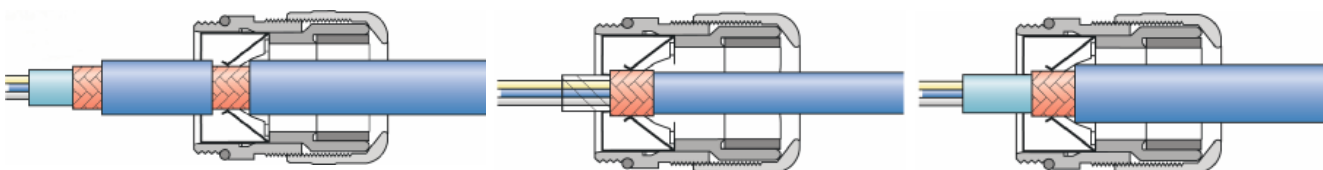
- Refer to SKINTOP® PG accessories for suitable accessories
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

**Technical data**

- Caution**  
Refer to Appendix T21 for the installation dimensions and torques
- Material**  
Body: nickel-plated brass  
Insert: polyamide  
Sealing ring: CR  
O-ring: NBR
- Protection rating**  
IP 68
- Temperature range**  
-30°C to +100°C

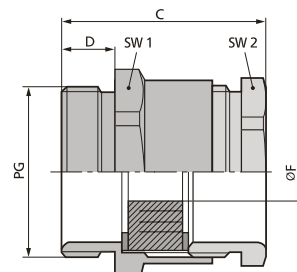
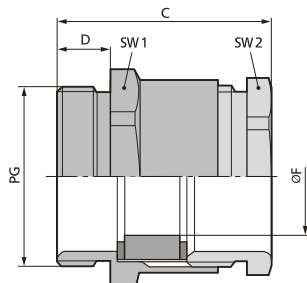
Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINTOP® MS-SC</b>				
53112210	MS-SC 9	3 - 8	6.0	50
53112220	MS-SC 11	4 - 10	6.0	50
53112230	MS-SC 13,5	5 - 12	6.5	25
53112240	MS-SC 16	8 - 14	6.5	25
53112250	MS-SC 21	11 - 17,5	7.0	25
53112260	MS-SC 29	16 - 25	8.0	10
53112270	MS-SC 36	19 - 32	15.0	5
<b>SKINTOP® MS-SC XL</b>				
53112310	MS-SC XL 9	3 - 8	12.0	50
53112320	MS-SC XL 11	4 - 10	12.0	50
53112330	MS-SC XL 13,5	5 - 12	12.0	25
53112340	MS-SC XL 16	8 - 14	12.0	25
53112350	MS-SC XL 21	11 - 17,5	12.0	25
53112360	MS-SC XL 29	16 - 25	15.0	10

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





**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**



**Caution**

The installation dimensions can be found in appendix T21



**Auf Anfrage**

**SKINDICHT® SVRE**

Available with long connection thread  
Available with PG 11 to 36 with VITON® 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

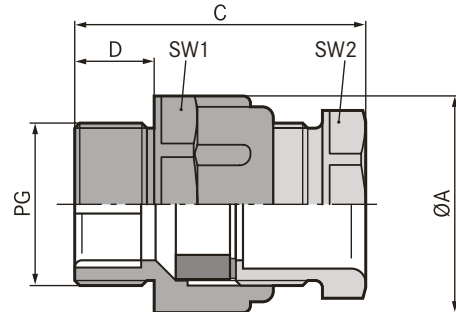
Article number	Article designation / size	Incised sealing ring ØF (mm)	PG size	Clamping range (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SVRN</b>								
52000210	SVRN 7005/N		7	5	14 / 13	20.6	5.0	100
52020300	SVRN 7006/N		7	6	14 / 13	20.6	5.0	100
52020310	SVRN 7007/N		7	7	14 / 13	20.6	5.0	100
52020320	SVRN 9007/N		9	7	17 / 15	22.6	6.0	100
52020330	SVRN 9008/N		9	8	17 / 15	22.6	6.0	100
52000220	SVRN 9009/N		9	9	17 / 15	22.6	6.0	100
52020341	SVRN 11010/N		11	10	20 / 18	23.6	6.0	50
52000230	SVRN 11011/N		11	11	20 / 18	23.6	6.0	50
52000240	SVRN 13011/N		13.5	11	22 / 20	26.1	6.5	50
52000241	SVRN 13012/N		13.5	12	22 / 20	26.1	6.5	50
52000250	SVRN 16013/N		16	13	24 / 22	27.1	6.5	50
52000251	SVRN 16014/N		16	14	24 / 22	27.1	6.5	50
52000260	SVRN 21018/N		21	18	30 / 28	29.6	7.0	50
52000270	SVRN 29027/N		29	27	40 / 37	32.6	8.0	50
52000280	SVRN 36034/N		36	34	50 / 47	38.6	9.0	20
<b>SKINDICHT® SVRE</b>								
52005540	SVRE 9	5/8			17 / 15	22.6	6.0	100
52000310	SVRE 11	7 / 10 / 12.5			20 / 18	22.6	6.0	50
52000320	SVRE 13,5	7 / 10.5 / 13 / 16			22 / 20	26.1	6.5	50
52000330	SVRE 16	8 / 10.5 / 13.5 / 16			24 / 22	27.1	6.5	50
52000340	SVRE 21	11 / 15 / 18 / 20			30 / 28	29.6	7.0	50
52000350	SVRE 29	19 / 23 / 27 / 31			40 / 37	32.6	8.0	50
52000360	SVRE 36	25 / 28 / 31 / 35			50 / 47	38.6	9.0	20
52005550	SVRE 42	35.5 / 39 / 42.5 / 46			57 / 54	43.6	10.0	10
52005560	SVRE 48	40.5 / 44 / 47 / 50.5			64 / 60	45.1	10.0	10

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ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**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**

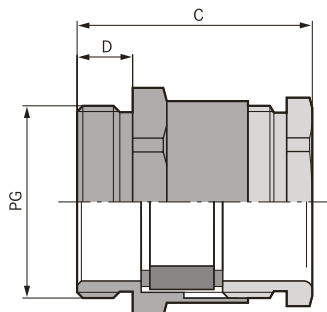
- Caution**  
The installation dimensions can be found in appendix T21
- Colour delivered**  
Light grey (RAL 7035)
- Material**  
Body: Polystyrene  
Special sealing insert: CR
- Protection rating**  
IP 54
- Temperature range**  
-20°C to +60°C

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
<b>SKINDICHT® SVFK</b>							
52005470	SVFK 16	-- 15.0	-- 5.0	27 / 23	39.5	10.0	25
52005680	SVFK 21	10.0 - 20.5	3.0 - 8.0	32 / 30	43.0	11.0	25
52005690	SVFK 29	15.0 - 27.0	4.0 - 11.5	42 / 41	45.0	11.0	25
52005700	SVFK 36	25.0 - 34.0	4.0 - 11.5	53 / 50	51.0	13.0	10
52005710	SVFK 42	30.0 - 40.0	5.0 - 12.0	60 / 55	54.0	13.0	5
52005720	SVFK 48	35.0 - 45.0	5.0 - 12.0	65 / 60	55.0	15.0	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

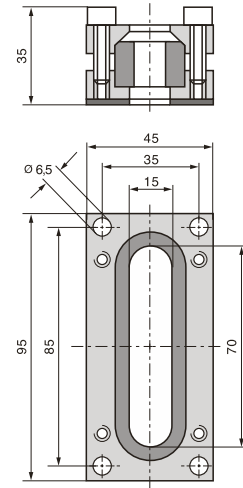
- ⚠ Caution**  
The installation dimensions can be found in appendix T21
- ℹ On request**  
Available with long connection thread
- 🔧 Material**  
Body: nickel-plated brass  
Special sealing insert: CR
- IP**  
Protection rating  
IP 54
- 🌡 Temperature range**  
-20°C to +100°C

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
<b>SKINDICHT® SVF</b>							
52005480	PG 16	-- 16.0	-- 5.0	24 / 22	27.5	6.5	25
52005490	PG 21	9.0 - 21.0	3.0 - 8.0	30 / 28	30.0	7.0	25
52005500	PG 29	14.0 - 30.0	4.0 - 11.5	40 / 37	31.5	8.0	10
52005510	PG36	24.0 - 40.0	4.0 - 11.5	50 / 47	36.0	9.0	10
52005520	PG 42	29.0 - 45.0	5.0 - 12.0	57 / 54	40.0	10.0	5
52005530	PG 48	34.0 - 50.0	5.0 - 12.0	64 / 60	41.5	10.0	5

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



**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
- Power 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**

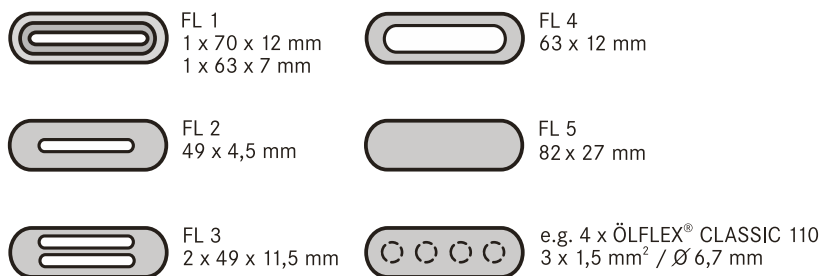
**Material**  
 Body: aluminium, special untreated alloy  
 Screws and spring washers: zinc-plated steel  
 Seal: NBR

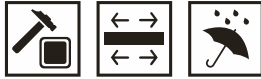
**Protection rating**  
 IP 65

**Temperature range**  
 -20°C to +100°C

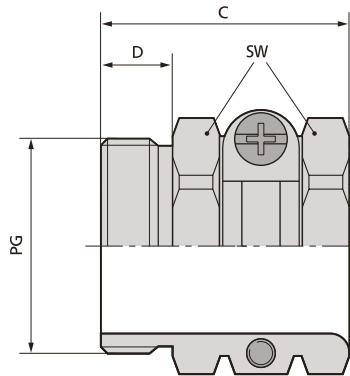
Article number	Article designation / size	Cable pass length x width in mm	Dimensions: L x W x H (mm)	Pieces / PU
<b>SKINDICHT® FL</b>				
52008010	FL 1	70 x 15 + 63 x 7	45 x 35 x 95	1
52008020	FL 2	49 x 4,5	45 x 35 x 95	1
52008030	FL 3	49 x 4,5 + 49 x 4,5 (49 x 11,5)	45 x 35 x 95	1
52008040	FL 4	63 x 12,0 (+0,2)	45 x 35 x 95	1
52008050	FL 5	70 x 15	45 x 35 x 95	1

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





## 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

### ■ Note

- Counter nut to be used: SKINDICHT® SM

### ■ Technical data

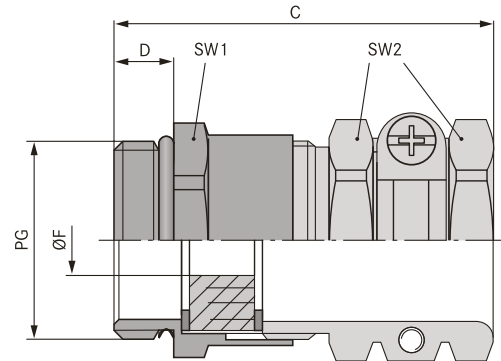
- Caution**  
The installation dimensions can be found in appendix T21
- On request**  
Available with long connection thread
- Material**  
Body: nickel-plated brass
- Protection rating**  
IP 20

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Max. fitting size for installation (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SH</b>							
52000830	SH 7	8 - 10	15	22	17.5	5.5	50
52000840	SH 9	10 - 12,5	17	25	20.5	6.0	50
52000850	SH 11	11 - 15	20	28	21.5	6.0	50
52000860	SH 13,5	14 - 16,5	22	32	24.0	7.5	25
52000870	SH 16	15 - 18	24	35	26.0	7.5	25
52000880	SH 21	18 - 23,5	30	46	29.0	8.0	25
52000890	SH 29	23 - 31	41	58	33.0	8.0	10
52000900	SH 36	29 - 40,5	50	70	36.5	9.5	10
52000910	SH 42	34 - 45	57	78	38.0	10.0	5
52000920	SH 48	39 - 50	64	86	39.5	11.5	5

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



**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**

**Caution**  
The installation dimensions can be found in appendix T21

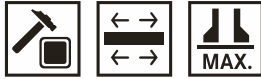
**Material**  
Body: nickel-plated brass  
Sealing: CR  
O-ring: NBR

**Protection rating**  
IP 55

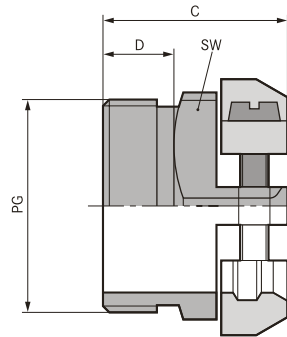
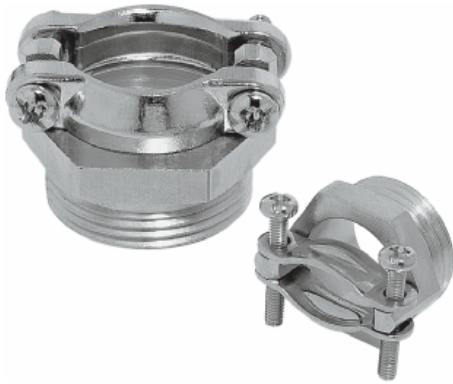
**Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHZ</b>							
52005590	SHZ 7	5 - 6	21	14 / 15	30.0	5.0	50
52005600	SHZ 9	7,5 - 8,5	25	17 / 17	34.0	6.0	50
52000930	SHZ 11	9,5 - 12	28	20 / 20	35.0	6.0	25
52000940	SHZ 13,5	12,5 - 14	32	22 / 22	40.0	6.5	25
52000950	SHZ 16	13,5 - 16	35	24 / 24	42.0	6.5	25
52000960	SHZ 21	15,5 - 21	46	30 / 30	47.0	7.0	25
52000970	SHZ 29	21,5 - 27,5	58	40 / 41	53.0	8.0	10
52000980	SHZ 36	27 - 34	70	50 / 50	61.0	9.0	10
52005610	SHZ 42	34 - 43	78	57 / 57	66.0	10.0	5
52005620	SHZ 48	38 - 48	86	64 / 64	68.0	10.0	5
<b>SKINDICHT® SHZ-XL</b>							
52023716	SHZ 7	5 - 6	21	14 / 15	40.0	10.0	50
52023717	SHZ 9	7,5 - 8,5	25	17 / 17	43.0	10.0	50
52023718	SHZ 11	9,5 - 12	28	20 / 20	44.0	10.0	25
52023719	SHZ 13,5	12,5 - 14	32	22 / 22	48.5	10.0	25
52023720	SHZ 16	13,5 - 16	35	24 / 24	50.5	10.0	25
52024840	SHZ 21	15,5 - 21	46	30 / 30	55.0	11.0	25
52025530	SHZ 29	21,5 - 27,5	58	40 / 41	60.0	13.0	10
52023721	SHZ 36	27 - 34	70	50 / 50	67.0	13.0	10
52023722	SHZ 42	34 - 43	78	57 / 57	71.0	14.0	5
52023723	SHZ 48	38 - 48	86	64 / 64	73.0	14.0	5

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



## 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



#### 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

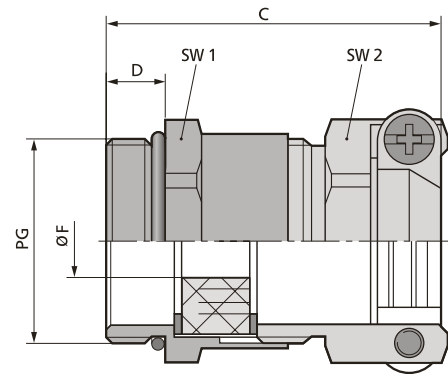
Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Max. fitting size for installation (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SK</b>							
52004230	SK 9	6 - 12	19	24	16.5	6.0	50
52004240	SK 11	7 - 15	21	27	16.5	6.0	50
52004250	SK 13,5	12 - 16,5	22	30	18.5	7.5	25
52004260	SK 16	13 - 18	24	33	19.0	7.5	25
52004270	SK 21	15 - 23	30	42	22.5	8.0	25
51712740	SK 29	20 - 31	41	58	26.0	8.0	10

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





**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**

**Caution**  
The installation dimensions can be found in appendix T21

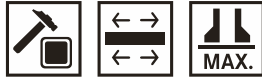
**Material**  
Body: nickel-plated brass  
Incised sealing ring: CR  
O-ring: NBR

**Protection rating**  
IP 55

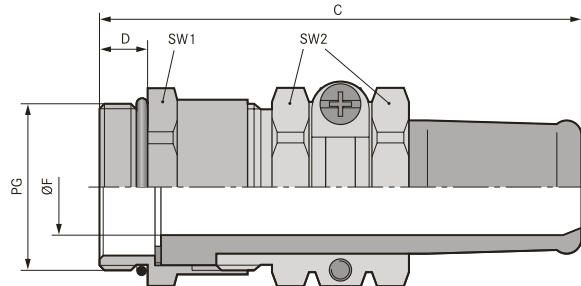
**Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1 / SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SKZ</b>							
52004280	SKZ 9	6 - 8,5	24	17 / 17	30,0	6,0	50
52004290	SKZ 11	8 - 12	27	20 / 21	30,0	6,0	50
52004300	SKZ 13,5	12 - 14	30	22 / 22	34,0	6,5	25
52004310	SKZ 16	13 - 16	33	24 / 24	35,0	6,5	25
52004320	SKZ 21	15 - 21	42	30 / 30	41,0	7,0	25
52005570	SKZ 29	20 - 29	58	40 / 41	46,0	8,0	10
<b>SKINDICHT® SKZ-XL</b>							
52005575	SKZ 9	6 - 8,5	24	17 / 17	39,0	15,0	50
52005576	SKZ 11	8 - 12	27	20 / 21	39,0	15,0	50
52005577	SKZ 13,5	12 - 14	30	22 / 22	42,5	15,0	25
54000043	SKZ 16	13 - 16	33	24 / 24	43,5	15,0	25
54000011	SKZ 21	15 - 21	42	30 / 30	49,0	15,0	25
54000098	SKZ 29	20 - 27,5	58	40 / 41	53,0	15,0	10

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



## 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

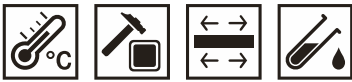
- ⚠ Caution**  
The installation dimensions can be found in appendix T21
- ℹ On request**  
Available with long connection thread
- 🧑 Material**  
Body: nickel-plated brass  
O-ring: NBR  
Anti-kink protection: CR
- IP Protection rating**  
IP 65
- 🌡 Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SR</b>							
52000990	SR 07/05	3,5 - 5	23	14 / 15	50,0	5,0	50
52001000	SR 09/07	5,5 - 7	25	17 / 17	52,0	6,0	50
52001010	SR 11/07	5,5 - 7	28	20 / 20	56,0	6,0	25
52001020	SR 11/09	7,5 - 9	28	20 / 20	56,0	6,0	25
52001030	SR 13/09	7,5 - 9	32	22 / 22	62,0	6,5	25
52001040	SR 13/11	9 - 11	32	22 / 22	62,0	6,5	25
52001050	SR 13/13	11 - 13	32	22 / 22	62,0	6,5	25
52001060	SR 16/13	11,5 - 13	35	24 / 24	67,0	6,5	25
52001070	SR 16/15	13 - 15	35	24 / 24	67,0	6,5	25
52001080	SR 21/15	13,5 - 15	46	30 / 30	79,0	7,0	25
52001090	SR 21/17	15 - 17	46	30 / 30	79,0	7,0	25
52001100	SR 21/19	17 - 19	46	30 / 30	79,0	7,0	25
52001110	SR 21/20	18 - 20	46	30 / 30	79,0	7,0	25
52001120	SR 29/20	18 - 20	59	40 / 41	91,0	8,0	10
52001130	SR 29/23	21 - 23	59	40 / 41	91,0	8,0	10
52001140	SR 29/25	23 - 25	59	40 / 41	91,0	8,0	10
52001150	SR 36/26	23 - 26	70	50 / 50	110,0	9,0	5
52001160	SR 36/30	27 - 30	70	50 / 50	110,0	9,0	5
52001170	SR 36/33	30 - 33	70	50 / 50	110,0	9,0	5
52001180	SR 36/35	32 - 35	70	50 / 50	110,0	9,0	5
52001190	SR 42/35	32 - 35	75	57 / 57	114,0	10,0	5
52001200	SR 42/38	35 - 38	75	57 / 57	114,0	10,0	5
52001210	SR 42/40	36 - 40	75	57 / 57	114,0	10,0	5
52001220	SR 48/40	36 - 40	83	64 / 64	119,0	10,0	1
52001230	SR 48/44	40 - 44	83	64 / 64	119,0	10,0	1

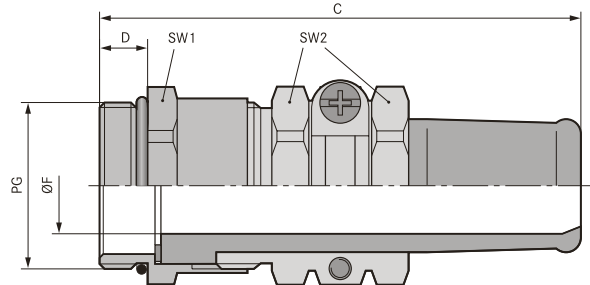
Photographs are not to scale and do not represent detailed images of the respective products.

### ■ Accessories

- SKINDICHT® SNR refer to page 766



**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 VITON® anti-kink sleeve. Our own reinforced acid-resistant VITON® 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**

- 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**  
-15°C to +165°C

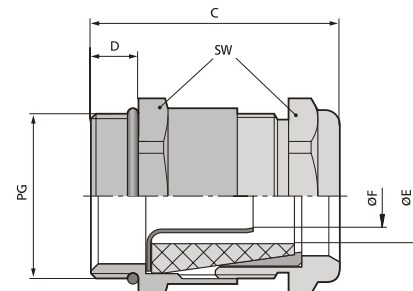
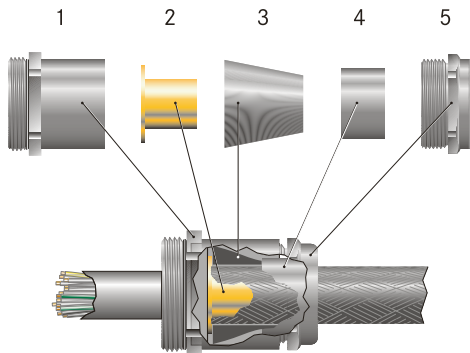
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SR-SV</b>							
52023620	SR-SV 11/07	5,5 - 7	28	20 / 20	56.0	6.0	25
52023621	SR-SV 11/09	7,5 - 9	28	20 / 20	56.0	6.0	25
52023622	SR-SV 13/09	7,5 - 9	32	22 / 22	62.0	6.5	25
52023623	SR-SV 13/11	9 - 11	32	22 / 22	62.0	6.5	25
52023624	SR-SV 13/13	11 - 13	32	22 / 22	62.0	6.5	25
52023625	SR-SV 16/13	11,5 - 13	35	24 / 24	67.0	6.5	10
52023626	SR-SV 16/15	13 - 15	35	24 / 24	67.0	6.5	10
52023627	SR-SV 21/15	13,5 - 15	40	30 / 30	79.0	7.0	10
52023628	SR-SV 21/17	15 - 17	46	30 / 30	79.0	7.0	10
52023629	SR-SV 21/19	17 - 19	46	30 / 30	79.0	7.0	10

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ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



**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**

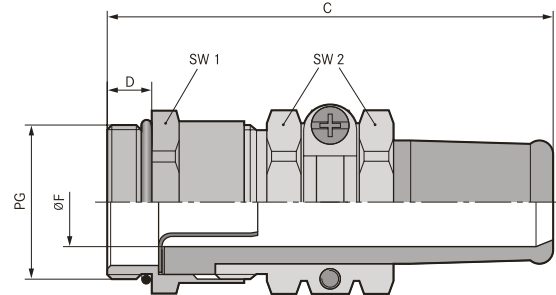
- Caution**  
The installation dimensions can be found in appendix T21
- Material**  
Body: nickel-plated  
Earthing sleeve: blank brass  
Special sealing cone: CR  
O-ring: NBR
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Outer sheath Ø, min./max. (mm)	Min./max. inner sheath Ø (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHVE</b>							
52010400	9/9/6/3,2	4,0 / 5,8	2,2 / 3,2	17	28,5	6,0	25
52010405	9/9/7/3,2	5,0 / 6,8	2,2 / 3,2	17	28,5	6,0	25
52010415	9/9/6/3,6	4,0 / 5,8	2,6 / 3,6	17	28,5	6,0	25
52010420	9/9/7/3,6	5,0 / 6,8	2,6 / 3,6	17	28,5	6,0	25
52010440	11/11/7/4,5	5,0 / 6,8	3,5 / 4,5	20	31,0	6,0	25
52010450	11/11/9/4,5	6,8 / 8,8	3,5 / 4,5	20	31,0	6,0	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
52005070	13,5/13,5/9/5	6,8 / 8,8	3,5 / 5,0	22	37,0	6,0	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	6,0	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	6,0	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	6,0	25
52005100	16/16/11/8	8,5 / 10,8	6,0 / 8,0	24	37,5	6,0	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	6,0	25
52005110	16/16/13/9	10,8 / 12,8	7,0 / 9,0	24	37,5	6,0	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	6,0	25
52005120	16/16/13/10	10,8 / 12,8	8,0 / 10,0	24	37,5	6,0	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	6,0	25
52005130	16/16/15/11	12,0 / 14,8	9,0 / 11,0	24	37,5	6,0	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	7,0	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	7,0	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	7,0	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	7,0	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	7,0	25
52005190	29/29/22/17	19,5 / 21,8	15,0 / 17,0	40	47,5	8,0	10
52005200	29/29/22/18	19,5 / 21,8	16,0 / 18,0	40	47,5	8,0	10
52005210	29/29/24/19	21,5 / 23,8	17,0 / 19,0	40	47,5	8,0	10
52005240	29/29/26/19	23,5 / 25,8	17,0 / 19,0	40	47,5	8,0	10

Photographs 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
- PVC sheath

**Technical data**

- 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)	SW 1/SW 2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SRE</b>							
52010780	13,5/9/9/6	7,5 / 9,0	4,5 / 6,0	22 / 22	60,0	5,5	25
52010790	13,5/9/11/7	9,0 / 11,0	5,5 / 7,0	22 / 22	60,0	5,5	25
52010800	13,5/11/9/6	7,5 / 9,0	4,5 / 6,0	22 / 22	60,0	5,5	25
52010810	13,5/11/11/7	9,0 / 11,0	5,5 / 7,0	22 / 22	60,0	5,5	25
52005310	13,5/13,5/9/6	7,5 / 9,0	4,5 / 6,0	22 / 22	60,0	6,5	25
52005320	13,5/13,5/11/7	9,0 / 11,0	5,5 / 7,0	22 / 22	60,0	6,5	25
52010820	16/11/13/9	11,0 / 13,0	7,0 / 9,0	24 / 24	65,0	5,5	25
52010830	16/11/13/10	11,0 / 13,0	8,0 / 10,0	24 / 24	65,0	5,5	25
52010840	16/11/15/11	13,0 / 15,0	9,0 / 11,0	24 / 24	65,0	5,5	25
52010850	16/13,5/13/9	11,0 / 13,0	7,0 / 9,0	24 / 24	67,0	6,0	25
52010860	16/13,5/13/10	11,0 / 13,0	8,0 / 10,0	24 / 24	67,0	6,0	25
52010870	16/13,5/15/11	13,0 / 15,0	9,0 / 11,0	24 / 24	67,0	6,0	25
52005330	16/16/13/9	11,0 / 13,0	7,0 / 9,0	24 / 24	65,0	6,5	25
52005340	16/16/13/10	11,0 / 13,0	8,0 / 10,0	24 / 24	65,0	6,5	25
52005350	16/16/15/11	13,5 / 15,0	9,0 / 11,0	24 / 24	65,0	6,5	25
52010880	21/16/15/12	13,5 / 15,0	10,0 / 12,0	30 / 30	78,0	6,5	25
52010890	21/16/17/14	15,0 / 17,0	12,0 / 14,0	30 / 30	78,0	6,5	25
52010900	21/16/19/15	17,0 / 19,0	13,0 / 15,0	30 / 30	78,0	6,5	25
52010910	21/16/20/16	18,0 / 20,0	14,0 / 16,0	30 / 30	78,0	6,5	25
52005360	21/21/15/12	13,0 / 15,0	10,0 / 12,0	30 / 30	78,0	7,0	25
52005370	21/21/17/14	15,0 / 17,0	12,0 / 14,0	30 / 30	78,0	7,0	25
52005380	21/21/19/15	17,0 / 19,0	13,0 / 15,0	30 / 30	78,0	7,0	25
52005390	21/21/20/16	18,0 / 20,0	14,0 / 16,0	30 / 30	78,0	7,0	25
52005400	29/29/20/17	19,0 / 20,0	15,0 / 17,0	40 / 41	90,0	8,0	10
52005410	29/29/23/19	22,0 / 23,0	17,0 / 19,0	40 / 41	90,0	8,0	10
52005411	36/36/26/22	23,5 / 26,0	20,0 / 22,0	50 / 50	109,0	9,0	5
52005412	36/36/30/24	27,0 / 30,0	22,0 / 24,0	50 / 50	109,0	9,0	5
52003585	36/36/30/26	27,0 / 30,0	24,0 / 26,0	50 / 50	109,0	9,0	5
52005414	36/36/33/28	30,0 / 33,0	26,0 / 28,0	50 / 50	109,0	9,0	5
52023586	36/36/35/30	32,0 / 35,0	28,0 / 30,0	50 / 50	109,0	9,0	5

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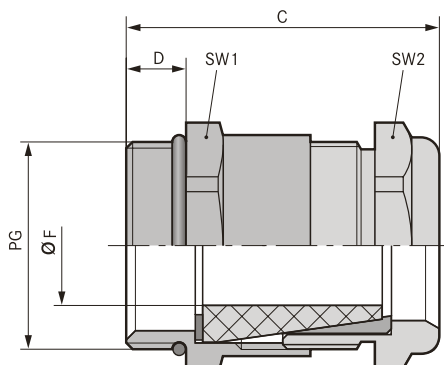
**Accessories**

- SKINDICHT® SNR refer to page 766

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## 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

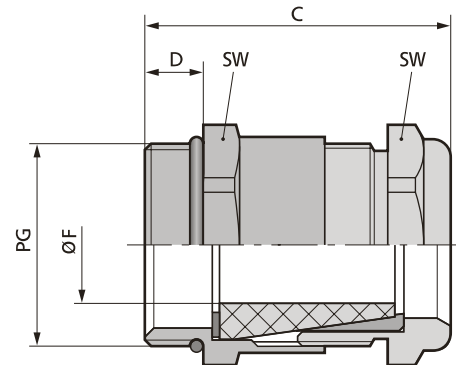
- Caution**  
The installation dimensions can be found in appendix T21
- Material**  
Body: nickel-plated brass  
Sealing cone: CR  
O-ring: NBR
- IP Protection rating**  
IP 68 - 10 bar
- Temperature range**  
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	SW 1/2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHV</b>						
52002530	SHV 7/7/5	3,8 - 4,8	14	26,0	5,0	50
52002550	SHV 9/9/6	4,8 - 5,8	17	28,5	6,0	50
52002540	SHV 9/9/7	5,8 - 6,8	17	28,5	6,0	50
52002570	SHV 11/11/7	5,8 - 6,8	20	31,0	6,0	25
52002560	SHV 11/11/9	6,8 - 8,8	20	31,0	6,0	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	7,0	25
52010760	SHV 21/16/18	15,8 - 17,8	30	38,0	7,0	25
52010770	SHV 21/16/20	17,5 - 19,8	30	38,0	7,0	25
52002670	SHV 21/21/16	14,8 - 15,8	30	38,0	7,0	25
52002660	SHV 21/21/18	15,8 - 17,8	30	38,0	7,0	25
52002650	SHV 21/21/20	17,5 - 19,8	30	38,0	7,0	25
52002710	SHV 29/29/22	19,5 - 21,8	40	44,5	8,0	10
52002700	SHV 29/29/24	21,8 - 23,8	40	44,5	8,0	10
52002690	SHV 29/29/26	23,8 - 25,8	40	44,5	8,0	10

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



**SKINDICHT® SHV VITON®**



**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 VITON® sealing element.
- Brickworks
- Sewage treatment plants
- Car wash sites

**Product make-up**

- 1 fitting
- 2 washers
- 3 VITON® sealing cone
- 4 brass cones
- 5 compression screws

**Note**

- Counter nut to be used: SKINDICHT® SM
- SHV-VITON® 13,5/9/11

**Technical data**

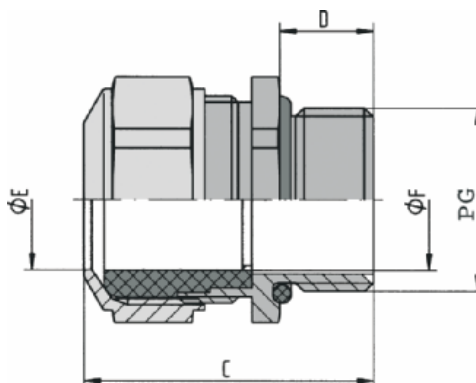
- Caution**  
The installation dimensions can be found in appendix T21
- Material**  
Body: nickel-plated brass  
Sealing cone: FKM  
O-ring: FKM
- Protection rating**  
IP 68 - 10 bar
- Temperature range**  
-15°C to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® SHV VITON®</b>						
52024934	SHV-V 7/7/5	3,8 - 4,8	14	26,0	5,0	50
54000015	SHV-V 9/9/6	4,8 - 5,8	17	28,5	6,0	50
52024935	SHV-V 9/9/7	5,8 - 6,8	17	28,5	6,0	50
52024936	SHV-V 11/11/7	5,8 - 6,8	20	31,0	6,0	25
52024937	SHV-V 11/11/9	6,8 - 8,8	20	31,0	6,0	25
52024970	SHV-VITON® 13,5/9/11	8,5 - 10,8	22	33,0	6,5	25
52024968	SHV-V 13,5/11/9	6,8 - 8,8	22	33,0	6,5	25
52024969	SHV-V 13,5/11/11	8,5 - 10,8	22	33,0	6,5	25
52024961	SHV-V 13,5/13,5/9	6,8 - 8,8	22	33,0	6,5	25
52024962	SHV-V 13,5/13,5/11	8,5 - 10,8	22	33,0	6,5	25
52024971	SHV-V 16/11/13	10,8 - 12,8	24	35,0	6,5	25
52024973	SHV-V 16/13,5/13	10,8 - 12,8	24	35,0	6,5	25
52024964	SHV-V 16/16/13	10,8 - 12,8	24	35,0	6,5	25
52024965	SHV-V 16/16/15	13,8 - 14,8	24	35,0	6,5	25
52024966	SHV-V 21/21/18	15,8 - 17,8	30	38,0	7,0	25
52024967	SHV-V 21/21/20	17,5 - 19,8	30	38,0	7,0	25
52024974	SHV-V 29/29/22	19,5 - 21,8	40	44,5	8,0	10

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



## SKINDICHT® CN



### ■ 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 VITON® 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 CrNi

### ■ Technical data

- ⚠ Caution**  
The installation dimensions can be found in appendix T21
- ℹ On request**  
TPE seal
- 🔧 Material**  
Body: Chrome-nickel steel in accordance with DIN, material no. 1.4305  
Seal: FPM  
O-ring: FPM
- IP Protection rating**  
IP 68
- 🌡 Temperature range**  
-25°C to +200°C

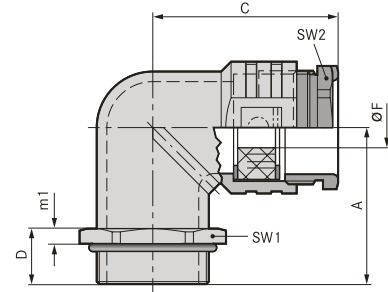
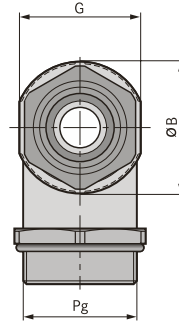
Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® CN</b>						
52032520	CN 9	6 - 10	18	28.0	10.0	5
52032525	CN 11	5 - 12	22	32.0	10.0	5
52032540	CN 13,5	8 - 15	24	34.0	10.0	5
52032550	CN 16	8 - 15	24	34.0	10.0	5
52032560	CN 21	12,5 - 20,5	30	42.0	12.0	5
52032570	CN 29	19 - 27,5	41	53.0	12.0	5

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**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 and compression screw

**Technical data**



**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	Ø-B mm	Incised sealing ring ØF (mm)	Overall length, C (mm)	Thread length, D (mm)	SW1/SW2 mm	Pieces / PU
<b>SKINDICHT® RWV</b>									
52004180	RWV 7	20.5	14	15.3	5	26.0	8.5	15.0 / 13.0	25
52004190	RWV 9	23.5	17	18.3	5/8	28.0	9.5	18.0 / 15.0	25
52004200	RWV 11	26.0	20	21.9	7 / 10/12.5	31.5	10.0	21.0 / 18.0	25
52004210	RWV 13,5	28.5	22	24.0	7 / 10.5/13/16	34.5	10.5	23.0 / 20.0	25
52004220	RWV 16	31.0	24	26.1	8 / 10.5/13.5/16	35.5	11.0	26.0 / 22.0	10
52005420	RWV 21	33.5	30	32.5	11/15/18/20	42.5	11.5	32.0 / 28.0	10
52004225	RWV 29	43.0	40	42.0	19/23/27/31	49.0	13.0	41.0 / 37.0	10
<b>SKINDICHT® RWV without E+D</b>									
52024020	RWV 7	20.5	14	15.3		20.2	8.5	15.0 / 13.0	25
52023970	RWV 9	23.5	17	18.3		21.8	9.5	18.0 / 15.0	25
52023980	RWV 11	26.0	20	21.9		24.9	10.0	21.0 / 18.0	25
52023990	RWV 13,5	28.5	22	24.0		27.4	10.5	23.0 / 20.0	25
52024000	RWV 16	31.0	24	26.1		28.5	11.0	26.0 / 22.0	10
52024010	RWV 21	33.5	30	32.5		34.8	11.5	32.0 / 28.0	10
52024015	RWV 29	43.0	40	42.0		41.2	13.0	41.0 / 37.0	10

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## SKINDICHT® SE



### ■ Benefits

- 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

- PG 16 - 21 with 2 screw holes
- PG 29 - 36 with 4 screw holes

### ■ Note

- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® SE without incised sealing ring and compression screw

### ■ Technical data



#### Material

Body: zinc die-casting, grey, hammer tone finish  
 Incised sealing ring: CR  
 O-ring: NBR  
 Compression screw: nickel-plated brass



#### Protection rating

IP 55



#### Temperature range

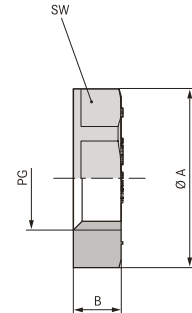
-20°C to +80°C

Article number	Article designation / size	Incised sealing ring ØF (mm)	SW (mm)	Overall length (mm)	Overall width (mm)	Overall height (mm)	Pieces / PU
<b>SKINDICHT® SE</b>							
52004130	SE 16	8 / 10.5 / 13.5 / 16	22	49.2	42	36.0	10
52004140	SE 21	11 / 15 / 18 / 20	28	68.1	60	52.5	10
52005430	SE 29	19 / 23 / 27 / 31	37	83.6	66	54.0	5
52004150	SE 36	25 / 28 / 31 / 35	47	99.6	85	73.0	1
<b>SKINDICHT® SE without E+D</b>							
52024090	SE 16			42.0	42	36.0	10
52024100	SE 21			60.0	60	52.5	10
52024110	SE 29			76.0	66	54.0	5
52024120	SE 36			90.0	85	73.0	1

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**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**

- Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polystyrene
- Temperature range**  
-20°C to +70°C

Article number	Article designation / size	B in mm	SW (mm)	Pieces / PU
<b>SKINDICHT® GMK</b>				
52000110	GMK 7	5	19	100
52000120	GMK 9	5	22	100
52000130	GMK 11	5	24	100
52000140	GMK 13,5	6	27	100
52000150	GMK 16	6	30	100
52000160	GMK 21	7	36	50
52000170	GMK 29	7	46	50
52000180	GMK 36	8	60	25
52000190	GMK 42	8	65	25
52000200	GMK 48	8	70	25

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## 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
- Suitable for all metric glands used in earthing and EMC applications

■ **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**



**Material**

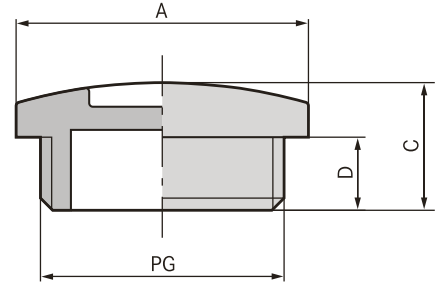
Nickel-plated brass

Article number	Article designation / size	Height (mm)	SW (mm)	Far corner dimension	Pieces / PU
<b>SKINDICHT® SM</b>					
52003490	SM 7	2.8	15	16.6	100
52003500	SM 9	2.8	18	20	100
52003510	SM 11	3	21	23.5	100
52003520	SM 13,5	3	23	25.5	100
52003530	SM 16	3	26	29	100
52003540	SM 21	3.5	32	35.5	50
52003550	SM 29	4	41	45	50
52003560	SM 36	5	51	56	25
52003570	SM 42	5	60	65	25
52003580	SM 48	5.5	64	69	25
<b>SKINDICHT® SM-PE</b>					
52103200	SM-PE 7	4.7	15		100
52103210	SM-PE 9	4.7	18		100
52103220	SM-PE 11	4.7	21		100
52103230	SM-PE 13,5	4.7	23		100
52103240	SM-PE 16	4.7	26		100
52103250	SM-PE 21	5.2	32		50
52103260	SM-PE 29	5.7	41		50
52103270	SM-PE 36	6.7	51		50

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**SKINDICHT® BLK / BLK-GL**



**Benefits**

- For closing pre-threaded holes

**Application range**

- Control cabinet manufacturing
- Distribution box
- Junction boxes

**Product make-up**

- PG connection thread

**Note**

- SKINDICHT® BLK-GL offers high stability due to glass fibre reinforcement

**Technical data**

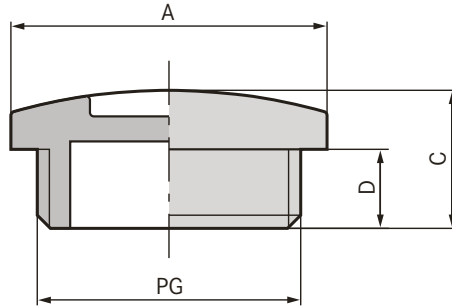
- On request**  
with O-ring fitted
- Colour delivered**  
Light grey (RAL 7035)
- Material**  
BLK: polystyrene  
BLK-GL: glass fibre-reinforced polyamide
- Temperature range**  
BLK: -20°C to +70°C  
BLK-GL: -40°C to +100°C

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® BLK</b>			
52005949	BLK 7	6.0	100
52005950	BLK 9	6.0	100
52005960	BLK 11	6.0	100
52005970	BLK 13,5	6.0	100
52005980	BLK 16	6.0	100
52005990	BLK 21	8.0	50
52006000	BLK 29	8.0	50
52006010	BLK 36	10.0	25
52006020	BLK 42	10.0	25
52006030	BLK 48	12.0	25
<b>SKINDICHT® BLK-GL</b>			
52024848	BLK - GL 7	6.0	100
52024849	BLK - GL 9	6.0	100
52024850	BLK - GL 11	6.0	100
52024851	BLK - GL 13,5	6.0	100
52024852	BLK - GL 16	6.0	100
52024853	BLK - GL 21	8.0	50
52024854	BLK - GL 29	8.0	50
52024855	BLK - GL 36	10.0	25
52024856	BLK - GL 42	10.0	25
52024857	BLK - GL 48	12.0	25

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## SKINDICHT® BL



### ■ Benefits

- For closing pre-threaded holes
- Assembling with screwdriver

### ■ Application range

- Machine and equipment manufacturing
- Electric motor manufacturing

### ■ Product make-up

- PG connection thread

### ■ Technical data



#### Material

Body: nickel-plated brass  
O-ring: NBR



#### Protection rating

IP 54  
IP 68 with O-ring



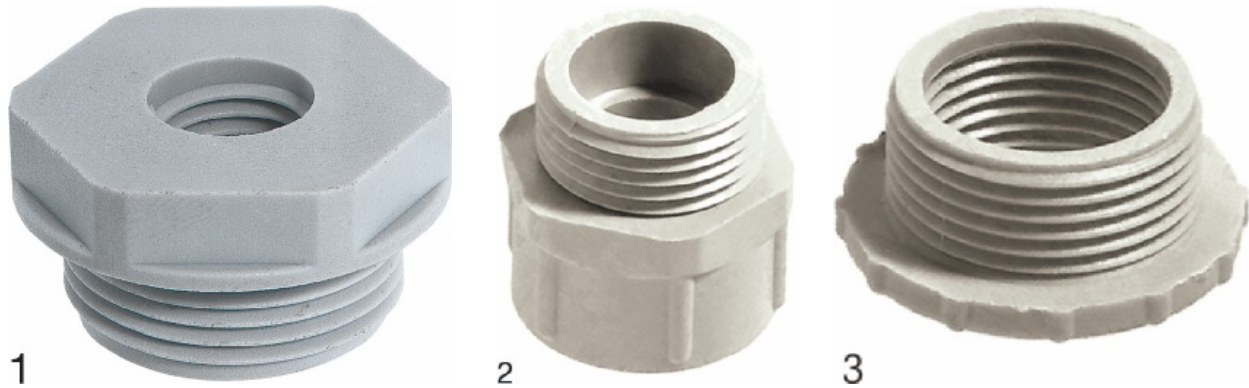
With O-ring: -30°C to +100°C  
Without O-ring: -60°C to +200°C

Article number	Article designation / size	Pieces / PU
<b>SKINDICHT® BL</b>		
52002680	BL 7	100
52003390	BL 9	100
52003400	BL 11	100
52003410	BL 13,5	100
52003420	BL 16	100
52003430	BL 21	50
52003440	BL 29	50
52003450	BL 36	25
52003460	BL 42	10
52002790	BL 48	10
<b>SKINDICHT® BL with O-ring</b>		
54001610	BL 7 m. O-Ring	100
54000071	BL 9 m. O-Ring	100
54000040	BL 11 m. O-Ring	100
54001630	BL 13,5 m. O-Ring	100
54001640	BL 16 m. O-Ring	100
54001660	BL 21 m. O-Ring	50
54001620	BL 29 m. O-Ring	50
54001650	BL 36 m. O-Ring	25
54001670	BL 42 m. O-Ring	10
54001680	BL 48 m. O-Ring	10

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**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

**Product make-up**

- SKINDICHT® KU with hexagon and flat design
- SKINDICHT® KUS with hexagon and larger height
- SKINDICHT® KUK with knurled heads

**Technical data**

- RAL Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polyamide, glass fibre-reinforced
- Temperature range**  
KU, KUS: -40 °C to +100 °C  
KUK: -20 °C to +80 °C

Article number	Article designation / sizeOuter / inner	Pieces / PU
<b>SKINDICHT® KU</b>		
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
<b>SKINDICHT® KUS</b>		
52025040	KUS 9/7	50
51730060	KUS 11/9	50
51730070	KUS 13,5/11	50
51730080	KUS 16/13,5	50
<b>SKINDICHT® KUK</b>		
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

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## 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

**Technical data**



**Material**

Nickel-plated brass

Article number	Article designation / sizeOuter / inner	Pieces / PU
<b>SKINDICHT® MR</b>		
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

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**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

**Technical data**

- RAL Colour delivered**  
Light grey (RAL 7035)
- Material**  
Polyamide, glass fibre-reinforced
- Temperature range**  
-40°C to +100°C

**Application range**

- Machines
- Devices
- Housings

**Product make-up**

- PG connection thread

Article number	Article designation / sizeOuter / inner	Pieces / PU
<b>SKINDICHT® EKU</b>		
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

**Technical data**

- Material**  
Nickel-plated brass

**Application range**

- Industrial connectors
- Devices
- Housings
- Machines

**Product make-up**

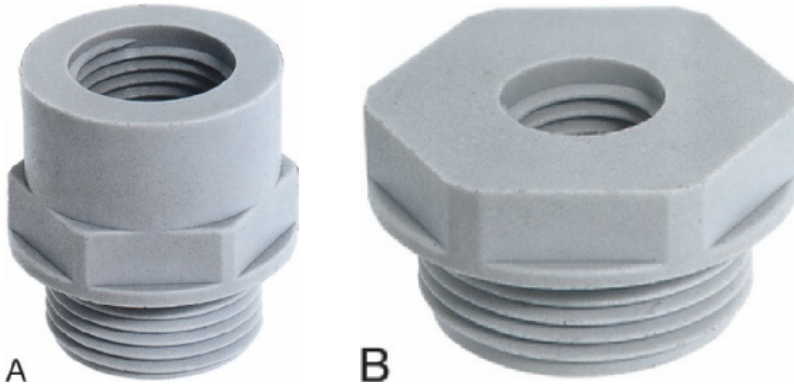
- PG connection thread

Article number	Article designation / sizeOuter / inner	Pieces / PU
<b>SKINDICHT® ME</b>		
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

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## 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**

- RAL** 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 (mm)	Pieces / PU
<b>SKINDICHT® A-PG/M</b>					
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 top: knurl
- Form B bottom: smooth

**Technical data**

**Material**  
Nickel-plated brass

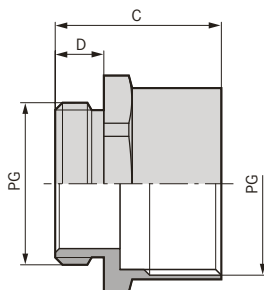
Article number	Form	PG size	Thread, female M2	Pieces / PU
<b>SKINDICHT® MA-PG/M</b>				
52104490	B	7	12 x 1.5	100
52104491	B	9	16 x 1.5	50
52104492	A	11	16 x 1.5	50
52104493	B	11	20 x 1.5	50
52104494	B	13	20 x 1.5	50
52104495	A	16	20 x 1.5	50
52104496	B	16	25 x 1.5	50
52104497	A	21	20 x 1.5	50
52104498	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® ZS/ZS-XL



**Benefits**

- Can be used as an extension part or spare part
- Assembling with a wrench

**Application range**

- Hexagonal converter from a PG outer thread to a PG inner thread.
- Machines
- Devices
- Housings

**Product make-up**

- PG connection thread

**Note**

- SKINDICHT® ZS-XL offers a long connection thread

**Technical data**



**Material**  
Nickel-plated brass

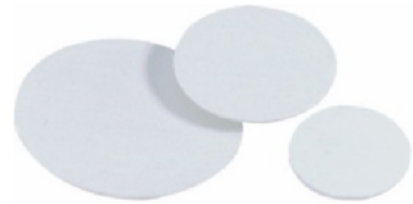
Article number	Article designation / size	SW (mm)	Thread length, D (mm)	Pieces / PU
<b>SKINDICHT® ZS</b>				
52100010	ZS 7	14	5.0	100
52100020	ZS 9	17	6.0	100
52100030	ZS 11	20	6.0	100
52100040	ZS 13,5	22	6.5	100
52100050	ZS 16	24	6.5	50
52100060	ZS 21	30	7.0	50
52100070	ZS 29	40	8.0	25
52100080	ZS 36	50	9.0	10
52100090	ZS 42	57	10.0	10
52100100	ZS 48	64	10.0	10
<b>SKINDICHT® ZS-XL</b>				
52023149	ZS 7 round	14	15.0	100
52020940	ZS 9	17	15.0	100
52020930	ZS 11	20	15.0	100
52020950	ZS 13,5	22	15.0	100
52020960	ZS 16	24	15.0	50
52020970	ZS 21	30	15.0	50
52020980	ZS 29	40	15.0	25
52020990	ZS 36	50	15.0	10
52021000	ZS 42	57	15.0	10
52021010	ZS 48	64	15.0	10

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**SKINDICHT® STK**



**Benefits**

- Prevents dust and dirt from getting into the housing

**Application range**

- This dust protector can be placed under the cap nut of the SKINTOP® cable glands.

**Note**

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**Technical data**

<b>Colour delivered</b> White
<b>Material</b> PVC
<b>Temperature range</b> -20°C to +80°C

Article number	Article designation / size	Thread, male PG	Suitable for SKINDICHT® SVRN-M, SHZ-M, SKZ-M, SVR-M, SVRE-M, SHVE-M, SHV-M	Pieces / PU
<b>SKINDICHT® STK</b>				
52020818	STK 7	7	M 12	500
52020820	STK 9	9	M 16	500
52020830	STK 11	11	M 20/11	250
52020840	STK 13,5	13	M 20/13,5	250
52020850	STK 16	16	M 20/16	250
52020860	STK 21	21	M 25	250
52020870	STK 29	29	M 32	100
52020880	STK 36	36	M 40	100
52020890	STK 42	42	M 50	50
52020900	STK 48	48	M 63	50

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**SKINDICHT® E**



**Benefits**

- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters

**Application range**

- Incised sealing ring for 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**

<b>Colour delivered</b> Black
<b>Material</b> CR
<b>Temperature range</b> -20°C to +80°C

Article number	Article designation / size	Outer diameter x bores (mm)	Thickness (mm)	Pieces / PU
<b>SKINDICHT® E</b>				
52005780	E 9	13.5 x 5/8	5.5	250
52003690	E11	16.5 x 7/10/12.5	6.0	250
52003700	E 13,5	18.5 x 7/10.5/13/16	6.5	250
52003710	E 16	20.5 x 8/10.5/13.5/16	7.5	250
52003720	E 21	26.0 x 11/15/18/20	8.0	100
52003730	E 29	35.0 x 19/23/27/31	9.5	100
52003740	E 36	45.0 x 25/28/31/35	12.0	50
52005790	E 42	52.0 x 35.5/39/42.5/46	14.0	50
52005800	E 48	57.0 x 40.5/44/47/50.5	14.0	50

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## SKINDICHT® EV



### Benefits

- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters
- For high temperatures
- Resistant to oils, solvents, acids and chemicals

### Application range

- Incised sealing ring made of VITON® for 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

<b>RAL</b>	<b>Colour delivered</b> Red brown
	<b>Material</b> FKM
	<b>Temperature range</b> -10°C to +200°C

Article number	Article designation / size	Outer diameter x bores (mm)	Thickness (mm)	Pieces / PU
<b>SKINDICHT® EV</b>				
52010340	EV 11	7 / 10 / 12.5	6.0	50
52010350	EV 13,5	7 / 10.5 / 13 / 16	6.5	50
52010360	EV 16	8 / 10.5 / 13.5 / 16	7.5	50
52010370	EV 21	11 / 15 / 18 / 20	8.0	25
52010380	EV 29	19 / 23 / 27 / 31	9.5	25
52010390	EV 36	25 / 28 / 31 / 35	12.0	25
52010410	EV 42	35.5 / 39 / 42.5 / 46	14.0	25

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## SKINDICHT® O-Ring Perbunan® 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

<b>RAL</b>	<b>Colour delivered</b> Black
	<b>Material</b> NBR Ozone and UV-resistant
	<b>Temperature range</b> -20°C to +100°C

Article number	Article designation / size	Inner Ø x thickness Ø (mm)	Pieces / PU
<b>SKINDICHT® O-Ring Perbunan®</b>			
53001010	O 7	10.0 x 1.5	100
53102011	O 9	13.0 x 1.5	100
53001020	O 11	16.0 x 1.5	100
52005740	O 13,5	18.0 x 1.5	100
53001030	O 16	20.0 x 1.5	100
52005750	O 21	26.0 x 2.0	100
53001040	O 29	34.0 x 2.0	50
52005760	O 36	44.0 x 2.0	50
53001050	O 42	50.0 x 2.0	50
52005770	O 48	55.0 x 2.0	50

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**SKINDICHT® O-Ring VITON® 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**

- RAL** 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
<b>SKINDICHT® O-Ring VITON®</b>			
52023607	O 7	10.0 x 1.5	100
52122011	O 9	13.0 x 1.5	100
52023602	O 11	16.0 x 1.5	100
52023601	O 13,5	18.0 x 1.5	100
52023603	O 16	20.0 x 1.5	50
52023604	O 21	26.0 x 2.0	50
52023606	O 29	34.0 x 2.0	50
52023608	O 36	44.0 x 2.0	25
52023609	O 42	50.0 x 2.0	25
52023611	O 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**

- RAL** 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)	Pieces / PU
<b>SKINDICHT® JT PTFE</b>				
53801035	JT 7	12 / 16	2.0	100
53801045	JT 9	15 / 19	2.0	100
53801055	JT 11	18 / 22	2.0	100
53801065	JT 13,5	20 / 25	2.0	100
53801075	JT 16	22 / 27	2.0	100
53801085	JT 21	28 / 33	3.0	50
53801095	JT 29	37 / 43	3.0	50
53801105	JT 36	47 / 55	3.0	25
53801115	JT 42	54 / 63	3.0	25
53801125	JT 48	59 / 69	3.0	25

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## SKINDICHT® EH



**Benefits**

- Alternative earthing sleeves

**Application range**

- Earthing sleeve for SKINDICHT® SHVE and SKINDICHT® SRE.

**Note**

- Allocation example, earthing sleeve for suitable gland
- SKINDICHT® EH13.5/5 fits SKINDICHT® SHVE 13.5/9/9/5.
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

**Technical data**

**Material**  
Brass

Article number	PG size/clear opening	Inner Ø (mm)	Flange Ø (mm)	Length (mm)	Pieces / PU
<b>SKINDICHT® EH</b>					
52010980	EH 9 / 3.2	3.2	13.3	11.0	100
52010985	EH 9 / 3.6	3.6	13.3	11.0	100
52010996	EH 11 / 4.5	4.5	16.7	9.0	100
52010000	EH 13.5 / 5.0	5.0	18.5	14.0	100
52010010	EH 13.5 / 6.0	6.0	18.5	14.0	100
52010020	EH 13.5 / 7.0	7.0	18.5	14.0	100
52010030	EH 16 / 8.0	8.0	20.5	14.0	50
52010040	EH 16 / 9.0	9.0	20.5	14.0	50
52010050	EH 16 / 10.0	10.0	20.5	14.0	50
52010060	EH 16 / 11.0	11.0	20.5	14.0	50
52010070	EH 21 / 12.0	12.0	26.0	16.0	50
52010080	EH 21 / 13.0	13.0	26.0	16.0	50
52010090	EH 21 / 14.0	14.0	26.0	16.0	50
52010100	EH 21 / 15.0	15.0	26.0	16.0	50
52010110	EH 21 / 16.0	16.0	26.0	16.0	50
52010120	EH 29 / 17.0	17.0	35.0	18.0	25
52010130	EH 29 / 18.0	18.0	35.0	18.0	25
52010140	EH 29 / 19.0	19.0	35.0	18.0	25
52010161	EH 36 / 22.0	22.0	45.0	10.0	10
52010162	EH 36 / 24.0	24.0	45.0	10.0	10
52010163	EH 36 / 26.0	26.0	45.0	10.0	10
52010164	EH 36 / 28.0	28.0	45.0	10.0	10

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**SKINDICHT® SHV cone seal**



**Benefits**

- SKINDICHT® SHV Neoprene® resistant to oil, dust and water
- SKINDICHT® SHV VITON® for high temperatures
- SKINDICHT® SHV VITON® resistant to oils, solvents, acids and chemicals

**Application range**

- Sealing cone for 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**

<b>RAL</b>	<b>Colour delivered</b> CR: black FKM: red
	<b>Material</b> CR FKM
	<b>Temperature range</b> CR: -20°C to +80°C FKM: -15°C to +200°C

Article number	PG size/clear opening	Inner Ø (mm)	Length (mm)	Pieces / PU
<b>SKINDICHT® SHV Neoprene®</b>				
52021120	SHV 7/5.0	5.0	13.8	100
52021130	SHV 9/6.0	6.0	14.8	100
52021140	SHV 9/7.0	7.0	14.8	100
52021150	SHV 11/7.0	7.0	17.5	100
52021160	SHV 11/9.0	9.0	17.0	100
52021180	SHV 13.5/9.0	9.0	18.5	100
52021170	SHV 13.5/11.0	11.0	18.5	100
52021190	SHV 16/11.0	11.0	19.5	50
52021200	SHV 16/13.0	13.0	19.5	50
52021210	SHV 16/15.0	15.0	19.5	50
52024460	SHV 21/16.0	16.0	19.8	50
52021220	SHV 21/18.0	18.0	19.8	50
52021230	SHV 21/20.0	20.0	19.8	50
52021240	SHV 29/22.0	22.0	24.0	25
52021250	SHV 29/24.0	24.0	24.0	25
52021260	SHV 29/26.0	26.0	24.0	25
<b>SKINDICHT® SHV VITON®</b>				
52021259	SHV 7/5.0	5.0	13.8	100
52021146	SHV 9/6.0	6.0	14.8	100
52021261	SHV 9/7.0	7.0	14.8	100
52021262	SHV 11/7.0	7.0	17.5	100
52021263	SHV 11/9.0	9.0	17.0	100
52021271	SHV 13.5/9.0	9.0	18.5	100
52021272	SHV 13.5/11.0	11.0	18.5	100
52021265	SHV 16/13.0	13.0	19.5	50
52021269	SHV 16/15.0	15.0	19.5	50
52021268	SHV 21/18.0	18.0	19.5	50
52021266	SHV 21/20.0	20.0	19.8	50
52021267	SHV 29/22.0	22.0	19.8	50

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## SKINDICHT® SNR



**Benefits**

- Alternative anti-kink sleeves

**Application range**

- Anti-kink sleeves for improved protection against kinking in 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**

<b>RAL</b>	<b>Colour delivered</b> Black
	<b>Material</b> CR
	<b>Temperature range</b> -20°C to +80°C

Article number	External/internal PG size	Max. cable Ø (mm)	min. cable Ø (mm)	Suitable SKINDICHT® gland	Suitable SKINDICHT® gland	Pieces / PU
<b>SKINDICHT® SNR</b>						
52001970	SNR 7/5	5.0	3.5	SH 7	SR 7005	100
52001980	SNR 9/7	7.0	5.5	SH 9	SR 9007	100
52001990	SNR 11/7	7.0	5.5	SH 11	SR 1107	100
52002000	SNR 11/9	9.0	7.5	SH 11	SR 1109	100
52002010	SNR 13/9	9.0	7.5	SH 13,5	SR 1309	100
52002020	SNR 13/11	11.0	9.0	SH 13,5	SR 1311	100
52002030	SNR 13/13	13.0	11.0	SH 13,5	SR 1313	100
52002040	SNR 16/13	13.0	11.5	SH 16	SR 1613	100
52002050	SNR 16/15	15.0	13.0	SH 16	SR 1615	100
52002060	SNR 21/15	15.0	13.5	SH 21	SR 2115	50
52002070	SNR 21/17	17.0	15.0	SH 21	SR 2117	50
52002080	SNR 21/19	19.0	17.0	SH 21	SR 2119	50
52002090	SNR 21/20	20.0	18.0	SH 21	SR 2120	50
52002100	SNR 29/20	20.0	18.0	SH 29	SR 2920	25
52002110	SNR 29/23	23.0	21.0	SH 29	SR 2923	25
52002120	SNR 29/25	25.0	23.0	SH 29	SR 2925	25
52002130	SNR 36/26	26.0	23.0	SH 36	SR 3626	25
52002140	SNR 36/30	30.0	27.0	SH 36	SR 3630	25
52002150	SNR 36/33	33.0	30.0	SH 36	SR 3633	25
52002160	SNR 36/35	35.0	32.0	SH 36	SR 3635	25
52002170	SNR 42/35	35.0	32.0	SH 42	SR 4235	10
52002180	SNR 42/38	38.0	35.0	SH 42	SR 4238	10
52002190	SNR 42/40	40.0	36.0	SH 42	SR 4240	10
52002200	SNR 48/40	40.0	36.0	SH 48	SR 4840	10
52002210	SNR 48/44	44.0	40.0	SH 48	SR 4244	10

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**Plastic protective cable conduit systems**

SILVYN® SI/SP/SP-PU/BRAID	770
SILVYN® EL/ELÖ/ELT	779
SILVYN® FPS/FD-PU	784

**Parallel corrugated protective cable conduit systems**

SILVYN® RILL	789
SILVYN® HCC	801
SILVYN® FPAS	804
Protective cable conduit system SILVYN® MAXI PA	813
SILVYN® TC	815
SILVYN® SPLIT	816

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P	819
Protective cable conduit system SILVYN® SSUE	831
SILVYN® UI 511 stainless steel	833

**Liquid-tight conduits**

Protective cable conduit system SILVYN® CNP	835
Impermeable conduits	837
Protective cable conduit system SILVYN® LCC-2 / LCCH-2	847
Protective cable conduit system SILVYN® LTP	851

**SILVYN® processing tools**

Cutting tools for protective cable conduit systems	853
SILVYN® mounting angles	854



**SILVYN®**

Protective cable conduit-  
and cable carrier systems



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**Plastic protective cable conduit systems**

SILVYN® SI/SP/SP-PU/BRAID	
SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET	New
SILVYN® SI	770
SILVYN® SP	771
SILVYN® SP-PU	772
SILVYN® SSV-M / SILVYN® SSVZ-M	773
SILVYN® USK-M	774
SILVYN® USK	775
SILVYN® SSV / SILVYN® SSVZ	776
SILVYN® SCH	777
SILVYN® EL/ELÖ/ELT	778
SILVYN® EL	779
SILVYN® ELÖ	780
SILVYN® ELT	781
SILVYN® MPC-M / SILVYN® MPC	782
SILVYN® MPC 90° M / SILVYN® MPC 90°	783
SILVYN® FPS/FD-PU	
SILVYN® FPS	784
SILVYN® FD-PU	785
SILVYN® MSK-M EE	786
SILVYN® LKI-M / SILVYN® LKI	787
SILVYN® EE-K	788

**Parallel corrugated protective cable conduit systems**

SILVYN® RILL	
SILVYN® RILL PA 6	789
SILVYN® RILL PA 12	790
SILVYN® KLICK-GM	791
SILVYN® KLICK 90° M	792
SILVYN® KLICK GPZ-M	793
SILVYN® KSE	794
SILVYN® KLICK-GP	795
SILVYN® KLICK-GPZ	796
SILVYN® KLICK 90° PG	797
SILVYN® KLICK-Y / SILVYN® KLICK-Y (TPE)	798
SILVYN® KLICK-S / SILVYN® KLICK-D / SILVYN® KLICK-V	799
SILVYN® KLICK-RH	800
SILVYN® K-EM	800
SILVYN® HCC	
SILVYN® HCC	801
SILVYN® HG-M / SILVYN® HW-M	802
SILVYN® DUO-M	803
SILVYN® SCLX	803
SILVYN® FPAS	
SILVYN® FPAS	New 804
SILVYN® FPAX-M	New 805
SILVYN® FPAG-M	806
SILVYN® FPAG 90° M	807
SILVYN® FLEXILOK M / SILVYN® FLEXILOK PG	New 808
SILVYN® FLEXILOK 90° M / SILVYN® FLEXILOK 90° PG	New 809
SILVYN® FPAG / SILVYN® FPAG 90° PG	810
SILVYN® FCL	811
SILVYN® FPAC	812
SILVYN® KSE-M	812
Protective cable conduit system SILVYN® MAXI PA	
SILVYN® MAXI PA	813
SILVYN® AFG-PA / SILVYN® gasket AFG-PA / AFW-PA / SILVYN® AFW-PA	814
SILVYN® TC	
SILVYN® TC	New 815
SILVYN® SPLIT	
SILVYN® SPLIT	816
SILVYN® SPLIT COV / SILVYN® SPLIT COS	817
SILVYN® SPLIT GMP-M	818
SILVYN® RILL PA6 SINUS	818
SILVYN® SPLIT GMP-M	818
SILVYN® RILL PA6 SINUS	818

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P	
SILVYN® AS	819
SILVYN® AS-P	820
SILVYN® EDU-AS	821
SILVYN® EMC AS-CU	822
SILVYN® FPS-EDU	New 823
SILVYN® MSK-M US	824
SILVYN® MSK-M BRUSH	New 825
SILVYN® MSK-M ATEX	New 826
SILVYN® MSK-M ATEX BRUSH	New 827
SILVYN® US-M	828
SILVYN® US	829
SILVYN® US-AS / SILVYN® US-EDU-AS / SILVYN® US-MS-DR	830
Protective cable conduit system SILVYN® SSUE	
SILVYN® SSUE	831
SILVYN® LGES-M / SILVYN® LGEF-M	832
SILVYN® UI 511 stainless steel	
SILVYN® UI 511	833
SILVYN® UI 511 -G / SILVYN® UI 511 -EG	834

**Liquid-tight conduits**

Protective cable conduit system SILVYN® CNP	
SILVYN® CNP / SILVYN® CNP conduit gland	835
SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE / SILVYN® HIPROJACKET CR	836

**Impermeable conduits**

SILVYN® HTDL	837
SILVYN® EF / SILVYN® OR	838
SILVYN® HCX / SILVYN® HFX	839
SILVYN® AMG-M / SILVYN® AMHW-M / SILVYN® AMW-M	840
SILVYN® AMG	841
SILVYN® FDG/FDHW/FDW	842
SILVYN® FG	New 843
SILVYN® FG NM	New 844
SILVYN® FG AMG-M	New 845
SILVYN® TB-E	846

**Protective cable conduit system SILVYN® LCC-2 / LCCH-2**

SILVYN® LCC-2	847
SILVYN® LCCH-2	848
SILVYN® LGF-2-M / SILVYN® LGS-2-M / SILVYN® LGS-2	849
SILVYN® LCG-M / SILVYN® LCW-M	850


**Protective cable conduit system SILVYN® LTP**

SILVYN® LTP	851
SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTPW-M	852
SILVYN® LTP-E	New 853
SILVYN® Conduit scissor	853

**SILVYN® processing tools**

**Cutting tools for protective cable conduit systems**

SILVYN® ANAC-WZ	854
SILVYN® BMC-M	854
SILVYN® BW-K-M	854
SILVYN® BW-M	854
SILVYN® mounting angles	
SILVYN® RKS	855

Conduit Types		Characteristics														
	Nominal width 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	
				●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Protective conduits plastic</b>																
SILVYN® BRAID PA6	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® SP	10.0 – 50.0	-20 °C to +60 °C	Soft PVC with Hard PVC Spiral	●	●	●	●	●	●	○	●	●	○	●	-	
SILVYN® SP-PU	10.0 – 38.0	-20 °C to +90 °C	PUR with Hard PVC Spiral	●	●	●	●	●	●	○	●	●	○	●	-	
SILVYN® EL	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	●	●	●	●	●	●	○	●	●	○	●	UR	
SILVYN® ELÖ	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	●	●	●	●	●	●	○	●	●	○	●	UR	
SILVYN® ELT	10.0 – 50.0	-20 °C to +90 °C	Soft PVC with Hard PVC Spiral	●	●	●	●	●	●	○	●	●	○	●	UR	
SILVYN® FPS	7.0 – 48.0	-20 °C to +80 °C	Soft PVC with insul. Spring Steel Wire	●	●	●	●	●	●	○	●	●	○	●	UR, VDE, NEMKO	
SILVYN® FD-PU	7.0 – 48.0	-40 °C to +80 °C	PUR with insul. Spring Steel Wire	●	●	●	●	●	●	○	●	●	○	●	VDE	
<b>Protective conduits Polyamide corrugated</b>																
SILVYN® RILL PA 6	6.5 – 48.0	-40 °C to +115 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	UR, VDE, GGVS, DNV, Lloyds, DB	
SILVYN® RILL PA12	6.5 – 48.0	-50 °C to +100 °C	Polyamide 12	●	●	●	●	●	●	○	●	●	●	●	VDE, Lloyds, DB	
SILVYN® HCC	9.4 – 54.6	-25 °C to +100 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	DB	
SILVYN® FPAS	6.3 – 56.3	-40 °C to +120 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	UR, Lloyds, Link up	
SILVYN® TC	16.6 – 28.9	-40 °C to +120 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	-	
SILVYN® SPLIT	8.9 – 43.1	-40 °C to +120 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	-	
SILVYN® RILL PA6 SINUS	6.7 – 23.2	-40 °C to +140 °C	Polyamide 6	●	○	●	●	●	●	○	●	●	●	●	GGVS, NFR-13-903	
SILVYN® MAXI PA	70.0 – 95.0	-40 °C to +115 °C	Polyamide 6	●	●	●	●	●	●	○	●	●	●	●	UR	
<b>Protective conduits metal</b>																
SILVYN® AS	8.0 – 51.0	to +220 °C	Galvanized Steel Strip	●	●	●	●	●	●	●	●	●	●	●	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® 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® AS - P	7.0 – 49.0	-25 °C to +80 °C	Galvanized Steel, Coating PVC	●	●	●	●	●	●	○	●	●	○	●	VDE	
SILVYN® SSUE	6.8 – 28.1	-50 °C to +400 °C	Stainless Steel AISI 316	●	●	●	●	●	●	●	●	●	●	●	Link up	
SILVYN® UI 511	9.6 – 52	-100 °C to +600 °C	Stainless Steel AISI 304	●	●	●	●	●	●	●	●	●	●	●	-	
SILVYN® HIPROJACKET	6.0 – 76	-40 °C to +1640 °C	fibre glass with iron oxide silicone coat	●	○	●	●	●	●	●	●	●	●	●	SNCF (rolling stock)	
<b>Protective conduits liquidtight</b>																
SILVYN® CNP	12.6 – 40.7	-20 °C to +60 °C	PVC Mix with Nylon Braid	●	○	●	●	●	●	○	●	●	○	●	UL, CSA	
SILVYN® HTDL	12.6 – 51.6	-40 °C to +105 °C	Galvanized Steel, Copper wire, Coating PVC Mix	●	●	●	●	●	●	○	●	●	○	●	UL, CSA	
SILVYN® EF	10.1 – 51.6	-25 °C to +70 °C	Galvanized Steel, Coating PVC Mix	●	●	●	●	●	●	○	●	●	○	●	-	
SILVYN® OR	12.6 – 51.6	-15 °C to +100 °C	Galvanized Steel, Coating PVC Mix	●	●	●	●	●	●	○	●	●	○	●	-	
SILVYN® HCX	12.6 – 35.1	-55 °C to +145 °C	Galvanized Steel, Coating Elastomer plastic	●	●	●	●	●	●	○	●	●	○	●	SNCF (rolling stock)	
SILVYN® HFX	10.1 – 35.1	-45 °C to +105 °C	Galvanized Steel, Coating PUR	●	●	●	●	●	●	○	●	●	●	●	SNCF (rolling stock)	
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® LCC - 2	6.8 – 57.5	-15 °C to +70 °C	Galvanized Steel, Coating PVC	●	●	●	●	●	●	○	●	●	○	●	-	
SILVYN® LCCH - 2	10.2 – 48.4	-25 °C to +90 °C	Galvanized Steel, Coating plastic halogen-free	●	●	●	●	●	●	○	●	●	●	●	UR, Lloyds, Link up	
SILVYN® LTP	10.0 – 63.0	-20 °C to +105 °C	Galvanized Steel, Coating Soft PVC	●	●	●	●	●	●	○	●	●	○	●	Lloyds	

● = very high ● = high ○ = medium ● = low ○ = none



New

## SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET



SILVYN® BRAID PA6



SILVYN® SNAP PET



SILVYN® SHRINK BRAID PET



**Info**

- Cut into length without frizzle on the conduit's end
- Saves time

**Benefits**

**SILVYN® BRAID PA6**

- Can be cut without the need for a thermo-cutting tool
- Cut into length without frizzle 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 frizzle 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
- Abrasion-resistant
- 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

**Suitable tools**

- Multipurpose shears A and B refer to page 907

**Technical data**



**On request**

**SILVYN® BRAID PA6**

Bulk containers on rolls

**SILVYN® SHRINK BRAID PET**

Bulk containers on rolls



**Note**

**SILVYN® BRAID PA6**

Halogen and cadmium-free  
Self-extinguishing according to DIN 75200/FMVSS302 and DIN5510

**SILVYN® SNAP PET**

Halogen and cadmium-free  
Self-extinguishing in acc. UL 94 V0  
**SILVYN® SHRINK BRAID PET**  
No dielectric strength  
Self-extinguishing according to DIN 75200/FMVSS302 and DIN5510



**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**

Polyamide 6.6 - halogen-free



**Temperature range**

**SILVYN® BRAID PA6**

-55°C to +125°C

**SILVYN® SNAP PET**

-55°C to +150°C

**SILVYN® SHRINK BRAID PET**

-55°C to +125°C

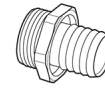
Article number	Article designation	D (mm)	Clamping range (mm)	Colour	PU (m)
<b>SILVYN® BRAID PA6</b>					
61721260	NW 06		4.0 - 10.0	black	20
61721261	NW 12		10.0 - 14.0	black	15
61721262	NW 16		14.0 - 24.0	black	15
61721263	NW 20		18.0 - 26.0	black	10
61721264	NW 30		26.0 - 34.0	black	10
61721265	NW 40		32.0 - 44.0	black	5
<b>SILVYN® SNAP PET</b>					
61721280	SILVYN® SNAP PET 25 GY	25.0		grey	2.5
61721281	SILVYN® SNAP PET 25 OG	25.0		orange	2.5
61721282	SILVYN® SNAP PET 25 BK	25.0		black	2.5
61721283	SILVYN® SNAP PET 25 WH	25.0		white	2.5
61721284	SILVYN® SNAP PET 25 YE	25.0		yellow	2.5
<b>SILVYN® SHRINK BRAID PET</b>					
61721270		27.0	6.0 - 12.0	black	5
61721271		48.0	12.0 - 25.0	black	5
61721272		56.0	15.0 - 30.0	black	5
61721273		86.0	25.0 - 50.0	black	5
61721274		115.0	35.0 - 70.0	black	5

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

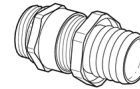
ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



**SILVYN® SI**



SILVYN® SSV/SSV-M + SCH  
IP 54



SILVYN®  
SSVZ/SSVZ-M + SCH  
IP 54



SILVYN® SCH

**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**



**Note**  
Flame-retardant and self-extinguishing  
Dielectric strength: 25 kV/mm  
Tear-resistance: 23 N/mm<sup>2</sup>  
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	Internal Ø x external Ø (mm)	Inner Ø (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® SCH	PU ring (m)
<b>SILVYN® SI</b>						
61713210	7.0 x 9.0	7.0	12.1/-		10 - 16 S	50
61713240	9.0 x 12.0	9.0	12.2/-			50
61713270	11.0 x 14.0	11.0	16.1 / -		10 - 16 S	50
61713300	13.0 x 16.0	13.0	16.2 / -		12 - 20 S	50
61713330	14.0 x 18.0	14.0	20.1 / 20/11/14		12 - 20 S	50
61713360	18.0 x 22.0	18.0	20.3 / 20/13/18	13,5,1	16 - 25 S	50
61713390	23.0 x 28.0	23.0	25 / 25/21/24	21,1	25 - 40 S	50
61713420	32.0 x 38.0	32.0	32 / 32/29/32	29,2	32 - 50 S	50

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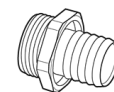
**Accessories**

- SILVYN® SSV-M refer to page 774
- SILVYN® SSVZ-M refer to page 774
- SILVYN® SSV refer to page 777
- SILVYN® SSVZ refer to page 777
- SILVYN® SCH refer to page 778

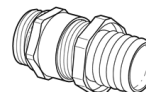
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ACCESSORIES  
APPENDIX



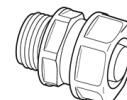
## SILVYN® SP



SILVYN® SSV/SSV-M + SCH  
IP 54



SILVYN® SSVZ/SSVZ-M + SCH  
IP 54



SILVYN® USK/USK-M  
IP 54



SILVYN® SCH

### Benefits

- Protection against mechanical stress
- Protection against dust
- Protection against humidity

### Application range

- Cable protection
- Additional insulation
- Bundling and guiding of cables and wires

### Product features

- Flexible
- Dimensionally stable

### Product make-up

- Hard PVC inner spiral
- Soft PVC outer sheath

### Technical data



**Approvals**  
IEC EN 61386-23



**Colour delivered**  
Silver grey (RAL 7001)



**Material**  
Soft PVC with hard PVC spiral, SBR/NBR



**Temperature range**  
-15 °C to +60 °C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® USK-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® USK	Suitable for SILVYN® SCH	PU ring (m)
<b>SILVYN® SP</b>									
61714000	10.0 x 14.0	50	10.0	16.1 / 16/9/10	12 x 1,5	9,1	9	10 - 16 S	25
61714010	12.0 x 16.0	60	12.0	16.2 / 16/9/12	16 x 1,5	9,2	11	12 - 20 S	25
61714020	14.0 x 18.0	70	14.0	20.1 / 20/11/14		11,1	13,5	12 - 20 S	25
61714100	16.0 x 20.0	70	16.0	- / 20/11/16	20 x 1,5	11,2	16	16 - 25 S	25
61714110	22.0 x 27.0	90	22.0	25 / 20/16/22	25 x 1,5	16,1	21	20 - 32 S	25
61714120	30.0 x 36.0	140	30.0	32 / 32/29/30	32 x 1,5	29,1	29	25 - 40 S	25
61714070	38.0 x 44.0	190	38.0	40 / 40/36/38	40 x 1,5	36,1	36	32 - 50 S	25
61714090	50.0 x 56.0	270	50.0	63 / 63/48/50	50 x 1,5	48,1	48	40 - 60 S	25

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

### Similar products

- SILVYN® SP-PU refer to page 773

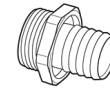
### Accessories

- SILVYN® SSV-M refer to page 774
- SILVYN® SSVZ-M refer to page 774
- SILVYN® USK-M refer to page 775
- SILVYN® MPC-M refer to page 782
- SILVYN® MPC refer to page 782
- SILVYN® MPC 90° M refer to page 783
- SILVYN® MPC 90° refer to page 783
- SILVYN® USK refer to page 776
- SILVYN® SSV refer to page 777
- SILVYN® SSVZ refer to page 777
- SILVYN® SCH refer to page 778

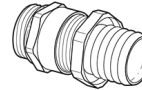




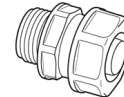
**SILVYN® SP-PU**



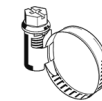
SILVYN® SSV/SSV-M + SCH  
IP 54



SILVYN®  
SSVZ/SSVZ-M + SCH  
IP 54



SILVYN®  
USK/USK-M  
IP 54



SILVYN® SCH

**Benefits**

- Protection against mechanical stress
- Abrasion protection
- Protection against chemicals
- UV-resistant and weather-resistant

**Application range**

- Cable protection
- Bundling and guiding of cables and wires
- Outdoors
- In harsh environment

**Product features**

- Tear-resistant
- Oil and petrol-resistant
- Halogen-free
- Resistant to microbes
- Dimensionally stable

**Product make-up**

- Hard PVC inner spiral
- Polyurethane outer sheath

**Technical data**

	<b>Approvals</b> IEC EN 61386-23
	<b>Colour delivered</b> Black (RAL 9005), UV-resistant
	<b>Material</b> PUR with hard PVC spiral Fire behaviour according to UL 94V-0
	<b>Temperature range</b> -20°C to +90°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® USK-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® USK	Suitable for SILVYN® SCH	PU ring (m)
<b>SILVYN® SP-PU</b>									
61793620	10.0 x 14.0	50	10.0	16.1 / 16/9/10	12 x 1,5	9,1	9	10 - 16 S	25
61793630	12.0 x 16.0	60	12.0	16.2 / 16/9/12	16 x 1,5	9,2	11	12 - 20 S	25
61793640	14.0 x 18.0	70	14.0	20.1 / -	-	11,1	13,5	12 - 20 S	25
61793650	16.0 x 20.0	80	16.0	- / 20/11/16	20 x 1,5	11,2	16	16 - 25 S	25
61793660	22.0 x 27.0	110	22.0	25 / 20/16/22	25 x 1,5	16,1	21	20 - 32 S	25
61793670	30.0 x 36.0	150	30.0	32 / 32/29/30	32 x 1,5	29,1	29	25 - 40 S	25
61793680	38.0 x 44.0	200	38.0	40 / 40/36/38	40 x 1,5	36,1	36	32 - 50 S	25

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

**Similar products**

- SILVYN® FD-PU refer to page 785

**Accessories**

- SILVYN® SSV-M refer to page 774
- SILVYN® SSVZ-M refer to page 774
- SILVYN® USK-M refer to page 775
- SILVYN® MPC-M refer to page 782
- SILVYN® MPC refer to page 782
- SILVYN® MPC 90° M refer to page 783
- SILVYN® MPC 90° refer to page 783
- SILVYN® USK refer to page 776
- SILVYN® SSV refer to page 777
- SILVYN® SSVZ refer to page 777
- SILVYN® SCH refer to page 778



## 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

### Suitable conduits

- SILVYN® SI Page 771
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

### Technical data



#### 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

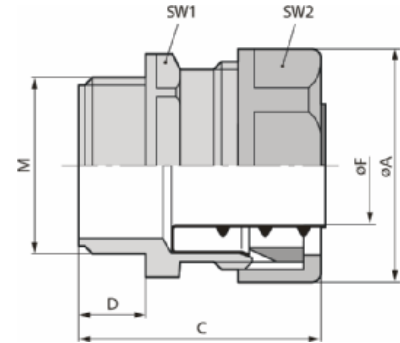
- -20°C to +80°C

Article number	Connection thread M	Clear opening (mm)	Function thread PG	Overall length, C (mm)	Thread length, D (mm)	SW (mm)	SW 1/2 mm	Suitable for SILVYN® SCH	Suitable for SILVYN® SI	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
<b>SILVYN® SSV-M</b>												
52002827	12 x 1.5 / 1	7.0		25.0	8.0	16.0		10 - 16 S	7.0 x 9.0			50
52002828	12 x 1.5 / 2	9.0		25.0	8.0	19.0		10 - 16 S	9.0 x 12.0			50
52002840	16 / 1 x 1.5	8.0		25.0	8.0	19.0		10 - 16 S	11 x 14	10 x 14	10 x 14	50
52002839	16 / 2 x 1.5	10.0		25.0	8.0	19.0		12 - 20 S	13 x 16	12 x 16	12 x 16	50
52002841	20 / 1 x 1.5	12.0		25.0	8.0	22.0		16 - 25 S	14 x 18			50
52002842	20 / 3 x 1.5	15.5		25.0	8.0	25.0		20 - 32 S	18 x 23			50
52002843	25 x 1.5	19.0		29.5	8.5	32.0		20 - 32 S	23 x 28	22 x 27	22 x 27	25
52002844	32 x 1.5	27.0		32.5	9.5	40.0		32 - 50 S	32 x 38	30 x 36	30 x 36	25
52002845	40 x 1.5	34.0		36.0	11.0	50.0		32 - 50 S		38 x 44	38 x 44	10
52002846	50 x 1.5	41.0		39.0	12.0	57.0		40 - 60 S		45 x 51		5
52002847	63 x 1.5	46.0		43.0	12.0	67.0		40 - 60 S		50 x 56		5
<b>SILVYN® SSVZ-M</b>												
55501850	16 x 1.5 / 1	8.0	9.0	39.0	5.0		19 / 18	10 - 16 S		10 x 14	10 x 14	50
55501860	16 x 1.5 / 2	10.0	9.0	39.0	5.0		19 / 18	12 - 20 S		12 x 16	12 x 16	50
55501870	20 x 1.5 / 1	12.0	11.0	39.6	6.0		22 / 22	16 - 25 S	14 x 18	14 x 18	14 x 18	50
55501880	20 x 1.5 / 2	12.5	11.0	39.6	6.0		22 / 22	16 - 25 S		16 x 20	16 x 20	50
55501890	20 x 1.5 / 3	15.5	13.0	43.0	6.0		25 / 22	20 - 32 S	18 x 23			50
55501900	20 x 1.5 / 4	16.0	16.0	44.0	6.0		30 / 24	20 - 32 S		22 x 27	22 x 27	25
55501910	25 x 1.5	20.0	21.0	48.0	7.0		32 / 30	20 - 32 S	23 x 28			25
55501920	32 x 1.5 / 1	27.0	29.0	53.6	8.0		40 / 40	25 - 40 S		30 x 36	30 x 36	25
55501930	32 x 1.5 / 2	30.0	29.0	53.6	8.0		42 / 40	32 - 50 S	32 x 38			25
55501940	40 x 1.5	34.0	36.0	61.6	8.0		52 / 50	32 - 50 S		38 x 44	38 x 44	10
55501950	50 x 1.5	41.0	42.0	68.6	9.0		57 / 57	40 - 60 S		45 x 51		5
55501960	63 x 1.5	46.0	48.0	71.6	10.0		64 / 66	40 - 60 S		50 x 56		5

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



**SILVYN® USK-M**



**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**

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**Note**

- Included: SILVYN® EE-K inner sleeve

**Suitable conduits**

- SILVYN® FPS Page 784
- SILVYN® FD-PU Page 785
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

**Technical data**

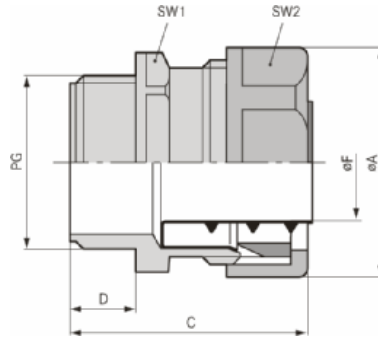
- RAL** Colour delivered  
Silver grey (RAL 7001)
- Material**  
PP
- IP** Protection rating  
IP 54
- Temperature range**  
-10°C to +110°C

Article number	Connection thread M	Clear opening (mm)	Overall length, C (mm)	Thread length, D (mm)	SW 1/2 mm	Suitable for SILVYN® FD-PU/FPS	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
<b>SILVYN® USK-M</b>									
55501300	10 x 1.0	6.0	40.0	10.0	18 / 16	7 x 10			50
55501310	12 x 1.5	9.0	43.0	12.0	23 / 21	10 x 14	10 x 14	10 x 14	50
55501320	16 x 1.5	13.0	43.0	12.0	27 / 24	13 x 17	12 x 16	12 x 16	50
55501330	20 x 1.5	14.5	44.0	13.0	32 / 29	16 x 21	16 x 20	16 x 20	50
55501340	25 x 1.5	19.5	50.0	13.0	40 / 36	22 x 27	22 x 27	22 x 27	25
55501350	32 x 1.5	27.0	51.0	15.0	49 / 45	29 x 36	30 x 36	30 x 36	25
55501360	40 x 1.5	36.0	51.0	15.0	58 / 53	38 x 45	38 x 44	38 x 44	25
55501370	50 x 1.5	46.0	58.0	16.0	70 / 65	48 x 56	50 x 56		10

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.



## 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

- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

### Note

- Included: SILVYN® EE-K inner sleeve

### Suitable conduits

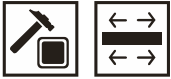
- SILVYN® FPS Page 784
- SILVYN® FD-PU Page 785
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

### Technical data

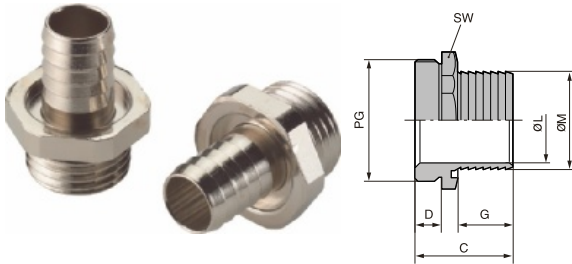
<b>RAL</b>	<b>Colour delivered</b> Silver grey (RAL 7001)
<b>Material</b>	PP
<b>IP</b>	<b>Protection rating</b> IP 54
<b>Temperature range</b>	-10°C to +110°C

Article number	PG size	Clear opening (mm)	Overall length, C (mm)	Thread length, D (mm)	SW 1/2 mm	Suitable for SILVYN® FD-PU/FPS	Suitable for SILVYN® SP/SP-PU	Pieces / PU
<b>SILVYN® USK</b>								
52005810	7	6.0	40.0	10.0	18 / 16	7 x 10		50
52005820	9	9.0	41.0	10.0	23 / 21	10 x 14	10 x 14	50
52005830	11	11.0	41.0	10.0	27 / 24	13 x 17	12 x 16	50
52005840	13.5	13.0	41.0	10.0	29 / 26	15 x 19	14 x 18	50
52005850	16	14.5	42.0	11.0	32 / 29	16 x 21	16 x 20	50
52005860	21	19.5	48.0	11.0	40 / 36	22 x 27	22 x 27	25
52005870	29	27.0	48.0	12.0	49 / 45	29 x 36	30 x 36	25
52005880	36	36.0	48.0	12.0	63 / 53	38 x 45	38 x 44	25
52005900	48	46.0	57.0	15.0	70 / 65	48 x 56	50 x 56/-	10

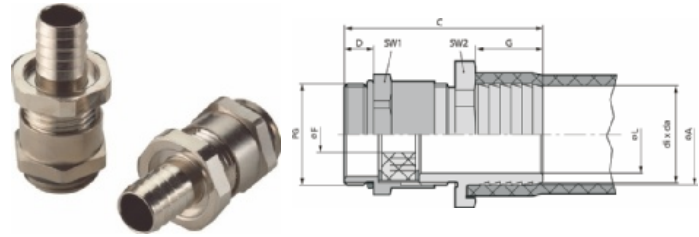
\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.



**SILVYN® SSV / SILVYN® SSVZ**



SILVYN® SSV



SILVYN® SSVZ

**Benefits**

**SILVYN® SSV**

- Conduit gland with high tensile strength for plastic conduits

**SILVYN® SSVZ**

- 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**

- High-tensile
- Robust
- Compact design

**SILVYN® SSVZ**

- High-tensile
- Robust
- Compact design
- Cable strain relief
- Cable sealing

**Product make-up**

**SILVYN® SSV**

- PG connection thread
- Conduit entry with special grip profile

**SILVYN® SSVZ**

- PG connection thread
- Integrated cable gland
- Conduit entry with special grip profile

**Note**

- Necessary conduit clamp SILVYN® SCH

**Suitable conduits**

- SILVYN® SI Page 771
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

**Technical data**



**Material**

- SILVYN® SSV**  
Body: nickel-plated brass  
O-ring: NBR
- SILVYN® SSVZ**  
Body: nickel-plated brass  
Incised sealing ring: CR  
O-ring: NBR



**Temperature range**

-20°C to +80°C

Article number	Article designation	PG size	Clear opening (mm)	Overall length, C (mm)	Thread length, D (mm)	SW (mm)	SW 1/2 mm	Suitable for SILVYN® SCH	Suitable for SILVYN® SI	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
<b>SILVYN® SSV</b>												
52003070	SILVYN® SSV PG 9/1	9	8.0	25.0	5.5	19.0		10 - 16 S		10 x 14	10 x 14	100
53800020	SILVYN® SSV PG 9/2	9	10.0	25.0	5.5	19.0		12 - 20 S		12 x 16	12 x 16	100
52003080	SILVYN® SSVZ PG 11/1	11	12.0	25.0	6.0	22.0		16 - 25 S		14 x 18	14 x 18	50
52024560	SILVYN® SSVZ PG 11/2	11	14.0	25.0	6.0	22.0		16 - 25 S		16 x 20	16 x 20	50
52003090	SILVYN® SSV PG 13,5	13,5	15,5	27,5	6,5	25,0		20 - 32 S	18 x 22			50
52003100	SILVYN® SSV PG 13,5	16	19,0	27,5	7,5	30,0		20 - 32 S		22 x 27	22 x 27	25
52003110	SILVYN® SSV PG 21	21	21,0	30,0	8,0	32,0		20 - 32 S	23 x 28			25
53800080	SILVYN® SSV PG 29/1	29	27,0	33,0	9,5	40,0		25 - 40 S		30 x 36	30 x 36	25
52024640	SILVYN® SSV PG 29/2	29	30,0	33,0	9,5	42,0		32 - 50 S	32 x 38			25
52002980	SILVYN® SSV PG 36	36	34,0	37,0	12,0	52,0		32 - 50 S		38 x 44	38 x 44	10
52002990	SILVYN® SSV PG 9/2	42	41,0	41,0	14,0	57,0		40 - 60 S		45 x 51		5
52013000	SILVYN® SSV PG 48	48	46,0	44,0	14,0	64,0		40 - 60 S		50 x 56		5
<b>SILVYN® SSVZ</b>												
52021070	SILVYN® SSVZ PG 29/1	9.1	8.0	39.1	6.0		19 / 17	10 - 16 S		10 x 14	10 x 14	50
52021080	SILVYN® SSVZ PG 9/2	9.2	10.0	39.1	6.0		19 / 17	12 - 20 S		12 x 16	12 x 16	50
52003020	SILVYN® SSVZ PG 11/1	11.1	12.0	39.6	6.0		22 / 20	16 - 25 S		14 x 18	14 x 18	50
52024670	SILVYN® SSVZ PG 11/2	11.2	14.0	39.6	6.0		22 / 20	16 - 25 S		16 x 20	16 x 20	50
52003030	SILVYN® SSVZ PG 13,5	13,5	15,5	43,1	6,5		25 / 22	20 - 32 S	18 x 22			50
52003040	SILVYN® SSVZ PG 16	16.1	19.0	44.1	6.5		30 / 24	20 - 32 S		22 x 27	22 x 27	25
52003050	SILVYN® SSVZ PG 21	21.1	21.0	48.1	7.0		32 / 30	20 - 32 S	23 x 28			25
52003060	SILVYN® SSVZ PG 29/1	29.1	27.0	53.6	8.0		40 / 40	25 - 40 S		30 x 36	30 x 36	25
52024680	SILVYN® SSVZ PG 29/2	29.2	30.0	53.6	8.0		42 / 40	32 - 50 S	32 x 38			25

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



## 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 range of clamping force

### ■ Product make-up

- Galvanized steel ring
- Worm gear drive

### ■ Suitable conduits

- SILVYN® SI Page 771
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

### ■ Technical data



#### Material

Steel, galvanized

Article number	Article designation	Clamping range (mm)	Suitable for SILVYN® SI/SP/SP-PU	Pieces / PU
<b>SILVYN® SCH</b>				
52003130	10 - 16 S	10.0 - 16.0	10 x 14 / 11 x 14	100
52003140	12 - 20 S	12.0 - 20.0	12 x 16 / 13 x 16 / 14 x 18	100
52003160	16 - 25 S	16.0 - 25.0	16 x 20 / 18 x 22 / 18 x 23	100
52003170	20 - 32 S	20.0 - 32.0	22 x 27	100
52009050	25 - 40 S	25.0 - 40.0	30 x 36 / 23 x 28	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

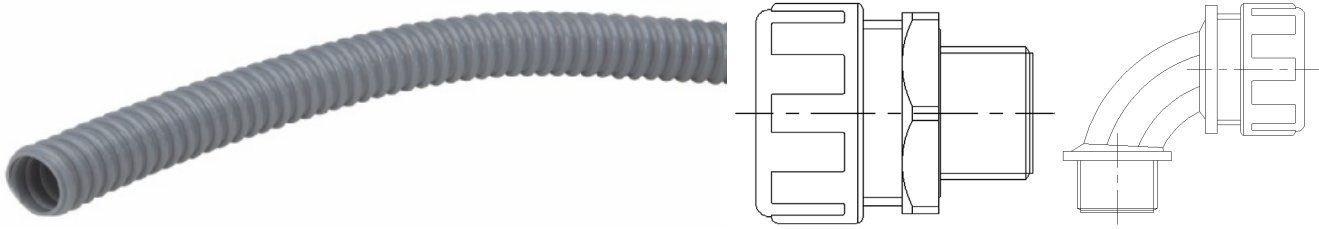
Photographs are not to scale and do not represent detailed images of the respective products.

### ■ Accessories

- SILVYN® SSV-M refer to page 774
- SILVYN® SSVZ-M refer to page 774
- SILVYN® SSV refer to page 777
- SILVYN® SSVZ refer to page 777



**SILVYN® EL**



**Benefits**

- Easy assembly of cables and wires
- 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

**Technical data**

**DIN VDE Approvals**  
IEC EN 61386-23

**On request**  
Black, RAL 9005

**RAL Colour delivered**  
Silver grey (RAL 7001)

**Material**  
Special soft PVC sheath with hard PVC spiral

**Temperature range**  
-20°C to +70°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MPC-M/ MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU ring (m)
<b>SILVYN® EL</b>							
61747360	10.0 x 14.5	25	10.0	16/1	9	9	30
61747370	12.0 x 16.5	25	12.0	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61747380	16.0 x 21.0	35	16.0	20/2	13,5/2 , 16	13,5/2 , 16	30
61747390	22.0 x 27.5	45	22.0	25 x 1,5	21	21	30
61747400	25.0 x 30.5	55	25.0	32/1	29/1	29/1	30
61747410	28.0 x 33.5	60	28.0	32/2	29/2	29/2	30
61747420	35.0 x 41.0	80	35.0	40 x 1,5	36	36	30
61747430	40.0 x 46.4	105	40.0	50 x 1,5	42		30
61747440	50.0 x 57.0	120	50.0	63 x 1,5	48		30

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

**Similar products**

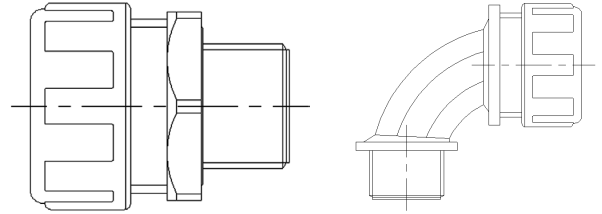
- SILVYN® ELÖ refer to page 780
- SILVYN® ELT refer to page 781

**Accessories**

- SILVYN® MPC-M refer to page 782
- SILVYN® MPC refer to page 782
- SILVYN® MPC 90° M refer to page 783
- SILVYN® MPC 90° refer to page 783



## SILVYN® ELÖ



### ■ Benefits

- Resistant to grease, cooling agents and oils, especially ASTM2 testing oil
- Easy assembly of cables and wires
- 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
- Special soft PVC sheath

### ■ Technical data

<b>DIN VDE</b>	<b>Approvals</b> IEC EN 61386-23
<b>RAL</b>	<b>Colour delivered</b> Green (RAL 6001)
	<b>Material</b> Special soft PVC sheath with hard PVC spiral
	<b>Temperature range</b> -20°C to +70°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU ring (m)
<b>SILVYN® ELÖ</b>							
61751610	10.0 x 14.5	25	10.0	16/1	9	9	30
61751620	12.0 x 16.5	25	12.0	16/2, 20/1	11, 13,5/1	11, 13,5/1	30
61751630	16.0 x 21.0	35	16.0	20/2	13,5/2, 16	13,5/2, 16	30
61751640	22.0 x 27.5	45	22.0	25 x 1,5	21	21	30
61751650	25.0 x 30.5	55	25.0	32/1	21	21	30
61751660	28.0 x 33.5	60	28.0	32/2	29/2	29/2	30
61751670	35.0 x 41.0	80	35.0	40 x 1,5	36	36	30
61751680	40.0 x 46.4	105	40.0	50 x 1,5	42		30
61751690	50.0 x 57.0	120	50.0	63 x 1,5	48		30

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

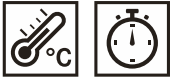
### ■ Similar products

- SILVYN® EL refer to page 779
- SILVYN® ELT refer to page 781

### ■ Accessories

- SILVYN® MPC-M refer to page 782
- SILVYN® MPC refer to page 782
- SILVYN® MPC 90° M refer to page 783
- SILVYN® MPC 90° refer to page 783





**SILVYN® ELT**



**Benefits**

- Heat-resistant
- Easy assembly of cables and wires
- 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**

- Heat-resistant
- Flexible
- Smooth inner wall
- Dimensionally stable

**Norm references / Approvals**

- UL FILENUMBER E308201

**Product make-up**

- Integrated hard PVC spiral
- Modified soft PVC sheath

**Technical data**

<b>DIN VDE</b>	<b>Approvals</b> IEC EN 61386-23
<b>RAL</b>	<b>Colour delivered</b> Blue (RAL 5012)
	<b>Material</b> Special soft PVC sheath with hard PVC spiral
	<b>Temperature range</b> -20°C to +90°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU ring (m)
<b>SILVYN® ELT</b>							
61751700	10.0 x 14.5	25	10.0	16 / 1	9	9	30
61751710	12.0 x 16.5	25	12.0	16 / 2, 20 / 1	11, 13,5 / 1	11, 13,5 / 1	30
61751720	16.0 x 21.0	35	16.0	20 / 2	13,5 / 2, 16	13,5 / 2, 16	30
61751730	22.0 x 27.5	45	22.0	25 x 1,5	21	21	30
61751740	25.0 x 30.5	55	25.0	32 / 1	29 / 1	29 / 1	30
61751750	28.0 x 33.5	60	28.0	32 / 2	29 / 2	29 / 2	30
61751760	35.0 x 41.0	80	35.0	40 x 1,5	36	36	30
61751770	40.0 x 46.4	105	40.0	50 x 1,5	42		30
61751780	50.0 x 57.0	120	50.0	63 x 1,5	48		30

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

**Similar products**

- SILVYN® EL refer to page 779
- SILVYN® ELÖ refer to page 780

**Accessories**

- SILVYN® MPC-M refer to page 782
- SILVYN® MPC refer to page 782
- SILVYN® MPC 90° M refer to page 783
- SILVYN® MPC 90° refer to page 783

Plastic protective cable conduit systems

SILVYN® EL/ELÖ/ELT



**SILVYN® MPC-M / SILVYN® MPC**



**Benefits**

- All-purpose
- Fast and easy assembly

**Application range**

- In combination with protective conduit:
- SILVYN® SI/SP/SP-PU (smooth conduits)
- SILVYN® EL/ELÖ/ELT (corrugated conduits)

**Product features**

- Dust protection
- Moisture-protection
- High-tensile

**Norm references / Approvals**

- UL FILENUMBER E308201

**Product make-up**

**SILVYN® MPC-M**

- Metric connection thread
- Hexagonal collar with integrated conduit connection

**SILVYN® MPC**

- PG connection thread
- Hexagonal collar with integrated conduit connection

**Suitable conduits**

**SILVYN® MPC-M**

- SILVYN® EL Page 779
- SILVYN® ELÖ Page 780
- SILVYN® SP Page 772
- SILVYN® ELT Page 781
- SILVYN® SP-PU Page 773

**Technical data**



**Approvals**  
IEC EN 61386-23



**Colour delivered**  
Black (RAL 9005), UV-resistant  
Grey, RAL 7001



**Material**  
PA66  
Halogen-free



**Protection rating**  
IP 65

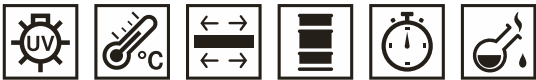


**Temperature range**  
-40°C to +120°C

Article number	Article designation	PG size	Connection thread M	Clear opening (mm)	Suitable for SILVYN® SI	Suitable for SILVYN® SP/SP-PU	SILVYN® EL/ELÖ/ELT	Pieces / PU
<b>SILVYN® MPC-M black</b>								
55502460	SILVYN MPC M16/1		16 x 1.5	9.0	11 x 14		10 x 14.7	10
55502461	SILVYN MPC M16/2		16 x 1.5	10.5	13 x 16	12 x 16	12 x 16.6	10
55502462	SILVYN MPC-M 20/1		20 x 1.5	10.5	13 x 16	12 x 16	12 x 16.6	10
55502463	SILVYN MPC M20/2		20 x 1.5	14.5		16 x 20	16 x 20.7	10
55502464	SILVYN MPC M25		25 x 1.5	19.0		22 x 27	22 x 27.7	10
55502465	SILVYN MPC M32/1		32 x 1.5	24.5			25,0 x 30,6	10
55502469	SILVYN MPC M32/2		32 x 1.5	24.5			28 x 33,5	10
55502466	SILVYN MPC M40		40 x 1.5	33.0			35 x 41,0	2
55502467	SILVYN MPC M50		50 x 1.5	39.0			40 x 46,4	2
55502468	SILVYN MPC M63		63 x 1.5	48.0		50 x 56	50 x 57,2	1
<b>SILVYN® MPC-M grey</b>								
55502441	SILVYN MPC M16/1		16 x 1.5	9.0	11 x 14		10 x 14.7	10
55502442	SILVYN MPC M16/2		16 x 1.5	10.5	13 x 16	12 x 16	12 x 16.6	10
55502443	SILVYN MPC-M 20/1		20 x 1.5	10.5	13 x 16	12 x 16	12 x 16.6	10
55502444	SILVYN MPC M20/2		20 x 1.5	14.5		16 x 20	16 x 20.7	10
55502445	SILVYN MPC M25		25 x 1.5	19.0		22 x 27	22 x 27.7	10
55502446	SILVYN MPC M32/1		32 x 1.5	24.5			25,0 x 30,6	10
55502447	SILVYN MPC M32/2		32 x 1.5	24.5			28 x 33,5	10
55502448	SILVYN MPC M40		40 x 1.5	33.0			35 x 41,0	2
55502449	SILVYN MPC M50		50 x 1.5	39.0			40 x 46,4	2
55502439	SILVYN MPC M63		63 x 1.5	48.0		50 x 56	50 x 57,2	1
<b>SILVYN® MPC black</b>								
55502470	SILVYN MPC 9	9		9.0	11 x 14		10 x 14.7	10
55502471	SILVYN MPC 11	11		10.5	13 x 16	12 x 16	12 x 16.6	10
55502472	SILVYN MPC 13,5/1	13,5		10.5	13 x 16	12 x 16	12 x 16.6	10
55502494	SILVYN MPC 13,5/2	13,5		14.5		16 x 20	16 x 20.7	10
55502473	SILVYN MPC 16	16		14.5		16 x 20	16 x 20.7	10
55502474	SILVYN MPC 21	21		19.0		22 x 27	22 x 27.7	10
55502476	SILVYN MPC 29/1	29		24.5			25,0 x 30,6	10
55502495	SILVYN MPC 29/2	29		24.5			28 x 33,5	10
55502477	SILVYN MPC 36	36		33.0			35 x 41,0	2
55502478	SILVYN MPC 42	42		39.0			40 x 46,4	2
55502479	SILVYN MPC 48	48		48.0			50 x 57,2	2
<b>SILVYN® MPC grey</b>								
55502496	SILVYN MPC 9	9		9.0	11 x 14		10 x 14.7	10
55502497	SILVYN MPC 11	11		10.5	13 x 16	12 x 16	12 x 16.6	10
55502498	SILVYN MPC 13,5/1	13,5		10.5	13 x 16	12 x 16	12 x 16.6	10
55502499	SILVYN MPC 13,5/2	13,5		14.5		16 x 20	16 x 20.7	10
55502451	SILVYN MPC 16	16		14.5		16 x 20	16 x 20.7	10
55502452	SILVYN MPC 21	21		19.0		22 x 27	22 x 27.7	10
55502453	SILVYN MPC 29/1	29		24.5			25,0 x 30,6	10
55502454	SILVYN MPC 29/2	29		24.5			28 x 33,5	10
55502455	SILVYN MPC 36	36		33.0			35 x 41,0	2
55502456	SILVYN MPC 42	42		39.0			40 x 46,4	2
55502457	SILVYN MPC 48	48		48.0			50 x 57,2	2

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## SILVYN® MPC 90° M / SILVYN® MPC 90°



### Benefits

- All-purpose
- Fast and easy assembly
- 90° elbow allows easy installation

### Application range

- In combination with protective conduit:
- SILVYN® SI/SP/SP-PU (smooth conduits)
- SILVYN® EL/ELÖ/ELT (corrugated conduits)

### Product features

- Dust protection
- Moisture-protection
- High-tensile

### Norm references / Approvals

- UL FILENUMBER E308201

### Product make-up

#### SILVYN® MPC 90° M

- Metric connection thread
- 90° elbow with integrated conduit connection

#### SILVYN® MPC 90°

- PG connection thread
- 90° elbow with integrated conduit connection

### Suitable conduits

- SILVYN® EL Page 779
- SILVYN® ELÖ Page 780
- SILVYN® SP Page 772
- SILVYN® ELT Page 781
- SILVYN® SP-PU Page 773

### Technical data

<b>DIN VDE</b>	<b>Approvals</b> IEC EN 61386-23
<b>i</b>	<b>On request</b> With 45° elbow
<b>RAL</b>	<b>Colour delivered</b> Black (RAL 9005), UV-resistant Grey, RAL 7001
<b>Material</b>	PA 66 Halogen-free
<b>IP</b>	<b>Protection rating</b> IP 65
<b>Temperature range</b>	-40°C to +120°C

Article number	Article designation	PG size	Connection thread M	Clear opening (mm)	Suitable for SILVYN® SI	Suitable for SILVYN® SP/SP-PU	SILVYN® EL/ELÖ/ELT	Pieces / PU
<b>SILVYN® MPC 90° M black</b>								
55502480	SILVYN MPC 90° M 16/1		16 x 1.5	10.5	13 x 16	12 x 16	12 x 16,6	10
55502481	SILVYN MPC 90° M 20/1		20 x 1.5	10.5	13 x 16	12 x 16	12 x 16,6	10
55502482	SILVYN MPC 90° M 20/2		20 x 1.5	14.5		16 x 20	16 x 20,7	10
55502483	SILVYN MPC 90° M 25		25 x 1.5	19.0		22 x 27	22 x 27,7	10
55502484	SILVYN MPC 90° M 32		32 x 1.5	24.5			28 x 33,5	10
55502485	SILVYN MPC 90° M 40		40 x 1.5	33.0			35 x 41,0	2
<b>SILVYN® MPC 90° M grey</b>								
55502458	SILVYN MPC 90° M 16/1		16 x 1.5	10.5	13 x 16	12 x 16	12 x 16,6	10
55502459	SILVYN MPC 90° M 20/1		20 x 1.5	10.5	13 x 16	12 x 16	12 x 16,6	10
55502366	SILVYN MPC 90° M 20/2		20 x 1.5	14.5		16 x 20	16 x 20,7	10
55502367	SILVYN MPC 90° M 25		25 x 1.5	19.0		22 x 27	22 x 27,7	10
55502368	SILVYN MPC 90° M 32		32 x 1.5	24.5			28 x 33,5	10
55502369	SILVYN MPC 90° M 40		40 x 1.5	33.0			35 x 41,0	2
<b>SILVYN MPC 90° black</b>								
55502486	SILVYN MPC 90° PG 11 BK	11		10.5	13 x 16	12 x 16	12 x 16,6	10
55502487	SILVYN MPC 90° PG 13,5 BK	13.5		10.5	13 x 16	12 x 16	12 x 16,6	10
55502488	SILVYN MPC 90° PG 16 BK	16		14.5			16 x 20,7	10
55502489	SILVYN MPC 90° PG 21 BK	21		19.0		16 x 20	22 x 27,7	10
55502490	SILVYN MPC 90° PG 29 BK	29		24.5		16 x 20	28 x 33,5	10
55502493	SILVYN MPC 90° PG 36 BK	36		33.0			35 x 41,0	2
<b>SILVYN MPC 90° grey</b>								
55502370	SILVYN MPC 90° PG 11 GY	11		10.5	13 x 16	12 x 16	12 x 16,6	10
55502371	SILVYN MPC 90° PG 13,5 GY	13.5		10.5	13 x 16	12 x 16	12 x 16,6	10
55502372	SILVYN MPC 90° PG 16 GY	16		14.5			16 x 20,7	10
55502373	SILVYN MPC 90° PG 21 GY	21		19.0		16 x 20	22 x 27,7	10
55502374	SILVYN MPC 90° PG 29 GY	29		24.5		16 x 20	28 x 33,5	10
55502375	SILVYN MPC 90° PG 36 BK	36		33.0			35 x 41,0	2

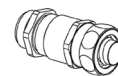
Photographs are not to scale and do not represent detailed images of the respective products.

Plastic protective cable conduit systems

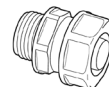
SILVYN® FPS/FD-PU



**SILVYN® FPS**



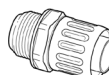
SILVYN® MSK-M



SILVYN® USK/USK-M  
IP54



SILVYN® US/US-M + EE-K  
IP54



SILVYN® LKI/LKI-M  
IP54



SILVYN® EE-K

**Benefits**

- Dimensionally stable
- Crushable and extendable
- Highly oil and acid-resistant
- Liquidtight
- Corrosion-resistant

**Application range**

- Mechanical engineering
- In drag chains (SILVYN® CHAIN)
- Robot-building
- Moving applications
- Indoor applications

**Product features**

- Cadmium-free

**Product make-up**

- PVC-insulated steel spring wire
- Soft PVC outer sheath

**Note**

- PU = 50m (on request)

**Technical data**



**Approvals**  
IEC EN 61386-23



**Colour delivered**  
Grey



**Material**  
Soft PVC with insulated spring steel wire



**Temperature range**  
-20°C to +80°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (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)
<b>SILVYN® FPS</b>							
61711550	7.0 x 10.0	8	7.0	10 x 1,0	12 x 1,5	7	25
61711590	10.0 x 14.0	10	10.0	12 x 1,5	16 x 1,5	9	25
61711630	13.0 x 17.0	13	13.0	16 x 1,5	20 x 1,5	11	25
61711670	15.0 x 19.0	15	15.0			13,5	25
61711710	16.0 x 21.0	17	16.0	20 x 1,5	25 x 1,5	16	25
61711750	22.0 x 27.0	20	22.0	25 x 1,5	32 x 1,5	21	25
61711790	29.0 x 36.0	25	29.0	32 x 1,5	40 x 1,5	29	25
61711830	38.0 x 45.0	36	38.0	40 x 1,5	50 x 1,5	36	25
61711910	48.0 x 56.0	40	48.0	50 x 1,5	63 x 1,5	48	25
<b>SILVYN® FPS 10M</b>							
61721690	7.0 x 10.0	8	7.0	10 x 1,0	12 x 1,5	7	10
61721700	10.0 x 14.0	10	10.0	12 x 1,5	16 x 1,5	9	10
61721710	13.0 x 17.0	13	13.0	16 x 1,5	20 x 1,5	11	10
61721720	15.0 x 19.0	15	15.0			13,5	10
61721730	16.0 x 21.0	17	16.0	20 x 1,5	25 x 1,5	16	10
61721740	22.0 x 27.0	20	22.0	25 x 1,5	32 x 1,5	21	10
61721750	29.0 x 36.0	25	29.0	32 x 1,5	40 x 1,5	29	10
61721760	38.0 x 45.0	36	38.0	40 x 1,5	50 x 1,5	36	10
61721780	48.0 x 56.0	40	48.0	50 x 1,5	63 x 1,5	48	10

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

**Similar products**

- SILVYN® FD-PU refer to page 785

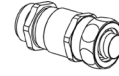
**Accessories**

- SILVYN® MSK-M EE refer to page 786
- SILVYN® US-M refer to page 828
- SILVYN® LKI-M refer to page 787
- SILVYN® US refer to page 829
- SILVYN® USK-M refer to page 775
- SILVYN® LKI refer to page 787
- SILVYN® EE-K refer to page 788

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**SILVYN® FD-PU**



SILVYN® MSK-M



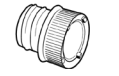
SILVYN® USK/USK-M  
IP54



SILVYN® US/US-M + EE-K  
IP54



SILVYN® LKI/LKI-M  
IP54



SILVYN® EE-K

**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 drag chains (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 = 50m (on request)

**Technical data**



**Approvals**  
IEC EN 61386-23



**Colour delivered**  
Metallic blue



**Material**  
PUR with PVC-insulated spring steel wire  
Fire behaviour according to UL 94V-2



**Temperature range**  
-40°C to +80°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Weight (kg/m)	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)
<b>SILVYN® FD-PU</b>								
64453660	7.0 x 10.0	10	7.0	0.09	10 x 1,0	12 x 1,5	7	10
64453670	10.0 x 14.0	14	10.0	0.11	12 x 1,5	16 x 1,5	9	10
64453680	13.0 x 17.0	17	13.0	0.22	16 x 1,5	20 x 1,5	11	10
64453690	15.0 x 19.0	19	15.0	0.28			13,5	10
64453700	16.0 x 21.0	21	16.0	0.3	20 x 1,5	25 x 1,5	16	10
64453710	22.0 x 27.0	27	22.0	0.33	25 x 1,5	32 x 1,5	21	10
64453720	29.0 x 36.0	36	29.0	0.45	32 x 1,5	40 x 1,5	29	10
64453730	38.0 x 45.0	45	38.0	0.56	40 x 1,5	50 x 1,5	36	10
64453750	48.0 x 56.0	56	48.0	0.82	50 x 1,5	63 x 1,5	48	10

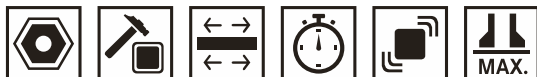
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

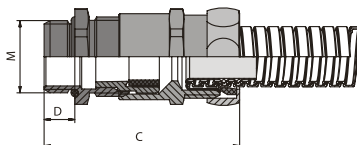
- SILVYN® MSK-M EE refer to page 786
- SILVYN® US-M refer to page 828
- SILVYN® LKI-M refer to page 787
- SILVYN® US refer to page 829
- SILVYN® USK-M refer to page 775
- SILVYN® LKI refer to page 787
- SILVYN® EE-K refer to page 788

Plastic protective cable conduit systems

SILVYN® FPS/FD-PU



**SILVYN® MSK-M EE**



SILVYN® EE-K SILVYN® FD-PU



SILVYN® EE-K SILVYN® FPS

**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**

- Optional:
- SKINTOP® MS-M cable gland
- SKINTOP® MS-SC-M EMC connection
- SKINTOP® DIX multiple sealing insert
- SILVYN® conduit connection via inner sleeve and cap nut

**Suitable conduits**

- SILVYN® FPS Page 784
- SILVYN® FD-PU Page 785

**Technical data**



**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	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
<b>SILVYN® MSK-M for SILVYN® FPS/FD-PU</b>			
55506070	MSK-M M12x1,5 EE	FPS, FD-PU 7 x 10	5
55506071	MSK-M M16x1,5 EE	FPS, FD-PU 10 x 14	5
55506072	MSK-M M20x1,5 EE	FPS, FD-PU 13 x 17	5
55506073	MSK-M M25x1,5 EE	FPS, FD-PU 16 x 21	5
55506074	MSK-M M32x1,5 EE	FPS, FD-PU 22 x 27	5
55506075	MSK-M M40x1,5 EE	FPS, FD-PU 29 x 36	1
55506076	MSK-M M50x1,5 EE	FPS, FD-PU 38 x 45	1
55506077	MSK-M M63x1,5 EE	FPS, FD-PU 48 x 56	1
<b>SILVYN® MSK-M for SILVYN® FPS/FD-PU</b>			
55506100	MSK-SC-M M12x1,5 EE	FPS, FD-PU 7 x 10	5
55506101	MSK-SC-M M16x1,5 EE	FPS, FD-PU 10 x 14	5
55506102	MSK-SC-M M20x1,5 EE	FPS, FD-PU 13 x 17	5
55506103	MSK-SC-M M25x1,5 EE	FPS, FD-PU 16 x 21	5
55506104	MSK-SC-M M32x1,5 EE	FPS, FD-PU 22 x 27	5
55506105	MSK-SC-M M40x1,5 EE	FPS, FD-PU 29 x 36	1
55506106	MSK-SC-M M50x1,5 EE	FPS, FD-PU 38 x 45	1
<b>SILVYN® MSK-M for SILVYN® FPS/FD-PU</b>			
55506000	MSK-M M25 D450x1,5 EE	FPS, FD-PU 16 x 21	5
55506001	MSK-M M32 D470x1,5 EE	FPS, FD-PU 22 x 27	5

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® DIX-DV refer to page 682



## SILVYN® LKI-M / SILVYN® LKI



### 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 Page 784
- SILVYN® FD-PU Page 785

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Silver grey (RAL 7001)
<b>Material</b>	PP
<b>IP</b>	<b>Protection rating</b> IP 54
<b>Temperature range</b>	-10°C to +110°C

Article number	PG size	Connection thread M	Clear opening (mm)	Overall length, C (mm)	Thread length, D (mm)	SW (mm)	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
<b>SILVYN® LKI-M</b>								
55501400		12 x 1.5	5.5	38.0	10.0	16.0	7 x 10	50
55501410		16 x 1.5	9.5	39.5	10.0	19.0	10 x 14	50
55501420		20 x 1.5	11.5	42.0	10.0	22.0	13 x 17	50
55501430		25 x 1.5	14.5	48.0	11.0	27.0	16 x 21	50
55501440		32 x 1.5	19.5	58.0	12.0	35.0	22 x 27	25
55501450		40 x 1.5	27.0	59.0	12.0	45.0	29 x 36	25
55501460		50 x 1.5	35.5	62.5	12.0	54.0	38 x 45	25
55501470		63 x 1.5	46.0	68.0	15.0	65.0	48 x 56	10
<b>SILVYN® LKI</b>								
55000000	7		5.5	38.0	10.0	16.0	7 x 10	50
55000010	9		9.5	39.5	10.0	19.0	10 x 14	50
55000020	11		11.5	42.0	10.0	22.0	13 x 17	50
55000030	13.5		13.0	42.0	10.0	24.0	15 x 19	50
55000040	16		14.5	48.0	11.0	27.0	16 x 21	50
55000050	21		19.5	58.0	11.0	35.0	22 x 27	25
55000060	29		27.0	59.0	12.0	45.0	29 x 36	25
55000070	36		35.5	62.5	12.0	54.0	38 x 45	25
55000090	48		46.0	68.0	15.0	65.0	48 x 56	10

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



## SILVYN® EE-K



### Benefits

- Cable damage can be prevented

### Application range

- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- SILVYN® SP/SP-PU
- Conduit end cover

### Product features

- All-round collar completely covers the protective conduit end

### Product make-up

- Threaded sleeve

### Note

- Necessary for using SILVYN® US-M and US

### Suitable conduits

- SILVYN® FPS Page 784
- SILVYN® FD-PU Page 785
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

### Technical data

**RAL** Colour delivered  
Silver grey (RAL 7001)

**Material**  
PP

**Temperature range**  
-10 °C to +110 °C

Article number	Article designation	Conduit outer Ø (mm)	Suitable for SILVYN® US/US-M	Pieces / PU
<b>SILVYN® EE-K</b>				
52023340	EE-K 7	10	7 / 10 x 1,5	50
52023350	EE-K 9	14	9 / 12 x 1,5	50
52023360	EE-K 11	17	11 / 16 x 1,5	50
52023370	EE-K 13,5	19	13,5 / -	50
52023380	EE-K 16	21	16 / 20 x 1,5	50
52023390	EE-K 21	27	21 / 25 x 1,5	25
52023400	EE-K 29	36	29 / 32 x 1,5	25
52023410	EE-K 36	45	36 / 40 x 1,5	20
52023430	EE-K 48	56	48 / 50 x 1,5	10

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

### Accessories

- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

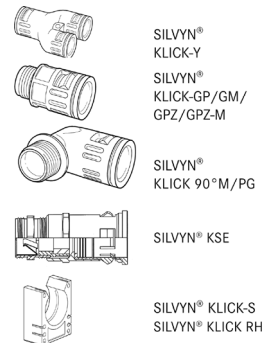




**SILVYN® RILL PA 6**

**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**

**Approvals**  
 UR File No. E308201  
 VDE EN/IEC 618386-23  
 DNV, Lloyd's Register  
 Rail:  
 DB DIN 5510 Teil2 (S4/SR2/ST2)  
 SNCF NFF 16-101/102 (I2/f2)  
 UNDERGROUND BS 6853

**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	Article designation	Article IØ x OØ (mm)	Bending radius (mm)	Suitable for SILVYN® KLICK-GM/90°M	Suitable for SILVYN® KLICK-GP/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU ring (m)
<b>SILVYN® RILL PA 6 grey</b>							
61746939	7	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746940	9	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61746950	11	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747010	13,5	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746960	16	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746970	21	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746980	29	29.0 x 34.5	65	32 x 1,5	29/29	40x1,5/29	25
61746990	36	36.0 x 42.5	90	40 x 1,5	36/-	50x1,5/36	25
61747000	48	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25
<b>SILVYN® RILL PA 6 black</b>							
61746935	7	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746945	9	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61746955	11	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747015	13,5	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746965	16	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746975	21	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746985	29	29.0 x 34.5	65	32 x 1,5	29/29	40x1,5/29	25
61746995	36	36.0 x 42.5	90	40 x 1,5	36/-	50x1,5/36	25
61747005	48	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25

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

**Similar products**

- SILVYN® RILL PA 12 refer to page 790

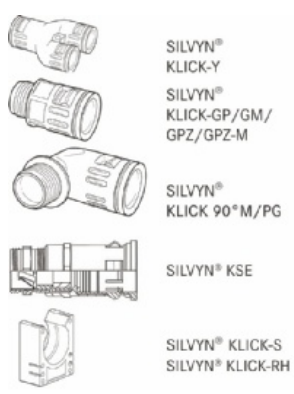
**Accessories**

- SILVYN® KLICK-GM refer to page 791
- SILVYN® KLICK 90°M refer to page 792
- SILVYN® KLICK GPZ-M refer to page 793
- SILVYN® KSE refer to page 794
- SILVYN® KLICK-GP refer to page 795
- SILVYN® KLICK 90° PG refer to page 797
- SILVYN® KLICK-GPZ refer to page 796
- SILVYN® KLICK-Y refer to page 798
- SILVYN® KLICK-Y (TPE) refer to page 798
- SILVYN® KLICK-S refer to page 799
- SILVYN® KLICK-D refer to page 799
- SILVYN® KLICK-V refer to page 799
- SILVYN® KLICK-RH refer to page 800
- SILVYN® K-EM refer to page 800

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



## SILVYN® RILL PA 12



**Info**

- Designed for robot applications

### 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 drag chains (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

- Railway: DB, SNCF

### Product make-up

- Fine-profile corrugated polyamide 12 conduit

### Note

- UV and weather-resistant in black

### Technical data

**DIN VDE Approvals**  
 VDE EN/IEC 61386-23  
 Lloyd's Register  
 Rail:  
 DB DIN 5510 Teil2 (S4/SR2/ST2)  
 SNCF NFF-16-101/102 (I3/F2)

**RAL 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 bis +100°C  
 short-term +150°C

Article number	Article designation	Article IØ x OØ (mm)	Bending radius (mm)	Suitable for SILVYN® KLICK-GM/90°M	Suitable for SILVYN® KLICK-GP/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU ring (m)
<b>SILVYN® RILL PA 12 grey</b>							
61815100	7	6.5 x 10.0	13	10 x 1,5	7/-	12 x 1,5/7	50
61815110	9	10.0 x 13.0	15	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61815120	11	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61815180	13,5	14.3 x 18.5	27		13,5/13,5	-/13,5	50
61815130	16	16.5 x 21.2	35	20 x 1,5	16/16	25x1,5/16	50
61815140	21	23.0 x 28.5	45	25 x 1,5	21/21	32x1,5/21	50
61815150	29	29.0 x 34.5	50	32 x 1,5	29/29	40x1,5/29	25
61815160	36	36.0 x 42.5	80	40 x 1,5	36/-	50x1,5/36	25
61815170	48	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25
<b>SILVYN® RILL PA 12 black</b>							
61815105	7	6.5 x 10.0	13	10 x 1,5	7/-	12 x 1,5/7	50
61815115	9	10.0 x 13.0	15	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61815125	11	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61815185	13,5	14.3 x 18.5	27		13,5/13,5	-/13,5	50
61815135	16	16.5 x 21.2	35	20 x 1,5	16/16	25x1,5/16	50
61815145	21	23.0 x 28.5	45	25 x 1,5	21/21	32x1,5/21	50
61815155	29	29.0 x 34.5	50	32 x 1,5	29/29	40x1,5/29	25
61815165	36	36.0 x 42.5	80	40 x 1,5	36/-	50x1,5/36	25
61815175	48	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25

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

### Similar products

- SILVYN® RILL PA 6 refer to page 789

### Accessories

- SILVYN® KLICK-GM refer to page 791
- SILVYN® KLICK 90° M refer to page 792
- SILVYN® KLICK GPZ-M refer to page 793
- SILVYN® KSE refer to page 794
- SILVYN® KLICK-GP refer to page 795
- SILVYN® KLICK 90° PG refer to page 797
- SILVYN® KLICK-GPZ refer to page 796
- SILVYN® KLICK-Y refer to page 798
- SILVYN® KLICK-Y (TPE) refer to page 798
- SILVYN® KLICK-S refer to page 799
- SILVYN® KLICK-D refer to page 799
- SILVYN® KLICK-V refer to page 799
- SILVYN® KLICK-RH refer to page 800
- SILVYN® K-EM refer to page 800



**SILVYN® KCLICK-GM**



**Benefits**

- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

**Application range**

- In combination with protective conduit:
- SILVYN® RILL PA6
- 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

**Suitable conduits**

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

**Technical data**

- RAL** Colour delivered  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- IP** Protection rating  
IP 68  
IP 69K according to DIN 40050 T.9
- Temperature range**  
-40 °C to +115 °C

Article number	Connection thread M	Hole Ø (mm)	For conduit with outer Ø (mm)	Thread length, D (mm)	SW (mm)	Suitable for SILVYN® RILL	Pieces / PU
<b>SILVYN® KCLICK-GM grey</b>							
55501000	10 x 1.0	6.5	10.0	12.0	17.0	6,5 x 10,0	50
55501010	12 x 1.5	8.0	13.0	12.0	20.0	10 x 13,0	50
55501020	16 x 1.5/1	10.0	13.0	12.0	20.0	10 x 13,0	50
55501030	16 x 1.5/2	12.0	15.8	12.0	23.0	12 x 15,8	50
55501040	20 x 1.5/1	12.0	15.8	13.0	23.0	12 x 15,8	50
55501050	20 x 1.5/2	16.0	21.2	13.0	29.5	16,5 x 21,2	50
55501060	25 x 1.5	20.5	28.5	13.0	37.0	23 x 28,5	25
55501070	32 x 1.5	27.5	34.5	15.0	44.0	29 x 34,5	25
55501080	40 x 1.5	35.0	42.5	15.0	51.5	36 x 42,5	25
55501090	50 x 1.5	45.0	54.5	15.3	65.5	48 x 54,5	10
55500990	63 x 1.5	48.0	54.5	16.0	59.0	48 x 54,5	10
<b>SILVYN® KCLICK-GM black</b>							
55501005	10 x 1.0	6.5	10.0	12.0	17.0	6,5 x 10,0	50
55501015	12 x 1.5	8.0	13.0	12.0	20.0	10 x 13,0	50
55501025	16 x 1.5/1	10.0	13.0	12.0	20.0	10 x 13,0	50
55501035	16 x 1.5/2	12.0	15.8	12.0	23.0	12 x 15,8	50
55501045	20 x 1.5/1	12.0	15.8	13.0	23.0	12 x 15,8	50
55501055	20 x 1.5/2	16.0	21.2	13.0	29.5	16,5 x 21,2	50
55501065	25 x 1.5	20.5	28.5	13.0	37.0	23 x 28,5	25
55501075	32 x 1.5	27.5	34.5	15.0	44.0	29 x 34,5	25
55501085	40 x 1.5	35.0	42.5	15.0	51.5	36 x 42,5	25
55501095	50 x 1.5	45.0	54.5	15.3	65.5	48 x 54,5	10
55500995	63 x 1.5	48.0	54.5	16.0	59.0	48 x 54,5	10

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

**Similar products**

- SILVYN® KCLICK GPZ-M refer to page 793

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



## 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 PA6
- SILVYN® RILL PA12
- 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

### ■ Suitable conduits

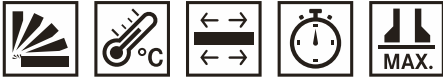
- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

### ■ Technical data

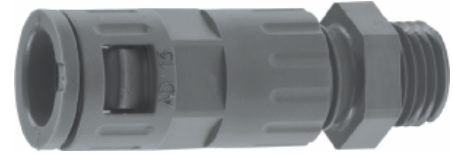
- RAL** **Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- IP** **Protection rating**  
IP 68  
IP 69K according to DIN 40050 T.9
- Temperature range**  
-40 °C to +115 °C

Article number	Connection thread M	Hole Ø (mm)	For conduit with outer Ø (mm)	Thread length, D (mm)	Suitable for SILVYN® RILL	Pieces / PU
<b>SILVYN® KLICK 90° M grey</b>						
55501110	10 x 1.0	7.0	10.0	12.0	6,5 x 10,0	50
55501120	12 x 1.5	8.0	13.0	12.0	10,0 x 13,0	50
55501130	16 x 1.5/1	12.0	13.0	12.0	10,0 x 13,0	50
55501140	16 x 1.5/2	12.0	15.8	12.0	12 x 15,8	50
55501150	20 x 1.5/1	15.5	15.8	13.0	12 x 15,8	50
55501160	20 x 1.5/2	15.5	21.2	13.0	16,5 x 21,2	50
55501170	25 x 1.5/1	18.0	21.2	13.0	16,5 x 21,2	50
55501180	25 x 1.5/2	18.0	28.5	13.0	23 x 28,5	25
55501190	32 x 1.5/1	24.0	28.5	15.0	23 x 28,5	25
55501200	32 x 1.5/2	24.0	34.5	15.0	29 x 34,5	10
55501210	40 x 1.5/1	32.0	34.5	15.0	29 x 34,5	10
55501220	40 x 1.5/2	32.0	42.5	15.0	36 x 42,5	10
55501230	50 x 1.5/1	39.0	42.5	16.0	36 x 42,5	10
55501240	50 x 1.5/2	39.0	54.5	16.0	48 x 54,5	5
55501250	63 x 1.5	53.0	54.5	16.0	48 x 54,5	5
<b>SILVYN® KLICK 90° M black</b>						
55501115	10 x 1.0	7.0	10.0	12.0	6,5 x 10,0	50
55501125	12 x 1.5	8.0	13.0	12.0	10,0 x 13,0	50
55501135	16 x 1.5/1	12.0	13.0	12.0	10,0 x 13,0	50
55501145	16 x 1.5/2	12.0	15.8	12.0	12 x 15,8	50
55501155	20 x 1.5/1	15.5	15.8	13.0	12 x 15,8	50
55501165	20 x 1.5/2	15.5	21.2	13.0	16,5 x 21,2	50
55501175	25 x 1.5/1	18.0	21.2	13.0	16,5 x 21,2	50
55501185	25 x 1.5/2	18.0	28.5	13.0	23 x 28,5	25
55501195	32 x 1.5/1	24.0	28.5	15.0	23 x 28,5	25
55501205	32 x 1.5/2	24.0	34.5	15.0	29 x 34,5	10
55501215	40 x 1.5/1	32.0	34.5	15.0	29 x 34,5	10
55501225	40 x 1.5/2	32.0	42.5	15.0	36 x 42,5	10
55501235	50 x 1.5/1	39.0	42.5	16.0	36 x 42,5	10
55501245	50 x 1.5/2	39.0	54.5	16.0	48 x 54,5	5
55501255	63 x 1.5	53.0	54.5	16.0	48 x 54,5	5

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



**SILVYN® KLIICK GPZ-M**



**Benefits**

- Fast assembly
- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

**Application range**

- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- 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

**Suitable conduits**

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

**Technical data**

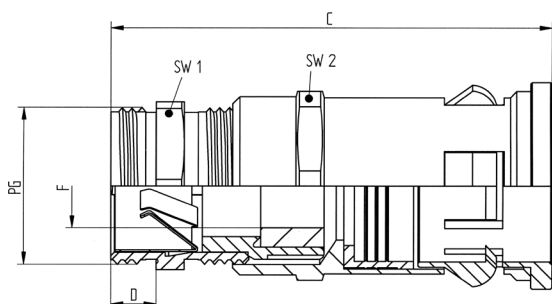
- RAL Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- IP Protection rating**  
IP 68  
IP 69K according to DIN 40050 T.9
- Temperature range**  
-30°C to +100°C

Article number	Article designation	Hole Ø (mm)	Clamping range (mm)	Thread length, D (mm)	For conduit with outer Ø (mm)	SW (mm)	Suitable for SILVYN® RILL	Pieces / PU
<b>SILVYN® KLIICK, GPZ-M grey</b>								
55500800	12 x 1,5	7.0	4.0 - 6.5	8.0	10.0	16.0	7	20
55500810	16 x 1,5	8.0	5.0 - 9.5	8.0	13.0	18.0	9	20
55500820	20 x 1,5	10.0	8.0 - 12.0	8.0	15.8	21.0	11	20
55500830	25 x 1,5	12.0	11.0 - 16.0	8.0	21.2	27.0	16	10
55500840	32 x 1,5	18.0	15.0 - 21.0	11.0	28.5	34.0	21	10
55500850	40 x 1,5	25.0	16.0 - 26.0	12.0	34.5	40.0	29	10
55500860	50 x 1,5	32.0	27.0 - 35.0	13.0	42.5	49.0	36	10
55500870	63 x 1,5	44.0	32.0 - 42.0	14.0	54.5	60.0	48	10
<b>SILVYN® KLIICK, GPZ-M black</b>								
55500805	12 x 1,5	7.0	4.0 - 6.5	8.0	10.0	16.0	7	20
55500815	16 x 1,5	8.0	5.0 - 9.5	8.0	13.0	18.0	9	20
55500825	20 x 1,5	10.0	8.0 - 12.0	8.0	15.8	21.0	11	20
55500835	25 x 1,5	12.0	11.0 - 16.0	8.0	21.2	27.0	16	10
55500845	32 x 1,5	18.0	15.0 - 21.0	11.0	28.5	34.0	21	10
55500855	40 x 1,5	25.0	16.0 - 26.0	12.0	34.5	40.0	29	10
55500865	50 x 1,5	32.0	27.0 - 35.0	13.0	42.5	49.0	36	10
55500875	63 x 1,5	44.0	32.0 - 42.0	14.0	54.5	60.0	48	10

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



## SILVYN® KSE



### ■ Benefits

- Fast assembly
- Additional cable strain relief
- Additional cable sealing
- Optimum screen connection (EMC)

### ■ Application range

- In combination with protective conduit
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- Used in areas where screened cables and wires need to have additional protection

### ■ Product make-up

- Metric connection thread
- EMC cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

### ■ Suitable conduits

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

### ■ Technical data

<b>RAL</b>	<b>Colour delivered</b> Black (RAL 9005), UV-resistant
<b>Material</b>	Polyamide Nickel-plated brass
<b>IP</b>	<b>Protection rating</b> IP 68
<b>Temperature range</b>	-40 °C to +115 °C

Article number	PG size	For conduit with outer Ø (mm)	Clamping range (mm)	Overall length, C (mm)	Thread length, D (mm)	SW 1/2 mm	Suitable for SILVYN® RILL	Pieces / PU
<b>SILVYN® KSE</b>								
55001200	9	13.0	4.0 - 8.0	57.0	12.0	17 / 22	9	20
55001210	11	15.8	6.5 - 10.0	62.0	12.0	20 / 25	11	20
55001230	16	21.2	10.0 - 14.0	70.0	12.0	24 / 31	16	10
55001240	21	28.5	14.0 - 17.5	75.0	12.0	30 / 39	21	10

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

### ■ Similar products

- SILVYN® MSK-M EE refer to page 786
- SILVYN® MSK-M US refer to page 824
- SILVYN® KSE-M refer to page 812

### ■ Accessories

- SKINDICHT® SM-PE refer to page 752



**Benefits**

- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

**Application range**

- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

**Norm references / Approvals**

- UL FILENUMBER E308201

**Product make-up**

- PG connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

**Suitable conduits**

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> Grey (RAL 7001) Black (RAL 9005), UV-resistant
<b>Material</b>	PA6
<b>IP</b>	<b>Protection rating</b> IP 68 IP 69K according to DIN 40050 T.9
<b>Temperature range</b>	-40 °C to +115 °C

**SILVYN® KCLICK-GP**



Article number	Article designation	Suitable for SILVYN® RILL	For conduit with outer Ø (mm)	Wrench size (mm)	Thread length (mm)	Hole (mm)	Pieces / PU
<b>SILVYN® KCLICK-GP grey</b>							
61800860	7	7	10	15.5	10	7	50
61800870	9	9	13	18.0	10	10	50
61800880	11	11	15.8	21.0	10	12.5	50
61800850	13,5	13,5	18.2	24.0	11	13.5	50
61800890	16	16	21.2	27.0	12	17	50
61800900	21	21	28.5	34.0	12	23.5	25
61800910	29	29	34.5	40.0	12	30.5	25
61800920	36	36	42.5	49.0	12	36.5	25
61800930	48	48	54.5	60.0	15	48.5	10
<b>SILVYN® KCLICK-GP black</b>							
61800865	7	7	10	15.5	10	7	50
61800875	9	9	13	18.0	10	10	50
61800885	11	11	15.8	21.0	10	12.5	50
61800855	13,5	13,5	18.2	24.0	11	13.5	50
61800895	16	16	21.2	27.0	12	17	50
61800905	21	21	28.5	34.0	12	23.5	25
61800915	29	29	34.5	40.0	12	30.5	25
61800925	36	36	42.5	49.0	12	36.5	25
61800935	48	48	54.5	60.0	15	48.5	10

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



## SILVYN® KLICK-GPZ



### ■ Benefits

- Fast assembly
- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

### ■ Application range

- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- 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

- PG connection thread
- Cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

### ■ Suitable conduits

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

### ■ Technical data

- RAL** **Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- IP** **Protection rating**  
IP 68  
IP 69K according to DIN 40050 T.9
- Temperature range**  
-40 °C to +115 °C

Article number	Article designation	Suitable for SILVYN® RILL	For conduit with outer Ø (mm)	Wrench size (mm)	Clamping range (mm)	Thread length (mm)	min. IØ (mm)	Pieces / PU
<b>SILVYN® KLICK-GPZ grey</b>								
61801120	7	7	10	16.0	3 - 6.5	8	7.0	20
61801130	9	9	13	18.0	4 - 8	8	8.0	20
61801140	11	11	15.8	21.0	5 - 10	8	10.0	20
61801200	13,5/1	11	15.8	27.0	6 - 11	8	12.0	20
61801202	13,5/2	13,5	18.5	27.0	6 - 12	8	12.0	20
61801150	16	16	21.2	27.0	10 - 14	10	14.0	10
61801160	21	21	28.5	34.0	13 - 18	11	18.0	10
61801170	29	29	34.5	40.0	18 - 25	12	25.0	10
61801180	36	36	42.5	49.0	22 - 32	13	32.0	10
61801190	48	48	54.5	60.0	34 - 44	14	44.0	10
<b>SILVYN® KLICK-GPZ black</b>								
61801125	7	7	10	16.0	3 - 6.5	8	7.0	20
61801135	9	9	13	18.0	4 - 8	8	8.0	20
61801145	11	11	15.8	21.0	5 - 10	8	10.0	20
61801205	13,5/1	11	15.8	27.0	6 - 11	8	11.0	20
61801155	16	16	21.2	27.0	10 - 14	10	14.0	10
61801165	21	21	28.5	34.0	13 - 18	11	18.0	10
61801175	29	29	34.5	40.0	18 - 25	12	25.0	10
61801185	36	36	42.5	49.0	22 - 32	13	32.0	10
61801195	48	48	54.5	60.0	34 - 44	14	44.0	10

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





**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 PA6
- SILVYN® RILL PA 12
- For applications with limited space
- Rotating applications

**Norm references / Approvals**

- UL FILENUMBER E308201

**Product make-up**

- PG connection thread
- 90° elbow
- Body with inner sealing
- Upper part with snap-in sleeve

**Suitable conduits**

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

**Technical data**

- RAL Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- IP Protection rating**  
IP 68  
IP 69K according to DIN 40050 T.9
- Temperature range**  
-40 °C to +115 °C

**SILVYN® KCLICK 90° PG**



Article number	Article designation	Suitable for SILVYN® RILL	For conduit with outer Ø (mm)	Thread length (mm)	Clear opening (mm)	Pieces / PU
<b>SILVYN® KCLICK 90° PG grey</b>						
61801020	9	9	13	10	12.0	50
61801030	11	11	15.8	10	15.5	50
56000100	13,5	13,5	18.5	11	13.5	50
61801040	16	16	21.2	12	18.0	50
61801050	21	21	28.5	12	24.0	25
61801060	29	29	34.5	12	32.0	10
61801061	36	36	42.5	14	36.5	10
61801062	48	48	54.5	14	48.5	5
<b>SILVYN® KCLICK 90° PG black</b>						
61801025	9	9	13	10	12.0	50
61801035	11	11	15.8	10	15.5	50
56000105	13,5	13,5	18.5	11	13.5	50
61801045	16	16	21.2	12	18.0	50
61801055	21	21	28.5	12	24.0	25
61801065	29	29	34.5	12	32.0	10

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



## 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 PA6
- SILVYN® RILL PA12
- Y-distributor for SILVYN® RILL conduits

**SILVYN® KLICK-Y (TPE)**

- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- 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 Page 789
- SILVYN® RILL PA 12 Page 790

**■ Technical data**



**On request**  
SILVYN® KLICK-Y  
More sizes / combinations



**Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant



**Material**  
SILVYN® KLICK-Y  
PA6  
SILVYN® KLICK-Y (TPE)  
TPE



**Protection rating**  
SILVYN® KLICK-Y  
IP 68  
IP 69K according to DIN 40050 T.9  
SILVYN® KLICK-Y (TPE)  
IP 66



**Temperature range**  
-40 °C to +115 °C

Article number	Article designation	Suitable for SILVYN® RILL	For conduit with outer Ø (mm)	Pieces / PU
<b>SILVYN® KLICK-Y grey</b>				
61801090	2 x 7 / 1 x 9	7 / 9	10 / 13	10
61801100	3 x 9	9	13	10
61801110	2 x 9 / 1 x 11	9 / 11	13 / 15.8	10
56000130	3 x 11	11	15.8	10
<b>SILVYN® KLICK-Y black</b>				
61801095	2 x 7 / 1 x 9	7 / 9	10 / 13	10
61801105	3 x 9	9	13	10
61801115	2 x 9 / 1 x 11	9 / 11	13 / 15.8	10
56000135	3 x 11	11	15.8	10
<b>SILVYN® KLICK-Y (TPE) grey</b>				
56000120	3 x 7	7	10	10
56000140	2 x 11 / 1 x 16	11 / 16	15.8 / 21.2	10
56000150	2 x 16 / 1 x 21	16 / 21	21.2 / 28.5	10
56000160	2 x 21 / 1 x 29	21 / 29	28.5 / 34.5	10
<b>SILVYN® KLICK-Y (TPE) black</b>				
56000125	3 x 7	7	10	10
56000145	2 x 11 / 1 x 16	11 / 16	15.8 / 21.2	10
56000155	2 x 16 / 1 x 21	16 / 21	21.2 / 28.5	10
56000165	2 x 21 / 1 x 29	21 / 29	28.5 / 34.5	10

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**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 PA6
- 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

**Note**

- For black (RAL 9005), replace the last digit of the part no. with "5".

**Suitable conduits**

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

**Technical data**

**RAL** Colour delivered  
 Grey (RAL 7001)  
 Black (RAL 9005), UV-resistant

**Material**  
 PA6

**Temperature range**  
**SILVYN® KLICK-S**  
 -30°C to +70°C  
**SILVYN® KLICK-D**  
 -40 °C to +115 °C  
**SILVYN® KLICK-V**  
 -40 °C to +115 °C

Article number	PG size	Pieces / PU
<b>SILVYN® KLICK-S grey</b>		
61811110	7	100
61811120	9	100
61811130	11	50
61811190	13.5	50
61811140	16	50
61811150	21	50
61811160	29	30
61811170	36	20
61811180	48	20
<b>SILVYN® KLICK-D grey</b>		
61811200	7	100
61811260	11	50
61811210	16	50
61811220	21	50
61811230	29	30
61811240	36	20
61811250	48	20
<b>SILVYN® KLICK-V grey</b>		
61811270		100

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

**Accessories**

**SILVYN® KLICK-D**

- SILVYN® KLICK-S refer to page 799

**SILVYN® KLICK-V**

- SILVYN® KLICK-S refer to page 799



## SILVYN® KLICK-RH



### 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 PA6
- SILVYN® RILL PA12
- 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

### Norm references / Approvals

- UL FILENUMBER E308201

### Product make-up

- One-piece conduit holder with M4/M5/M6 borehole for fixation

### Suitable conduits

- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Grey (RAL 7001) Black (RAL 9005), UV-resistant
	<b>Material</b> PA6
	<b>Temperature range</b> -40 °C to +115 °C

Article number	PG size	For conduit with outer Ø (mm)	Pieces / PU
<b>SILVYN® KLICK-RH grey</b>			
65500300	7	10	50
65500310	9	13	50
65500320	11	15.8	50
65500330	13.5	18.5	50
65500340	16	21.2	50
65500350	21	28.5	25
65500360	29	34.5	25
65500370	36	42.5	25
65500380	48	54.5	10
<b>SILVYN® KLICK-RH black</b>			
65500305	7	10	50
65500315	9	13	50
65500325	11	15.8	50
65500335	13.5	18.5	50
65500345	16	21.2	50
65500355	21	28.5	25
65500365	29	34.5	25
65500375	36	42.5	25
65500385	48	54.5	10

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



## 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 PA6
- SILVYN® RILL PA12
- Intersection or end sleeve

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Grey (RAL 7001) Black (RAL 9005), UV-resistant
	<b>Material</b> TPE-V
	<b>Temperature range</b> -40 °C to +120 °C

### Suitable conduits

- SILVYN® FPAS Page 804
- SILVYN® RILL PA 6 Page 789
- SILVYN® RILL PA 12 Page 790

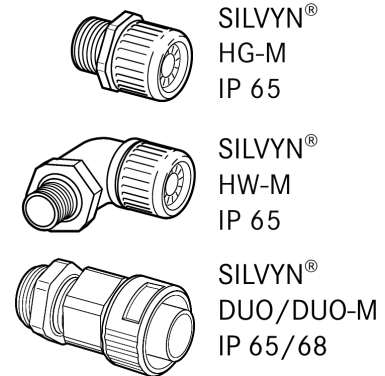
Article number	Article designation	For conduit with outer Ø (mm)	Cable Ø (mm)	Overall length (mm)	Pieces / PU
<b>SILVYN® K-EM grey</b>					
65500200	7	10	1.0 - 8.0	29.0	50
65500210	9	13	1.0 - 10.0	32.5	50
65500220	11	15.8	4.0 - 12.0	36.5	50
65500230	16	21.2	6.0 - 16.5	37.5	50
65500240	21	28.5	6.0 - 23.0	40.2	25
65500250	29	34.5	6.0 - 29.0	44.2	25
65500260	36	42.5	10.0 - 37.0	46.0	25
65500270	48	54.5	10.0 - 47.0	52.0	10
<b>SILVYN® K-EM black</b>					
65500205	7	10	1.0 - 8.0	29.0	50
65500215	9	13	1.0 - 10.0	32.5	50
65500225	11	15.8	4.0 - 12.0	36.5	50
65500235	16	21.2	6.0 - 16.5	37.5	50
65500245	21	28.5	6.0 - 23.0	40.2	25
65500255	29	34.5	6.0 - 29.0	44.2	25
65500265	36	42.5	10.0 - 37.0	46.0	25
65500275	48	54.5	10.0 - 47.0	52.0	10

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

For current information see: [www.lappgroup.com](http://www.lappgroup.com)



**SILVYN® HCC**



**Benefits**

- Dimensionally stable
- Flexible
- Lightweight
- Crush-resistant

**Application range**

- Mechanical engineering
- Apparatus construction
- Building Automation
- Moving applications
- Outdoors

**Product features**

- Conduit with full metric design
- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

**Product make-up**

- Fine-profile corrugated polyamide 6 conduit

**Note**

- UV-resistant and weather-resistant

**Technical data**

	<b>Colour delivered</b> Black (RAL 9005), UV-resistant
	<b>Material</b> PA6 Halogen-free
	<b>Temperature range</b> -25°C to +100°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® HG-M	Suitable for SILVYN® HW-M	PU ring (m)
<b>SILVYN® HCC</b>							
61793970	12	9.4 x 13.0	25	9.4	12	12	50
61793980	16	11.6 x 16.0	30	11.6	16	16	50
61793990	20	14.6 x 20.0	40	14.6	20	20	50
61794000	25	18.7 x 25.0	50	18.7	25	25	50
61794010	32	25.6 x 32.0	65	25.6	32	32	25
61794020	40	33.1 x 40.0	85	33.1	40		25
61794030	50	42.7 x 50.0	110	42.7	50		25
61794035	63	54.6 x 63.0	130	54.6	63		25

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

**Accessories**

- SILVYN® HG-M refer to page 802
- SILVYN® HW-M refer to page 802
- SILVYN® DUO-M refer to page 803
- SILVYN® SCLX refer to page 803



## SILVYN® HG-M / SILVYN® HW-M



SILVYN® HG-M



SILVYN® HW-M

### ■ Benefits

#### SILVYN® HG-M

- Easy to disassemble
- High-tensile
- Sealing

#### SILVYN® HW-M

- 90° elbow allows easy installation
- Easy to disassemble
- High-tensile
- Sealing

### ■ Application range

#### SILVYN® HG-M

- In combination with protective conduit
- SILVYN® HCC

#### SILVYN® HW-M

- In combination with protective conduit
- SILVYN® HCC
- For applications with limited space

### ■ Product make-up

#### SILVYN® HG-M

- Metric connection thread
- Body with sealing and clamping ring
- Cap nut

#### SILVYN® HW-M

- Metric connection thread
- 90° elbow
- Body with sealing and clamping ring
- Cap nut

### ■ Note

#### SILVYN® HG-M

- In black colour UV-resistant and weather-proofed

#### SILVYN® HW-M

- UV-resistant and weather-resistant

### ■ Suitable conduits

- SILVYN® HCC Page 801

### ■ Technical data

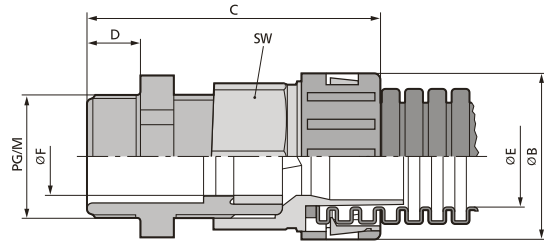
<b>RAL</b>	<b>Colour delivered</b> Black (RAL 9005), UV-resistant
<b>Material</b>	PA6
<b>IP</b>	<b>Protection rating</b> IP 65
<b>Temperature range</b>	-25°C to +100°C

Article number	Article designation	Overall length, C (mm)	Thread length, D (mm)	Suitable for SILVYN® HCC	Pieces / PU
<b>SILVYN® HG-M</b>					
55501600	12 x 1,5	26,3	8,0	12	100
55501610	16 x 1,5	29,4	12,5	16	100
55501620	20 x 1,5	36,0	12,0	20	50
55501630	25 x 1,5	45,4	15,0	25	50
55501640	32 x 1,5	47,0	15,0	32	30
55501650	40 x 1,5	53,0	15,0	40	20
55501660	50 x 1,5	57,4	15,0	50	16
55501670	63 x 1,5	74,0	20,0	63	8
<b>SILVYN® HW-M</b>					
55501680	12 x 1,5		8,0	12	50
55501690	16 x 1,5		10,5	16	20
55501700	20 x 1,5		12,0	20	20
55501710	25 x 1,5		15,0	25	10
55501720	32 x 1,5		15,0	32	10

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



**SILVYN® DUO-M**



**Benefits**

- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

**Application range**

- In combination with protective conduit
- SILVYN® HCC

**Product make-up**

- Metric connection thread
- Cable gland
- Body with sealing and clamping ring
- Upper part with snap-in sleeve

**Note**

- In black colour UV-resistant and weather-proofed

**Suitable conduits**

- SILVYN® HCC Page 801

**Technical data**

- On request**  
Grey
- Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- Protection rating**  
IP 68

Article number	Connection thread M	Clamping range (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Suitable for SILVYN® HCC	Pieces / PU
<b>SILVYN® DUO-M</b>							
61809310	16 x 1,5	3,5 - 8,0	19	49,8	12,0	16	50
61809320	20 x 1,5	5,0 - 12,0	24	53,6	13,0	20	50
61809330	25 x 1,5	9,0 - 14,0	27	59,1	13,0	25	50

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



**SILVYN® SCLX**

**Benefits**

- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib

**Application range**

- In combination with protective conduit
- SILVYN® HCC
- Fastening of conduits on machine walls for all applications

**Product make-up**

- Multi-part conduit holder with M5 borehole for fixation
- Cover with connection snap system

**Technical data**

- Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
PA6
- Temperature range**  
-30°C to +70°C

**Note**

- UV-resistant and weather-resistant

**Suitable conduits**

- SILVYN® HCC Page 801

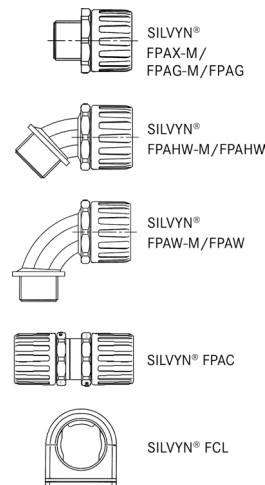


Article number	Article designation	Pieces / PU
<b>SILVYN® SCLX holder</b>		
61814000	16	100
61814010	20	100
61814020	25	100
61814030	32	50
61814040	40	50
61814050	50	50
<b>SILVYN® SCLX clamp</b>		
61814070	16	100
61814080	20	100
61814090	25	100
61814100	32	100
61814110	40	100
61814120	50	100

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



**New**  
**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

**Norm references / Approvals**

- UL FILENUMBER E308201

**Product make-up**

- Fine-profile corrugated polyamide 6 conduit

**Technical data**

**DIN VDE Approvals**  
IEC EN 61386-23

**On request**  
Available in PA 12

**RAL Colour delivered**  
Grey (RAL 7031)  
Black (RAL 9005), UV-resistant

**Material**  
PA 6  
Halogen-free  
Fire behaviour according to UL 94V-2

**Temperature range**  
-40°C to +120°C static  
-20°C to +100°C dynamic

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN® FPAS black</b>					
61754005	10	6.3 x 10.0	15	6.3	50
61754015	13	9.8 x 13.0	25	9.8	50
61754025	16	11.8 x 15.8	35	11.8	50
61754275	18	14.2 x 18.5	40	14.2	50
61754035	21	16.7 x 21.2	45	16.7	50
61754045	28	22.8 x 28.5	50	22.8	50
61754055	34	28.1 x 34.5	60	28.1	25
61754065	42	35.5 x 42.5	70	35.5	25
61754075	54	47.2 x 54.5	80	47.2	25
61754305	67	56.3 x 67.2	130	56.3	10
<b>SILVYN® FPAS grey</b>					
61754000	10	6.3 x 10.0	15	6.3	50
61754010	13	9.8 x 13.0	25	9.8	50
61754020	16	11.8 x 15.8	35	11.8	50
61754270	18	14.2 x 18.5	40	14.2	50
61754030	21	16.7 x 21.2	45	16.7	50
61754040	28	22.8 x 28.5	50	22.8	50
61754050	34	28.1 x 34.5	60	28.1	25
61754060	42	35.5 x 42.5	70	35.5	25
61754070	54	47.2 x 54.5	80	47.2	25
61754300	67	56.3 x 67.2	130	56.3	10

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

**Accessories**

- SILVYN® FPAG-M refer to page 806
- SILVYN® FPAX-M refer to page 805
- SILVYN® FPAG 90° M refer to page 807
- SILVYN® KSE-M refer to page 812
- SILVYN® FPAG refer to page 810
- SILVYN® FPAG 90° PG refer to page 810
- SILVYN® FCL refer to page 811
- SILVYN® FPAC refer to page 812
- SILVYN® FLEXILOK M refer to page 808
- SILVYN® FLEXILOK PG refer to page 808
- SILVYN® FLEXILOK 90° M refer to page 809
- SILVYN® FLEXILOK 90° PG refer to page 809

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UNITRONIC®  
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EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





**New**

**SILVYN® FPAX-M**



**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
- UNDERGROUND

**Product make-up**

- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round tothing

**Suitable conduits**

- SILVYN® FPAS Page 804



**Info**

- IP66
- IP67
- IP68 (2bar)
- IP69K

**Technical data**



**Approvals**  
IEC EN 61386-23



**On request**  
With PG thread



**Colour delivered**  
Grey (RAL 7031)  
Black (RAL 9005), UV-resistant



**Material**  
PA66  
Halogen-free



**Protection rating**  
IP66  
IP67  
IP68 (2bar)  
IP69K



**Temperature range**  
-50°C to +135°C

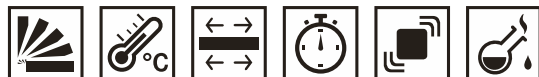
Article number	Connection thread M	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FPAX-M black</b>			
55506135	16 x 1.5/1	FPAS 13	10
55506145	16 x 1.5/2	FPAS 16	10
55506155	20 x 1.5/1	FPAS 16	10
55506165	20 x 1.5/2	FPAS 21	10
55506175	25 x 1.5	FPAS 28	10
55506185	32 x 1.5	FPAS 34	10
55506195	40 x 1.5	FPAS 42	10
55506205	50 x 1.5/1	FPAS 42	10
55506215	50 x 1.5/2	FPAS 54	10
55506225	63 x 1.5	FPAS 67	10
<b>SILVYN® FPAX-M grey</b>			
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	10
55507265	50 x 1.5/1	FPAS 42	10
55507275	50 x 1.5/2	FPAS 54	10
55507285	63 x 1.5	FPAS 67	10

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

**Accessories**

- SKINTOP® GMP-GL-M refer to page 678

ÖLFLEX®  
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SKINTOP®  
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FLEXIMARK®  
ACCESSORIES  
APPENDIX



## 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 tothing

### ■ Suitable conduits

- SILVYN® FPAS Page 804

### ■ Technical data

	<b>Approvals</b> IEC EN 61386-23
	<b>Colour delivered</b> Grey (RAL 7031) Black (RAL 9005), UV-resistant
	<b>Material</b> PA66 Halogen-free
	<b>Protection rating</b> IP 66
	<b>Temperature range</b> -50°C to +135°C

Article number	Article designation	For conduit with outer Ø (mm)	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FPAG-M black</b>				
55506305	M12x1,5	10.0	10	10
55506315	M16x1,5/1	13.0	13	10
55506325	M16x1,5/2	15.8	16	10
55506335	M20x1,5/1	15.8	16	10
55506345	M20x1,5/2	21.2	21	10
55507055	M20x1,5/3	18.5	18	10
55506355	M25x1,5	28.5	28	10
55506365	M32x1,5	34.5	34	10
55506375	M40x1,5	42.5	42	2
55506385	M50x1,5/1	42.5	42	2
55506395	M50x1,5/2	54.5	54	2
55506405	M63x1,5/1	54.5	54	2
55506475	M63x1,5/2	67.2	67	2
<b>SILVYN® FPAG-M grey</b>				
55506300	M12x1,5	10.0	10	10
55506310	M16x1,5/1	13.0	13	10
55506320	M16x1,5/2	15.8	16	10
55506330	M20x1,5/1	15.8	16	10
55506340	M20x1,5/2	21.2	21	10
55507050	M20x1,5/3	18.5	18	10
55506350	M25x1,5	28.5	28	10
55506360	M32x1,5	34.5	34	10
55506370	M40x1,5	42.5	42	2
55506380	M50x1,5/1	42.5	42	2
55506390	M50x1,5/2	54.5	54	2
55506400	M63x1,5/1	54.5	54	2
55506470	M63x1,5/2	67.2	67	2

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

### ■ Similar products

- SILVYN® FPAX-M refer to page 805
- SILVYN® KSE-M refer to page 812

### ■ Accessories

- SKINTOP® GMP-GL-M refer to page 678



**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 tothing

**Suitable conduits**

- SILVYN® FPAS Page 804

**Technical data**



**Approvals**  
IEC EN 61386-23



**On request**  
With 45° elbow



**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	Article designation	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FPAG 90° M black</b>			
55506485	M12x1,5	10	10
55506495	M16x1,5/1	13	10
55506505	M16x1,5/2	16	10
55506515	M20x1,5/1	16	10
55506525	M20x1,5/2	21	10
55507075	M20x1,5/3	18	10
55506535	M25x1,5	28	10
55506545	M32x1,5	34	10
55507085	M40x1,5	42	1
55506555	M50x1,5/1	42	1
55506565	M50x1,5/2	54	1
55506575	M63x1,5/1	54	1
55507095	M63x1,5/2	67	1
<b>SILVYN® FPAG 90° M grey</b>			
55506480	M12x1,5	10	10
55506490	M16x1,5/1	13	10
55506500	M16x1,5/2	16	10
55506510	M20x1,5/1	16	10
55506520	M20x1,5/2	21	10
55507070	M20x1,5/3	18	10
55506530	M25x1,5	28	10
55506540	M32x1,5	34	10
55507080	M40x1,5	42	1
55506550	M50x1,5/1	42	1
55506560	M50x1,5/2	54	1
55506570	M63x1,5/1	54	1
55507090	M63x1,5/2	67	1

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

**Accessories**

- SKINTOP® GMP-GL-M refer to page 678



**New**

## SILVYN® FLEXILOK M / SILVYN® FLEXILOK PG



Info

- Extremely economical
- New purchasing unit

### 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

### Product make-up

- Connection thread metric/PG
- One-piece body
- Special clamping system

### Note

- Removeable with a screwdriver

### Suitable conduits

- SILVYN® FPAS Page 804

### SILVYN® FLEXILOK M

- Parallel corrugated plastic conduits

### SILVYN® FLEXILOK PG

- SILVYN® FPAS
- Parallel corrugated plastic conduits

### Technical data



**Norm references / Approvals**  
IEC EN 61386-23



**On request**  
Colour white and light grey (RAL 7035)  
M12x1,5 / PG 7 for FPAS 10  
M40x1,5 / PG 36 for FPAS 42  
M50x1,5 / PG 48 for FPAS 54



**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	Connection thread M	Inner Ø (mm)	Thread length, D (mm)	Suitable for SILVYN® FPAS	Suitable for conduit ØØ (mm)	Pieces / PU
<b>SILVYN® FLEXILOK M black</b>						
65500405	16 x 1.5/1	12.0	12.0	FPAS 13	13.0	10
65500425	16 x 1.5/2	12.0	12.0	FPAS 16	15.8	10
65500415	20 x 1.5/1	14.0	14.0	FPAS 13	13.0	10
65500435	20 x 1.5/2	14.0	14.0	FPAS 16	15.8	10
65500445	20 x 1.5/3	14.0	14.0	FPAS 21	21.2	10
65500455	25 x 1.5	20.0	15.0	FPAS 28	28.5	10
65500465	32 x 1.5	27.0	16.0	FPAS 34	34.5	10
<b>SILVYN® FLEXILOK M grey</b>						
65500600	16 x 1.5/1	12.0	12.0	FPAS 13	13.0	10
65500420	16 x 1.5/2	12.0	12.0	FPAS 16	15.8	10
65500410	20 x 1.5/1	14.0	14.0	FPAS 13	13.0	10
65500430	20 x 1.5/2	14.0	14.0	FPAS 16	15.8	10
65500440	20 x 1.5/3	14.0	14.0	FPAS 21	21.2	10
65500610	25 x 1.5	20.0	15.0	FPAS 28	28.5	10
65500460	32 x 1.5	27.0	16.0	FPAS 34	34.5	10
<b>SILVYN® FLEXILOK PG black</b>						
65500475	9/1	12.0	10.0	FPAS 13	13.0	10
65500495	9/2	12.0	10.0	FPAS 16	15.8	10
65500485	11/1	12.0	10.0	FPAS 13	13.0	10
65500395	11/2	15.0	10.0	FPAS 16	15.8	10
68100055	13,5/1	15.0	10.0	FPAS 16	15.8	10
68100075	13,5/2	16.0	10.0	FPAS 21	21.2	10
68100065	16/1	15.0	11.0	FPAS 16	15.8	10
68100085	16/2	18.0	11.0	FPAS 21	21.2	10
68100095	21.0	23.0	12.0	FPAS 28	28.5	10
68880005	29.0	31.0	12.0	FPAS 34	34.5	10
<b>SILVYN® FLEXILOK PG grey</b>						
65500470	9/1	12.0	10.0	FPAS 13	13.0	10
65500490	9/2	12.0	10.0	FPAS 16	15.8	10
65500480	11/1	12.0	10.0	FPAS 13	13.0	10
65500390	11/2	15.0	10.0	FPAS 16	15.8	10
68100050	13,5/1	15.0	10.0	FPAS 16	15.8	10
68100070	13,5/2	16.0	10.0	FPAS 21	21.2	10
68100060	16/1	15.0	11.0	FPAS 16	15.8	10
68100080	16/2	18.0	11.0	FPAS 21	21.2	10
68100090	21.0	23.0	12.0	FPAS 28	28.5	10
65500620	29.0	31.0	12.0	FPAS 34	34.5	10

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

### Accessories

- SKINTOP® GMP-GL-M refer to page 678



**New**

## SILVYN® FLEXILOK 90° M / SILVYN® FLEXILOK 90° PG



**Info**

- Extremely economical
- 90° elbow allows easy installation
- New purchasing unit



**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

**Product make-up**

- Connection thread metric/PG
- 90° elbow
- Special clamping system

**Note**

- Removeable with a screwdriver

**Suitable conduits**

- SILVYN® FPAS Page 804
- Parallel corrugated plastic conduits

**Technical data**

**DIN VDE** Norm references / Approvals  
IEC EN 61386-23

**i** On request  
Colour white and light grey (RAL 7035)

**RAL** Colour delivered  
Grey (RAL 7031)  
Black (RAL 9005), UV-resistant

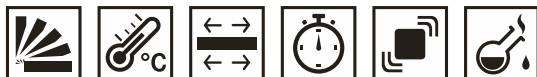
**Material**  
PA66  
Halogen-free

**IP** Protection rating  
IP 66

**Temperature range**  
-40°C to +120°C

Article number	Connection thread M	Inner Ø (mm)	Thread length, D (mm)	Suitable for SILVYN® FPAS	Suitable for conduit OØ (mm)	Pieces / PU
<b>SILVYN® FLEXILOK 90° M black</b>						
68100100	16 x 1.5	12.0	12.0	FPAS 16	13,0	10
68100105	20 x 1.5/1	14.0	14.0	FPAS 16	13,0	10
68100110	20 x 1.5/2	14.0	14.0	FPAS 21	21,2	10
68100115	25 x 1.5	20.0	15.0	FPAS 21	28,5	10
68100120	32 x 1.5	27.0	16.0	FPAS 21	28,5	10
<b>SILVYN® FLEXILOK 90° M grey</b>						
68100125	16 x 1.5	12.0	12.0	FPAS 16	13,0	10
68100130	20 x 1.5/1	14.0	14.0	FPAS 16	13,0	10
68100135	20 x 1.5/2	14.0	14.0	FPAS 21	21,2	10
68100140	25 x 1.5	20.0	15.0	FPAS 21	28,5	10
68100145	32 x 1.5	27.0	16.0	FPAS 21	28,5	10
<b>SILVYN® FLEXILOK 90° PG black</b>						
68100150	9.0	12.0	10.0	FPAS 16	15,8	50
68100155	11/1	12.0	10.0	FPAS 16	15,8	50
68100160	11/2	12.0	10.0	FPAS 16	15,8	50
68100170	13.5	15.0	10.0	FPAS 21	21,2	50
68100165	16/1	15.0	11.0	FPAS 16	15,8	50
68100175	16/2	18.0	11.0	FPAS 21	21,2	50
68100180	21.0	23.0	12.0	FPAS 28	28,5	50
68100185	29.0	31.0	12.0	FPAS 34	34,5	50
<b>SILVYN® FLEXILOK 90° PG grey</b>						
68100190	9.0	12.0	10.0	FPAS 16	15,8	50
68100195	11/1	12.0	10.0	FPAS 16	15,8	50
68100200	11/2	12.0	10.0	FPAS 16	15,8	50
68100210	13.5	15.0	10.0	FPAS 21	21,2	50
68100205	16/1	15.0	11.0	FPAS 16	15,8	50
68100215	16/2	18.0	11.0	FPAS 21	21,2	50
68100220	21.0	23.0	12.0	FPAS 28	28,5	50
68100225	29.0	31.0	12.0	FPAS 34	34,5	50

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



## SILVYN® FPAG / SILVYN® FPAG 90° PG



**SILVYN® FPAG**

**SILVYN® FPAG 90° PG**

**■ Benefits**

**SILVYN® FPAG**

- Fast assembly
- High-tensile
- Sealing
- Vibration protection

**SILVYN® FPAG 90° PG**

- 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

**■ Product features**

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

**■ Norm references / Approvals**

- UL FILENUMBER E308201

**■ Product make-up**

**SILVYN® FPAG**

- PG connection thread
- Body
- Upper part with integrated all-round toothing

**SILVYN® FPAG 90° PG**

- PG connection thread
- 90° elbow
- Body
- Upper part with integrated all-round toothing

**■ Suitable conduits**

- SILVYN® FPAS Page 804

**■ Technical data**



**Approvals**  
IEC EN 61386-23



**On request**  
IP68 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	Article designation	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FPAG black</b>			
55506585	PG 7	10	10
55506595	PG 9/1	10	10
55506605	PG 9/2	13	10
55506615	PG 9/3	16	10
55506625	PG 11	16	10
55506635	PG 13,5/1	16	10
55506645	PG 13,5/2	18	10
55506995	PG 13,5/3	21	10
55506655	PG 16	21	10
55506665	PG 21	28	10
55506675	PG 29	34	10
55506685	PG 36	42	2
55506695	PG 48/1	54	2
55506705	PG 48/2	67	2
<b>SILVYN® FPAG grey</b>			
55506580	PG 7	10	10
55506590	PG 9/1	10	10
55506600	PG 9/2	13	10
55506610	PG 9/3	16	10
55506620	PG 11	16	10
55506630	PG 13,5/1	16	10
55506640	PG 13,5/2	18	10
55506990	PG 13,5/3	21	10
55506650	PG 16	21	10
55506660	PG 21	28	10
55506670	PG 29	34	10
55506680	PG 36	42	2
55506690	PG 48/1	54	2
55506700	PG 48/2	67	2
<b>SILVYN® FPAG 90° PG black</b>			
55506715	PG 7	10	10
55506725	PG 9	13	10
55506735	PG 11	16	10

Article number	Article designation	Suitable for SILVYN® FPAS	Pieces / PU
55506745	PG 13,5/1	16	10
55506755	PG 13,5/2	18	10
55506815	PG 13,5/3	21	10
55506765	PG 16	21	10
55506775	PG 21	28	10
55506785	PG 29	34	10
55506795	PG 36	42	1
55506805	PG 48/1	54	1
55506825	PG 48/2	67	1
<b>SILVYN® FPAG 90° PG grey</b>			
55506710	PG 7	10	10
55506720	PG 9	13	10
55506730	PG 11	16	10
55506740	PG 13,5/1	16	10
55506750	PG 13,5/2	18	10
55506810	PG 13,5/3	21	10
55506760	PG 16	21	10
55506770	PG 21	28	10
55506780	PG 29	34	10
55506790	PG 36	42	1
55506800	PG 48/1	54	1
55506820	PG 48/2	67	1

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

- Accessories**
- SKINTOP® GMP-GL-M refer to page 678



**■ 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

**■ Technical data**

- Approvals**  
DIN VDE IEC EN 61386-23
- Colour delivered**  
RAL Grey (RAL 7031)  
Black (RAL 9005), UV-resistant
- Material**  
PA66  
Halogen-free
- Temperature range**  
-50 °C to +135 °C

**■ Note**

- UV-resistant and weather-resistant

**■ Suitable conduits**

- SILVYN® FPAS Page 804



**SILVYN® FCL**

Article number	Article designation	Hole Ø (mm)	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FCL black</b>				
55506905	10	5.0	10	10
55506915	13	5.0	13	10
55506925	16	5.0	16	10
55506985	18	6.0	18	10
55506935	21	6.0	21	10
55506945	28	6.0	28	10
55506955	34	6.0	34	10
55506965	42	6.0	42	5
55506975	54	6.0	54	5
<b>SILVYN® FCL grey</b>				
55506900	10	5.0	10	10
55506910	13	5.0	13	10
55506920	16	5.0	16	10
55506980	18	6.0	18	10
55506930	21	6.0	21	10
55506940	21	6.0	21	10
55506950	21	6.0	21	10
55506960	42	6.0	42	5
55506970	54	6.0	54	5

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

Parallel corrugated protective cable conduit systems

SILVYN® FPAS



**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 Page 804

**Technical data**



**Approvals**  
IEC EN 61386-23



**On request**  
Size 42  
Size 54



**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	Article designation	Suitable for SILVYN® FPAS	Pieces / PU
<b>SILVYN® FPAC black</b>			
55507005	16	16	5
55507015	21	21	5
55507025	28	28	5
55507035	34	34	5
<b>SILVYN® FPAC grey</b>			
55507000	16	16	5
55507010	21	21	5
55507020	28	28	5
55507030	34	34	5

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



**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 tothing

**Technical data**



**Approvals**  
IEC EN 61386-23



**On request**  
With 45° elbow  
With 90° elbow



**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

**Suitable conduits**

- SILVYN® FPAS Page 804

Article number	Connection thread M	Clamping range (mm)	Thread length, D (mm)	Suitable for SILVYN® FPAS	For conduit with outer Ø (mm)	Pieces / PU
<b>SILVYN® KSE-M black</b>						
55507105	16 x 1.5/1	4.5 - 9.0	12.0	13	13,0	10
55507115	16 x 1.5/2	4.5 - 9.0	12.0	16	15,8	10
55507125	20 x 1.5/1	7.0 - 12.5	12.0	16	15,8	10
55507135	20 x 1.5/2	7.0 - 12.5	12.0	21	21,2	10
55507145	25x1.5	9.0 - 16.5	12.0	28	28,5	10
55507155	32 x 1.5	11.0 - 21.0	15.0	34	34,5	10
55507165	40x1.5	19.0 - 28.0	15.0	42	42,5	1
55507175	50 x 1.5	27.0 - 35.0	15.0	54	54,5	1

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

**Accessories**

- SKINDICHT® SM-PE-M refer to page 704

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UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX





## SILVYN® MAXI PA



### ■ Benefits

- Dimensionally stable
- Flexible
- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- 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

- On request**  
Available in PA 12
- Colour delivered**  
Grey (RAL 7001)  
Black (RAL 9005), UV-resistant
- Material**  
PA 6  
Halogen-free
- Temperature range**  
-40°C to +115°C  
short-term +150°C

Article number	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Weight (kg/m)	Suitable for SILVYN® AFG-PA/AFW-PA	PU ring (m)
<b>SILVYN® MAXI PA grey</b>						
61791150	66.5 x 79.2	170	66.5	0.46	70	10
61791160	91.0 x 106.0	225	91.0	0.79	95	10
<b>SILVYN® MAXI PA black</b>						
61791155	66.5 x 79.2	170	66.5	0.46	70	10
61791165	91.0 x 106.0	225	91.0	0.79	95	10

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

### ■ Accessories

- SILVYN® AFG-PA refer to page 814
- SILVYN® AFW-PA refer to page 814



**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
- High flame-retardance and self-extinguishing in accordance with UL 94V-0

**SILVYN® gasket AFG-PA / AFW-PA**

- Increases the IP degree of protection of SILVYN® AFG-PA and SILVYN® AFW-PA

**SILVYN® AFW-PA**

- 90° elbow allows easy installation
- Tear-resistant connection
- Secure conduit insertion
- High flame-retardance and self-extinguishing in accordance with UL 94V-0

**Application range**

**SILVYN® AFG-PA**

- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires

**SILVYN® gasket AFG-PA / AFW-PA**

- In combination with protective conduit
- SILVYN® MAXI PA
- SILVYN® AFG-PA
- SILVYN® AFW-PA

**SILVYN® AFW-PA**

- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires
- For applications with limited space

**Norm references / Approvals**

**SILVYN® AFG-PA**

- UL FILENUMBER E308201
- SILVYN® gasket AFG-PA / AFW-PA**
- IP 69K according to DIN 40050 T.9

**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® gasket AFG-PA / AFW-PA**

- Sealing element with adjusted corrugation profile

**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 Page 813

**Technical data**

**RAL** Colour delivered  
**SILVYN® AFG-PA**  
 Grey (RAL 7001)  
 Black (RAL 9005), UV-resistant  
**SILVYN® AFW-PA**  
 Grey (RAL 7001)  
 Black (RAL 9005), UV-resistant

**Material**  
**SILVYN® AFG-PA**  
 PA6  
**SILVYN® AFW-PA**  
 PA6

**IP** Protection rating  
**SILVYN® AFG-PA**  
 IP 54  
 IP 66 with AFG-PA/AFW-PA seal  
**SILVYN® AFW-PA**  
 IP 54  
 IP 66 with AFG-PA/AFW-PA seal

**Temperature range**  
**SILVYN® AFG-PA**  
 -30°C to +100°C  
**SILVYN® AFW-PA**  
 -30°C to +100°C

Article number	Article designation	Nominal size	A mm	B in mm	Overall length, C (mm)	D (mm)	E mm	F mm	H	I	J	K	L	N	O	Pieces / PU
<b>SILVYN® AFG-PA grey</b>																
55001080	70 straight	70	94.0	96.0	60.5	80.5										1
55001081	95 straight	95	128.0	126.0	74.0	108.0										1
<b>SILVYN® AFG-PA black</b>																
55001085	70 straight	70	94.0	96.0	60.5	80.5										1
55001086	95 straight	95	128.0	126.0	74.0	108.0										1
<b>SILVYN® seal for AFG-PA, AFW-PA</b>																
55001082	70															1
55001083	95															1
<b>SILVYN® AFW-PA grey</b>																
55001090	70 - 90°- angle		94.0	96.0	60.5	80.5	96.4	69	70.0	56.5	6.2	152.5	103.5	81.5	175.0	1
55001091	95 - 90°- angle		128.0	126.0	74.0	108.0	123.5	96	95.0	55.0	7.0	202.5	127.5	98.5	224.5	1
<b>SILVYN® AFW-PA black</b>																
55001093	70 - 90°- angle		94.0	96.0	60.5	80.5	96.4	69	70.0	56.5	6.2	152.5	103.5	81.5	175.0	1
55001092	95 - 90°- angle		128.0	126.0	74.0	108.0	123.5	96	95.0	55.0	7.0	202.5	127.5	98.5	224.5	1

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

**Accessories**

**SILVYN® AFG-PA**

- SILVYN® gasket AFG-PA / AFW-PA refer to page 814

**SILVYN® gasket AFG-PA / AFW-PA**

- SILVYN® gasket AFG-PA / AFW-PA refer to page 814
- SILVYN® AFW-PA refer to page 814

**SILVYN® AFW-PA**

- SILVYN® gasket AFG-PA / AFW-PA refer to page 814

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**New**

**SILVYN® TC**



**Info**

- No conduit gland required
- With counter nut usable
- Selected section length

**Benefits**

- Dimensionally stable
- Flexible
- Threaded
- Cost-saving due to quick and easy installation

**Application range**

- Control cabinet manufacturing
- Mechanical engineering
- Plant engineering
- For indoor and outdoor use

**Product features**

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

**Product make-up**

- Fine-profile corrugated polyamide 6 conduit

**Note**

- We recommend to use an additional sealing to maximize the IP rating
- Size M10 / M12 / M16 / M40 / M50 available on request
- Section length 222 mm

**Technical data**

- On request**  
M10 / M12 / M16 / M40 / M50
- Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
PA 6  
Halogen-free  
Fire behaviour according to UL 94 HB
- Temperature range**  
-40°C to +120°C

Article number	Article designation	Internal Ø x external Ø (mm)	Connection thread M	Inner Ø (mm)	PU ring (m)
61221035	SILVYN® TC NW17 / M20x1,5	16.6 x 21.2	20 x 1.5	16.6	50
64400650	SILVYN® TC NW22 / M25x1,5	23.1 x 28.4	25 x 1.5	23.1	50
64400651	SILVYN® TC NW26 / M32x1,5	28.9 x 34.5	32 x 1.5	28.9	50

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

**Similar products**

- SILVYN® FPAS refer to page 804
- SILVYN® RILL PA 6 refer to page 789

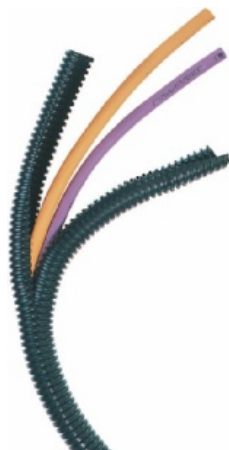
**Accessories**

- SILVYN® Conduit scissor refer to page 853
- SKINTOP® GMP-GL-M refer to page 678
- SILVYN® SPLIT COS refer to page 817
- SKINDICHT® JT PTFE metric refer to page 720





## SILVYN® SPLIT



### Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Subsequent cable protection after cable installation
- 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 and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

### Product make-up

- Divisible corrugated polyamide 6 conduit

**Info**

- New sizes are available

**Technical data**

**On request**  
SILVYN® SPLIT PP (polypropylene)  
SILVYN® SPLIT NW 54/70

**Colour delivered**  
Black (RAL 9005), UV-resistant

**Material**  
PA6  
Halogen-free

**Protection rating**  
IP 43 with SILVYN® SPLIT COV

**Temperature range**  
-40 °C to +120 °C  
short-term 150 °C

Article number	Article designation	Bending radius (mm)	Conduit size (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® COV	PU (m)
<b>SILVYN® SPLIT</b>						
61806621	8	70	6.2/ 11.2	11.2		50
61806620	10	55	8.9/ 13.6	13.6	M16/PG9	50
61806630	14	75	12.9/ 18.7	18.7	M20/PG13,5	50
61806631	16	100	10.3/ 15.8	15.8		50
61806640	20	105	19.8/ 25.9	25.9	M25/PG21	50
61806641	21	120	13.9/ 21.0	21.0		50
61806650	23	125	23.7/ 31.3	31.3	M32/PG29	50
61806651	32	180	26.2/ 34.5	34.5		50
61806660	37	170	31.7/ 41.9	41.9	M40/PG29	25
61806670	45	170	43.1/ 54.2	54.2	M50	25

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

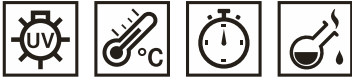
**Similar products**

- SILVYN® RILL PA6 SINUS refer to page 818

**Accessories**

- SILVYN® SPLIT COV refer to page 817
- SILVYN® SPLIT COS refer to page 817
- Spare tool Cable - Eater refer to page 954

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ACCESSORIES  
APPENDIX



**SILVYN® SPLIT COV / SILVYN® SPLIT COS**



SILVYN® SPLIT COV



SILVYN® SPLIT COS

**Benefits**

**SILVYN® SPLIT COV**

- Fast and easy assembly
- Subsequent mountable conduit insertion

**SILVYN® SPLIT COS**

- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

**Application range**

**SILVYN® SPLIT COV**

- 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**

- Included: divisible counter nut

**SILVYN® SPLIT COS**

- One-piece conduit holder

**Note**

- UV-resistant and weather-resistant

**Suitable conduits**

- SILVYN® SPLIT Page 816

**Technical data**

**Auf Anfrage SILVYN® SPLIT COS**  
 Size 10 + 14 with M5 bore hole  
 Size 20 + 23 with M6 bore hole

**Colour delivered**  
 Black (RAL 9005), UV-resistant

**Material**  
 Halogen-free PA

**Temperature range**  
 -40°C to +120°C

Article number	Article designation	PG size	Hole Ø (mm)	Conduit size (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® SPLIT	Pieces / PU
<b>SILVYN® SPLIT COV (counter nut included)</b>							
61806760	10	9		8.9 / 13.6	13.6	10	100
61806770	14	13.5		12.9 / 18.7	18.7	14	100
61806780	20	21		19.8 / 25.9	25.9	20	50
61806790	23	29		23.7 / 31.3	31.3	23	50
61806800	37	29		31.7 / 41.9	41.9	37	25
<b>SILVYN® SPLIT COV-M (counter nut not included)</b>							
61806680	10	16		8.9 / 13.6	13.6	10	100
61806681	14	20		12.9 / 18.7	18.7	14	100
61806682	20	25		19.8 / 25.9	25.9	20	50
61806683	23	32		23.7 / 31.3	31.3	23	50
61806684	37	40		31.7 / 41.9	41.9	37	25
61806685	45	50		43.1 / 54.2	54.2	37	25
<b>SILVYN® SPLIT COS</b>							
61806690	10		M3	8.9 / 13.6	13.6	10	100
61806700	14		M3	12.9 / 18.7	18.7	14	100
61806710	20		M5	19.8 / 25.9	25.9	20	50
61806720	23		M5	23.7 / 31.3	31.3	23	50
61806730	37		M6	31.7 / 41.9	41.9	37	20
61806740	45		M6	43.1 / 54.2	54.2	45	20

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

Parallel corrugated protective cable conduit systems

SILVYN® SPLIT



**SILVYN® SPLIT GMP-M**



**Benefits**

- Fast assembly
- Easy to disassemble

**Note**

- Accessory for SILVYN® SPLIT COV-M
- UV-resistant and weather-resistant

**Suitable conduits**

- SILVYN® SPLIT Page 816

**Technical data**

- RAL Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
Halogen-free PA
- Temperature range**  
-40°C to +120°C

Article number	Suitable for SILVYN® SPLIT COV-M	Pieces / PU
<b>SILVYN® SPLIT GMP-M</b>		
61806686	16	100
61806687	20	100
61806688	25	50
61806689	32	50
61806691	40	25
61806692	50	25

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

Protective cable conduit systems and cable carrier systems

Parallel corrugated protective cable conduit systems

SILVYN® RILL PA6 SINUS



**SILVYN® RILL PA6 SINUS**



**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

**Norm references / Approvals**

- NFR-13-903 from 8.4 x 11.4

**Product make-up**

- Fine-profile corrugated polyamide 6 conduit with sinusoidal slit

**Note**

- On request
- SILVYN® RILL PA6 SINUS PP (polypropylene)



**Info**

- Sinusoidal slit for subsequent assembly
- Made of special heat-resistant polyamide up to +140°C

**Technical data**

- DIN VDE Approvals**  
GGVS, NFR-13-903 from 8.4 x 11.4
- Note**  
Elongation at tear in accordance with DIN 53 455: 50 - 200 %  
Impact resistance in accordance with DIN 53 453: without rupture  
Notched impact resistance in accordance with DIN 53 453: without rupture  
Flammability rating: UL 94HB
- RAL Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
PA6 heat-modified  
Cadmium-free  
Halogen-free
- Temperature range**  
-40°C to +140°C

Article number	Internal Ø x external Ø (mm)	Inner Ø (mm)	Suitable for SILVYN® holder	PU ring (m)
<b>SILVYN® RILL PA6 SINUS</b>				
61806550	6,7 x 10,0	6,7	FCL 10 / 5550 6905	50
61806555	8,4 x 11,4	8,4		50
61806560	9,9 x 13,0	9,9	FCL 13 / 5550 6915	50
61806565	12,2 x 15,7	12,2	FCL 16 / 5550 6925	50
61806570	16,6 x 21,2	16,6	FCL 21 / 5550 6935	50
61806575	21,3 x 25,4	21,3	SPLIT COS 20 / 6180 6710	50
61806580	23,2 x 28,3	23,2	FCL 28 / 5550 6945	50

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

**Similar products**

- SILVYN® SPLIT refer to page 816

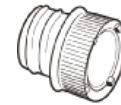
**Accessories**

- SILVYN® SPLIT COS refer to page 817
- SILVYN® FCL refer to page 811
- STKP tool of the cable eater serves as an insertion tool

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX



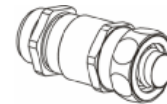
**SILVYN® AS**



SILVYN® US-AS



SILVYN®  
US/US-M + US-AS  
IP 40



SILVYN® MSK-M

**Benefits**

- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance
- Heat-resistant

**Application range**

- Automation technology
- Mechanical engineering
- Plant engineering
- Rolling stock
- Applications with high mechanical stress

**Norm references / Approvals**

- VDE
- DIN 49012, complies with design G according to EN 500886-2-3
- In EX-area according to VDE 0165 DIN EN 50281-1-2

**Product make-up**

- Spirally-wound metal protective conduit with roughened profile

**Note**

- PU = 10m (on request)

**Technical data**



**Material**

Cold strip DC Ø3 according to EN 10139, zinc-plated Fe/Zn3



**Temperature range**

Up to +220°C

Article number	PG size	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
<b>SILVYN® AS</b>								
61802080	7	8.0 x 10.0	28	8.0	12 x 1,5	10 x 1,0	7	50
61802090	9	11.0 x 14.0	34	11.0	16 x 1,5	12 x 1,5	9	50
61802100	11	14.0 x 17.0	40	14.0	20 x 1,5	16 x 1,5	11	50
61802110	13.5	16.0 x 19.0	45	16.0			13,5	50
61802120	16	18.0 x 21.0	50	18.0	25 x 1,5	20 x 1,5	16	50
61802130	21	23.0 x 27.0	63	23.0	32 x 1,5	25 x 1,5	21	50
61802140	29	31.0 x 36.0	85	31.0	40 x 1,5	32 x 1,5	29	25
61802150	36	40.0 x 45.0	100	40.0	50 x 1,5	40 x 1,5	36	25
61802170	48	51.0 x 56.0	125	51.0	63 x 1,5	50 x 1,5	48	25

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

**Similar products**

- SILVYN® EDU-AS refer to page 821

**Accessories**

- SILVYN® MSK-M US refer to page 824
- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829
- SILVYN® US-AS refer to page 830

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P



**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 EN 500886-2-3
- In EX-area according to VDE 0165 DIN EN 50281-1-2

**Product make-up**

- Spirally-wound metal protective conduit with roughened profile
- PVC sheath

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> Grey
	<b>Material</b> Cold strip DC Ø3 according to DIN 10139, zinc-plated Fe/Zn3 Sheath: PVC
	<b>Temperature range</b> -25°C to +80°C Short-term: up to +100°C

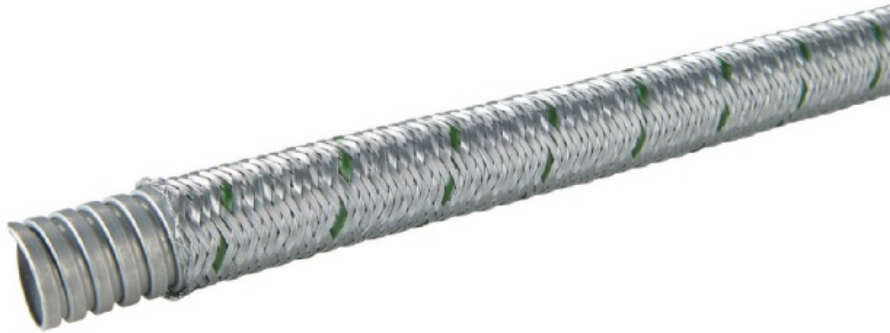
Article number	PG size	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
<b>SILVYN® AS-P</b>								
64400010	7	7.0 x 10.0	32	7.0	12 x 1,5	10 x 1,0	7	50
64400020	9	10.0 x 14.0	40	10.0	16 x 1,5	12 x 1,5	9	50
64400030	11	13.0 x 17.0	45	13.0	20 x 1,5	16 x 1,5	11	50
64400040	13,5	15.0 x 19.0	52	15.0			13,5	50
64400050	16	17.0 x 21.0	58	17.0	25 x 1,5	20 x 1,5	16	50
64400060	21	22.0 x 27.0	72	22.0	32 x 1,5	25 x 1,5	21	50
64400070	29	29.0 x 36.0	98	29.0	40 x 1,5	32 x 1,5	29	25
64400080	36	38.0 x 45.0	118	38.0	50 x 1,5	40 x 1,5	36	25
64400090	48	49.0 x 56.0	140	49.0	63 x 1,5	50 x 1,5	48	25
<b>SILVYN® AS-P 10M</b>								
64400100	7	7.0 x 10.0	32	7.0	12 x 1,5	10 x 1,0	7	10
64400110	9	10.0 x 14.0	40	10.0	16 x 1,5	12 x 1,5	9	10
64400120	11	13.0 x 17.0	45	13.0	20 x 1,5	16 x 1,5	11	10
64400130	13,5	15.0 x 19.0	52	15.0			13,5	10
64400140	16	17.0 x 21.0	58	17.0	25 x 1,5	20 x 1,5	16	10
64400150	21	22.0 x 27.0	72	22.0	32 x 1,5	25 x 1,5	21	10
64400160	29	29.0 x 36.0	98	29.0	40 x 1,5	32 x 1,5	29	10
64400170	36	38.0 x 45.0	118	38.0	50 x 1,5	40 x 1,5	36	10
64400180	48	49.0 x 56.0	140	49.0	63 x 1,5	50 x 1,5	48	10

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

**Accessories**

- SILVYN® MSK-M US refer to page 824
- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829
- SILVYN® US-AS refer to page 830
- SILVYN® US-EDU-AS refer to page 830





**SILVYN® EDU-AS**



SILVYN® MSK-M



SILVYN® US/US-M + US-EDU-AS IP 40



SILVYN® US-EDU-AS



SILVYN® US MS-DR

**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 EN 500886-2-3
- In EX-area according to VDE 0165 DIN EN 50281-1-2

**Product make-up**

- Spirally-wound metal protective conduit with roughened profile
- Galvanised steel wire braiding

**Note**

- PU = 10m (on request)

**Technical data**



**Material**

Cold strip DC Ø3 according to EN 10139, zinc-plated Fe/Zn3  
Braiding: zinc-plated steel wire



**Temperature range**

Up to +220°C

Article number	PG size	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
<b>SILVYN® EDU-AS</b>								
61802380	7	7.0 x 10.0	28	7.0	12 x 1,5	10 x 1,0	7	50
61802390	9	10.0 x 14.0	34	10.0	16 x 1,5	12 x 1,5	9	50
61802400	11	13.0 x 17.0	40	13.0	20 x 1,5	16 x 1,5	11	50
61802410	13.5	15.0 x 19.0	45	15.0			13,5	50
61802420	16	17.0 x 21.0	50	17.0	25 x 1,5	20 x 1,5	16	50
61802430	21	22.0 x 27.0	63	22.0	32 x 1,5	25 x 1,5	21	50
61802440	29	29.0 x 36.0	85	29.0	40 x 1,5	32 x 1,5	29	25
61802450	36	38.0 x 45.0	100	38.0	50 x 1,5	40 x 1,5	36	25
61802470	48	49.0 x 56.0	135	49.0	63 x 1,5	50 x 1,5	48	25

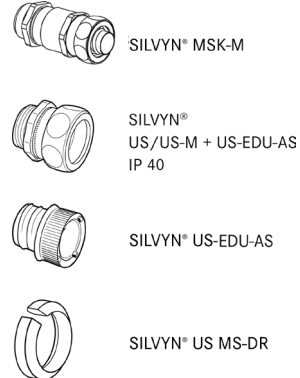
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® MSK-M US refer to page 824
- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829
- SILVYN® US-EDU-AS refer to page 830
- SILVYN® US-MS-DR refer to page 830



## 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 VG 95373 Part 41, a screening factor from 10 MHz up to 30 dB can be reached.

### ■ Product make-up

- Spirally-wound metal protective conduit with roughened profile
- Tinned-copper braiding

### ■ Technical data

**Material**  
 Inner conduit: cold strip St 2 according to EN 10139 Fe/Zn3, galvanised.  
 Braiding: tinned-copper

**Temperature range**  
 Up to +150°C

Article number	Article designation	Article IØ x OØ (mm)	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
<b>SILVYN® EMC AS-CU</b>							
64400500	SILVYN® EMC AS-CU 10	7.0 x 10.0	28	12 x 1,5	10 x 1,0	7	50
64400501	SILVYN® EMC AS-CU 14	10.0 x 14.0	34	16 x 1,5	12 x 1,5	9	50
64400502	SILVYN® EMC AS-CU 17	13.0 x 17.0	40	20 x 1,5	16 x 1,5	11	50
64400503	SILVYN® EMC AS-CU 19	15.0 x 19.0	45			13,5	50
64400504	SILVYN® EMC AS-CU 21	17.0 x 21.0	50	25 x 1,5	20 x 1,5	16	50
64400505	SILVYN® EMC AS-CU 27	22.0 x 27.0	63	32 x 1,5	25 x 1,5	21	50
64400506	SILVYN® EMC AS-CU 36	29.0 x 36.0	85	40 x 1,5	32 x 1,5	29	25
64400507	SILVYN® EMC AS-CU 45	38.0 x 45.0	100	50 x 1,5	40 x 1,5	36	25
64400508	SILVYN® EMC AS-CU 56	49.0 x 56.0	135	63 x 1,5	50 x 1,5	48	25

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

### ■ Accessories

- 3M Scotch™ 1183 screening tape refer to page 946
- SILVYN® MSK-M US refer to page 824
- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829
- SILVYN® US-EDU-AS refer to page 830
- SILVYN® US-MS-DR refer to page 830

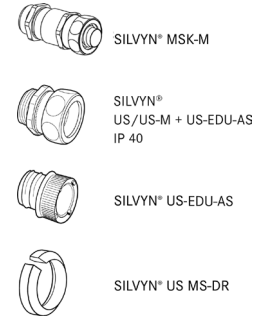


**Info**

- High flexible and mechanical protection at the same time

**New**

**SILVYN® FPS-EDU**



**Benefits**

- Protects against hot chips
- High-tensile
- Highly flexible
- Air-tight and impermeable
- Mechanical resistance

**Product make-up**

- PVC-insulated steel spring wire
- Soft PVC outer sheath
- Galvanised steel wire braiding

**Technical data**

**Material**  
insulated spring steel wire with Soft PVC and galvanized steel braid

**Temperature range**  
-25°C to +80°C  
Short-term: up to +100°C

**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

**Note**

- PU = 10m (on request)

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
<b>SILVYN® FPS-EDU</b>								
61802330	9	9.0 x 14.0	16	9.0	16 x 1,5	16 x 1,5	9	50
61802331	11	12.0 x 17.0	19	12.0	20 x 1,5	20 x 1,5	11	50
61802332	13,5	14.0 x 19.0	22	14.0			13,5	50
61802333	16	15.0 x 21.0	24	15.0	25 x 1,5	20 x 1,5	16	50
61802334	21	20.0 x 27.0	30	20.0	32 x 1,5	25 x 1,5	21	50
61802335	29	28.0 x 36.0	40	28.0	40 x 1,5	32 x 1,5	29	25
61802336	36	37.0 x 45.0	48	37.0	50 x 1,5	40 x 1,5	36	25
61802337	48	48.0 x 56.0	60	48.0	63 x 1,5	50 x 1,5	48	25

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

**Similar products**

- SILVYN® FPS refer to page 784
- SILVYN® EDU-AS refer to page 821
- SILVYN® FD-PU refer to page 785
- SILVYN® EMC AS-CU refer to page 822

**Accessories**

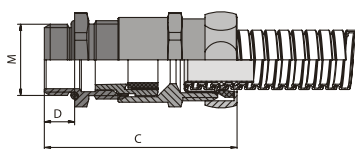
- SILVYN® MSK-M US refer to page 824
- SILVYN® US-M refer to page 828
- SILVYN® US refer to page 829

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P



**SILVYN® MSK-M US**



SILVYN® US-EDU-AS



SILVYN® EDU-AS



SILVYN® US-AS



SILVYN® AS

**Benefits**

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-torn protection

**Application range**

- In combination with protective conduit:
- SILVYN® AS
- SILVYN® EDU-AS/EMC AS-CU/AS-P
- 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
- SKINTOP® MS-SC-M EMC connection
- SKINTOP® DIX multiple sealing insert
- SILVYN® conduit connection via inner sleeve and cap nut

**Note**

- For suitable accessories, refer to SKINTOP® metric accessories

**Suitable conduits**

- SILVYN® AS Page 819
- SILVYN® EDU-AS Page 821
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

**Technical data**



**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 54 with SILVYN® FPS, FPS-EDU, FD-PU, AS-P



**Temperature range**

-30°C to +100°C

Article number	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
<b>SILVYN® MSK-M for SILVYN® AS</b>			
55506080	MSK-M M12x1,5 AS	10	5
55506081	MSK-M M16x1,5 AS	14	5
55506082	MSK-M M20x1,5 AS	17	5
55506083	MSK-M M25x1,5 AS	21	5
55506084	MSK-M M32x1,5 AS	27	5
55506085	MSK-M M40x1,5 AS	36	1
55506086	MSK-M M50x1,5 AS	45	1
55506087	MSK-M M63x1,5 AS	56	1
<b>SILVYN® MSK-M for SILVYN® EDU-AS / AS-P / EMC AS-CU / FPS-EDU</b>			
55506090	MSK-M M12x1,5 EDU	10	5
55506091	MSK-M M16x1,5 EDU	14	5
55506092	MSK-M M20x1,5 EDU	17	5
55506093	MSK-M M25x1,5 EDU	21	5
55506094	MSK-M M32x1,5 EDU	27	5
55506095	MSK-M M40x1,5 EDU	36	1
55506096	MSK-M M50x1,5 EDU	45	1
55506097	MSK-M M63x1,5 EDU	56	1
<b>SILVYN® MSK-M for SILVYN® AS</b>			
55506110	MSK-SC-M M12x1,5 AS	10	5
55506111	MSK-SC-M M16x1,5 AS	14	5
55506112	MSK-SC-M M20x1,5 AS	17	5
55506113	MSK-SC-M M25x1,5 AS	21	5
55506114	MSK-SC-M M32x1,5 AS	27	5
55506115	MSK-SC-M M40x1,5 AS	36	1
55506116	MSK-SC-M M50x1,5 AS	45	1
<b>SILVYN® MSK-M for SILVYN® EDU-AS / AS-P / EMC AS-CU / FPS-EDU</b>			
55506120	MSK-SC-M M12x1,5 EDU	10	5
55506121	MSK-SC-M M16x1,5 EDU	14	5
55506122	MSK-SC-M M20x1,5 EDU	17	5
55506123	MSK-SC-M M25x1,5 EDU	21	5
55506124	MSK-SC-M M32x1,5 EDU	27	5
55506125	MSK-SC-M M40x1,5 EDU	36	1
55506126	MSK-SC-M M50x1,5 EDU	45	1

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® DIX-DV refer to page 682

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**New**

## 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 Page 819
- SILVYN® EDU-AS Page 821
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

**Technical data**



**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 54 with SILVYN® FPS, FPS-EDU,  
FD-PU, AS-P



**Temperature range**

-30°C to +100°C

Article number	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
<b>SILVYN® MSK-M for SILVYN® AS</b>			
55506020	MSK-M 25x1,5 AS BRUSH	21	10
55506021	MSK-M 32x1,5 AS BRUSH	27	1
55506022	MSK-M 40x1,5 AS BRUSH	36	1
55506023	MSK-M 50x1,5 AS BRUSH	45	1
55506024	MSK-M 63x1,5 AS BRUSH	56	1
<b>SILVYN® MSK-M for SILVYN® EDU-AS/AS-P/EMC AS-CU</b>			
55506025	MSK-M 25x1,5 EDU BRUSH	21	10
55506026	MSK-M 32x1,5 EDU BRUSH	27	1
55506027	MSK-M 40x1,5 EDU BRUSH	36	1
55506028	MSK-M 50x1,5 EDU BRUSH	45	1
55506029	MSK-M 63x1,5 EDU BRUSH	56	1

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

**Accessories**

- SKINDICHT® SM-M refer to page 704
- SKINTOP® DIX-M refer to page 680
- SKINTOP® DIX-M AUTOMATION refer to page 681
- SKINTOP® DIX-DV refer to page 682

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P



**New**

**SILVYN® MSK-M ATEX**



**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”
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

**Product features**

- Combination of SILVYN® and SKINTOP®

**Product make-up**

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to EN 50262

**Suitable conduits**

- SILVYN® AS Page 819
- SILVYN® EDU-AS Page 821
- SILVYN® EMC AS-CU Page 822

**Technical data**



**Approvals**

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



**Protection rating**

Cable: IP 68  
 Conduit:  
 IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU, SSUE, UI 511



**Temperature range**

-30°C to +90°C

Article number	Article designation	Suitable for conduit OØ (mm)	Pieces / PU
<b>SILVYN® MSK-M ATEX</b>			
55506010	MSK-M 12x1,5 AS ATEX	10	5
55506011	MSK-M 16x1,5 AS ATEX	14	5
55506012	MSK-M 20x1,5 AS ATEX	17	5
55506013	MSK-M 25x1,5 AS ATEX	21	5
55506014	MSK-M 32x1,5 AS ATEX	27	5
55506015	MSK-M 40x1,5 AS ATEX	36	1
55506016	MSK-M 50x1,5 AS ATEX	45	1
55506017	MSK-M 63x1,5 AS ATEX	56	1

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

**Accessories**

- SKINMATIC® DMG

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
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 APPENDIX



**New**

## SILVYN® MSK-M ATEX BRUSH



**Info**

- 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"
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

**Product features**

- Combination of SILVYN® and SKINTOP®

**Product make-up**

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to EN 50262

**Suitable conduits**

- SILVYN® AS Page 819
- SILVYN® EDU-AS Page 821
- SILVYN® EMC AS-CU Page 822

**Technical data**



**Approvals**

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



**Protection rating**

Cable: IP 68  
Conduit:  
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU, SSUE, UI 511



**Temperature range**

-30°C to +90°C

Article number	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
<b>SILVYN® MSK-M ATEX BRUSH</b>			
55506042	MSK-M 25x1,5 AS ATEX BRUSH	21	10
55506043	MSK-M 32x1,5 AS ATEX BRUSH	27	1
55506044	MSK-M 40x1,5 AS ATEX BRUSH	36	1
55506045	MSK-M 50x1,5 AS ATEX BRUSH	45	1
55506030	MSK-M 63x1,5 AS ATEX BRUSH	56	1

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

**Accessories**

- SKINMATIC® DMG

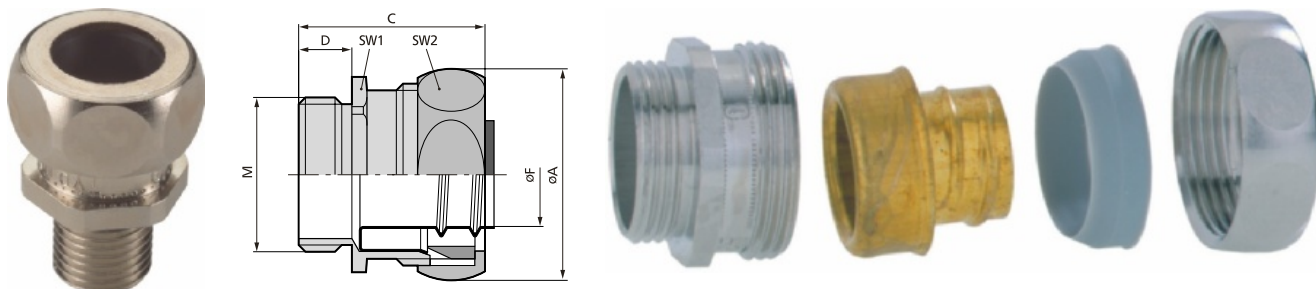
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APPENDIX

**Metal protective cable conduit systems**

SILVYN® AS/EDU-AS/AS-P



**SILVYN® US-M**



**Benefits**

- High tensile strength
- Space-saving
- Vibration protection
- All-purpose

**Application range**

- In combination with protective conduit
- SILVYN® FPS/FD-PU
- SILVYN® AS/EDU-AS/EMC AS-CU/AS-P
- Mechanical engineering
- Plant engineering

**Product features**

- Compact design
- Can be used as an EMC gland by using the SILVYN® US-MS-DR brass ring

**Product make-up**

- Metric connection thread
- Hexagonal collar
- Inner sleeve (not included)
- Sealing element
- Cap nut

**Note**

- Required inner sleeve is not included
- SILVYN® EE-K
- SILVYN® US-AS/US-EDU-AS
- To be ordered separately based on the preferred conduit system

**Suitable conduits**

- SILVYN® FPS Page 784
- SILVYN® EDU-AS Page 821
- SILVYN® FD-PU Page 785
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

**Technical data**

- Material**  
Body: nickel-plated brass  
Sealing ring: TPE
- Protection rating**  
IP 40 (with SILVYN® AS, EDU-AS and EMC AS-CU)  
IP 54 (with SILVYN® FPS and FD-PU)  
IP 66 (with SILVYN® AS-P)
- Temperature range**  
-40°C to +125°C

Article number	Size M	SW 1/2 mm	C mm	D (mm)	Suitable for SILVYN® FD-PU/FPS	Suitable for SILVYN® AS	Suitable for SILVYN® EDU-AS/AS-P/EMC AS-CU	Pieces / PU
<b>SILVYN® US-M</b>								
55501500	10 x 1.0	15 / 17	31	10	7 x 10	8 x 10	7 x 10	50
55501510	12 x 1.5	19 / 21	33	10	10 x 14	11 x 14	10 x 14	50
55501520	16 x 1.5	23 / 25	33	10	13 x 17	14 x 17	13 x 17	50
55501530	20 x 1.5	27 / 29	33	10	16 x 21	18 x 21	17 x 21	50
55501540	25 x 1.5	34 / 36	41	11	22 x 27	23 x 27	22 x 27	25
55501550	32 x 1.5	43 / 45	43	13	29 x 36	31 x 36	29 x 36	25
55501560	40 x 1.5	52 / 54	43	13	38 x 45	40 x 45	38 x 44	20
55501570	50 x 1.5	63 / 66	49	14	48 x 56	51 x 56	49 x 56	10

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

**Similar products**

- SILVYN® MSK-M EE refer to page 786
- SILVYN® MSK-M US refer to page 824

**Accessories**

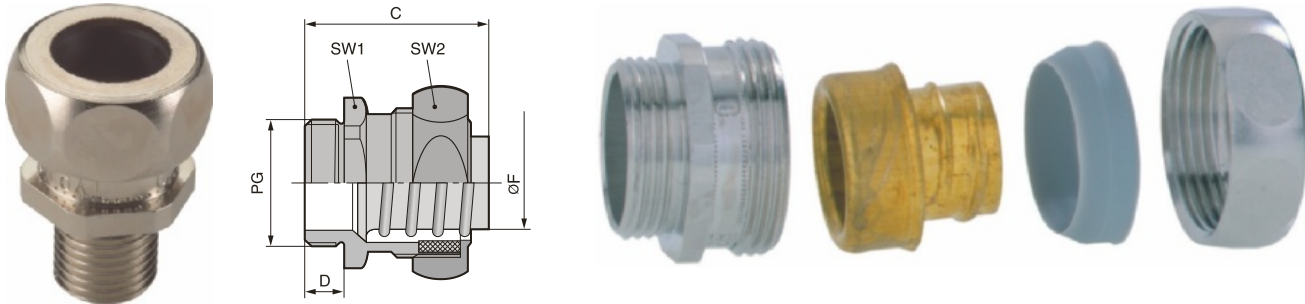
- SKINDICHT® SM-M refer to page 704

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**SILVYN® US**



**Benefits**

- High tensile strength
- Space-saving
- Vibration protection
- All-purpose

**Application range**

- In combination with protective conduit
- SILVYN® FPS/FD-PU
- SILVYN® AS/EDU-AS/EMC AS-CU/AS-P
- Mechanical engineering
- Plant engineering

**Product features**

- Compact design
- Can be used as an EMC gland by using the SILVYN® US-MS-DR brass ring

**Product make-up**

- PG connection thread
- Hexagonal collar
- Inner sleeve (not included)
- Sealing element
- Cap nut

**Note**

- Required inner sleeve is not included
- SILVYN® EE-K
- SILVYN® US-AS/US-EDU-AS
- To be ordered separately based on the preferred conduit system

**Suitable conduits**

- SILVYN® FPS Page 784
- SILVYN® EDU-AS Page 821
- SILVYN® FD-PU Page 785
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

**Technical data**

**Material**  
 Body: nickel-plated brass  
 Sealing ring: TPE

**IP Protection rating**  
 IP 40 (with SILVYN® AS, EDU-AS and EMC AS-CU)  
 IP 54 (with SILVYN® FPS and FD-PU)  
 IP 66 (with SILVYN® AS-P)

**Temperature range**  
 -40°C to +125°C

Article number	PG size	Overall length, C (mm)	D (mm)	F mm	SW 1/2 mm	Suitable for SILVYN® FPS/FD-PU	Suitable for SILVYN® AS	Suitable for SILVYN® EDU-AS/AS-P/EMC AS-CU	Pieces / PU
<b>SILVYN® US</b>									
61795080	7	28.0	7.0	9	15 / 17	7 x 10	8 x 10	7 x 10	50
61795090	9	30.0	7.0	11	19 / 21	10 x 14	11 x 14	10 x 14	50
61795100	11	30.0	7.0	15	23 / 25	13 x 17	14 x 17	13 x 17	50
61795110	13.5	30.0	7.0	17	25 / 27	15 x 19	16 x 19	15 x 19	50
61795120	16	30.0	7.0	19	27 / 29	16 x 21	18 x 21	17 x 21	50
61795130	21	40.0	10.0	24	34 / 36	22 x 27	23 x 27	22 x 27	25
61795140	29	40.0	10.0	32	43 / 45	29 x 36	31 x 36	29 x 36	25
61795150	36	40.0	10.0	42	52 / 54	38 x 45	40 x 45	38 x 45	20
61795170	48	45.0	10.0	55	63 / 77	48 x 56	51 x 56	49 x 56	10

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

**Accessories**

- SKINDICHT® SM-PE refer to page 752



**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® AS
- 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

**■ Note**

**SILVYN® US-AS**

- Necessary for connecting SILVYN® AS conduit with SILVYN® US-M/US

**SILVYN® US-EDU-AS**

- Necessary for connecting SILVYN® EDU-AS/EMC AS-CU/AS-P conduit with SILVYN® US-M/US

**■ Technical data**



**Material**

- SILVYN® US-AS**  
Nickel-plated brass
- SILVYN® US-EDU-AS**  
Brass
- SILVYN® US-MS-DR**  
Brass

**■ Suitable conduits**

**SILVYN® US-AS**

- SILVYN® AS-P Page 820

**SILVYN® US-EDU-AS**

- SILVYN® AS-P Page 820
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

**SILVYN® US-MS-DR**

- SILVYN® AS-P Page 820
- SILVYN® AS-P Page 820
- SILVYN® EMC AS-CU Page 822

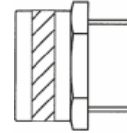
Article number	PG size	AØ tube - IØ sleeve (mm)	For conduit with outer Ø (mm)	Pieces / PU
<b>SILVYN® US-AS for SILVYN® AS</b>				
61802180	7	10.0 - 6.5	10.0	50
61802190	9	14.0 - 9.5	14.0	50
61802200	11	17.0 - 12.5	17.0	50
61802210	13.5	19.0 - 14.5	19.0	50
61802220	16	21.0 - 16.5	21.0	50
61802230	21	27.0 - 21.5	27.0	25
61802240	29	36.0 - 29.5	36.0	25
61802250	36	45.0 - 38.0	45.0	20
61802270	48	56.0 - 48.0	56.0	10
<b>SILVYN® US-EDU-AS for SILVYN® EDU-AS/AS-P</b>				
61802480	7	10.0 - 6.5	10.0	50
61802490	9	14.0 - 9.0	14.0	50
61802500	11	17.0 - 12.0	17.0	50
61802510	13.5	19.0 - 14.0	19.0	50
61802520	16	21.0 - 16.0	21.0	50
61802530	21	27.0 - 20.0	27.0	25
61802540	29	36.0 - 28.0	36.0	25
61802550	36	45.0 - 37.0	45.0	20
61802570	48	56.0 - 48.0	56.0	10
<b>SILVYN® US-MS-DR for SILVYN® US-AS/US-EDU-AS</b>				
61808168	7			50
61808169	9			50
61808170	11			50
61808180	13.5			50
61808190	16			50
61808200	21			25
61808201	29			25
61808202	36			20
61808204	48			10

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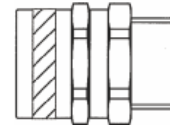
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**SILVYN® SSUE**



SILVYN® LGEF-M



SILVYN® LGES-M

**Benefits**

- High-tensile
- Corrosion-resistant
- Flexible
- For high mechanical stress
- Heat-resistant

**Application range**

- Offshore applications
- Measuring technology
- Plant engineering
- Outdoors
- Applications with high mechanical stress

**Product features**

- Stainless steel AISI 316

**Product make-up**

- Spirally-wound stainless steel protective conduit

**Note**

- Sizes 10, 12 with double-interlocked Agraff profile

**Technical data**



**Approvals**  
IEC EN 61386-23



**Note**  
Sizes 10, 12 with double-interlocked Agraff profile



**Material**  
Stainless steel AISI 316  
DW Nr. 1.4404



**Protection rating**  
IP 40



**Temperature range**  
-100°C to +400°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® LGEF-M/LGES-M	PU ring (m)
<b>SILVYN® SSUE</b>						
61804600	10	6.8 x 9.0	25	6.8	M 12 x 1,5	25
61804601	12	10.2 x 13.0	30	10.2	M 16 x 1,5/1	25
61804602	16	13.0 x 16.0	40	13.0	M 16 x 1,5/2	25
61804603	20	16.9 x 20.5	45	16.9	M 20 x 1,5/1	25
61804604	25	21.1 x 25.0	55	21.1	M 25 x 1,5	25
61804605	32	28.1 x 32.0	70	28.1	M 32 x 1,5	25
61804612	40	37.6 x 42.5	80	37.6	M 40 x 1,5	10
61804613	50	48.4 x 53.0	90	48.4	M 50 x 1,5	10

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

**Similar products**

- SILVYN® UI 511 refer to page 833

**Accessories**

- SILVYN® LGES-M refer to page 832
- SILVYN® LGEF-M refer to page 832

**Metal protective cable conduit systems**

Protective cable conduit system SILVYN® SSUE



**SILVYN® LGES-M / SILVYN® LGEF-M**



**SILVYN® LGES-M**

**SILVYN® LGEF-M**

**Benefits**

**SILVYN® LGES-M**

- Corrosion-resistant
- For rotating applications
- High tensile strength
- Space-saving

**SILVYN® LGEF-M**

- Corrosion-resistant
- For fixed applications
- High tensile strength
- Space-saving

**Application range**

- In combination with protective conduit:
- Protective cable conduit system SILVYN® SSUE
- Offshore applications
- Outdoors
- Applications with high mechanical stress

**Product features**

- Stainless steel AISI 316

**Product make-up**

**SILVYN® LGES-M**

- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

**SILVYN® LGEF-M**

- Metric connection thread
- Hexagonal collar
- Cap nut

**Suitable conduits**

- SILVYN® SSUE Page 831

**Technical data**

**Approvals**  
DIN VDE IEC EN 61386-23

**Material**  
Stainless steel AISI 316

**Protection rating**  
IP 40

**Temperature range**  
-100°C to +400°C

Article number	Article designation	Overall length, C (mm)	Thread length, D (mm)	SW (mm)	Suitable for SILVYN® SSUE	Pieces / PU
<b>SILVYN® LGES-M</b>						
55503210	12 x 1,5	30,2	7,0	14,0	10	1
55503211	16 x 1,5/1	35,5	10,0	19,0	12	1
55503212	16 x 1,5/2	35,5	10,0	19,0	16	1
55503213	20 x 1,5/1	38,5	10,0	24,0	20	1
55503214	25 x 1,5	41,5	12,0	29,0	25	1
55503215	32 x 1,5	49,0	13,0	38,0	32	1
<b>SILVYN® LGEF-M</b>						
55503200	12 x 1,5	21,0	7,0	14,0	10	1
55503201	16 x 1,5/1	26,0	10,0	19,0	12	1
55503202	16 x 1,5/2	27,5	10,0	19,0	16	1
55503203	20 x 1,5/1	28,2	10,0	24,0	20	1
55503204	25 x 1,5	33,8	12,0	29,0	25	1
55503205	32 x 1,5	38,0	13,0	38,0	32	1
55503206	40 x 1,5	39,0	14,0	48,0	40	1
55503207	50 x 1,5	42,0	15,0	58,0	50	1

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APPENDIX



## SILVYN® UI 511



### ■ Benefits

- High-tensile
- Corrosion-resistant
- Suitable for outdoor use and direct burial
- For high mechanical stress
- Heat-resistant

### ■ 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)



### Info

- Double-interlocked Agraff profile
- For the most demanding mechanical requirements

### ■ Technical data



**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	Article designation	Static/dynamic bending radius in mm	Outer Ø (mm)	min. internal Ø	Internal Ø	PU (m)
<b>SILVYN® UI 511</b>						
61799815	5/16"	50.0/60.0	12.5	9.5	9.5	30
61799816	3/8"	65.0/80.0	16.5	13.0	13.0	30
61799817	1/2"	75.0/100.0	20.3	17.0	17.0	30
61799818	3/4"	90.0/125.0	25.3	22.0	22.0	30
61799819	1"	120.0/160.0	31.0	25.8	25.8	30
61799820	1 1/4"	175.0/220.0	39.5	34.2	34.2	30
61799822	2"	285.0/340.0	58.0	52.0	52.0	15

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

### ■ Similar products

- Protective cable conduit system SILVYN® SSUE refer to page 831

### ■ Accessories

- SILVYN® UI 511 -G refer to page 834
- SILVYN® UI 511 -EG refer to page 834

**Metal protective cable conduit systems**

SILVYN® UI 511 stainless steel



**SILVYN® UI 511 -G / SILVYN® UI 511 -EG**



SILVYN® UI 511 -G



SILVYN® UI 511 -EG

**Benefits**

**SILVYN® UI 511 -G**

- High tensile strength
- For high mechanical stress
- High chemical-resistance

**SILVYN® UI 511 -EG**

- Corrosion-resistant
- High tensile strength
- For high mechanical stress
- High chemical-resistance

**Application range**

- In combination with protective conduit
- SILVYN® UI 511
- Offshore applications
- Outdoors
- Steel industry

**Product features**

**SILVYN® UI 511 -G**

- Nickel-plated brass

**SILVYN® UI 511 -EG**

- Stainless steel AISI 303

**Note**

- On request
- 45° elbow version SILVYN® UI 511-HW
- 90° elbow version SILVYN® UI 511-W
- With PG thread

**Product make-up**

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**Suitable conduits**

- SILVYN® UI 511 Page 833

**Technical data**



**Material**

UI511-G: nickel-plated brass  
 UI511-EG: AISI 303, DW no. 1.4305  
 O-ring: NBR



**Temperature range**

-45°C to +105°C

Article number	Article designation	min. internal Ø	Overall length, C (mm)	Thread length, D (mm)	Internal Ø	SW (mm)	Suitable for SILVYN® UI 511	Pieces / PU
<b>SILVYN® UI 511-G</b>								
61797800	M 16 x 1,5/1	6.8	35.0	12.0	6.8	26.0	5/16"	1
61797802	M 16 x 1,5/2	9.8	35.0	12.0	9.8	26.0	3/8"	1
61797808	M 20 x 1,5/3	13.9	37.0	13.0	13.9	29.0	1/2"	1
61797810	M 25 x 1,5	18.5	40.0	15.0	18.5	35.0	3/4"	1
61797812	M 32 x 1,5	22.8	46.0	15.0	22.8	45.0	1."	1
61797814	M 40 x 1,5	30.8	52.0	16.0	30.8	54.0	1 1/4"	1
61797816	M 63 x 1,5	47.8	66.0	20.0	47.8	77.0	2."	1
<b>SILVYN® UI 511-EG</b>								
61797918	M 16 x 1,5/1	6.8	35.0	12.0	6.8	26.0	5/16"	1
61797920	M 16 x 1,5/2	9.8	35.0	12.0	9.8	26.0	3/8"	1
61797926	M 20 x 1,5/3	13.9	37.0	13.0	13.9	29.0	1/2"	1
61797928	M 25 x 1,5	18.5	40.0	15.0	18.5	35.0	3/4"	1
61797930	M 32 x 1,5	22.8	46.0	15.0	22.8	45.0	1."	1
61797932	M 40 x 1,5	30.8	52.0	16.0	30.8	54.0	1 1/4"	1

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

**Similar products**

**SILVYN® UI 511 -G**

- SILVYN® UI 511 -EG refer to page 834

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX



## SILVYN® CNP / SILVYN® CNP conduit gland



SILVYN® CNP

SILVYN® CNP conduit gland

### ■ Benefits

#### SILVYN® CNP

- Protection against mechanical stress
- Protects against liquids
- Bendable
- Highly oil and acid-resistant
- UL: pending

#### SILVYN® CNP conduit gland

- Flame-retardant
- High tensile strength
- For high mechanical stress
- High chemical-resistance

### ■ Application range

#### SILVYN® CNP

- Mechanical engineering
- Robot-building
- Vending machine construction
- Exporters

#### SILVYN® CNP conduit gland

- In combination with protective conduit
- Protective cable conduit system SILVYN® CNP
- Mechanical engineering
- Exporters
- Vending machine construction

### ■ Product make-up

#### SILVYN® CNP

- PVC inner conduit
- Nylon braiding
- Plastic outer sheath

#### SILVYN® CNP conduit gland

- 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

### ■ Note

#### SILVYN® CNP conduit gland

- 90° elbow version SILVYN® CNP-W (on request)

### ■ Technical data

<b>RAL</b>	<b>Colour delivered</b> SILVYN® CNP Orange
<b>Material</b>	<b>SILVYN® CNP</b> PVC compound with nylon fabric <b>SILVYN® CNP conduit gland</b> Body: cast steel with zinc-plated surface Inner sleeve: PA
<b>IP</b>	<b>Protection rating</b> SILVYN® CNP conduit gland IP 67
<b>Temperature range</b>	<b>SILVYN® CNP</b> -20°C to +60°C CSA: -18°C to +75°C Short-term: up to +80°C <b>SILVYN® CNP conduit gland</b> -45°C to +105°C

Article number	Article designation	Internal Ø x external Ø (mm)	Dynamic bending radius (mm)	Static/dynamic bending radius in mm	min. internal Ø	For conduit with outer Ø (mm)	Overall length, C (mm)	Internal Ø	SW (mm)	Suitable for SILVYN® CNP-G	PU ring (m)
<b>SILVYN® CNP</b>											
61712930	3/8"	12.6 x 19.4	100	70.0/100.0	12.6	19.4		12.6		1/2"	76
61722330	1/2"	16.1 x 23.4	125	90.0/125.0	16.1	23.4		16.1		1/2"	60
61722340	3/4"	21.0 x 29.5	160	115.0/160.0	21.0	29.5		21.0		3/4"	53
61712460	1."	26.5 x 36.3	200	170.0/200.0	26.5	36.3		26.5		1."	30
61712910	1 1/4"	31.5 x 46.0	240	200.0/240.0	31.5	46.0		31.5		1 1/4"	15
61722270	1 1/2"	40.4 x 52.4	290	230.0/290.0	40.4	52.4		40.4		1 1/2"	15
<b>SILVYN® CNP-G</b>											
55500400	1/2"						55.0		27.0	3/8"	1
55500410	1/2"						66.0		32.0	1/2"	1
55500420	3/4"						66.0		39.0	3/4"	1
55500430	1."						73.0		45.0	1."	1
55500440	1 1/4"						87.0		59.0	1 1/4"	1
55500450	1 1/2"						87.0		67.0	1 1/2"	1

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

### ■ Accessories

#### SILVYN® CNP

- SILVYN® CNP conduit gland refer to page 835

**Liquid-tight conduits**

Protective cable conduit system SILVYN® CNP



**SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE / SILVYN® HIPROJACKET CR**



**SILVYN® HIPROJACKET**

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



SILVYN® AMG-AMG-M IP 67



SILVYN® AMHW-AMHW-M IP 67



SILVYN® AMW-AMW-M IP 67



SILVYN® FDG IP 67



SILVYN® FDHW IP 67



SILVYN® FDW IP 67



SILVYN® TB-E



**SILVYN® HIPROJACKET CR**



**Info**

- Outstanding protection for extreme impact of heat

**Technical data**



**Approvals**

**SILVYN® HIPROJACKET**  
NFF 16-101 I2 (French railway system)



**On request**

**SILVYN® HIPROJACKET**  
Other sizes are available upon request



**Colour delivered**

**SILVYN® HIPROJACKET**  
Conduit: red  
**SILVYN® HIPROSILTAPE**  
red



**Material**

**SILVYN® HIPROJACKET**  
Conduit: glass fibre with iron oxide silicone coat LOI 42.5  
Clamp ring: nickle-plated brass  
**SILVYN® HIPROSILTAPE**  
Silicone-rubber compound, self-vulcanising, halogen-free



**Protection rating**

**SILVYN® HIPROJACKET**  
In combination with HIPROJACKET CR and AMG-M conduit gland IP54  
IP67 if HIPROSILTAPE is also used



**Temperature range**

**SILVYN® HIPROJACKET**  
-40 °C to +260 °C permanent temp.  
+1090°C for approx. 20 minutes  
+1640°C for approx. 15-30 seconds  
**SILVYN® HIPROSILTAPE**  
-55 °C to +260 °C

**Benefits**

**SILVYN® HIPROJACKET**

- Heat-resistant
- Flexible
- Temporarily reduces the temperature in the conduit by up to 30 %

**SILVYN® HIPROSILTAPE**

- The protection rating increases to IP67 if HIPROSILTAPE is also used
- Oil-resistant
- Heat-resistant

**Application range**

**SILVYN® HIPROJACKET**

- Steel industry
- Furnace construction
- Plastics industry
- Mechanical engineering
- Used in areas where cables and wires are exposed to extreme heat

**Norm references / Approvals**

**SILVYN® HIPROJACKET**

- NFF 16-101 I2 F0, LOI 42,5

**Product make-up**

**SILVYN® HIPROJACKET**

- Glass fibre inner conduit
- Iron oxide silicone coat

**Note**

**SILVYN® HIPROJACKET**

- On request
- SILVYN® HIPROJACKET up to NW 127
- SILVYN® HIPROSILTAPE heat-resistant insulation tape to increase the protection rating

**Suitable conduits**

**SILVYN® HIPROSILTAPE**

- SILVYN® HIPROJACKET Page 836

**SILVYN® HIPROJACKET CR**

- SILVYN® HIPROJACKET Page 836

**Suitable tools**

**SILVYN® HIPROSILTAPE**

- Multipurpose shears A and B refer to page 907

Article number	Article designation	Internal Ø x external Ø (mm)	Nominal size	For conduit with outer Ø (mm)	Suitable gland size	PU ring (m)
<b>SILVYN® HIPROJACKET</b>						
52021385	SILVYN® HIPROJACKET NW 6	6.0 x 15.0				15
61713003	SILVYN® HIPROJACKET NW 10	10.0 x 15.0				15
61713005	SILVYN® HIPROJACKET NW 13	13.0 x 18.0				15
61713007	SILVYN® HIPROJACKET NW 16	16.0 x 22.0				15
61713010	SILVYN® HIPROJACKET NW 19	19.0 x 25.0				15
61713011	SILVYN® HIPROJACKET NW 22	22.0 x 28.0				15
61713000	SILVYN® HIPROJACKET NW 25	25.0 x 31.0				15
61713014	SILVYN® HIPROJACKET NW 29	29.0 x 35.0				15
61713015	SILVYN® HIPROJACKET NW 32	32.0 x 38.0				15
61713016	SILVYN® HIPROJACKET NW 35	35.0 x 41.0				15
61713017	SILVYN® HIPROJACKET NW 38	38.0 x 44.0				15
61713018	SILVYN® HIPROJACKET NW 41	41.0 x 47.0				15
61713019	SILVYN® HIPROJACKET NW 51	51.0 x 57.0				15
61713025	SILVYN® HIPROJACKET NW 64	64.0 x 70.0				15
61713027	SILVYN® HIPROJACKET NW 70	70.0 x 76.0				15
61713040	SILVYN® HIPROSILTAPE 25					11
<b>SILVYN® HIPROJACKET CR clamping ring</b>						
61713030	SILVYN® HIPROJACKET CR		10/13	18.0	M16/2 + PG 9/2, 11/2, 13.5	50
61713031	SILVYN® HIPROJACKET CR		13/16	22.0	M20 + PG 16	50
61713032	SILVYN® HIPROJACKET CR		19/22	28.0	M25 + PG 21	25
61713033	SILVYN® HIPROJACKET CR		25	31.0	M32 + PG 29	10
61713034	SILVYN® HIPROJACKET CR		32/35	41.0	M40 + PG 36	5
61713035	SILVYN® HIPROJACKET CR		38	44.0	M50 + PG 42	5
61713036	SILVYN® HIPROJACKET CR		51	57.0	M63 + PG 48	4

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

**Accessories**

**SILVYN® HIPROJACKET**

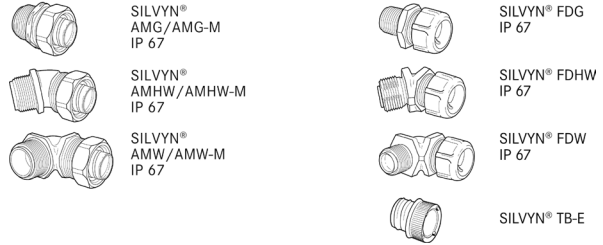
- SILVYN® HIPROSILTAPE refer to page 836
- SILVYN® HIPROJACKET CR refer to page 836
- SILVYN® AMG-M refer to page 840
- SILVYN® AMHW-M refer to page 840
- SILVYN® AMW-M refer to page 840
- SILVYN® AMG refer to page 841





**SILVYN® HTDL**

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



**Benefits**

- Protects against liquids
- High-tensile
- Robust
- High crush-resistance

**Application range**

- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Exporters

**Norm references / Approvals**

- NEC 501-4B

**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**

	<b>Colour delivered</b> Black
	<b>Material</b> Metal with PVC-compound sheath
	<b>Temperature range</b> -40°C to +105°C Short-term: up to +120°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN® HTDL</b>					
61814190	3/8"	12.6 x 17.8	85	12.6	60
61814200	1/2"	16.1 x 21.1	110	16.1	60
61814210	3/4"	21.1 x 26.4	140	21.1	45
61814220	1"	26.8 x 33.1	170	26.8	30
61814230	1 1/4"	35.4 x 41.8	215	35.4	15
61814240	1 1/2"	40.3 x 47.8	250	40.3	15
61814250	2"	51.6 x 59.9	300	51.6	15

\* Trade product, no Lapp product  
 Sizes 1 1/2" and 2" without copper conductors  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® AMG-M refer to page 840
- SILVYN® AMHW-M refer to page 840
- SILVYN® AMW-M refer to page 840
- SILVYN® AMG refer to page 841
- SILVYN® FDG/FDHW/FDW refer to page 842
- SILVYN® TB-E refer to page 846

**Liquid-tight conduits**

Impermeable conduits

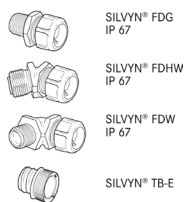
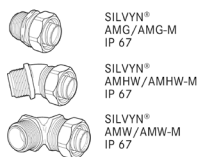


**SILVYN® EF / SILVYN® OR**



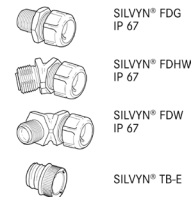
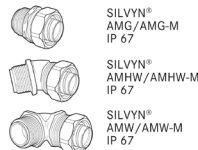
**SILVYN® EF**

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



**SILVYN® OR**

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



**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**

**RAL 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	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN® EF</b>					
61722240	5/16"	10.1 x 14.4	65	10.1	50
61712470	3/8"	12.6 x 17.8	85	12.6	75
61712480	1/2"	16.0 x 21.1	110	16.0	60
61712490	3/4"	21.0 x 26.4	140	21.0	50
61712500	1."	26.5 x 33.1	170	26.5	30
61712510	1 1/4"	35.1 x 41.8	215	35.1	30
61712520	1 1/2"	40.3 x 47.8	250	40.3	15
61712530	2."	51.6 x 59.9	300	51.6	15
<b>SILVYN® OR</b>					
61712840	3/8"	12.6 x 17.8	85	12.6	75
61712850	1/2"	16.0 x 21.1	110	16.0	60
61712860	3/4"	21.0 x 26.4	140	21.0	50
61712870	1."	26.5 x 33.0	170	26.5	30
61712880	1 1/4"	35.1 x 41.8	215	35.1	30
61712890	1 1/2"	40.3 x 47.8	250	40.3	15
61712900	2."	51.6 x 59.9	300	51.6	15

\* Trade product, no Lapp product  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- SILVYN® EF**
- Protective cable conduit system SILVYN® LTP refer to page 851
  - SILVYN® HTDL refer to page 837
  - SILVYN® OR refer to page 838

- SILVYN® OR**
- Protective cable conduit system SILVYN® LTP refer to page 851
  - SILVYN® HTDL refer to page 837

**Accessories**

- SILVYN® AMG-M refer to page 840
- SILVYN® AMHW-M refer to page 840
- SILVYN® AMW-M refer to page 840
- SILVYN® AMG refer to page 841
- SILVYN® FDG/FDHW/FDW refer to page 842
- SILVYN® TB-E refer to page 846



**SILVYN® HCX / SILVYN® HFX**

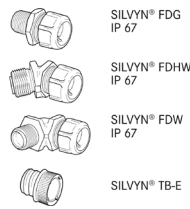
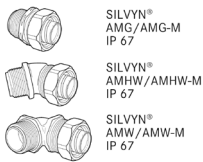


**SILVYN® HCX**

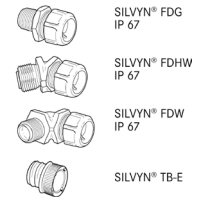
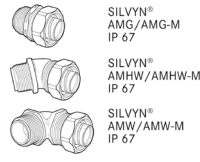


**SILVYN® HFX**

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



**Benefits**

**SILVYN® HCX**

- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- High temperature resistance

**SILVYN® HFX**

- High crush-resistance
- Robust
- Abrasion protection
- Protection against chemicals
- Protects against liquids

**Application range**

- Mechanical engineering
- Paper industry
- Measurement and control technology
- Railway applications
- Outdoors

**Product features**

- UV-resistant

**Norm references / Approvals**

**SILVYN® HFX**

- Kolejowa SNCF

**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**



**Approvals**  
SILVYN® HCX  
Railway: SNCF



**On request**  
Longer lengths on drums, 10 m 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  
-45 °C to +105 °C  
Short-term up to +125 °C

Article number	Article designation	Internal Ø x external Ø (mm)	Dynamic bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN® HCX</b>					
61744228	3/8"	12.6 x 17.8	85	12.6	30
61744229	1/2"	16.0 x 21.1	110	16.0	30
61744230	3/4"	21.0 x 26.4	140	21.0	30
61744231	1."	26.5 x 33.1	170	26.5	30
61744240	1 1/4"	35.1 x 41.8	215	35.1	15
61744242	1 1/2"	40.3 x 47.8	250	40.3	15
<b>SILVYN® HFX</b>					
64400200	5/16"	10.1 x 14.4	65	10.1	30
64400210	3/8"	12.6 x 17.8	85	12.6	30
64400220	1/2"	16.0 x 21.1	110	16.0	30
64400230	3/4"	21.0 x 26.4	140	21.0	30
64400240	1."	26.5 x 33.1	170	26.5	30
64400250	1 1/4"	35.1 x 41.8	215	35.1	15

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SILVYN® AMG-M refer to page 840
- SILVYN® AMHW-M refer to page 840
- SILVYN® AMW-M refer to page 840
- SILVYN® AMG refer to page 841
- SILVYN® FDG/FDHW/FDW refer to page 842
- SILVYN® TB-E refer to page 846

**Liquid-tight conduits**

Impermeable conduits



**SILVYN® AMG-M / SILVYN® AMHW-M / SILVYN® AMW-M**



**SILVYN® AMG-M**

**SILVYN® AMHW-M**

**SILVYN® AMW-M**

**Benefits**

**SILVYN® AMG-M**

- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble

**SILVYN® AMHW-M**

- 45° elbow enables best assembling
- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble

**SILVYN® AMW-M**

- 90° elbow enabled best assembling
- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble

**Application range**

- In combination with protective conduit:
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPROJACKET
- Mechanical engineering
- Railway applications

**Product make-up**

**SILVYN® AMG-M**

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**Note**

**SILVYN® AMG-M**

- SILVYN® AMG-M 16/1 x 1.5 without UL/CSA approval

**Product make-up**

**SILVYN® AMHW-M**

- Metric connection thread
- 45° elbow, hexagonal collar
- Threaded sleeve
- Cap nut

**SILVYN® AMW-M**

- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

**Technical data**

**Material**  
 Body: nickel-plated brass  
 Sealing: polyamide  
 O-ring: NBR

**Protection rating**  
 IP 67

**Temperature range**  
 -45°C to +105°C

**Suitable conduits**

- SILVYN® HTDL Page 837
- SILVYN® HIPROJACKET Page 836
- SILVYN® OR Page 838
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839

Article number	Article designation	Anamet designation	SW (mm)	Suitable for SILVYN® EF/OR/HTDL/HCX/HFX	Pieces / PU
<b>SILVYN® AMG-M straight</b>					
55503240	16 x 1,5/1	812.016.0	26.0	5/16"	50
55503241	16 x 1,5/2	812.016.1	26.0	3/8"	50
55503242	20 x 1,5	812.020.1	29.0	1/2"	50
55503243	25 x 1,5	812.025.1	35.0	3/4"	25
55503244	32 x 1,5	812.032.1	45.0	1."	10
55503245	40 x 1,5	812.040.1	54.0	1 1/4"	5
55503246	50 x 1,5	812.050.1	62.0	1 1/2"	5
55503247	63 x 1,5	812.063.1	77.0	2."	4
<b>SILVYN® AMHW-M 45°</b>					
55503250	16 x 1,5	812.416.1	26.0	3/8"	50
55503251	20 x 1,5	812.420.1	29.0	1/2"	50
55503252	25 x 1,5	812.425.1	35.0	3/4"	25
55503253	32 x 1,5	812.432.1	45.0	1."	10
55503254	40 x 1,5	812.440.1	54.0	1 1/4"	5
55503255	50 x 1,5	812.450.1	62.0	1 1/2"	5
55503256	63 x 1,5	812.463.1	77.0	2."	4
<b>SILVYN® AMW-M 90°</b>					
55503260	16 x 1,5	812.916.1	26.0	3/8"	50
55503261	20 x 1,5	812.920.1	29.0	1/2"	50
55503262	25 x 1,5	812.925.1	35.0	3/4"	25
55503263	32 x 1,5	812.932.1	45.0	1."	10
55503264	40 x 1,5	812.940.1	54.0	1 1/4"	5
55503265	50 x 1,5	812.950.1	62.0	1 1/2"	5
55503266	63 x 1,5	812.963.1	77.0	2."	4

\* Trade product, no Lapp product  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- SKINDICHT® SM-M refer to page 704
- SILVYN® HIPROJACKET CR refer to page 836

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



**SILVYN® AMG**



**Benefits**

- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble
- 45° and 90° elbow enables optimal assembly

**Application range**

- In combination with protective conduit:
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPROJACKET
- Mechanical engineering
- Railway applications

**Product make-up**

- PG connection thread
- Hexagonal collar, straight/45° elbow/90° elbow
- Threaded sleeve
- Cap nut

**Note**

- SILVYN® AMG 7/ 9/1 /11/1 without UL/CSA approval

**Suitable conduits**

- SILVYN® HTDL Page 837
- SILVYN® HIPROJACKET Page 836
- SILVYN® OR Page 838
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839

**Technical data**

**Material**  
 Body: nickel-plated brass  
 Sealing: polyamide  
 O-ring: NBR

**Protection rating**  
 IP 67

**Temperature range**  
 -45°C to +105°C

Article number	Article designation	Anamet designation	Wrench size (mm)	Suitable for SILVYN® EF/OR/HTDL/HCX/HFX	Pieces / PU
<b>SILVYN® AMG straight</b>					
55503305	AMG 7	810.007.1	22	1/4"	50
55503306	AMG 9 / 1	810.009.1	26	5/16"	50
55503307	AMG 9 / 2	810.010.1	26	3/8"	50
55503308	AMG 11 / 1	810.012.1	26	5/16"	50
55503309	AMG 11 / 2	810.011.1	26	3/8"	50
55503310	AMG 13,5	810.013.1	26	3/8"	50
55503311	AMG 16	810.016.1	29	1/2"	50
55503312	AMG 21	810.021.1	35	3/4"	25
55503313	AMG 29	810.029.1	45	1."	10
55503314	AMG 36	810.036.1	54	1 1/4"	5
55503315	AMG 42	810.042.1	63	1 1/2"	5
55503316	AMG 48	810.048.1	77	2."	4
<b>SILVYN® AMHW 45°</b>					
55503317	AMHW 11 / 1	810.412.1	26	5/16"	50
55503318	AMHW 11 / 2	810.411.1	26	3/8"	50
55503319	AMHW 13,5	810.413.1	26	3/8"	50
55503320	AMHW 16	810.416.1	29	1/2"	50
55503321	AMHW 21	810.421.1	35	3/4"	25
55503322	AMHW 29	910.429.1	45	1."	10
55503323	AMHW 36	810.436.1	54	1 1/4"	5
55503324	AMHW 42	810.442.1	63	1 1/2"	5
55503325	AMHW 48	810.448.1	77	2."	4
<b>SILVYN® AMW 90°</b>					
55503326	AMW 11 / 1	810.912.1	26	5/16"	50
55503327	AMW 11 / 2	810.911.1	26	3/8"	50
55503328	AMW 13,5	810.913.1	26	3/8"	50
55503329	AMW 16	810.916.1	29	1/2"	50
55503330	AMW 21	810.921.1	35	3/4"	25
55503331	AMW 29	810.929.1	45	1."	10
55503332	AMW 36	910.936.1	54	1 1/4"	5
55503333	AMW 42	810.942.1	63	1 1/2"	5
55503334	AMW 48	810.948.1	77	2."	4

\* Trade product, no Lapp product  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- SILVYN® FDG/FDHW/FDW refer to page 842

**Accessories**

- SILVYN® HIPROJACKET CR refer to page 836
- SKINDICHT® SM refer to page 752

**Liquid-tight conduits**

Impermeable conduits



**SILVYN® FDG/FDHW/FDW**



**Benefits**

- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble
- 45° elbow enables best assembling

**Application range**

- In combination with protective conduit:
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPROJACKET
- Mechanical engineering
- Railway applications

**Product make-up**

- PG/NPT connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

**Suitable conduits**

- SILVYN® HTDL Page 837
- SILVYN® HIPROJACKET Page 836
- SILVYN® OR Page 838
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839

**Technical data**

**Material**  
 Gland body: cast steel with corrosion-resistance, galvanised and chrome-plated surface.  
 Sealing ring: PA  
 Inner sleeve: steel

**Protection rating**  
 IP 67

**Temperature range**  
 -45°C to +105°C

Article number	Article designation	Typ T & B	min. internal Ø	Internal Ø	SW (mm)	Suitable for SILVYN® EF/OR/HTDL/HCX/HFX	Pieces / PU
<b>SILVYN® FDG</b>							
52004329	9	7360	10.0	10.0	23.0	5/16"	1
52004330	11	7361	11.0	11.0	24.0	3/8"	1
52004360	13,5	7362	11.0	11.0	24.0	3/8"	1
52004390	16	7363	14.5	14.5	30.0	1/2"	1
52004420	21	7364	20.0	20.0	36.0	3/4"	1
52004450	29	7365	25.0	25.0	46.0	1"	1
52004480	36	7366	33.5	33.5	55.0	1 1/4"	1
52004510	42	7367	38.5	38.5	60.0	1 1/2"	1
52004540	48	7368	49.5	49.5	80.0	2"	1
<b>SILVYN® FDG NPT thread</b>							
52021580	1/2"	5331	11.0	11.0	26.0	3/8"	1
52021560	1/2"	5332	14.5	14.5	32.0	1/2"	1
52021570	3/4"	5333	20.0	20.0	41.0	3/4"	1
52021590	1"	5334	25.0	25.0	46.0	1"	1
52021600	1 1/4"	5335	33.5	33.5	55.0	1 1/4"	1
52021610	1 1/2"	5336	38.5	38.5	65.0	1 1/2"	1
52021611	2"	5337	49.5	49.5	80.0	2"	1
<b>SILVYN® FDHW 45° angled</b>							
52004560	11	7341	11.0	11.0	26.0	3/8"	1
52004590	13,5	7342	11.0	11.0	26.0	3/8"	1
52004620	16	7343	14.5	14.5	32.0	1/2"	1
52004650	21	7344	20.0	20.0	36.0	3/4"	1
52004680	29	7345	25.0	25.0	46.0	1"	1
52004710	36	7346	33.5	33.5	55.0	1 1/4"	1
52004770	48	7348	49.5	49.5	75.0	2"	1
<b>SILVYN® FDHW 45° NPT thread</b>							
52023290	1/2"	5341	11.0	11.0	28.0	3/8"	1
52021620	1/2"	5342	14.5	14.5	30.0	1/2"	1
52021630	3/4"	5343	20.0	20.0	41.0	3/4"	1
52021640	1"	5344	25.0	25.0	46.0	1"	1
52021650	1 1/4"	5345	33.5	33.5	55.0	1 1/4"	1
52021660	1 1/2"	5346	38.5	38.5	56.0	1 1/2"	1
52021661	2"	5347	49.5	49.5	75.0	2"	1
<b>SILVYN® FDW 90° angled</b>							
52004790	11	7351	12.0	12.0	25.0	3/8"	1
52004820	13,5	7352	14.5	14.5	25.0	3/8"	1
52004850	16	7353	14.5	14.5	30.0	1/2"	1
52004880	21	7354	20.0	20.0	36.0	3/4"	1
52004910	29	7355	25.0	25.0	46.0	1"	1
52004940	36	7356	33.0	33.0	55.0	1 1/4"	1
52004970	42	7357	39.0	39.0	60.0	1 1/2"	1
52005000	48	7358	50.0	50.0	75.0	2"	1
<b>SILVYN® FDW 90° NPT thread</b>							
52021670	1/2"	5351	11.0	11.0	28.0	3/8"	1
52021680	1/2"	5352	14.5	14.5	32.0	1/2"	1
52023440	3/4"	5353	20.0	20.0	36.0	3/4"	1
52021690	1"	5354	25.0	25.0	46.0	1"	1
52023830	1 1/4"	55	33.5	33.5	55.0	1 1/4"	1
52021710	1 1/2"	5356	38.5	38.5	60.0	1 1/2"	1
52021711	2"	5357	49.5	49.5	75.0	2"	1

\* Trade product, no Lapp product  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- SILVYN® AMG refer to page 841

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



New

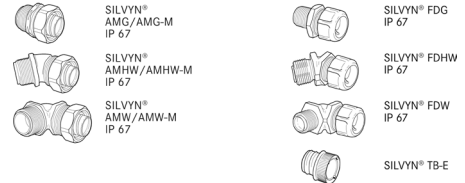
**SILVYN® FG**

**Info**

- Specifically for the food and drinks industry



SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET



**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**

- Approved 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

**Suitable tools**

- SILVYN® ANAC-WZ refer to page 854

**Technical data**

**RAL Colour delivered**  
White

**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	Anamet designation	Internal Ø x external Ø (mm)	Nominal size	Bending radius (mm)	Dynamic bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN FG</b>							
55503279	341.012.01	12.6 x 17.8	3/8"	60	85	12.6	30
55503280	341.016.01	16.0 x 21.1	1/2"	75	110	16.0	30
55503281	341.020.1	21.0 x 26.4	3/4"	90	140	21.0	30
55503282	341.026.1	26.5 x 33.1	1"	120	170	26.5	30
55503283	341.035.1	35.1 x 41.8	1 1/4"	135	215	35.1	15
55503284	341.040.1	40.3 x 47.8	1 1/2"	165	250	40.3	15
55503285	341.050.1	51.6 x 59.9	2"	210	300	51.6	15

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- TY-RAP® Detectable cable ties refer to page 958
- SILVYN® AMG-M refer to page 840
- SILVYN® AMHW-M refer to page 840
- SILVYN® AMW-M refer to page 840
- SILVYN® AMG refer to page 841
- SILVYN® FG AMG-M refer to page 845
- SILVYN® FDG/FDHW/FDW refer to page 842
- SILVYN® TB-E refer to page 846

**Liquid-tight conduits**

Impermeable conduits



**New**

**SILVYN® FG NM**



**Info**

- All-plastic conduit
- Specifically for the food and drinks industry

**Benefits**

- FDA-approved outer sheath
- Smooth, white 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

**Norm references / Approvals**

- Approved according to FDA CFR 21 and NSF 51 (standard for the USA)

**Product make-up**

- Hard PVC inner spiral
- Special, FDA-approved plastic sheath

**Technical data**



**On request**

Grey, RAL 7001



**Colour delivered**

White  
Grey, RAL 7001 (on request)



**Material**

Special soft PVC sheath with hard PVC spiral



**Temperature range**

-20°C to +60°C  
Short-term: +80 °C

Article number	Internal Ø x external Ø (mm)	Nominal size	Bending radius (mm)	Dynamic bending radius (mm)	Inner Ø (mm)	PU ring (m)
55503360	12.6 x 17.8	3/8"	70	100	12.6	30
55503361	16.0 x 21.1	1/2"	100	135	16.0	30
55503362	21.1 x 26.4	3/4"	130	175	21.1	30
55503363	26.8 x 33.1	1"	180	220	26.8	30
55503364	35.4 x 41.8	1 1/4"	225	270	35.4	15
55503365	40.3 x 47.8	1 1/2"	255	320	40.3	15
55503366	51.6 x 59.9	2"	310	400	51.6	15

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.

**Similar products**

- SILVYN® FG refer to page 843

**Accessories**

- SILVYN® FG AMG-M refer to page 845





New

**SILVYN® FG AMG-M**



**Info**

- Specifically for the food and drinks industry

**Benefits**

- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble
- Special sealing element for food and beverage industry, tested in acc. to FDA CFR 21 and NSF 51 (USA)

**Application range**

- In combination with protective conduit:
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPROJACKET
- Mechanical engineering
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Outdoors

**Product make-up**

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut
- Special seal element

**Suitable conduits**

- SILVYN® HTDL Page 837
- SILVYN® HIPROJACKET Page 836
- SILVYN® OR Page 838
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839
- SILVYN® FG Page 843

**Technical data**

**Material**  
 Body: AISI 316 stainless steel  
 Inner seal: polyamide 6  
 O-ring and outer seal: FDA-approved TPE

**IP Protection rating**  
 IP 69K according to DIN 40050 T.9

**Temperature range**  
 -45°C to +105°C

Article number	Article designation	Nominal size	min. internal Ø	For conduit with outer Ø (mm)	Internal Ø	SW (mm)	Pieces / PU
<b>SILVYN AMG FG</b>							
55503275	16 x 1,5	3/8"	10.2	17.8	10.2	27.0	10
55503276	20 x 1,5	1/2"	13.9	21.1	13.9	30.0	10
55503277	25 x 1,5	3/4"	18.5	26.4	18.5	36.0	5
55503278	32 x 1,5	1"	23.8	33.1	23.8	46.0	5
55503271	40 x 1,5	1 1/4"	31.8	41.8	31.8	54.0	2
55503269	50 x 1,5	1 1/2"		47.8			1

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

Liquid-tight conduits

Impermeable conduits



**SILVYN® TB-E**



**Benefits**

- Cable damage can be prevented

**Application range**

- In combination with protective conduit
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPOJACKET
- Conduit end cover

**Product features**

- All-round collar completely covers the protective conduit end

**Product make-up**

- Threaded sleeve

**Suitable conduits**

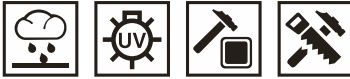
- SILVYN® HTDL Page 837
- SILVYN® OR Page 838
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839

**Technical data**

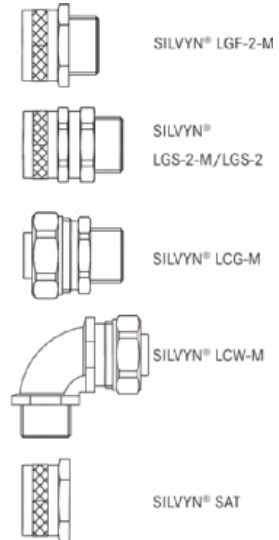
**Material**  
Steel

Article number	Article designation	Typ T & B	Suitable for Anaconda conduits	Pieces / PU
<b>SILVYN® TB-E</b>				
52024319	9	R 719 123	5/16"	50
52024320	11/13,5	R 719 101	3/8"	50
52024330	16	R 179 125	1/2"	50
52024340	21	R 179 126	3/4"	50
52024351	29	R 179 127	1."	25
52024361	36	R 179 128	1 1/4"	10

\* Trade product, no Lapp product  
Photographs are not to scale and do not represent detailed images of the respective products.



**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**

- Spirally-wound metal protective conduit with roughened profile
- PVC sheath

**Technical data**

**DIN VDE** Norm references / Approvals  
IEC EN 61386-23

**RAL** Colour delivered  
Black (RAL 9005), UV-resistant

**Material**  
Inner conduit: steel, galvanised  
Outer sheath: PVC

**Temperature range**  
-15°C to +70°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® LGF-2-M/LGS-2-M	Suitable for SILVYN® LGS-2	PU ring (m)
<b>SILVYN® LCC-2</b>							
61804702	LCC-2/10	6.8 x 10.0	25	6.8	M12x1,5	7	30
61804712	LCC-2/12	10.0 x 14.2	30	10.0	M16x1,5/1	9	30
61804722	LCC-2/16	12.9 x 17.1	40	12.9	M16x1,5/2 + M20x1,5/1	11	30
61804732	LCC-2/20	16.8 x 21.6	45	16.8	M20x1,5/2	13,5 + 16	30
61804742	LCC-2/25	20.9 x 26.0	55	20.9	M25x1,5	21	30
61804752	LCC-2/32	27.8 x 34.0	60	27.8	M32x1,5	29	30
61804762	LCC-2/40	37.6 x 44.5	80	37.6	M40x1,5	36	10
61804772	LCC-2/50	48.4 x 55.0	90	48.4	M50x1,5		10
61804792	LCC-2/63	57.5 x 64.5	115	57.5	M63x1,5	48	10

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

**Similar products**

- SILVYN® LCCH-2 refer to page 848

**Accessories**

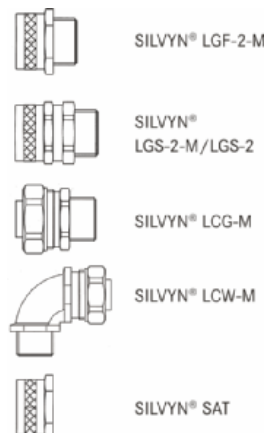
- SILVYN® LGF-2-M refer to page 849
- SILVYN® LGS-2-M refer to page 849
- SILVYN® LGS-2 refer to page 849
- SILVYN® LCG-M refer to page 850
- SILVYN® LCW-M refer to page 850
- SILVYN® SAT

**Liquid-tight conduits**

Protective cable conduit system SILVYN® LCCH-2 / LCCH-2



**SILVYN® LCCH-2**



**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**

- Spirally-wound metal protective conduit with roughened profile
- Plastic outer sheath

**Note**

- Size 63 available on request

**Technical data**

**DIN VDE** Norm references / Approvals  
IEC EN 61386-23

**RAL** 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	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>SILVYN® LCCH-2</b>					
61804793	LCCH-2 / 12	10.0 x 14.2	30	10.0	25
61804794	LCCH-2 / 16	12.9 x 17.1	40	12.9	25
61804795	LCCH-2 / 20	16.8 x 21.6	45	16.8	25
61804796	LCCH-2 / 25	20.9 x 26.0	55	20.9	25
61804797	LCCH-2 / 32	27.8 x 34.0	60	27.8	25
61804798	LCCH-2 / 40	37.3 x 44.2	80	37.3	10
61804799	LCCH-2 / 50	48.0 x 55.0	90	48.0	10

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

**Accessories**

- SILVYN® LGF-2-M refer to page 849
- SILVYN® LGS-2-M refer to page 849
- SILVYN® LGS-2 refer to page 849
- SILVYN® LCG-M refer to page 850
- SILVYN® LCW-M refer to page 850
- SILVYN® SAT

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX



**SILVYN® LGF-2-M / SILVYN® LGS-2-M / SILVYN® LGS-2**



**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

**SILVYN® LGS-2**

- 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

**SILVYN® LGS-2**

- PG connection thread
- Hexagonal collar with torsion element
- Cap nut

**Suitable conduits**

- SILVYN® LCC-2 Page 847
- SILVYN® LCCH-2 Page 848

**Technical data**

**DIN VDE** Norm references / Approvals  
IEC EN 61386-23

**Material**  
Nickel-plated brass

**IP** Protection rating  
IP 54

**Temperature range**  
-50°C to +300°C

Article number	Article designation	Overall length, C (mm)	Thread length, D (mm)	SW (mm)	Suitable for SILVYN® LCC-2 / LCCH-2	Pieces / PU
<b>SILVYN® LGF-2-M</b>						
55501981	12 x 1,5	21.0	8.0	13.0	10	10
55502001	16 x 1,5/1	23.0	8.0	17.0	12	10
55502002	16 x 1,5/2	25.0	10.0	20.0	16	10
55502021	20 x 1,5/1	25.0	10.0	22.0	16	10
55502022	20 x 1,5/2	26.3	10.0	24.0	20	10
55502031	25 x 1,5	32.5	10.0	29.0	25	10
55502041	32 x 1,5	36.8	13.0	38.0	32	10
55502051	40 x 1,5	39.0	14.0	48.0	40	4
55502061	50 x 1,5	42.0	15.0	58.0	50	4
55502071	63 x 1,5	50.0	18.0	70.0	63	1
<b>SILVYN® LGS-2-M</b>						
55501982	12 x 1,5	30.2	8.0	13.0	10	10
55502003	16 x 1,5/1	32.2	8.0	17.0	12	10
55502004	16 x 1,5/2	34.2	10.0	20.0	16	10
55502023	20 x 1,5/1	34.2	10.0	22.0	16	10
55502024	20 x 1,5/2	35.5	10.0	24.0	20	10
55502032	25 x 1,5	43.7	10.0	29.0	25	10
55502042	32 x 1,5	48.0	13.0	38.0	32	10
55502052	40 x 1,5	51.2	14.0	48.0	40	4
55502062	50 x 1,5	54.2	15.0	58.0	50	4
55502072	63 x 1,5	63.2	18.0	70.0	63	1
<b>SILVYN® LGS-2</b>						
55502710	7	32.0	7.0	13.0	10	10
55502720	9	38.0	10.0	17.0	12	10
55502730	11	38.0	10.0	22.0	16	10
55502740	13,5	39.0	12.0	24.0	20	10
55502750	16	44.0	12.0	24.0	20	10
55502760	21	50.0	12.0	29.0	25	10
55502770	29	56.0	12.0	36.0	32	10
55502780	36	59.0	12.0	48.0	40	4
55502790	48	61.2	16.0	70.0	63	1

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

**Accessories**

- SKINDICHT® SM-M refer to page 704

**Liquid-tight conduits**

Protective cable conduit system SILVYN® LCC-2 / LCCH-2



**SILVYN® LCG-M / SILVYN® LCW-M**



**SILVYN® LCG-M**



**SILVYN® LCW-M**

**Benefits**

**SILVYN® LCG-M**

- High tensile strength
- Vibration protection
- Enhanced sealing

**SILVYN® LCW-M**

- 90° elbow allows easy installation
- High tensile strength
- Vibration protection
- Enhanced sealing

**Application range**

- In combination with protective conduit
- Protective cable conduit system 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

**Suitable conduits**

- SILVYN® LCC-2 Page 847
- SILVYN® LCCH-2 Page 848

**Technical data**



**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	Article designation	Overall length, C (mm)	Thread length, D (mm)	SW 1/2 mm	Suitable for SILVYN® LCC-2/LCCH-2	Pieces / PU
<b>SILVYN® LCG-M</b>						
55503220	12 x 1,5	29,8	10,0	20 / 20	10	10
55503221	16 x 1,5/1	29,8	10,0	22 / 24	12	10
55503222	16 x 1,5/2	33,0	12,0	24 / 26	16	10
55503223	20 x 1,5/1	33,0	12,0	24 / 26	16	10
55503224	20 x 1,5/2	33,5	12,0	26 / 29	20	10
55503225	25 x 1,5	40,5	14,0	33 / 35	25	10
55503226	32 x 1,5	45,8	15,0	40 / 42	32	2
55503227	40 x 1,5	47,5	16,0	56 / 58	40	1
55503228	50 x 1,5	51,0	16,0	70 / 70	50	1
<b>SILVYN® LCW-M</b>						
55503234	16 x 1,5/1	31,0	10,0	20 / 24	12	10
55503235	16 x 1,5/2	31,0	10,0	20 / 26	16	10
55503230	20 x 1,5/1	36,0	13,0	24 / 26	16	10
55503231	20 x 1,5/2	37,0	13,0	24 / 29	20	10
55503232	25 x 1,5	44,0	14,0	30 / 35	25	10
55503233	32 x 1,5	53,0	15,0	36 / 42	32	2

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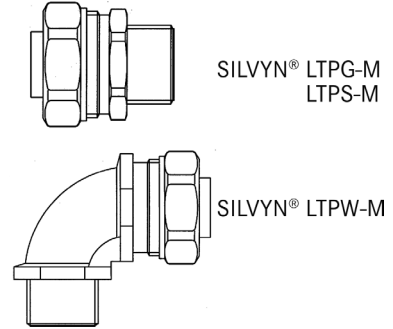
**Accessories**

- SKINDICHT® SM-M refer to page 704

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 ACCESSORIES  
 APPENDIX



**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**

- DIN VDE Approvals**  
IEC EN 61386-23
- RAL Colour delivered**  
Black (RAL 9005), UV-resistant
- Material**  
Steel, galvanised  
PVC sheath
- Temperature range**  
-20°C to +105°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	PU ring (m)
<b>Protective cable conduit system SILVYN® LTP</b>					
61805400	10	7.0 x 11.8	35	7.0	50
61805410	12	10.0 x 14.2	40	10.0	50
61805420	16	12.6 x 17.8	45	12.6	50
61805430	20	16.0 x 21.1	65	16.0	50
61805440	25	21.1 x 26.4	100	21.1	25
61805450	32	26.5 x 33.1	135	26.5	25
61805460	40	35.4 x 41.8	175	35.4	10
61805470	50	40.4 x 47.9	230	40.4	10
61805480	63	51.6 x 59.7	280	51.6	10

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

**Similar products**

- SILVYN® HTDL refer to page 837
- SILVYN® OR refer to page 838

**Accessories**

- SILVYN® LTPG-M refer to page 852
- SILVYN® LTPW-M refer to page 852

**Liquid-tight conduits**

Protective cable conduit system SILVYN® LTP



**SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTPW-M**



**SILVYN® LTPG-M**



**SILVYN® LTPS-M**



**SILVYN® LTPW-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® LTPW-M**

- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

**Suitable conduits**

- SILVYN® LTP Page 851

**Technical data**

**Approvals**  
DIN VDE IEC EN 61386-23

**Material**  
Body: nickel-plated brass  
Seal: PA compression seal

**Protection rating**  
IP 66 / 67 / 68 (5bar) / 69K

**Temperature range**  
-50°C to +135°C

Article number	Article designation	Overall length, C (mm)	Thread length, D (mm)	SW 1/2 mm	Suitable for SILVYN® LTP	Pieces / PU
<b>SILVYN® LTPG-M</b>						
55510200	M 12 x 1,5	29.8	10.0	20 / 20	10	10
55510210	M 16 x 1,5/1	29.8	10.0	20 / 22	12	10
55510220	M 16 x 1,5/2	33.0	10.0	24 / 26	16	10
55510230	M 20 x 1,5/1	33.0	12.0	24 / 26	16	10
55510240	M 20 x 1,5/2	33.5	12.0	26 / 29	20	10
55510250	M 25 x 1,5	40.5	14.0	33 / 35	25	10
55510260	M 32 x 1,5	45.8	15.0	40 / 42	32	2
55510270	M 40 x 1,5	47.5	16.0	50 / 52	40	1
55510280	M 50 x 1,5	51.0	16.0	58 / 58	50	1
55510290	M 63 x 1,5	58.8	20.0	70 / 70	63	1
<b>SILVYN® LTPS-M</b>						
55510600	M 16 x 1,5/1		10.0	20 / 22	12	10
55510610	M 16 x 1,5/2		12.0	24 / 26	16	10
55510620	M 20 x 1,5/1		12.0	24 / 26	16	10
55510630	M 20 x 1,5/2		12.0	26 / 29	20	10
55510640	M 25 x 1,5		14.0	33 / 35	25	10
55510650	M 32 x 1,5		15.0	40 / 42	32	2
<b>SILVYN® LTPW-M</b>						
55510400	M 16 x 1,5/1		10.0	20 / 24	12	10
55510410	M 16 x 1,5/2		10.0	20 / 26	16	10
55510420	M 20 x 1,5/1		13.0	24 / 26	16	10
55510430	M 20 x 1,5/2		13.0	24 / 29	20	10
55510440	M 25 x 1,5		14.0	30 / 35	25	10
55510450	M 32 x 1,5		15.0	36 / 42	32	2
55510460	M 40 x 1,5		18.0	46 / 52	40	1
55510470	M 50 x 1,5		18.0	57 / 58	50	1
55510480	M 63 x 1,5		20.0	72 / 70	63	1

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APPENDIX





New

**SILVYN® LTP-E**



**Info**

- Ensuring cables do not get damaged

**Benefits**

- Cable damage can be prevented

**Application range**

- In combination with liquidtight conduit
- Conduit end cover

**Product features**

- All-round collar completely covers the protective conduit end

**Product make-up**

- Threaded sleeve

**Technical data**

**Material**  
Nickel-plated brass

**Temperature range**  
-50°C to +135°C

Article number	Article designation	Suitable for conduits	Pieces / PU
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

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



**Benefits**

- Proper and safe cutting of plastic conduits

**Application range**

- Conduit shears for non-metallic conduit, e.g. parallel corrugated protective conduit.

**Suitable conduits**

- SILVYN® EL/ELÖ/ELT Page 779
- SILVYN® FPAS Page 804
- SILVYN® HCC Page 801
- SILVYN® RILL PA 6 Page 789

- SILVYN® RILL PA6 SINUS Page 818
- SILVYN® SI Page 771
- SILVYN® SPLIT Page 816
- SILVYN® HIPROJACKET Page 836
- SILVYN® RILL PA 12 Page 790
- SILVYN® SP Page 772
- SILVYN® SP-PU Page 773

**SILVYN® Conduit scissor**



Article number	Article designation	Cutting range Ø (mm)	Pieces / PU
61722285	CC01	0 - 45	1
61722286	CC02	0 - 67	1

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**SILVYN® processing tools**

Cutting tools for protective cable conduit systems

**SILVYN® ANAC-WZ**



**Application range**

- For right-angled sawing of protective metal conduits.

**Suitable conduits**

- SILVYN® HTDL Page 837
- SILVYN® SSUE Page 831
- SILVYN® UI 511 Page 833

- SILVYN® EDU-AS Page 821
- SILVYN® EF Page 838
- SILVYN® OR Page 838
- SILVYN® AS-P Page 820
- SILVYN® HCX Page 839
- SILVYN® HFX Page 839
- SILVYN® EMC AS-CU Page 822
- SILVYN® FPS-EDU Page 823

Article number	Article designation	Saw range Ø (mm)	Pieces / PU
61722280	SAWING DEVICE WZ	18 - 45	1

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



**SILVYN® BMC-M**



**Benefits**

- Easy to assemble
- High tensile strength
- Optional extension of all conduits

**Application range**

- In combination with protective conduit
- All metric conduit glands

**Technical data**

	<b>On request</b> M75 PG sizes
	<b>Material</b> Nickel-plated brass
	<b>Temperature range</b> Dependent on the glands used

Article number	Article designation	Connection thread M	Outer Ø (mm)	Overall length, C (mm)	SW (mm)	Pieces / PU
<b>SILVYN® BMC-M</b>						
55510000	16	M16 x 1.5	22.0	22.5	20.0	10
55510010	20	M20 x 1.5	26.4	25.0	24.0	10
55510020	25	M25 x 1.5	31.9	30.0	29.0	10
55510030	32	M32 x 1.5	38.5	32.5	35.0	10
55510040	40	M40 x 1.5	53.0	34.0	48.0	2
55510050	50	M50 x 1.5	63.8	38.0	58.0	1
55510060	63	M63 x 1.5	77.0	45.0	70.0	1

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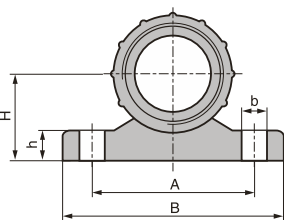
Protective cable conduit systems and cable carrier systems

**SILVYN® processing tools**

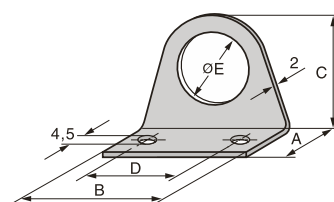
SILVYN® mounting angles



**SILVYN® BW-K-M**



**SILVYN® BW-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**

	<b>Colour delivered</b> SILVYN® BW-K-M Grey, RAL 7001
	<b>Material</b> SILVYN® BW-K-M PP SILVYN® BW-M Steel, passivated
	<b>Temperature range</b> SILVYN® BW-K-M -40°C to +100°C

Article number	Article designation	Connection thread M	A mm	B in mm	Overall length, C (mm)	D (mm)	E mm	h mm	H	Hole Ø (mm)	Pieces / PU
<b>SILVYN® BW-K-M</b>											
55000911		20 x 1.5	37.5	50.0				7.5	20.0	5.7	50
55000921		25 x 1.5	43.0	57.0				8.0	25.0	5.7	50
55000931		32 x 1.5	53.5	67.0				8.0	27.0	6.7	50
55000941		40 x 1.5	65.5	79.5				9.0	33.0	6.7	50
55000951		50 x 1.5	69.5	86.0				9.5	36.5	6.7	50
<b>SILVYN® BW-M</b>											
55000531	16		20.0	50.0	33.2	40.0	17.0				25
55000541	20		20.0	50.0	38.0	40.0	21.0				25
55000551	25		20.0	60.0	46.9	50.0	26.0				25
55000561	32		20.0	70.0	56.9	60.0	33.0				25
55000571	40		20.0	80.0	67.0	70.0	41.0				25
55000572	50		20.0	90.0	78.4	80.0	51.0				25

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



**Benefits**

- Fast and easy mounting
- Various applications

**Application range**

- Plant engineering
- Railway applications
- Automotive industry
- Fastening clamp for cables, conduits and pipes

**Technical data**



**Material**  
Steel, galvanised  
Polychloroprene



**Temperature range**  
-35 °C to +100 °C



**SILVYN® RKS**

Article number	Article designation	Metal width (mm)	Width x thickness of rubber profile (mm)	Diameter (mm)	Hole Ø (mm)	Support length (mm)	Pieces / PU
<b>SILVYN® RKS 1</b>							
61825170	6/12	12.0	15 x 1,2	6.0	5.3 (M5)	16.0	100
61825180	8/12	12.0	15 x 1,2	8.0	5.3 (M5)	17.0	100
61825190	10/12	12.0	15 x 1,2	10.0	5.3 (M5)	18.0	100
61825200	12/12	12.0	15 x 1,2	12.0	5.3 (M5)	19.0	100
61825210	13/15	15.0	18,5 x 1,5	13.0	6.4 (M6)	23.7	100
61825355	14/15	15.0	18,5 x 1,5	14.0	6.4 (M6)	24.2	100
61825365	15/15	15.0	18,5 x 1,5	15.0	6.4 (M6)	24.7	100
61825375	16/15	15.0	18,5 x 1,5	16.0	6.4 (M6)	25.2	100
61825040	18/15	15.0	18,5 x 1,5	18.0	6.4 (M6)	26.2	100
61825052	19/15	15.0	18,5 x 1,5	19.0	6.4 (M6)	26.7	100
61825380	20/15	15.0	18,5 x 1,5	20.0	6.4 (M6)	27.2	100
61825382	21/15	15.0	18,5 x 1,5	21.0	6.4 (M6)	27.7	100
61825050	22/15	15.0	18,5 x 1,5	22.0	6.4 (M6)	28.2	100
61825390	23/15	15.0	18,5 x 1,5	23.0	6.4 (M6)	28.7	100
61825392	24/20	20.0	25 x 1,5	24.0	8.4 (M8)	35.0	100
61825400	25/15	15.0	18,5 x 1,5	25.0	6.4 (M6)	29.7	100
61825402	26/15	15.0	18,5 x 1,5	26.0	6.4 (M6)	30.2	100
61825250	28/15	15.0	18,5 x 1,5	28.0	6.4 (M6)	31.2	100
61825255	30/15	15.0	18,5 x 1,5	30.0	6.4 (M6)	32.2	100
61825257	32/15	15.0	18,5 x 1,5	32.0	6.4 (M6)	33.2	100
61825259	34/15	15.0	18,5 x 1,5	34.0	6.4 (M6)	34.2	100
61825260	35/15	15.0	18,5 x 1,5	35.0	6.4 (M6)	34.7	100
61825262	36/20	20.0	25 x 1,5	36.0	8.4 (M8)	41.0	100
61825264	38/20	20.0	25 x 1,5	38.0	8.4 (M8)	42.0	100
61825295	40/20	20.0	25 x 1,5	40.0	8.4 (M8)	43.0	100

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

## SILVYN® CHAIN overview power chain application



As a system provider, we offer one-stop complete systems such as cable guiding systems and suitable wires.

You will find more detailed information in the SILVYN® CHAIN catalogue on our web page under: [www.lappgroup.com/catalogues](http://www.lappgroup.com/catalogues)

		Characteristics	Application areas
SILVYN® CHAIN Series Light		<ul style="list-style-type: none"> <li>• Light applications</li> <li>• Simple bolt system</li> <li>• Inner height 12 – 25 mm</li> <li>• 7 types</li> </ul>	<ul style="list-style-type: none"> <li>• Automation</li> <li>• Smaller robot gantries</li> <li>• Textile equipment with long travel</li> <li>• Printing equipment</li> </ul>
SILVYN® CHAIN Series Medium		<ul style="list-style-type: none"> <li>• Standard applications</li> <li>• Tongue/groove system with yellow pin</li> <li>• Inner height 18 – 76 mm</li> <li>• 12 types, many widths</li> </ul>	<ul style="list-style-type: none"> <li>• Automation</li> <li>• Handling equipment</li> <li>• CNC machines</li> <li>• Medium sliding applications</li> </ul>
SILVYN® CHAIN Series Heavy		<ul style="list-style-type: none"> <li>• Superior applications</li> <li>• Tongue/groove system with yellow tripple pin</li> <li>• Inner height 30 – 112 mm</li> <li>• 12 types, many frame versions: Nylon, Aluminium, Inox</li> </ul>	<ul style="list-style-type: none"> <li>• Automation with high travel frequency</li> <li>• Outdoor equipment</li> <li>• Movement with high lateral acceleration</li> </ul>
SILVYN® CHAIN Series Sliding		<ul style="list-style-type: none"> <li>• Long sliding distances</li> <li>• Tongue/groove system with yellow tripple pin</li> <li>• Inner height 30 – 70 mm</li> <li>• 12 types, many frame versions: Nylon, Aluminium, Inox</li> </ul>	<ul style="list-style-type: none"> <li>• Sliding with high speed and high charge weight</li> <li>• Long life-cycle applications (very long lifetime)</li> </ul>
SILVYN® CHAIN Series Protection		<ul style="list-style-type: none"> <li>• Standard applications</li> <li>• Tongue/groove system with yellow pin</li> <li>• Inner height 35 – 76 mm</li> <li>• 10 types, many withs</li> </ul>	<ul style="list-style-type: none"> <li>• Automation</li> <li>• Dirty environment</li> <li>• Machine tool centers</li> </ul>
SILVYN® CHAIN Series Robot		<ul style="list-style-type: none"> <li>• Rotative applications</li> <li>• Tongue/groove system patented element construction</li> <li>• Inner height 35 – 60 mm</li> <li>• Standard rotation angle up to 200° Guided rotation angle up to 400°</li> <li>• 6 types</li> </ul>	<ul style="list-style-type: none"> <li>• Welding robots</li> <li>• Painting robots</li> <li>• Handling robots</li> </ul>
SILVYN® CHAIN Series Steel		<ul style="list-style-type: none"> <li>• Highest load capacity</li> <li>• Highest chemical resistance</li> <li>• Tongue/groove system in metal</li> <li>• Inner height 32 – 182 mm</li> <li>• 5 standard types</li> <li>• Customised versions</li> </ul>	<ul style="list-style-type: none"> <li>• Steel mills/steel works</li> <li>• Off-Shore</li> <li>• Long-travel machining centers</li> <li>• Heavy duty environment</li> </ul>

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**FLEXIMARK®**

Marking systems



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**FLEXIMARK® Single core marking**

**Basic System Single Core Marking**

Marking rings PC	862
Marking rings PA	864
PAD Mounting rod	867
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FLEXIMARK® Flexipart single wire marking	868

**Customized System**

FLEXIMARK® Flexiprint TF FCC	869
FLEXIMARK® Sleeve FCC	869

**PC Marking Laser printing**

FLEXIMARK® Flexiprint LF	870
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**PC Marking Thermal transfer printing**

FLEXIMARK® Flexiprint TF	871
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**FLEXIMARK® Cable Marking**

**Basic System Cable Marking**

FLEXIMARK® Stainless steel kit	872
FLEXIMARK® MR Stainless steel character /	
FLEXIMARK® Stainless steel - character Set	872
FLEXIMARK® Marking Kit MINI	873
FLEXIMARK® Characters plastic MINI /	
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WM BW Blank cable marker	875
MS Marker pens	875

**Customized System**

FLEXIMARK® Stainless steel FCC	876
FLEXIMARK® Cable marking FCC	877
FLEXIMARK® SHRINK MARK FCC	878

**PC Marking Laser printing**

FLEXIMARK® Wrapping labels LCK	879
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**PC Marking Thermal transfer printing**

FLEXIMARK® Cablelabel PUR	New 883
FLEXIMARK® Organized shrink tube	New 884
FLEXIMARK® Heat shrinkable tubing	885
FLEXIMARK® Flexilabel TFL	886
FLEXIMARK® Wrapping labels TCK	886

**FLEXIMARK® component marking**

**PC Marking Laser printing**

FLEXIMARK® LA Labels	887
FLEXIMARK® LB Labels	888

**PC Marking Thermal transfer printing**

FLEXIMARK® TA foam Component marking	New 889
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**FLEXIMARK® Accessories PC Marking**

**FLEXIMARK® Software**

FLEXIMARK® Software 10.0	890
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**FLEXIMARK® Printing systems**

FLEXIMARK® Thermoprint A4+M and EOS4*	New 891
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FLEXIMARK® Accessories Transfer Printer A4+M/300	
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and EOS4*	New 892
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FLEXIMARK® NM Stainless steel - character holders	892
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FLEXIMARK® Accessories Transfer Printer A4+M/300	
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and EOS4*	New 892
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FLEXIMARK® NM Stainless steel - character holders	892
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**FLEXIMARK® character holders and accessories**

**FLEXIMARK® MINI System**

FLEXIMARK® Character holders PTE	893
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FLEXIMARK® PTEF/ CAB	894
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FLEXIMARK® Character holders PGS	895
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FLEXIMARK® Collar Snap-on	895
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FLEXIMARK® Collar halogen-free	896
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FLEXIMARK® Collar with cable tie	897
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**Accessories character holders**

FLEXIMARK® FL52 - ERA special hole pliers	898
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FLEXIMARK® FLKA Lock button / FLEXIMARK® FLG End plug	898
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**Cable bundling**

KMK Marking labels	899
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ETB Marking labels	899
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**Electronic label-printers**

**Electronic label-printers**

DYMO® Industry Rhino Pro 4200	New 900
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DYMO® ID1 - Industry tape D1	901
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**Embossing machines**

**Manual embossing machines**

M1011 Manual embossing machine	902
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SP Metal print	902
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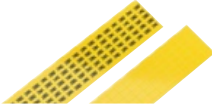








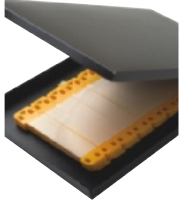























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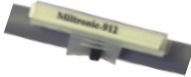
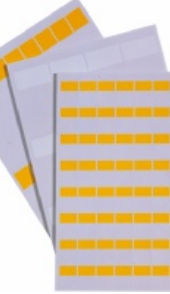



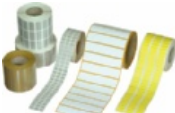




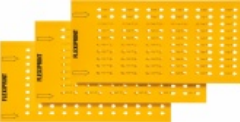



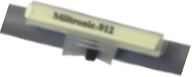






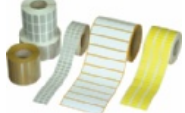


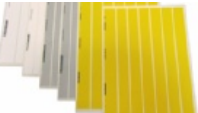






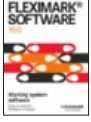

How? What?		Basic system		Customized system			
		Ready made to deliver for each environment		Your demand – we deliver			
Cable	Outdoor & Indoor	 MINI character strips	 Stainless Steel Marking	 Stainless Steel FCC	 Cablelabel FCC		
	Indoor	 Collars	 Marking kit DYMO® PL 150	 Marking tags TMB FCC	 Cablelabel PUR FCC		
Wire	before mounting the wire	 Label cards & Label blocks	 Cablelabel LAM	 Handheld Printers	 Shrink tube FCC	 Cable Marker FCC	
	after mounting the wire	 Marking rings	 Collars	 Flexipart	 Shrink tube FCC	 Flexiprint FCC	 Sleeve FCC
Component	Device marking	 Character holders MLM	 Character holders PGS	 BMK FCC	 Stainless steel component marking FCC		
	Terminal	 Handheld Printers		 Terminal block marking			
	Sensor	 Clip-On collars	 Marking tags TMB FCC	 Marking tags TMB FCC	 Marking tags TMB FCC		
Accessories	 Stainless steel cable ties	 Stainless steel tie gun HT-338	 Pliers FL 52 ERA	 Transparent cover	 Manual embossing machine		

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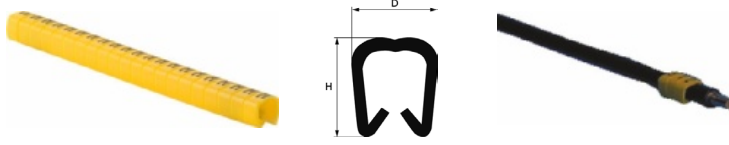
**Data marking**

Laser office printers		Thermal transfer printer	
 <p><b>Flexilabel LFL</b></p>  <p><b>Labels LMB</b></p>	 <p><b>Flexilabel TFL</b></p>  <p><b>Cablelabel PUR</b></p>  <p><b>Cablelabel MTF</b></p>  <p><b>Marking tags TMB</b></p>		
 <p><b>Wrapping labels LCK</b></p>  <p><b>Labels LA/LB</b></p>  <p><b>Cablelabel LFL</b></p>	 <p><b>Flaglabels</b></p>  <p><b>Labels TA</b></p>  <p><b>Wrapping labels TCK</b></p>  <p><b>Cablelabel TFL</b></p>  <p><b>Organized shrink tube</b></p>  <p><b>Shrink tube</b></p>		
 <p><b>Flexiprint LF</b></p>  <p><b>Labels LMB</b></p>	 <p><b>Flexiprint TF</b></p>  <p><b>Organized shrink tube</b></p>  <p><b>Marking tags TMB</b></p>		
 <p><b>Labels LMB</b></p>  <p><b>Wrapping labels LCK</b></p>	 <p><b>Wrapping labels TCK</b></p>  <p><b>Marking tags TMB</b></p>		
 <p><b>Labels LA/LB</b></p>  <p><b>Flexilabel LFL</b></p>	 <p><b>Labels TA</b></p>  <p><b>TA Foam labels</b></p>  <p><b>Flexilabel TFL</b></p>		
 <p><b>Labels LA/LB</b></p>	 <p><b>Terminal block marking</b></p>  <p><b>TA Foam labels</b></p>		
 <p><b>Labels LMB</b></p>  <p><b>Marking tags TMB</b></p>	 <p><b>Marking tags TMB</b></p>  <p><b>Marking tags TMB</b></p>		
 <p><b>FLEXIMARK® SOFTWARE 10.0</b></p> <ul style="list-style-type: none"> <li>- Print your own labels &amp; signs</li> <li>- Work with Excel files</li> <li>- Print barcodes &amp; sequences</li> </ul>	 <p><b>Thermal transfer printer</b></p>		

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



## Marking rings PC



### 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.
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden
- Easy mounting through clipping

### Application range

- For Single core marking
- Marking after assembly
- Also possible to use for marking wires before assembly

### Product features

- Extremely flame-retardant according to UL 94 V0

### Technical data

<b>Colour delivered</b> yellow
<b>Material</b> Cadmium-free and silicon-free hard PVC
<b>Temperature range</b> -30°C to +60°C

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
<b>PC 10</b>					
61820900	PC 10 / O	3.7 x 3.6	3	2.4 - 3.0	200
61820910	PC 10 / 1	3.7 x 3.6	3	2.4 - 3.0	200
61820920	PC 10 / 2	3.7 x 3.6	3	2.4 - 3.0	200
61820930	PC 10 / 3	3.7 x 3.6	3	2.4 - 3.0	200
61820940	PC 10 / 4	3.7 x 3.6	3	2.4 - 3.0	200
61820950	PC 10 / 5	3.7 x 3.6	3	2.4 - 3.0	200
61820960	PC 10 / 6	3.7 x 3.6	3	2.4 - 3.0	200
61820970	PC 10 / 7	3.7 x 3.6	3	2.4 - 3.0	200
61820980	PC 10 / 8	3.7 x 3.6	3	2.4 - 3.0	200
61820990	PC 10 / 9	3.7 x 3.6	3	2.4 - 3.0	200
61821000	PC 10 / blank	3.7 x 3.6	3	2.4 - 3.0	200
61821010	PC 10 / A	3.7 x 3.6	3	2.4 - 3.0	200
61821020	PC 10 / B	3.7 x 3.6	3	2.4 - 3.0	200
61821030	PC 10 / C	3.7 x 3.6	3	2.4 - 3.0	200
61821040	PC 10 / D	3.7 x 3.6	3	2.4 - 3.0	200
61821050	PC 10 / E	3.7 x 3.6	3	2.4 - 3.0	200
61821060	PC 10 / F	3.7 x 3.6	3	2.4 - 3.0	200
61821070	PC 10 / G	3.7 x 3.6	3	2.4 - 3.0	200
61821080	PC 10 / H	3.7 x 3.6	3	2.4 - 3.0	200
61821090	PC 10 / I	3.7 x 3.6	3	2.4 - 3.0	200
61821100	PC 10 / J	3.7 x 3.6	3	2.4 - 3.0	200
61821110	PC 10 / K	3.7 x 3.6	3	2.4 - 3.0	200
61821120	PC 10 / L	3.7 x 3.6	3	2.4 - 3.0	200
61821130	PC 10 / M	3.7 x 3.6	3	2.4 - 3.0	200
61821140	PC 10 / N	3.7 x 3.6	3	2.4 - 3.0	200
61821150	PC 10 / O	3.7 x 3.6	3	2.4 - 3.0	200
61821160	PC 10 / P	3.7 x 3.6	3	2.4 - 3.0	200
61821170	PC 10 / Q	3.7 x 3.6	3	2.4 - 3.0	200
61821180	PC 10 / R	3.7 x 3.6	3	2.4 - 3.0	200
61821190	PC 10 / S	3.7 x 3.6	3	2.4 - 3.0	200
61821200	PC 10 / T	3.7 x 3.6	3	2.4 - 3.0	200
61821210	PC 10 / U	3.7 x 3.6	3	2.4 - 3.0	200
61821220	PC 10 / V	3.7 x 3.6	3	2.4 - 3.0	200
61821230	PC 10 / W	3.7 x 3.6	3	2.4 - 3.0	200
61821240	PC 10 / X	3.7 x 3.6	3	2.4 - 3.0	200
61821250	PC 10 / Y	3.7 x 3.6	3	2.4 - 3.0	200
61821260	PC 10 / Z	3.7 x 3.6	3	2.4 - 3.0	200
61821270	PC 10 / /	3.7 x 3.6	3	2.4 - 3.0	200
61821280	PC 10 / .	3.7 x 3.6	3	2.4 - 3.0	200
61821290	PC 10 / ,	3.7 x 3.6	3	2.4 - 3.0	200
61821300	PC 10 / :	3.7 x 3.6	3	2.4 - 3.0	200
61821310	PC 10 / =	3.7 x 3.6	3	2.4 - 3.0	200
61821320	PC 10 / earth	3.7 x 3.6	3	2.4 - 3.0	200
61821360	PC 10 / +	3.7 x 3.6	3	2.4 - 3.0	200
61821370	PC 10 / -	3.7 x 3.6	3	2.4 - 3.0	200
61821380	PC 10 / ~	3.7 x 3.6	3	2.4 - 3.0	200
<b>PC 20</b>					
61821400	PC 20 / 0	4.5 x 4.2	3	3.0 - 4.0	200
61821410	PC 20 / 1	4.5 x 4.2	3	3.0 - 4.0	200
61821420	PC 20 / 2	4.5 x 4.2	3	3.0 - 4.0	200
61821430	PC 20 / 3	4.5 x 4.2	3	3.0 - 4.0	200
61821440	PC 20 / 4	4.5 x 4.2	3	3.0 - 4.0	200
61821450	PC 20 / 5	4.5 x 4.2	3	3.0 - 4.0	200
61821460	PC 20 / 6	4.5 x 4.2	3	3.0 - 4.0	200
61821470	PC 20 / 7	4.5 x 4.2	3	3.0 - 4.0	200
61821480	PC 20 / 8	4.5 x 4.2	3	3.0 - 4.0	200
61821490	PC 20 / 9	4.5 x 4.2	3	3.0 - 4.0	200
61821500	PC 20 / blank	4.5 x 4.2	3	3.0 - 4.0	200
61821510	PC 20 / A	4.5 x 4.2	3	3.0 - 4.0	200
61821520	PC 20 / B	4.5 x 4.2	3	3.0 - 4.0	200
61821530	PC 20 / C	4.5 x 4.2	3	3.0 - 4.0	200
61821540	PC 20 / D	4.5 x 4.2	3	3.0 - 4.0	200
61821550	PC 20 / E	4.5 x 4.2	3	3.0 - 4.0	200
61821560	PC 20 / F	4.5 x 4.2	3	3.0 - 4.0	200
61821570	PC 20 / G	4.5 x 4.2	3	3.0 - 4.0	200

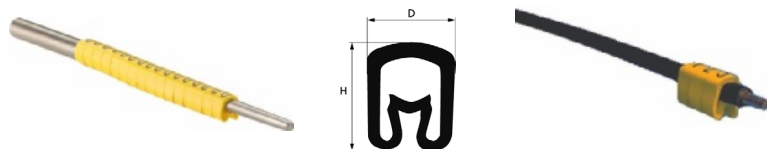
Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61821580	PC 20 / H	4,5 x 4,2	3	3,0 - 4,0	200
61821590	PC 20 / I	4,5 x 4,2	3	3,0 - 4,0	200
61821600	PC 20 / J	4,5 x 4,2	3	3,0 - 4,0	200
61821610	PC 20 / K	4,5 x 4,2	3	3,0 - 4,0	200
61821620	PC 20 / L	4,5 x 4,2	3	3,0 - 4,0	200
61821630	PC 20 / M	4,5 x 4,2	3	3,0 - 4,0	200
61821640	PC 20 / N	4,5 x 4,2	3	3,0 - 4,0	200
61821650	PC 20 / O	4,5 x 4,2	3	3,0 - 4,0	200
61821660	PC 20 / P	4,5 x 4,2	3	3,0 - 4,0	200
61821670	PC 20 / Q	4,5 x 4,2	3	3,0 - 4,0	200
61821680	PC 20 / R	4,5 x 4,2	3	3,0 - 4,0	200
61821690	PC 20 / S	4,5 x 4,2	3	3,0 - 4,0	200
61821700	PC 20 / T	4,5 x 4,2	3	3,0 - 4,0	200
61821710	PC 20 / U	4,5 x 4,2	3	3,0 - 4,0	200
61821720	PC 20 / V	4,5 x 4,2	3	3,0 - 4,0	200
61821730	PC 20 / W	4,5 x 4,2	3	3,0 - 4,0	200
61821740	PC 20 / X	4,5 x 4,2	3	3,0 - 4,0	200
61821750	PC 20 / Y	4,5 x 4,2	3	3,0 - 4,0	200
61821760	PC 20 / Z	4,5 x 4,2	3	3,0 - 4,0	200
61821770	PC 20 / /	4,5 x 4,2	3	3,0 - 4,0	200
61821780	PC 20 / .	4,5 x 4,2	3	3,0 - 4,0	200
61821790	PC 20 / ,	4,5 x 4,2	3	3,0 - 4,0	200
61821800	PC 20 / :	4,5 x 4,2	3	3,0 - 4,0	200
61821810	PC 20 / =	4,5 x 4,2	3	3,0 - 4,0	200
61821820	PC 20/earth	4,5 x 4,2	3	3,0 - 4,0	200
61821860	PC 20 / +	4,5 x 4,2	3	3,0 - 4,0	200
61821870	PC 20 / -	4,5 x 4,2	3	3,0 - 4,0	200
61821880	PC 20 / ~	4,5 x 4,2	3	3,0 - 4,0	200
<b>PC 30</b>					
61821900	PC 30 / 0	5,7 x 5,5	3	4,0 - 5,0	200
61821910	PC 30 / 1	5,7 x 5,5	3	4,0 - 5,0	200
61821920	PC 30 / 2	5,7 x 5,5	3	4,0 - 5,0	200
61821930	PC 30 / 3	5,7 x 5,5	3	4,0 - 5,0	200
61821940	PC 30 / 4	5,7 x 5,5	3	4,0 - 5,0	200
61821950	PC 30 / 5	5,7 x 5,5	3	4,0 - 5,0	200
61821960	PC 30 / 6	5,7 x 5,5	3	4,0 - 5,0	200
61821970	PC 30 / 7	5,7 x 5,5	3	4,0 - 5,0	200
61821980	PC 30 / 8	5,7 x 5,5	3	4,0 - 5,0	200
61821990	PC 30 / 9	5,7 x 5,5	3	4,0 - 5,0	200
61822000	PC 30/blank	5,7 x 5,5	3	4,0 - 5,0	200
61822010	PC 30 / A	5,7 x 5,5	3	4,0 - 5,0	200
61822020	PC 30 / B	5,7 x 5,5	3	4,0 - 5,0	200
61822030	PC 30 / C	5,7 x 5,5	3	4,0 - 5,0	200
61822040	PC 30 / D	5,7 x 5,5	3	4,0 - 5,0	200
61822050	PC 30 / E	5,7 x 5,5	3	4,0 - 5,0	200
61822060	PC 30 / F	5,7 x 5,5	3	4,0 - 5,0	200
61822070	PC 30 / G	5,7 x 5,5	3	4,0 - 5,0	200
61822080	PC 30 / H	5,7 x 5,5	3	4,0 - 5,0	200
61822090	PC 30 / I	5,7 x 5,5	3	4,0 - 5,0	200
61822100	PC 30 / J	5,7 x 5,5	3	4,0 - 5,0	200
61822110	PC 30 / K	5,7 x 5,5	3	4,0 - 5,0	200
61822120	PC 30 / L	5,7 x 5,5	3	4,0 - 5,0	200
61822130	PC 30 / M	5,7 x 5,5	3	4,0 - 5,0	200
61822140	PC 30 / N	5,7 x 5,5	3	4,0 - 5,0	200
61822150	PC 30 / O	5,7 x 5,5	3	4,0 - 5,0	200
61822160	PC 30 / P	5,7 x 5,5	3	4,0 - 5,0	200
61822170	PC 30 / Q	5,7 x 5,5	3	4,0 - 5,0	200
61822180	PC 30 / R	5,7 x 5,5	3	4,0 - 5,0	200
61822190	PC 30 / S	5,7 x 5,5	3	4,0 - 5,0	200
61822200	PC 30 / T	5,7 x 5,5	3	4,0 - 5,0	200
61822210	PC 30 / U	5,7 x 5,5	3	4,0 - 5,0	200
61822220	PC 30 / V	5,7 x 5,5	3	4,0 - 5,0	200
61822230	PC 30 / W	5,7 x 5,5	3	4,0 - 5,0	200
61822240	PC 30 / X	5,7 x 5,5	3	4,0 - 5,0	200
61822250	PC 30 / Y	5,7 x 5,5	3	4,0 - 5,0	200
61822260	PC 30 / Z	5,7 x 5,5	3	4,0 - 5,0	200
61822270	PC 30 / /	5,7 x 5,5	3	4,0 - 5,0	200
61822280	PC 30 / .	5,7 x 5,5	3	4,0 - 5,0	200
61822290	PC 30 / ,	5,7 x 5,5	3	4,0 - 5,0	200
61822300	PC 30 / :	5,7 x 5,5	3	4,0 - 5,0	200
61822310	PC 30 / =	5,7 x 5,5	3	4,0 - 5,0	200
61822320	PC 30/earth	5,7 x 5,5	3	4,0 - 5,0	200
61822360	PC 30 / +	5,7 x 5,5	3	4,0 - 5,0	200
61822370	PC 30 / -	5,7 x 5,5	3	4,0 - 5,0	200
61822380	PC 30 / ~	5,7 x 5,5	3	4,0 - 5,0	200
<b>PC 40</b>					
61822400	PC 40 / 0	6,9 x 6,7	4	5,0 - 6,2	200
61822410	PC 40 / 1	6,9 x 6,7	4	5,0 - 6,2	200
61822420	PC 40 / 2	6,9 x 6,7	4	5,0 - 6,2	200
61822430	PC 40 / 3	6,9 x 6,7	4	5,0 - 6,2	200
61822440	PC 40 / 4	6,9 x 6,7	4	5,0 - 6,2	200
61822450	PC 40 / 5	6,9 x 6,7	4	5,0 - 6,2	200
61822460	PC 40 / 6	6,9 x 6,7	4	5,0 - 6,2	200
61822470	PC 40 / 7	6,9 x 6,7	4	5,0 - 6,2	200
61822480	PC 40 / 8	6,9 x 6,7	4	5,0 - 6,2	200
61822490	PC 40 / 9	6,9 x 6,7	4	5,0 - 6,2	200
61822500	PC 40/blank	6,9 x 6,7	4	5,0 - 6,2	200
61822510	PC 40 / A	6,9 x 6,7	4	5,0 - 6,2	200
61822520	PC 40 / B	6,9 x 6,7	4	5,0 - 6,2	200
61822530	PC 40 / C	6,9 x 6,7	4	5,0 - 6,2	200
61822540	PC 40 / D	6,9 x 6,7	4	5,0 - 6,2	200
61822550	PC 40 / E	6,9 x 6,7	4	5,0 - 6,2	200
61822560	PC 40 / F	6,9 x 6,7	4	5,0 - 6,2	200
61822570	PC 40 / G	6,9 x 6,7	4	5,0 - 6,2	200
61822580	PC 40 / H	6,9 x 6,7	4	5,0 - 6,2	200

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61822590	PC 40 / I	6.9 x 6.7	4	5.0 - 6.2	200
61822600	PC 40 / J	6.9 x 6.7	4	5.0 - 6.2	200
61822610	PC 40 / K	6.9 x 6.7	4	5.0 - 6.2	200
61822620	PC 40 / L	6.9 x 6.7	4	5.0 - 6.2	200
61822630	PC 40 / M	6.9 x 6.7	4	5.0 - 6.2	200
61822640	PC 40 / N	6.9 x 6.7	4	5.0 - 6.2	200
61822650	PC 40 / O	6.9 x 6.7	4	5.0 - 6.2	200
61822660	PC 40 / P	6.9 x 6.7	4	5.0 - 6.2	200
61822670	PC 40 / Q	6.9 x 6.7	4	5.0 - 6.2	200
61822680	PC 40 / R	6.9 x 6.7	4	5.0 - 6.2	200
61822690	PC 40 / S	6.9 x 6.7	4	5.0 - 6.2	200
61822700	PC 40 / T	6.9 x 6.7	4	5.0 - 6.2	200
61822710	PC 40 / U	6.9 x 6.7	4	5.0 - 6.2	200
61822720	PC 40 / V	6.9 x 6.7	4	5.0 - 6.2	200
61822730	PC 40 / W	6.9 x 6.7	4	5.0 - 6.2	200
61822740	PC 40 / X	6.9 x 6.7	4	5.0 - 6.2	200
61822750	PC 40 / Y	6.9 x 6.7	4	5.0 - 6.2	200
61822760	PC 40 / Z	6.9 x 6.7	4	5.0 - 6.2	200
61822770	PC 40 / /	6.9 x 6.7	4	5.0 - 6.2	200
61822780	PC 40 / .	6.9 x 6.7	4	5.0 - 6.2	200
61822790	PC 40 / ,	6.9 x 6.7	4	5.0 - 6.2	200
61822800	PC 40 / :	6.9 x 6.7	4	5.0 - 6.2	200
61822810	PC 40 / =	6.9 x 6.7	4	5.0 - 6.2	200
61822820	PC 40/earth	6.9 x 6.7	4	5.0 - 6.2	200
61822860	PC 40 / +	6.9 x 6.7	4	5.0 - 6.2	200
61822870	PC 40 / -	6.9 x 6.7	4	5.0 - 6.2	200
61822880	PC 40 / ~	6.9 x 6.7	4	5.0 - 6.2	200

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## Marking rings PA



### 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 mm<sup>2</sup>
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden

### Application range

- For Single core marking
- Marking before assembly
- These closed collars are intended for cables that are not connected yet

### Product features

- Extremely flame-retardant according to UL 94 V0

### Note

#### Marking rings PA02

- Also available as collector's box (article number 61833050, contains 600 rings with inscription 0-9)

#### Marking rings PA 1

- Also available as collector's box (article number 61833060, contains 500 rings with inscription 0-9)

### Technical data

<b>RAL</b>	<b>Colour delivered</b> yellow
	<b>Material</b> Cadmium-free and silicon-free soft PVC
	<b>Temperature range</b> -30°C to +60°C

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
<b>PA 02</b>					
61817800	PA 02 / 0	3.5 x 3.6	3	1.3 - 3.0	200
61817810	PA 02 / 1	3.5 x 3.6	3	1.3 - 3.0	200
61817820	PA 02 / 2	3.5 x 3.6	3	1.3 - 3.0	200
61817830	PA 02 / 3	3.5 x 3.6	3	1.3 - 3.0	200
61817840	PA 02 / 4	3.5 x 3.6	3	1.3 - 3.0	200
61817850	PA 02 / 5	3.5 x 3.6	3	1.3 - 3.0	200
61817860	PA 02 / 6	3.5 x 3.6	3	1.3 - 3.0	200
61817870	PA 02 / 7	3.5 x 3.6	3	1.3 - 3.0	200
61817880	PA 02 / 8	3.5 x 3.6	3	1.3 - 3.0	200
61817890	PA 02 / 9	3.5 x 3.6	3	1.3 - 3.0	200
61817900	PA 02/blank	3.5 x 3.6	3	1.3 - 3.0	200
61817910	PA 02 / A	3.5 x 3.6	3	1.3 - 3.0	200
61817920	PA 02 / B	3.5 x 3.6	3	1.3 - 3.0	200
61817930	PA 02 / C	3.5 x 3.6	3	1.3 - 3.0	200

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61817940	PA 02 / D	3.5 x 3.6	3	1.3 - 3.0	200
61817950	PA 02 / E	3.5 x 3.6	3	1.3 - 3.0	200
61817960	PA 02 / F	3.5 x 3.6	3	1.3 - 3.0	200
61817970	PA 02 / G	3.5 x 3.6	3	1.3 - 3.0	200
61817980	PA 02 / H	3.5 x 3.6	3	1.3 - 3.0	200
61817990	PA 02 / I	3.5 x 3.6	3	1.3 - 3.0	200
61818000	PA 02 / J	3.5 x 3.6	3	1.3 - 3.0	200
61818011	PA 02 / K	3.5 x 3.6	3	1.3 - 3.0	200
61818020	PA 02 / L	3.5 x 3.6	3	1.3 - 3.0	200
61818030	PA 02 / M	3.5 x 3.6	3	1.3 - 3.0	200
61818040	PA 02 / N	3.5 x 3.6	3	1.3 - 3.0	200
61818050	PA 02 / O	3.5 x 3.6	3	1.3 - 3.0	200
61818060	PA 02 / P	3.5 x 3.6	3	1.3 - 3.0	200
61818070	PA 02 / Q	3.5 x 3.6	3	1.3 - 3.0	200
61818080	PA 02 / R	3.5 x 3.6	3	1.3 - 3.0	200
61818090	PA 02 / S	3.5 x 3.6	3	1.3 - 3.0	200
61819100	PA 02 / T	3.5 x 3.6	3	1.3 - 3.0	200
61819110	PA 02 / U	3.5 x 3.6	3	1.3 - 3.0	200
61819120	PA 02 / V	3.5 x 3.6	3	1.3 - 3.0	200
61819130	PA 02 / W	3.5 x 3.6	3	1.3 - 3.0	200
61819140	PA 02 / X	3.5 x 3.6	3	1.3 - 3.0	200
61819150	PA 02 / Y	3.5 x 3.6	3	1.3 - 3.0	200
61819160	PA 02 / Z	3.5 x 3.6	3	1.3 - 3.0	200
61819170	PA 02 / .	3.5 x 3.6	3	1.3 - 3.0	200
61819180	PA 02 / .	3.5 x 3.6	3	1.3 - 3.0	200
61819190	PA 02 / ,	3.5 x 3.6	3	1.3 - 3.0	200
61819200	PA 02 / :	3.5 x 3.6	3	1.3 - 3.0	200
61819210	PA 02 / =	3.5 x 3.6	3	1.3 - 3.0	200
61819220	PA 02/earth	3.5 x 3.6	3	1.3 - 3.0	200
61819260	PA 02 / +	3.5 x 3.6	3	1.3 - 3.0	200
61819270	PA 02 / -	3.5 x 3.6	3	1.3 - 3.0	200
61819280	PA 02 / ~	3.5 x 3.6	3	1.3 - 3.0	200
<b>PA 1</b>					
61819300	PA 1 / 0	4.2 x 5.5	3	2.5 - 5.0	200
61819310	PA 1 / 1	4.2 x 5.5	3	2.5 - 5.0	200
61819320	PA 1 / 2	4.2 x 5.5	3	2.5 - 5.0	200
61819330	PA 1 / 3	4.2 x 5.5	3	2.5 - 5.0	200
61819360	PA 1 / 6	4.2 x 5.5	3	2.5 - 5.0	200
61819340	PA 1 / 4	4.2 x 5.5	3	2.5 - 5.0	200
61819350	PA 1 / 5	4.2 x 5.5	3	2.5 - 5.0	200
61819370	PA 1 / 7	4.2 x 5.5	3	2.5 - 5.0	200
61819380	PA 1 / 8	4.2 x 5.5	3	2.5 - 5.0	200
61819390	PA 1 / 9	4.2 x 5.5	3	2.5 - 5.0	200
61819400	PA 1 /blank	4.2 x 5.5	3	2.5 - 5.0	200
61819410	PA 1 / A	4.2 x 5.5	3	2.5 - 5.0	200
61819420	PA 1 / B	4.2 x 5.5	3	2.5 - 5.0	200
61819430	PA 1 / C	4.2 x 5.5	3	2.5 - 5.0	200
61819440	PA 1 / D	4.2 x 5.5	3	2.5 - 5.0	200
61819450	PA 1 / E	4.2 x 5.5	3	2.5 - 5.0	200
61819460	PA 1 / F	4.2 x 5.5	3	2.5 - 5.0	200
61819470	PA 1 / G	4.2 x 5.5	3	2.5 - 5.0	200
61819480	PA 1 / H	4.2 x 5.5	3	2.5 - 5.0	200
61819490	PA 1 / I	4.2 x 5.5	3	2.5 - 5.0	200
61819500	PA 1 / J	4.2 x 5.5	3	2.5 - 5.0	200
61819510	PA 1 / K	4.2 x 5.5	3	2.5 - 5.0	200
61819520	PA 1 / L	4.2 x 5.5	3	2.5 - 5.0	200
61819530	PA 1 / M	4.2 x 5.5	3	2.5 - 5.0	200
61819540	PA 1 / N	4.2 x 5.5	3	2.5 - 5.0	200
61819550	PA 1 / O	4.2 x 5.5	3	2.5 - 5.0	200
61819560	PA 1 / P	4.2 x 5.5	3	2.5 - 5.0	200
61819570	PA 1 / Q	4.2 x 5.5	3	2.5 - 5.0	200
61819580	PA 1 / R	4.2 x 5.5	3	2.5 - 5.0	200
61819590	PA 1 / S	4.2 x 5.5	3	2.5 - 5.0	200
61819600	PA 1 / T	4.2 x 5.5	3	2.5 - 5.0	200
61819610	PA 1 / U	4.2 x 5.5	3	2.5 - 5.0	200
61819620	PA 1 / V	4.2 x 5.5	3	2.5 - 5.0	200
61819630	PA 1 / W	4.2 x 5.5	3	2.5 - 5.0	200
61819640	PA 1 / X	4.2 x 5.5	3	2.5 - 5.0	200
61819650	PA 1 / Y	4.2 x 5.5	3	2.5 - 5.0	200
61819660	PA 1 / Z	4.2 x 5.5	3	2.5 - 5.0	200
61819670	PA 1 / /	4.2 x 5.5	3	2.5 - 5.0	200
61819680	PA 1 / .	4.2 x 5.5	3	2.5 - 5.0	200
61819690	PA 1 / ,	4.2 x 5.5	3	2.5 - 5.0	200
61819700	PA 1 / :	4.2 x 5.5	3	2.5 - 5.0	200
61819710	PA 1 / =	4.2 x 5.5	3	2.5 - 5.0	200
61819720	PA 1/earth	4.2 x 5.5	3	2.5 - 5.0	200
61819760	PA 1 / +	4.2 x 5.5	3	2.5 - 5.0	200
61819770	PA 1 / -	4.2 x 5.5	3	2.5 - 5.0	200
61819780	PA 1 / ~	4.2 x 5.5	3	2.5 - 5.0	200
<b>PA 2</b>					
61819800	PA 2 / 0	6.6 x 9.5	4	4.0 - 10.0	100
61819810	PA 2 / 1	6.6 x 9.5	4	4.0 - 10.0	100
61819820	PA 2 / 2	6.6 x 9.5	4	4.0 - 10.0	100
61819830	PA 2 / 3	6.6 x 9.5	4	4.0 - 10.0	100
61819840	PA 2 / 4	6.6 x 9.5	4	4.0 - 10.0	100
61819850	PA 2 / 5	6.6 x 9.5	4	4.0 - 10.0	100
61819860	PA 2 / 6	6.6 x 9.5	4	4.0 - 10.0	100
61819870	PA 2 / 7	6.6 x 9.5	4	4.0 - 10.0	100
61819880	PA 2 / 8	6.6 x 9.5	4	4.0 - 10.0	100
61819890	PA 2 / 9	6.6 x 9.5	4	4.0 - 10.0	100
61819900	PA 2 /blank	6.6 x 9.5	4	4.0 - 10.0	100
61819910	PA 2 / A	6.6 x 9.5	4	4.0 - 10.0	100
61819920	PA 2 / B	6.6 x 9.5	4	4.0 - 10.0	100
61819930	PA 2 / C	6.6 x 9.5	4	4.0 - 10.0	100
61819940	PA 2 / D	6.6 x 9.5	4	4.0 - 10.0	100

**FLEXIMARK® Single core marking**

Basic System Single Core Marking

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61819950	PA 2 / E	6.6 x 9.5	4	4.0 - 10.0	100
61819960	PA 2 / F	6.6 x 9.5	4	4.0 - 10.0	100
61819970	PA 2 / G	6.6 x 9.5	4	4.0 - 10.0	100
61819980	PA 2 / H	6.6 x 9.5	4	4.0 - 10.0	100
61819990	PA 2 / I	6.6 x 9.5	4	4.0 - 10.0	100
61820000	PA 2 / J	6.6 x 9.5	4	4.0 - 10.0	100
61820010	PA 2 / K	6.6 x 9.5	4	4.0 - 10.0	100
61820020	PA 2 / L	6.6 x 9.5	4	4.0 - 10.0	100
61820030	PA 2 / M	6.6 x 9.5	4	4.0 - 10.0	100
61820040	PA 2 / N	6.6 x 9.5	4	4.0 - 10.0	100
61820050	PA 2 / O	6.6 x 9.5	4	4.0 - 10.0	100
61820060	PA 2 / P	6.6 x 9.5	4	4.0 - 10.0	100
61820070	PA 2 / Q	6.6 x 9.5	4	4.0 - 10.0	100
61820080	PA 2 / R	6.6 x 9.5	4	4.0 - 10.0	100
61820090	PA 2 / S	6.6 x 9.5	4	4.0 - 10.0	100
61820100	PA 2 / T	6.6 x 9.5	4	4.0 - 10.0	100
61820110	PA 2 / U	6.6 x 9.5	4	4.0 - 10.0	100
61820120	PA 2 / V	6.6 x 9.5	4	4.0 - 10.0	100
61820130	PA 2 / W	6.6 x 9.5	4	4.0 - 10.0	100
61820140	PA 2 / X	6.6 x 9.5	4	4.0 - 10.0	100
61820150	PA 2 / Y	6.6 x 9.5	4	4.0 - 10.0	100
61820160	PA 2 / Z	6.6 x 9.5	4	4.0 - 10.0	100
61820170	PA 2 / /	6.6 x 9.5	4	4.0 - 10.0	100
61820180	PA 2 / .	6.6 x 9.5	4	4.0 - 10.0	100
61820190	PA 2 / ,	6.6 x 9.5	4	4.0 - 10.0	100
61820200	PA 2 / :	6.6 x 9.5	4	4.0 - 10.0	100
61820210	PA 2 / =	6.6 x 9.5	4	4.0 - 10.0	100
61820220	PA 2 / earth	6.6 x 9.5	4	4.0 - 10.0	100
61820260	PA 2 / +	6.6 x 9.5	4	4.0 - 10.0	100
61820270	PA 2 / -	6.6 x 9.5	4	4.0 - 10.0	100
61820280	PA 2 / ~	6.6 x 9.5	4	4.0 - 10.0	100
<b>PA 3</b>					
61820300	PA 3 / 0	11.0 x 16.5	6	8.0 - 16.0	20
61820310	PA 3 / 1	11.0 x 16.5	6	8.0 - 16.0	20
61820320	PA 3 / 2	11.0 x 16.5	6	8.0 - 16.0	20
61820330	PA 3 / 3	11.0 x 16.5	6	8.0 - 16.0	20
61820340	PA 3 / 4	11.0 x 16.5	6	8.0 - 16.0	20
61820350	PA 3 / 5	11.0 x 16.5	6	8.0 - 16.0	20
61820360	PA 3 / 6	11.0 x 16.5	6	8.0 - 16.0	20
61820370	PA 3 / 7	11.0 x 16.5	6	8.0 - 16.0	20
61820380	PA 3 / 8	11.0 x 16.5	6	8.0 - 16.0	20
61820390	PA 3 / 9	11.0 x 16.5	6	8.0 - 16.0	20
61820400	PA3/Blank	11.0 x 16.5	6	8.0 - 16.0	20
61820410	PA 3 / A	11.0 x 16.5	6	8.0 - 16.0	20
61820420	PA 3 / B	11.0 x 16.5	6	8.0 - 16.0	20
61820430	PA 3 / C	11.0 x 16.5	6	8.0 - 16.0	20
61820440	PA 3 / D	11.0 x 16.5	6	8.0 - 16.0	20
61820450	PA 3 / E	11.0 x 16.5	6	8.0 - 16.0	20
61820460	PA 3 / F	11.0 x 16.5	6	8.0 - 16.0	20
61820470	PA 3 / G	11.0 x 16.5	6	8.0 - 16.0	20
61820480	PA 3 / H	11.0 x 16.5	6	8.0 - 16.0	20
61820490	PA 3 / I	11.0 x 16.5	6	8.0 - 16.0	20
61820500	PA 3 / J	11.0 x 16.5	6	8.0 - 16.0	20
61820510	PA 3 / K	11.0 x 16.5	6	8.0 - 16.0	20
61820520	PA 3 / L	11.0 x 16.5	6	8.0 - 16.0	20
61820530	PA 3 / M	11.0 x 16.5	6	8.0 - 16.0	20
61820540	PA 3 / N	11.0 x 16.5	6	8.0 - 16.0	20
61820550	PA 3 / O	11.0 x 16.5	6	8.0 - 16.0	20
61820560	PA 3 / P	11.0 x 16.5	6	8.0 - 16.0	20
61820570	PA 3 / Q	11.0 x 16.5	6	8.0 - 16.0	20
61820580	PA 3 / R	11.0 x 16.5	6	8.0 - 16.0	20
61820590	PA 3 / S	11.0 x 16.5	6	8.0 - 16.0	20
61820600	PA 3 / T	11.0 x 16.5	6	8.0 - 16.0	20
61820610	PA 3 / U	11.0 x 16.5	6	8.0 - 16.0	20
61820620	PA 3 / V	11.0 x 16.5	6	8.0 - 16.0	20
61820630	PA 3 / W	11.0 x 16.5	6	8.0 - 16.0	20
61820640	PA 3 / X	11.0 x 16.5	6	8.0 - 16.0	20
61820650	PA 3 / Y	11.0 x 16.5	6	8.0 - 16.0	20
61820660	PA 3 / Z	11.0 x 16.5	6	8.0 - 16.0	20
61820670	PA 3 / /	11.0 x 16.5	6	8.0 - 16.0	20
61820680	PA 3 / .	11.0 x 16.5	6	8.0 - 16.0	20
61820720	PA 3 / earth	11.0 x 16.5	6	8.0 - 16.0	20
61820760	PA 3 / +	11.0 x 16.5	6	8.0 - 16.0	20
61820770	PA 3 / -	11.0 x 16.5	6	8.0 - 16.0	20
61820780	PA 3 / ~	11.0 x 16.5	6	8.0 - 16.0	20

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

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## PAD Mounting rod

**■ Benefits**

- Long cylindrical PAD mounting rod
- Tool for marking cables after assembly with PA marking rings
- Reduced installation time

**■ Application range**

- Marking before assembly



Article number	Article designation	Up to cable diameter (mm)	Suitable for	Contents (unit)
61822920	PAD 3 installation tool	3.1	PA 02	1
61822930	PAD 4 installation tool	3.5	PA 1	1
61822940	PAD 5 installation tool	4.5	PA 1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**■ Accessories**

- Marking rings PA02 refer to page 864



## PAV Mounting tool

**■ Benefits**

- This U-shaped stainless steel mounting tool makes marking considerably easier
- Can be mounted from both the left and right sides of the conductor

**■ Application range**

- Marking before assembly



Article number	Article designation	Up to cable diameter (mm)	Suitable for	Contents (unit)
61822960	PAV 02 installation tool	3.0	PA 02	1
61822970	PAV 10 installation tool	4.0	PA 1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**■ Accessories**

- Marking rings PA02 refer to page 864



## Storage box

**■ Benefits**

- Simple assignment
- With 18 storage compartments

**■ Application range**

- PA marking rings
- PC marking rings



Article number	Article designation	Dimensions W x H x D (mm)	Contents (unit)
61794910	Storage box	250.0 x 46.0 x 170.0	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label  
Colour: transparent (also dividers)



## FLEXIMARK® Flexipart single wire marking



### ■ Benefits

- Easy to install
- Good overall view, as the remaining markers stay on the marking roll
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden

### ■ Application range

- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Blank markers: For prototype marking and colour-marking

### ■ Note

- For cable cross-sections over 16.00 mm<sup>2</sup>, cable ties can be used for installing single markers
- Blank rolls also suitable for thermal transfer printer

### ■ Product make-up

- Flexipart will be supplied as roll that contains 200 or 600 markers, depending on the size
- Sequence cards are labeled markers (with numbers) which are delivered on label sheets

### ■ Technical data

<b>RAL</b>	<b>Colour delivered</b> White Upon request: Yellow, green, blue, red
	<b>Material</b> Halogen-free polyester Thickness: 0.175 mm
	<b>Temperature range</b> -40°C to +125°C

Article number	Article designation	Marking	For mm <sup>2</sup>	Number of markers per PU	PU
<b>Blank rolls in different sizes</b>					
83255011	FLEXIMARK® Flexipart BF0 0.25-0.75 WH	Blank, for customised labelling	0.25 - 0.75	600	1
83255012	FLEXIMARK® Flexipart BF1 0.75-1.5 WH	Blank, for customised labelling	0.75 - 1.5	600	1
83255013	FLEXIMARK® Flexipart BF1B 1.5-2.5 WH	Blank, for customised labelling	1.5 - 2.5	600	1
83255014	FLEXIMARK® Flexipart BF2 2.5-6.0 WH	Blank, for customised labelling	2.5 - 6	600	1
83255015	FLEXIMARK® Flexipart BF3 6.0-16.0 WH	Blank, for customised labelling	6 - 16	200	1
<b>F1 sequence labels with consecutive numbers</b>					
83280010	FLEXIMARK® Flexipart Sequencecard F1 0.75-1.5 1-50 WH	1-50+10 Blank	0.75 - 1.5	60	1
83280011	FLEXIMARK® Flexipart Sequencecard F1 0.75-1.5 51-100 WH	51-100+10 Blank	0.75 - 1.5	60	1
83280012	FLEXIMARK® Flexipart Sequencecard F1 0.75-1.5 101-150 WH	101-150+10 Blank	0.75 - 1.5	60	1
83280013	FLEXIMARK® Flexipart Sequencecard F1 0.75-1.5 151-200 WH	151-200+10 Blank	0.75 - 1.5	60	1
<b>F1b sequence labels with consecutive numbers</b>					
83280014	FLEXIMARK® Flexipart Sequencecard F1B 1.5-2.5 1-50 WH	1-50+10 Blank	1.5 - 2.5	60	1
83280015	FLEXIMARK® Flexipart Sequencecard F1B 1.5-2.5 51-100 WH	51-100+10 Blank	1.5 - 2.5	60	1
83280016	FLEXIMARK® Flexipart Sequencecard F1B 1.5-2.5 101-150 WH	101-150+10 Blank	1.5 - 2.5	60	1
83280017	FLEXIMARK® Flexipart Sequencecard F1B 1.5-2.5 151-200 WH	151-200+10 Blank	1.5 - 2.5	60	1

Other colours and sizes are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Accessories

- MS Marker pens refer to page 875
- FLEXIMAR® Thermoprint A4+M and EOS4 refer to page 891





## FLEXIMARK® Flexiprint TF FCC



### Benefits

- FLEXIMARK® single core marking system for individual application areas
- Customised printed labels in various sizes
- Easy to install
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden

### Application range

- For Single core marking
- Marking of optical fibre cables
- Marking before assembly

### Note

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text
- Normal version: Up to 7 characters

### Included

- 1 PU= 1 marker, there is no minimum purchase quantity

### Technical data

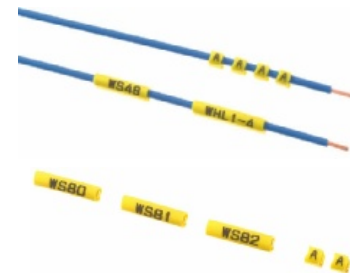
<b>RAL</b>	<b>Colour delivered</b> White Upon request: Yellow, green, blue, red
	<b>Material</b> Halogen-free polyester Thickness: 0.175 mm
	<b>Temperature range</b> -40°C to +125°C

Article number	Article designation	Marking	For mm <sup>2</sup>	Number of markers per PU	PU
83251101	FLEXIMARK® TF FC F0 0,25-0,75 WH	customised	0.25 - 0.75	1	1
83251111	FLEXIMARK® TF FCC F1 0,75-1,5 WH	customised	0.75 - 1.5	1	1
83251121	FLEXIMARK® TF FCC F1B 1,5-2,5 WH	customised	1.5 - 2.5	1	1
83251131	FLEXIMARK® TF FCC F2 2,5-6 WH	customised	2.5 - 6	1	1
83251141	FLEXIMARK® TF FCC F3 6-16 WH	customised	6 - 16	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## FLEXIMARK® Sleeve FCC



### Benefits

- Marking sleeves 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

### Application range

- For Single core marking
- Marking before assembly

### Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

### Note

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

### Included

- 1 PU= 1 marker, there is no minimum purchase quantity

### Technical data

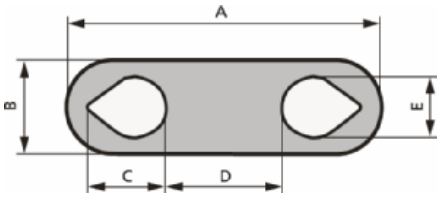
<b>RAL</b>	<b>Colour delivered</b> yellow
	<b>Material</b> Flexible PVC (9879)
	<b>Temperature range</b> -15 °C to +90 °C

Article number	Article designation	For mm <sup>2</sup>	Number of characters	Number of markers per PU	PU
83263000	FLEXIMARK® Sleeve FCC FS 30 0,5-1,5 1-4 YE	0.5 - 1.5	1-4	1	1
83263001	FLEXIMARK® Sleeve FCC FS 30 0,5-1,5 5-7 YE	0.5 - 1.5	5-7	1	1
83263002	FLEXIMARK® Sleeve FCC FS 30 0,5-1,5 8-12 YE	0.5 - 1.5	8-12	1	1
83263003	FLEXIMARK® Sleeve FCC FS 45 0,75-6 1-4 YE	0.75 - 6	1-4	1	1
83263004	FLEXIMARK® Sleeve FCC FS 45 0,75-6 5-7 YE	0.75 - 6	5-7	1	1
83263005	FLEXIMARK® Sleeve FCC FS 45 0,75-6 8-12 YE	0.75 - 6	8-12	1	1
83263006	FLEXIMARK® Sleeve FCC FS 90 4-16 1-4 YE	4 - 16	1-4	1	1
83263007	FLEXIMARK® Sleeve FCC FS 90 4-16 5-7 YE	4 - 16	5-7	1	1
83263008	FLEXIMARK® Sleeve FCC FS 90 4-16 8-12 YE	4 - 16	8-12	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## FLEXIMARK® Flexiprint LF



**Info**

- LF 1 contained in FLEXIMARK® sample bag (article number M3251010)

**Benefits**

- Easy to install
- Resistant to acids, alkali, distilled water, salt water and transformer oil according to SP 2171 method
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 test method (see selection table A 15)

**Application range**

- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

**Note**

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- For cable cross-sections over 16.00 mm<sup>2</sup>, cable ties can be used for installing single markers
- Normal version: Up to 7 characters
- L Version (e.g. LF1L/TF1L): Up to 15 characters

**Included**

- 1 PU contains 75 label sheets
- One label sheet consists of 20-60 perforated markers, depending on the size

**Technical data**

- Note**  
Dimensions of the label sheet: 80-100 x 210 mm
- Colour delivered**  
yellow  
Upon request: White, green, blue, red
- Material**  
Halogen-free polyester
- Temperature range**  
-40°C to +125°C

Article number	Article designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	For mm <sup>2</sup>	Number of markers per PU	PU
<b>Flexiprint for laser printers</b>									
83280005	FLEXIMARK® Flexiprint LF0 YE	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	4,500	1
83254420	FLEXIMARK® Flexiprint LF1 YE	23.0	5.2	4.9	11.2	3.5	0.75 - 1.5	4,500	1
83254460	FLEXIMARK® Flexiprint LF1B YE	25.0	5.7	5.9	11.2	4.2	1.5 - 2.5	4,500	1
83254440	FLEXIMARK® Flexiprint LF1L YE	34.0	5.2	5.0	22.0	3.5	0.75 - 1.5	2,250	1
83254480	FLEXIMARK® Flexiprint LF1BL YE	36.0	5.7	6.0	22.0	4.2	1.5 - 2.5	2,250	1
83254500	FLEXIMARK® Flexiprint LF2 YE	26.0	7.0	6.5	11.0	5.5	2.5 - 6	4,500	1
83254520	FLEXIMARK® Flexiprint LF3 YE	41.0	11.0	10.5	17.0	8.4	6 - 16	1,500	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Software 10.0 refer to page 890

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## FLEXIMARK® Flexiprint TF

### ■ Benefits

- Easy to install
- Resistant to acids, alkali, distilled water, salt water and transformer oil according to SP 2171 method
- Resistant to UV radiation, corresponding to 1 year outdoor in the south of Sweden

### ■ Application range

- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### ■ Note

- Normal version: Up to 7 characters
- L Version (e.g. LF1L/TF1L): Up to 15 characters

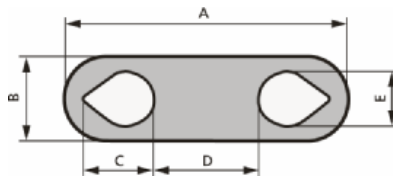


### Info

- TF 1 contained in FLEXIMARK® sample bag (article number M3251010)

### ■ Technical data

- RAL** Colour delivered  
yellow  
Upon request: White, green, blue, red
- Material**  
Halogen-free polyester
- Temperature range**  
-40°C to +125°C



Article number	Article designation	For mm <sup>2</sup>	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Number of markers per PU	PU
83254372	FLEXIMARK® Flexiprint TF0 YE	0.25 - 0.75	22.9	5.2	3.9	13.1	2.4	2000	1
83254378	FLEXIMARK® Flexiprint TF1 YE	0.75 - 1.5	23.0	5.2	4.9	11.2	3.5	2000	1
83254354	FLEXIMARK® Flexiprint TF1 YE	0.75 - 1.5	34.0	5.2	5.0	22.0	3.5	2000	
83254374	FLEXIMARK® Flexiprint TF1B YE	1.5 - 2.5	25.0	5.7	5.9	11.2	4.2	2000	1
83254359	FLEXIMARK® Flexiprint TF1BL YE	1.5 - 2.5	36.0	5.7	6.0	22.0	4.2	2000	
83254375	FLEXIMARK® Flexiprint TF2 YE	2.5 - 6	26.0	7.0	6.5	11.0	5.5	2000	1
83254376	FLEXIMARK® Flexiprint TF3 YE	6 - 16	41.0	11.0	10.5	17.0	8.4	1000	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Accessories

- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891

**FLEXIMARK® Cable Marking**

Basic System Cable Marking



**FLEXIMARK® Stainless steel kit**



**Benefits**

- The basic equipment of the FLEXIMARK® stainless steel system in a handy box
- Recommended for harsh environments
- Acid-resistant

**Included**

- Characters A-Ö/0-9: 40 pieces (2 strips of each character containing 20 characters)
- Special characters +-.:ü and sign for earthing: 40 pieces (2 strips with 20 markers for each sign)
- Characters blank: 40 pieces (2 character strips with 20 markers)
- 10 character holders (5 for cable ties and 5 with boreholes) with lengths of 286; 109; 83.1, 60.4; und 48.8 mm
- Stainless Steel Cable ties: 10 pieces LS 4.6x200

**Technical data**

- General**  
Dimensions of the strips: 9.5 x 6 x 0.75 mm
- Material**  
Acid-resistant stainless steel SS 2348 (AISI 316)
- Temperature range**  
-80°C to +500°C

Article number	Article designation	Contents (unit)	PU
83254220	FLEXIMARK® Kit Stainless Steel without cable tie pliers	1	1
83280047	FLEXIMARK® Kit Stainless Steel with cable tie pliers	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® MR Stainless steel character refer to page 872
- STEEL GUN HT-338 cable tie pliers refer to page 964



**FLEXIMARK® MR Stainless steel character / FLEXIMARK® Stainless steel - character Set**



**FLEXIMARK® MR Stainless steel character**    **FLEXIMARK® Stainless steel - character Set**

**Benefits**

- For assembly, the character strips are pushed into the NM stainless steel character holders

**Note**

- MR stainless steel character strips are also available with Cyrillic characters upon request.

**Included**

**FLEXIMARK® MR Stainless steel character**

- Every character strip contains 20 pre stamped single markers

**FLEXIMARK® Stainless steel - character Set**

- Set contains 200 markers of each character

**Info**

- Contained in FLEXIMARK® sample bag (article number M3251010)

**Technical data**

- Dimensions**  
Height x width: approx. 9.5 x 6 mm  
Character height: approx. 6.8 mm
- Material**  
Acid-resistant stainless steel SS 2348 (AISI-316)
- Temperature range**  
-80°C to +500°C

Article number	Article designation	Number of markers per strip	Contents (unit)	PU
<b>Numbers</b>				
83254179	FLEXIMARK® Character Strip MR 10-20 1	20	10	1
83254180	FLEXIMARK® Character Strip MR 10-20 2	20	10	1
83254181	FLEXIMARK® Character Strip MR 10-20 3	20	10	1
83254182	FLEXIMARK® Character Strip MR 10-20 4	20	10	1
83254183	FLEXIMARK® Character Strip MR 10-20 5	20	10	1
83254184	FLEXIMARK® Character Strip MR 10-20 6/9	20	10	1
83254185	FLEXIMARK® Character Strip MR 10-20 7	20	10	1
83254186	FLEXIMARK® Character Strip MR 10-20 8	20	10	1

Article number	Article designation	Number of markers per strip	Contents (unit)	PU
<b>Letters</b>				
83254150	FLEXIMARK® Character Strip MR 10-20 A	20	10	1
83254151	FLEXIMARK® Character Strip MR 10-20 B	20	10	1
83254152	FLEXIMARK® Character Strip MR 10-20 C	20	10	1
83254153	FLEXIMARK® Character Strip MR 10-20 D	20	10	1
83254154	FLEXIMARK® Character Strip MR 10-20 E	20	10	1
83254155	FLEXIMARK® Character Strip MR 10-20 F	20	10	1
83254156	FLEXIMARK® Character Strip MR 10-20 G	20	10	1
83254157	FLEXIMARK® Character Strip MR 10-20 H	20	10	1
83254158	FLEXIMARK® Character Strip MR 10-20 I	20	10	1
83254159	FLEXIMARK® Character Strip MR 10-20 J	20	10	1
83254160	FLEXIMARK® Character Strip MR 10-20 K	20	10	1
83254161	FLEXIMARK® Character Strip MR 10-20 L	20	10	1
83254162	FLEXIMARK® Character Strip MR 10-20 M	20	10	1
83254163	FLEXIMARK® Character Strip MR 10-20 N	20	10	1
83254164	FLEXIMARK® Character Strip MR 10-20 O/O	20	10	1
83254165	FLEXIMARK® Character Strip MR 10-20 P	20	10	1
83254166	FLEXIMARK® Character Strip MR 10-20 Q	20	10	1
83254167	FLEXIMARK® Character Strip MR 10-20 R	20	10	1
83254168	FLEXIMARK® Character Strip MR 10-20 S	20	10	1
83254169	FLEXIMARK® Character Strip MR 10-20 T	20	10	1
83254170	FLEXIMARK® Character Strip MR 10-20 U	20	10	1
83254171	FLEXIMARK® Character Strip MR 10-20 V	20	10	1
83254172	FLEXIMARK® Character Strip MR 10-20 W	20	10	1
83254173	FLEXIMARK® Character Strip MR 10-20 X	20	10	1
83254174	FLEXIMARK® Character Strip MR 10-20 Y	20	10	1
83254175	FLEXIMARK® Character Strip MR 10-20 Z	20	10	1
83254177	FLEXIMARK® Character Strip MR 10-20 Å	20	10	1
83254178	FLEXIMARK® Character Strip MR 10-20 Ö	20	10	1
83254201	FLEXIMARK® Character Strip MR 10-20 Ü	20	10	1
<b>Symbols</b>				
83254192	FLEXIMARK® Character Strip MR 10-20 +	20	10	1
83254191	FLEXIMARK® Character Strip MR 10-20 -	20	10	1
83254194	FLEXIMARK® Character Strip MR 10-20 /	20	10	1
83254195	FLEXIMARK® Character Strip MR 10-20 .	20	10	1
83254199	FLEXIMARK® Character Strip MR 10-20 :	20	10	1
83254198	FLEXIMARK® Character Strip MR 10-20 ~	20	10	1
83254193	FLEXIMARK® Character Strip MR 10-20 =	20	10	1
83254200	FLEXIMARK® Character Strip MR 10-20 Earth	20	10	1
83254196	FLEXIMARK® Character Strip MR 10-20 .	20	10	1
83254202	FLEXIMARK® Character Strip MR 10-20 (	20	10	1
83254189	FLEXIMARK® Character Strip MR 10-20P blank	20	10	1
<b>Sets</b>				
83254122	FLEXIMARK® Character strip MR SET 0-9	20	100	1
83254120	FLEXIMARK® Character strip MR SET A-Z	20	260	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## FLEXIMARK® Marking Kit MINI



### Benefits

- The basic equipment of the FLEXIMARK® MINI system in a handy box

### Application range

- Cable and component marking system

### Included

- Characters A-Ö/0-9: 40 pieces (2 strips of each character containing 20 characters)
- Special characters +/-:ü and sign for earthing: 40 pieces (2 strips with 20 markers for each sign)

- Characters blank: 40 pieces (2 character strips with 20 markers)
- Character holder: 1 pc. of PGS 10-285 in black and white, 8 pc of PTE 9,5-285
- 40 pc clamping poppets, 20 pc end pieces, punching tool FL52-ERA (article number 83252047), 100 pc plastic cable ties

### Technical data

- Temperature range: -20°C to +65°C

Article number	Article designation	Contents (unit)	PU
83252001	FLEXIMARK® Marking Kit Mini with pliers F52-ERA	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

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# FLEXIMARK® Characters plastic MINI / FLEXIMARK® Characters strips plastic set MINI



**Info**

- Contained in FLEXIMARK® sample bag (article number M3251010)

**FLEXIMARK® Characters plastic MINI**

**Benefits**

- Insert strips for PTE, PTEF, CAB and PGS character holders
- Easy to label
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 test method (see selection table A 15)

**FLEXIMARK® Characters strips plastic set MINI**

**Application range**

- Cable and component marking system

**Product features**

- For assembly, slide the character strips into the character holders as far as the pre-folded bend and then break them off

**Technical data**

- Dimensions**  
HxWxD: 9.5 x 6 x 0.75 mm
- Colour delivered**  
Yellow with black lettering  
White with black lettering (on request)
- Material**  
Hard PVC
- Temperature range**  
-20°C to +65°C

Article number	Article designation	Contents (unit)	PU
<b>MINI numbers</b>			
83252330	FLEXIMARK® Character Mini MGS 10-20-0 YE	200	1
83252331	FLEXIMARK® Character Mini MGS 10-20-1 YE	200	1
83252332	FLEXIMARK® Character Mini MGS 10-20-2 YE	200	1
83252333	FLEXIMARK® Character Mini MGS 10-20-3 YE	200	1
83252334	FLEXIMARK® Character Mini MGS 10-20-4 YE	200	1
83252335	FLEXIMARK® Character Mini MGS 10-20-5 YE	200	1
83252336	FLEXIMARK® Character Mini MGS 10-20-6 YE	200	1
83252337	FLEXIMARK® Character Mini MGS 10-20-7 YE	200	1
83252338	FLEXIMARK® Character Mini MGS 10-20-8 YE	200	1
<b>MINI letters</b>			
83252300	FLEXIMARK® Character Mini MGS 10-20-A YE	200	1
83252301	FLEXIMARK® Character Mini MGS 10-20-B YE	200	1
83252302	FLEXIMARK® Character Mini MGS 10-20-C YE	200	1
83252303	FLEXIMARK® Character Mini MGS 10-20-D YE	200	1
83252304	FLEXIMARK® Character Mini MGS 10-20-E YE	200	1
83252305	FLEXIMARK® Character Mini MGS 10-20-F YE	200	1
83252306	FLEXIMARK® Character Mini MGS 10-20-G YE	200	1
83252307	FLEXIMARK® Character Mini MGS 10-20-H YE	200	1
83252308	FLEXIMARK® Character Mini MGS 10-20-I YE	200	1
83252309	FLEXIMARK® Character Mini MGS 10-20-J YE	200	1
83252310	FLEXIMARK® Character Mini MGS 10-20-K YE	200	1
83252311	FLEXIMARK® Character Mini MGS 10-20-L YE	200	1
83252312	FLEXIMARK® Character Mini MGS 10-20-M YE	200	1
83252313	FLEXIMARK® Character Mini MGS 10-20-N YE	200	1
83252314	FLEXIMARK® Character Mini MGS 10-20-O YE	200	1
83252315	FLEXIMARK® Character Mini MGS 10-20-P YE	200	1
83280000	FLEXIMARK® Character Mini MGS 10-20-Q YE	200	1
83252317	FLEXIMARK® Character Mini MGS 10-20-R YE	200	1
83252318	FLEXIMARK® Character Mini MGS 10-20-S YE	200	1
83252319	FLEXIMARK® Character Mini MGS 10-20-T YE	200	1
83252320	FLEXIMARK® Character Mini MGS 10-20-U YE	200	1
83252321	FLEXIMARK® Character Mini MGS 10-20-V YE	200	1
83280001	FLEXIMARK® Character Mini MGS 10-20-W YE	200	1
83252323	FLEXIMARK® Character Mini MGS 10-20-X YE	200	1
83252324	FLEXIMARK® Character Mini MGS 10-20-Y YE	200	1
83280002	FLEXIMARK® Character Mini MGS 10-20-Z YE	200	1
83252327	FLEXIMARK® Character Mini MGS 10-20-A YE	200	1
83252328	FLEXIMARK® Character Mini MGS 10-20-Ø YE	200	1
83252340	FLEXIMARK® Character Mini MGS 10-20-U YE	200	1
<b>MINI symbols</b>			
83252058	FLEXIMARK® Character Mini MGS 10-20-+ YE	200	1
83252059	FLEXIMARK® Character Mini MGS 10-20- YE	200	1
83252055	FLEXIMARK® Character Mini MGS 10-20-EA YE	200	1
83252057	FLEXIMARK® Character Mini MGS 10-20-~ YE	200	1
83252056	FLEXIMARK® Character Mini MGS 10-20- = YE	200	1
83252061	FLEXIMARK® Character Mini MGS 10-20- . YE	200	1
83252062	FLEXIMARK® Character Mini MGS 10-20- / YE	200	1
83252060	FLEXIMARK® Character Mini MGS 10-20- : YE	200	1
83252076	FLEXIMARK® Character Mini MGS 10-20-x YE	200	1
83252101	FLEXIMARK® Character Mini MGS 10-20-blank YE	200	1
<b>Plastic character strip set</b>			
83250039	FLEXIMARK® Character Mini 123-Pack YE	2,000	1
83259021	FLEXIMARK® Character Mini ABC-Pack YE	5,200	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

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 ACCESSORIES  
 APPENDIX

■ **Accessories**

**FLEXIMARK® Characters plastic MINI**

- FLEXIMARK® Character holders PTE refer to page 893
- FLEXIMARK® PTEF / CAB refer to page 894
- FLEXIMARK® Character holders PGS refer to page 895



■ **Benefits**

- Wrapping label with protective foil
- When the cover is applied onto the cable, the transparent foil covers the writing area, thus protecting it against abrasion, humidity, oil and light solvents.
- Easy to label

■ **Technical data**



**Material**  
Vinyl strips, silicone-treated lining, halogen-free



**Temperature range**  
-35°C to +70°C

■ **Application range**

- For Cable Marking
- Indoor applications
- The designations can be written with a pencil, a ballpoint, pen, or other marker on the white writing area

**WM BW Blank cable marker**



Article number	Article designation	Labelling surface (mm)	Number of markers per brochure	Contents (unit)
61726150	WM brochure BW 3	25 x 25	30	1
61726160	WM brochure BW 5	25 x 20	50	1
61726170	WM brochure BW 12	12 x 15	200	1
61726180	WM brochure BW 14	6 x 15	400	1
61726190	WM brochure BW 34	18 x 14	140	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

■ **Accessories**

- MS Marker pens refer to page 875

■ **Benefits**

- For individual, durable marking of blank MINI character and text strips and labels

■ **Product features**

- The marking is water, smudge and weather-resistant.
- For CD, glass, plastic, metal, foil and more
- Line width: 0.4 mm
- Integrated eraser

**MS Marker pens**



Article number	Article designation	Colour	Contents (unit)
61784650	MS-S marker pen	black	10
61784660	MS-R marker pen	red	10
61784670	MS-B marker pen	blue	10

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

■ **Accessories**

- KMK Marking labels refer to page 899
- ETB Marking labels refer to page 899
- Basic Tie Ident BTI-I Cable tie



## FLEXIMARK® Stainless steel FCC



### Benefits

- Customised stainless steel cable labelling
- Markers are sorted prior to delivery
- No time-consuming preparation and installation
- Acid-resistant
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

### Product features

- For fastening with cable ties (LS) up to a width of 7 mm

### Note

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

### Suitable tools

- STEEL GUN HT-338 cable tie pliers refer to page 964

### Technical data



#### Dimensions

Character size (height): 4.5 mm  
Diameter borehole: 3,2 mm



#### Note

Gap between characters: approximately 1 mm



#### Info

Available characters:  
A-Ö, 0-9, +/-;  
X Earthing sign



#### Material

Acid-resistant stainless steel SS 2348 (AISI-316)



#### Temperature range

-80°C to +500°C

Article number	Article designation	Height (mm)	Design	Number of characters	Number of markers per PU
<b>One line embossing /with cable tie brackets</b>					
83251406	FLEXIMARK® Stainless SMC FCC LS200 0-15	9.9	with cable tie	0-15	1
83251456	FLEXIMARK® Stainless SMC FCC LS200 16-25	9.9	with cable tie	16-25	1
83251402	FLEXIMARK® Stainless SMC FCC 0-15	9.9	without cable tie	0-15	1
83251454	FLEXIMARK® Stainless SMC FCC 16-25	9.9	without cable tie	16-25	1
<b>One line embossing /with screw hole</b>					
83251450	FLEXIMARK® Stainless SM FCC 0-15	9.9	with screw hole	0-15	1
83251478	FLEXIMARK® Stainless SM FCC 16-25	9.9	with screw hole	16-25	1
<b>Two-line embossing /with cable tie brackets*</b>					
83251426	FLEXIMARK® Stainless SMC2R FCC LS200 0-15	13.9	with cable tie	0-15	1
83251468	FLEXIMARK® Stainless SMC2R FCC LS200 16-25	13.9	with cable tie	16-25	1
83251422	FLEXIMARK® Stainless SMC2R FCC 0-15	13.9	without cable tie	0-15	1
83251466	FLEXIMARK® Stainless SMC2R FCC 16-25	13.9	without cable tie	16-25	1
<b>Two-line embossing /with screw hole</b>					
83251451	FLEXIMARK® Stainless SM2R FCC 0-15	13.9	with screw hole	0-15	1
83251479	FLEXIMARK® Stainless SM2R FCC 16-25	13.9	with screw hole	16-25	1

Blank signplates are available upon request; fasteners for cable ties are also available in concave design (standard: convex).  
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- LS steel cable ties refer to page 963





## FLEXIMARK® Cable marking FCC



### Benefits

- Customised plastic cable labelling
- Markers are sorted prior to delivery
- No time-consuming preparation and installation
- Good UV-resistance
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

### Product features

- One or two-line printing possible
- Text is automatically centered if not explicitly asked for another text alignment

### Note

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

### Included

- Markers (including cable ties) are pre-assembled prior to delivery

### Technical data



#### Dimensions

Length text: 35 mm  
Length plate: 50 mm  
Max. length: 200 mm



#### Note

Standard cable tie: black (142, x 2.4 mm)



#### Colour delivered

Standard colour: black lettering against yellow background  
Upon request: White, green, blue, red



#### Material

Character holder: halogen-free PE  
Labels: Halogenfree polyester



#### Temperature range

-25 °C to +70 °C

Article number	Article designation	Colour	Height (mm)	Number of markers per PU	PU
83251300	FLEXIMARK® Cable marker FCC 6 YE	yellow	6.0	1	1
83251320	FLEXIMARK® Cable marker FCC 9.5 YE	yellow	9.5	1	1
83251350	FLEXIMARK® Cable marker FCC 19 YE	yellow	19.0	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## FLEXIMARK® SHRINK MARK FCC



**Info**

- Shrink Mark FK 12,7 RD 5-7 contained in FLEXIMARK® sample bag (article number M3251010)

**Benefits**

- Personalised printing of the shrinking tube segments according to customer specifications
- Markers are sorted prior to delivery
- Good UV-resistance
- Flame retardant according to ASTM D635-HB

**Application range**

- For Cable Marking
- For applications where space is tight
- Protection of the cable insulation
- Railway applications

**Product features**

- One or two-line printing possible
- Text is automatically centered if not explicitly asked for another text alignment

**Product make-up**

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

**Technical data**

- RAL Colour delivered**  
Black  
The following colours are available upon request: blue, red, yellow, white, transparent
- 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	Number of markers per PU	PU
83280029	SHRINK MARK FCC-FK 3,2	black	3.2	1.6	1-7	1	1
83280030	SHRINK MARK FCC-FK 3,2	black	3.2	1.6	8-12	1	1
83280031	SHRINK MARK FCC-FK 3,2	black	3.2	1.6	13-17	1	1
83280032	SHRINK MARK FCC-FK 4,8	black	4.8	2.4	1-7	1	1
83280033	SHRINK MARK FCC-FK 4,8	black	4.8	2.4	8-12	1	1
83280034	SHRINK MARK FCC-FK 4,8	black	4.8	2.4	13-17	1	1
83280035	SHRINK MARK FCC-FK 6,4	black	6.4	3.2	1-7	1	1
83280036	SHRINK MARK FCC-FK 6,4	black	6.4	3.2	8-12	1	1
83280037	SHRINK MARK FCC-FK 6,4	black	6.4	3.2	13-17	1	1
83280038	SHRINK MARK FCC-FK 9,5	black	9.5	4.7	1-7	1	1
83280039	SHRINK MARK FCC-FK 9,5	black	9.5	4.7	8-12	1	1
83280040	SHRINK MARK FCC-FK 9,5	black	9.5	4.7	13-17	1	1
83280041	SHRINK MARK FCC-FK 12,7	black	12.7	6.3	1-7	1	1
83280042	SHRINK MARK FCC-FK 12,7	black	12.7	6.3	8-12	1	1
83280043	SHRINK MARK FCC-FK 12,7	black	12.7	6.3	13-17	1	1
83280044	SHRINK MARK FCC-FK 19,1	black	19.1	9.5	1-7	1	1
83280045	SHRINK MARK FCC-FK 19,1	black	19.1	9.5	8-12	1	1
83280046	SHRINK MARK FCC-FK 19,1	black	19.1	9.5	13-17	1	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- HG 2310 LCD hot-air pistol refer to page 953

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 HITRONIC®  
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## FLEXIMARK® Wrapping labels LCK

**Info**

- LCK 32 YE contained in FLEXIMARK® sample bag (article number M3251010)



### Benefits

- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 test method (see selection table A15)
- A transparent foil is wrapped around the cable and pasted over the printed field, that the printing is protected against abrasion and pollution
- Resistant to chemicals, UV-radiation, moisture and some oils

### Application range

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### Note

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

### Included

- Perforated DIN A4 sheets

### Technical data

<b>Z<sub>∞</sub></b> Info	Halogen-free
<b>RAL</b> Colour delivered	White or yellow
<b>Material</b>	Halogen-free polyester Thickness: 0.025 mm
<b>Temperature range</b>	-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)	Number of markers per PU	Labels per side	PU
<b>LCK labels for laser printers</b>								
83256143	FLEXIMARK® Label LCK 32 WH	white	25.0 x 33.5	25 x 12	4 - 7	640	64	1
83256142	FLEXIMARK® Label LCK 32 YE	yellow	25.0 x 33.5	25 x 12	4 - 7	640	64	1
83256145	FLEXIMARK® Label LCK 35 WH	white	25.0 x 55.0	25 x 19	6 - 12	400	40	1
83256144	FLEXIMARK® Label LCK 35 YE	yellow	25.0 x 55.0	25 x 19	6 - 12	400	40	1
83256147	FLEXIMARK® Label LCK 40 WH	white	25.0 x 94.0	25 x 25	8 - 21	240	24	1
83256146	FLEXIMARK® Label LCK 40 YE	yellow	25.0 x 94.0	25 x 25	8 - 21	240	24	1
83256149	FLEXIMARK® Label LCK 45 WH	white	25.0 x 142.5	25 x 25	8 - 36	160	16	1
83256148	FLEXIMARK® Label LCK 45 YE	yellow	25.0 x 142.5	25 x 25	8 - 36	160	16	1
83256160	FLEXIMARK® Label LCK 48 WH	white	34.0 x 93.0	34 x 25	8 - 21	180	18	1
83256161	FLEXIMARK® Label LCK 48 YE	yellow	34.0 x 93.0	34 x 25	8 - 21	180	18	1
83256151	FLEXIMARK® Label LCK 60 WH	white	50.0 x 56.0	50 x 19	6 - 12	200	20	1
83256150	FLEXIMARK® Label LCK 60 YE	yellow	50.0 x 56.0	50 x 19	6 - 12	200	20	1
83256153	FLEXIMARK® Label LCK 65 WH	white	50.0 x 94.0	50 x 25	8 - 21	120	12	1
83256152	FLEXIMARK® Label LCK 65 YE	yellow	50.0 x 94.0	50 x 25	8 - 21	120	12	1
83256155	FLEXIMARK® Label LCK 70 WH	white	50.0 x 142.5	50 x 25	8 - 36	80	8	1
83256154	FLEXIMARK® Label LCK 70 YE	yellow	50.0 x 142.5	50 x 25	8 - 36	80	8	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- FLEXIMARK® Software 10.0 refer to page 890



## FLEXIMARK® Cable label LFL



### ■ Benefits

- Can be mounted directly on the cable together with plastic cable ties
- No character holder necessary
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 test method (see selection table A15)

### ■ Application range

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### ■ Note

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up



### Info

- LFL2H 9,9-26 contained in FLEXIMARK® sample bag (article number M3251010)

### ■ Technical data



**Colour delivered**  
Standard colour: Yellow/White



**Material**  
Halogen-free polyester  
Thickness: 0.175 mm



**Temperature range**  
-40°C to +125°C

### ■ Product make-up

- One (LFL1H) or two-sided (LFL2H) fastening with cable ties (up to 4.5 mm in width)

### ■ Included

- A5 and A4 label sheets for laser printers

Article number	Article designation	Width x height (mm)	Number of markers per PU	Labels per side	PU
83254750	FLEXIMARK® Label LFL2H9.9-26 YEW	26.0 x 9.9	400	40	1
83254760	FLEXIMARK® Label LFL1H9.9-35 YEW	35.0 x 9.9	400	40	1
83254765	FLEXIMARK® Label LFL2H 66-9.9 YEW	66.0 x 9.9	560	56	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Accessories

- MS Marker pens refer to page 875
- FLEXIMARK® Software 10.0 refer to page 890
- TY - FAST® standard cable ties refer to page 957



**FLEXIMARK® Flexilabel LFL**

**Benefits**

- Suitable labels for PTE, PTEF and CAB character holders (see chapter “Character holders and accessories”)
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Halogen-free

**Application range**

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

**Note**

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

**Included**

- Perforated DIN A4 sheets



**Info**

- LFL 9,5-28 contained in FLEXIMARK® sample bag (article number M3251010)

**Technical data**

**RAL Colour delivered**  
Standard colour: Yellow/White

**Material**  
Halogen-free polyester  
Thickness: 0.175 mm

**Temperature range**  
-40°C to +125°C



Article number	Article designation	Width x height (mm)	Number of markers per PU	Labels per side	PU
83254620	FLEXIMARK® Label LFL 6-35 YEWH	35.0 x 6.0	2,350	235	1
83254650	FLEXIMARK® Label LFL 9.5-17.5 YEWH	17.5 x 9.5	3,190	319	1
83254660	FLEXIMARK® Label LFL 9.5-28 YEWH	28.0 x 9.5	2,030	203	1
83254670	FLEXIMARK® Label LFL 9.5-35 YEWH	35.0 x 9.5	1,450	145	1
83254701	FLEXIMARK® Label LFL 9.9-66 YEWH	66.0 x 9.9	840	84	1
83254690	FLEXIMARK® Label LFL 9.5-196 YEWH	196.0 x 9.5	290	29	1
83254710	FLEXIMARK® Label LFL 12-38 YEWH	38.0 x 12.0	1,150	115	1
83254714	FLEXIMARK® Label LFL 15-45 YEWH	45.0 x 15.0	720	72	1
83254718	FLEXIMARK® Label LFL 19-50 YEWH	50.0 x 19.0	560	56	1
83254719	FLEXIMARK® Label LFL 19-100 YEWH	100.0 x 19.0	280	28	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Character holders PTE refer to page 893
- FLEXIMARK® PTEF / CAB refer to page 894
- FLEXIMARK® Character holders PGS refer to page 895
- FLEXIMARK® Software 10.0 refer to page 890



## FLEXIMARK® Label LMB



### ■ Benefits

- Suitable labels for SNAP ON collar, collars halogenfree and collars for cable ties (see chapter “Character holders and accessories”)
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Halogen-free

### ■ Application range

- For Single core and cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### ■ Note

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

### ■ Included

- Perforated DIN A4 sheets



### Info

- Contained in FLEXIMARK® sample bag (article number M3251010)

### ■ Technical data



**Colour delivered**  
Standard colour: Yellow/White



**Material**  
Halogen-free polyester  
Thickness: 0.175 mm  
Width: 4,7 mm



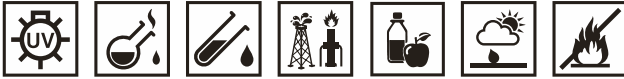
**Temperature range**  
-40°C to +125°C

Article number	Article designation	Colour	Number of markers per PU	PU
83254680	FLEXIMARK® Label LMB 30-4,7 YE/WH	yellow/white	460	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Accessories

- FLEXIMARK® Software 10.0 refer to page 890



**New**

## FLEXIMARK® Cablelabel PUR



**Info**

- PUR 60-10 contained in FLEXIMARK® sample bag (article number M3251010)

**Benefits**

- Halogen-free and flame-retardant cable marking
- Good UV-resistance
- Good chemical resistance
- Highly flexible material

**Application range**

- For cable and conduit marking
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)
- Food and beverage industry
- Can be mounted directly on the cable together with plastic cable ties

**Product features**

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (article no. 83260201)

**Norm references / Approvals**

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

**Note**

- Customised printing is available upon request

**Product make-up**

- Delivered as a roll of labels

**Technical data**

- RAL** **Colour delivered**  
Standard colour: Yellow/White  
Upon request: Red, orange, blue, black
- Material**  
Halogen-free PUR
- Temperature range**  
-25°C to +80°C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
83260191	FLEXIMARK® Cablelabel PUR 60-10 YE	yellow	10.0 x 60.0	1,000	1
83260192	FLEXIMARK® Cablelabel PUR 75-15 YE	yellow	15.0 x 75.0	1,000	1
83260193	FLEXIMARK® Cablelabel PUR 75-25 YE	yellow	25.0 x 75.0	500	1
83260194	FLEXIMARK® Cablelabel PUR 60-10 WH	white	10.0 x 60.0	1,000	1
83260195	FLEXIMARK® Cablelabel PUR 75-15 WH	white	15.0 x 75.0	1,000	1
83260196	FLEXIMARK® Cablelabel PUR 75-25 WH	white	25.0 x 75.0	500	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891
- TY - FAST®- UV-resistant cable ties refer to page 957





New

## FLEXIMARK® Organized shrink tube



### Benefits

- Covers a wide range of cable diameters, even applicable for single core marking
- Already cut to the exact length
- Reduced working time
- UV-resistant, resistant against fluids (SAE-AMS-DTL-23053 tested)

### Application range

- For single core and cable marking
- Railway applications
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem-software.html>)

### Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (article no. 83260201)

### Norm references / Approvals

- UL 224 approved- E file number: E 228117

### Product make-up

- Delivered as a roll of labels

### Technical data

- On request**  
Halogen-free and diesel-resistant (with SNCF-NF F00-608 approval) variant available on request
- Colour delivered**  
Yellow  
Upon request: White
- Material**  
Polyolefin  
Shrinking ratio: 3:1
- Temperature range**  
-55°C to +135°C

Article number	Article designation	Colour	Shrinkage range (mm)	Length (mm)	Amount in width	Contents (unit)	PU
83260026	FLEXIMARK® Org.shr. 2.4/0.8-50(1) YE	yellow	0.8 - 2.4	50	1	1,000	1
83260027	FLEXIMARK® Org.shr. 3.2/1.0-50(1) YE	yellow	1.0 - 3.2	50	1	1,000	1
83260028	FLEXIMARK® Org.shr. 4.8/1.6-50(1) YE	yellow	1.6 - 4.8	50	1	1,000	1
83260029	FLEXIMARK® Org.shr. 6.4/2.0-50(1) YE	yellow	2.0 - 6.4	50	1	1,000	1
83260030	FLEXIMARK® Org.shr. 9.5/3.0-50(1) YE	yellow	3.0 - 9.5	50	1	500	1
83260031	FLEXIMARK® Org.shr.12.7/4.0-50(1)YE	yellow	4.0 - 12.7	50	1	500	1
83260032	FLEXIMARK® Org.shr.19.0/6.0-50(1)YE	yellow	6.0 - 19.0	50	1	500	1
83260033	FLEXIMARK® Org.shr. 25.4/8.0-50(1)YE	yellow	8.0 - 25.4	50	1	300	1
83260034	FLEXIMARK® Org.shr. 38.1/12.7-75(1)YE	yellow	12.7 - 38.1	75	1	100	1
83260035	FLEXIMARK® Org.shr. 2.4/0.8-38(1) YE	yellow	0.8 - 2.4	38	1	1,000	1
83260036	FLEXIMARK® Org.shr. 3.2/1.0-38(1) YE	yellow	1.0 - 3.2	38	1	1,000	1
83260037	FLEXIMARK® Org.shr. 4.8/1.6-38(1) YE	yellow	1.6 - 4.8	38	1	1,000	1
83260038	FLEXIMARK® Org.shr. 6.4/2.0-38(1) YE	yellow	2.0 - 6.4	38	1	1,000	1
83260039	FLEXIMARK® Org.shr. 9.5/3.0-38(1) YE	yellow	3.0 - 9.5	38	1	500	1
83260040	FLEXIMARK® Org.shr.12.7/4.0-38(1)YE	yellow	4.0 - 12.7	38	1	500	1
83260041	FLEXIMARK® Org.shr. 19.0/6.0-38(1)YE	yellow	6.0 - 9.0	38	1	500	1
83260042	FLEXIMARK® Org.shr.25.4/8.0-38(1)YE	yellow	8.0 - 25.4	38	1	300	1
83260043	FLEXIMARK® Org.shr. 38.1/12.7-38(1)YE	yellow	12.7 - 38.1	38	1	100	1
83260044	FLEXIMARK® Org.shr. 2.4/0.8-25(2) YE	yellow	0.8 - 2.4	25	2	2,000	1
83260045	FLEXIMARK® Org.shr. 3.2/1.0-25(2) YE	yellow	1.0 - 3.2	25	2	2,000	1
83260046	FLEXIMARK® Org.shr. 4.8/1.6-25(2) YE	yellow	1.6 - 4.8	25	2	2,000	1
83260047	FLEXIMARK® Org.shr. 6.4/2.0-25(2) YE	yellow	2.0 - 6.4	25	2	2,000	1
83260048	FLEXIMARK® Org.shr. 9.5/3.0-25(2) YE	yellow	3.0 - 9.5	25	2	1,000	1
83260049	FLEXIMARK® Org.shr. 12.7/4.0-25(2)YE	yellow	4.0 - 12.7	25	2	1,000	1
83260050	FLEXIMARK® Org. shr.19.0/6.0-25(2)YE	yellow	6.0 - 19.0	25	2	1,000	1
83260051	FLEXIMARK® Org.shr. 5.4/8.0-25(2)YE	yellow	8.0 - 25.4	25	2	600	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label







## FLEXIMARK® Heat shrinkable tubing

### ■ Benefits

- Flat shrink tube can be cut individually to the required length
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markings-software.html>)
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4

### ■ Application range

- For Cable Marking
- For applications where space is tight
- Protection of the cable insulation
- Especially suitable for repair purposes
- Indoor applications



### ■ Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (article no. 83260201)

### ■ Norm references / Approvals

- UL 224 approved- E file number: E 228117

### ■ 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)	Contents (m)	PU
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

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Similar products

- FLEXIMARK® Organized shrink tube refer to page 884

### ■ Accessories

- FLEXIMARK® Software 10.0 refer to page 890



**FLEXIMARK® Cable Marking**

PC Marking Thermal transfer printing



**FLEXIMARK® Flexilabel TFL**



**Benefits**

- Suitable labels for PTE, PTEF and CAB character holders (see chapter "Character holders and accessories")
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

**Application range**

- For Cable Marking
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> White or yellow
	<b>Material</b> Halogen-free polyester
	<b>Temperature range</b> -40 °C to +125 °C

- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

**Note**

- Not recommended to use in environments with diesel oil and alkali

Article number	Article designation	Colour	Width x length (mm)	Number of markers per PU	PU
83254605	FLEXIMARK® Flexilabel TFL 9.5-28 YE	yellow	9.5 x 28.0	1000	1
83254600	FLEXIMARK® Flexilabel TFL 9.5-28 WH	white	9.5 x 28.0	1000	1
83254610	FLEXIMARK® Flexilabel TFL 9.5-35 YE	yellow	9.5 x 35.0	1000	1
83254615	FLEXIMARK® Flexilabel TFL 9.5-35 WH	white	9.5 x 35.0	1000	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891



**FLEXIMARK® Wrapping labels TCK**



**Benefits**

- A transparent foil is wrapped around the cable and pasted over the printed field, that the printing is protected against abrasion and pollution
- Resistant to chemicals, UV-radiation, moisture and some oils

**Application range**

- For Cable Marking
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

**Technical data**

<b>Label rolls</b>	Core diameter: 38 mm
<b>Adhesive</b>	Acrylic-based Permanent adhesion Bonding strength: 15 N/mm
	<b>Material</b> Halogen-free polyester Thickness: 0.05 mm
	<b>Temperature range</b> -40 °C to +125 °C Processing: min. +10 °C

**Norm references / Approvals**

- UL PGG02 approved

Article number	Article designation	Colour	Width x length (mm)	Printable surface (W x H mm)	Number of markers per PU	PU
83259846	FLEXIMARK® Label TCK 20 YE	yellow	17.8 x 33.9	16 x 13	3,000	1
83259847	FLEXIMARK® Label TCK 20 WH	white	17.8 x 33.9	16 x 13	3,000	1
83259848	FLEXIMARK® Label TCK 25 YE	yellow	23.0 x 55.0	21 x 6	2,400	1
83259849	FLEXIMARK® Label TCK 25 WH	white	23.0 x 55.0	21 x 6	2,400	1
83259851	FLEXIMARK® Label TCK 32 YE	yellow	25.0 x 35.0	25 x 14	4,500	1
83259850	FLEXIMARK® Label TCK 32 WH	white	25.0 x 35.0	25 x 14	4,500	1
83259861	FLEXIMARK® Label TCK 35 YE	yellow	25.0 x 76.0	23 x 19	1,800	1
83259860	FLEXIMARK® Label TCK 35 WH	white	25.0 x 76.0	23 x 19	1,800	1
83259871	FLEXIMARK® Label TCK 40 YE	yellow	25.0 x 140.0	24 x 25	1,050	1
83259870	FLEXIMARK® Label TCK 40 WH	white	25.0 x 140.0	24 x 25	1,050	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891



## FLEXIMARK® LA Labels



### Benefits

- Self-adhesive labels made from polyester film for laser printers
- Better grip due to rounded-corners
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

### Application range

- For component marking e.g. for marking cabinets
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### Note

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up



### Info

- LA 16,9-9 YE conained in FLEXIMARK® sample bag (article number M3251010)

### Technical data



**Note**  
Adhesive strength: 15 N/25 mm



**Colour delivered**  
White or yellow  
Upon request: silver



**Material**  
Halogen-free polyester  
Thickness: 0.05 mm



**Temperature range**  
-40 °C to +125 °C  
Mounting temperature: min. +10 °C

Article number	Article designation	Colour	Width x height (mm)	Number of markers per PU	Labels per side	PU
83256203	FLEXIMARK® label LA 15-6 WH	white	15.0 x 6.0	5,170	517	1
83256204	FLEXIMARK® label LA 15-6 YE	yellow	15.0 x 6.0	5,170	517	1
83256206	FLEXIMARK® label LA 16.9-7 WH	white	16.9 x 7.0	4,000	400	1
83256207	FLEXIMARK® label LA 16.9-7 YE	yellow	16.9 x 7.0	4,000	400	1
83256209	FLEXIMARK® Label LA 16.9x9 WH 3100	white	16.9 x 9.0	3,100	310	1
83256210	FLEXIMARK® Label LA 16.9-9 YE	yellow	16.9 x 9.0	3,100	310	1
83256212	FLEXIMARK® label LA 20-8 WH	white	20.0 x 8.0	2,800	280	1
83256213	FLEXIMARK® label LA 20-8 YE	yellow	20.0 x 8.0	2,800	280	1
83256215	FLEXIMARK® label LA 25-12 WH	white	25.0 x 12.0	1,610	161	1
83256216	FLEXIMARK® label LA 25-12 YE	yellow	25.0 x 12.0	1,610	161	1
83256218	FLEXIMARK® label LA 25.6-10 WH	white	25.6 x 10.0	1,960	196	1
83256219	FLEXIMARK® label LA 25.6-10 YE	yellow	25.6 x 10.0	1,960	196	1
83256221	FLEXIMARK® label LA 46.9-9 WH	white	46.9 x 9.0	1,240	124	1
83256222	FLEXIMARK® label LA 46.9-9 YE	yellow	46.9 x 9.0	1,240	124	1
83256224	FLEXIMARK® label LA 56-21.8 WH	white	56.0 x 21.8	390	39	1
83256225	FLEXIMARK® label LA 56-21.8 YE	yellow	56.0 x 21.8	390	39	1
83256096	FLEXIMARK® Label LA 30 30.5-12.7 WH	white	30.5 x 12.7	110	110	1
83256097	FLEXIMARK® Label LA 50 60-30 WH	white	60.0 x 30.0	240	24	1

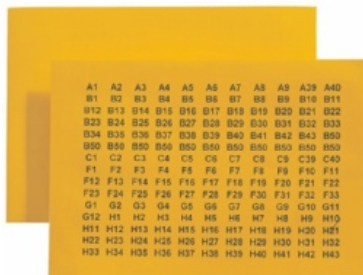
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- FLEXIMARK® Software 10.0 refer to page 890



## FLEXIMARK® LB Labels



### Benefits

- Self-adhesive labels made from polyester film for laser printers
- Rectangular shape
- Resistant to chemicals, UV-radiation, moisture and some oils

### Application range

- For component marking e.g. for marking cabinets
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem.html>)

### Note

- Insert sheet in manual paper feed compartment
- Use of original toner is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

**Info**

- Sample labels are available upon request

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**Technical data**

- Note**  
Adhesive strength: 15 N/25 mm
- Colour delivered**  
yellow-white
- Material**  
Halogen-free polyester  
Thickness: 0.05 mm
- Temperature range**  
-40°C to +125°C  
Working temperature: min. +10 °C

Article number	Article designation	Width x height (mm)	Number of markers per PU	Labels per side	PU
83256091	FLEXIMARK® Label LB 10 7-8 YE	7.0 x 8.0	7,800	780	1
83256156	FLEXIMARK® Label LB 10 7-8 WH	7.0 x 8.0	7,800	780	1
83256092	FLEXIMARK® Label LB 20 11-8 YE	11.0 x 8.0	4,800	480	1
83256157	FLEXIMARK® Label LB 20 11-8 WH	11.0 x 8.0	4,800	480	1
83256090	FLEXIMARK® Label LB 30 12-6 YE	12.0 x 6.0	6,000	600	1
83256158	FLEXIMARK® Label LB 30 12-6 WH	12.0 x 6.0	6,000	600	1
83256093	FLEXIMARK® Label LB 40 16-8 YE	16.0 x 8.0	3,300	330	1
83256159	FLEXIMARK® Label LB 40 16-8 WH	16.0 x 8.0	3,300	330	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- FLEXIMARK® Software 10.0 refer to page 890

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
**FLEXIMARK®**  
 ACCESSORIES  
 APPENDIX



**New**

## FLEXIMARK® TA foam Component marking



**Info**

- Contained in FLEXIMARK® sample bag (article number M3251010)



**Benefits**

- Cost-efficient alternative to traditionally used engraved plastic signs
- Self-adhesive on many surfaces
- Good UV-resistance

**Application range**

- For component and cabinet identification, CE marking and logotypes
- Components in switch cabinet construction
- Information signs etc.
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: <http://www.lappkabel.com/service/downloadcenter/markingsystem/markingsystem-software.html>)

**Product features**

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (article no. 83260201)

**Product make-up**

- Delivered as a roll of labels

**Technical data**

- Dimensions**  
Core-Ø: 76 mm
- On request**  
Other sizes are available upon request
- Colour delivered**  
White and silver
- Material**  
Polyester foam
- Temperature range**  
-40 °C to +90 °C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
83260164	FLEXIMARK® TA foam 27-8 WH	white	8.0 x 27.0	1,000	1
83260165	FLEXIMARK® TA foam 27-12.5 WH	white	12.5 x 27.0	1,000	1
83260166	FLEXIMARK® TA foam 27-12.5 SR	silver	12.5 x 27.0	1,000	1
83260167	FLEXIMARK® TA foam 27-15 SR	silver	15.0 x 27.0	1,000	1
83260168	FLEXIMARK® TA foam 27-18 SR	silver	18.0 x 27.0	1,000	1
83260169	FLEXIMARK® TA foam 27-18 WH	white	18.0 x 27.0	1,000	1
83260170	FLEXIMARK® TA foam 30-40 SR	silver	40.0 x 30.0	1,000	1
83260171	FLEXIMARK® TA foam 35-15 SR	silver	15.0 x 35.0	1,000	1
83260172	FLEXIMARK® TA foam 35-18 SR	silver	18.0 x 35.0	1,000	1
83260173	FLEXIMARK® TA foam 45-15 SR	silver	15.0 x 45.0	1,000	1
83260174	FLEXIMARK® TA foam 45-15 WH	white	15.0 x 45.0	1,000	1
83260175	FLEXIMARK® TA foam 48-19 WH	white	19.0 x 48.0	1,000	1
83260176	FLEXIMARK® TA foam 50-15 SR	silver	15.0 x 50.0	1,000	1
83260177	FLEXIMARK® TA foam 60-30 WH	silver	25.0 x 50.0	1,000	1
83260178	FLEXIMARK® TA foam 60-30 WH	white	30.0 x 60.0	750	1
83260179	FLEXIMARK® TA foam 60-30 SR	silver	30.0 x 60.0	750	1
83260180	FLEXIMARK® TA foam 70-18 SR	silver	18.0 x 70.0	1,000	1
83260181	FLEXIMARK® TA foam 90-30 WH	white	30.0 x 90.0	250	1
83260182	FLEXIMARK® TA foam 90-30 SR	silver	30.0 x 90.0	250	1
83260183	FLEXIMARK® TA foam 90-45 SR	silver	45.0 x 90.0	250	1
83260184	FLEXIMARK® TA foam 90-45 WH	white	45.0 x 90.0	250	1
83260185	FLEXIMARK® TA foam 100-30 SR	silver	30.0 x 100.0	250	1
83260186	FLEXIMARK® TA foam 100-50 SR	silver	50.0 x 100.0	250	1
83260187	FLEXIMARK® TA foam 100-50 WH	white	50.0 x 100.0	250	1
83260188	FLEXIMARK® TA foam 105-140 SR	silver	140.0 x 105.0	250	1
83260189	FLEXIMARK® TA foam 40-30 SR	silver	30.0 x 40.0	1,000	1
83260190	FLEXIMARK® TA foam 40-30 WH	white	30.0 x 40.0	1,000	1

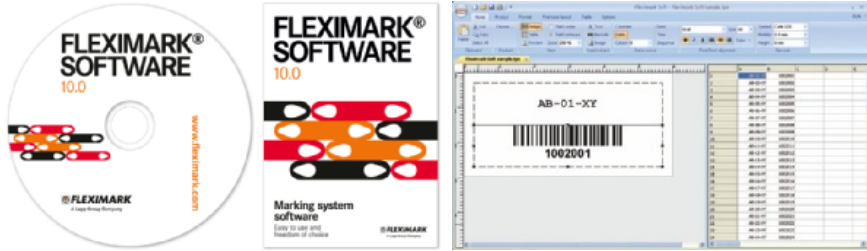
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891



## FLEXIMARK® Software 10.0



**Info**

- Free trial version available on LappKabel homepage

### Benefits

- For ease of use, the interface has been designed to be familiar to users of Microsoft® Office applications
- Enables printing of barcodes, logos and other pictures, serial codes and import of excel files
- Online update service for new labels via Internet
- Image library including symbols used in electrical engineering
- Integrated product catalogue for all labels and markers

### Application range

- Marking software that enables you to print all kinds of FLEXIMARK® labels easily and quickly

### Product features

- System requirements:
  - 20 MB free hard disk space
  - Printer and driver for Microsoft® Windows 2000 or higher
- Suitable for Windows 7
- Printer: laser, thermal transfer
- Available languages: German, English, Swedish and French
- Available barcodes: EAN-8, EAN-13, EAN-128, Code-128, Code-39, interleaved 2/5, UPC-A

### Note

- The full version is available for download free of charge, with a trial period of 30 days
- Light version is available for download free-of-charge
- Download [www.lappkabel.com](http://www.lappkabel.com) : Service - Downloadcenter - Marking system FLEXIMARK® - Suitable Marking software

### Included

- CD-ROM
- Operating manual and help function in the program

Article number	Article designation	Language	PU
83251080	FLEXIMARK® Software 10.0	DE / EN / SE / FR	1

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



**New**

## FLEXIMARK® Thermoprint A4+M and EOS4\*



**Info**

- FLEXIMARK® EOS4 ensures excellent print quality for a fair price



**Benefits**

- High print speed (up to 125 mm/sec)
- High print resolution: 300 dpi
- Easy integration into existing IT environments
- Simple communication with FLEXIMARK® marking software 10.0
- 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**

- A 4+M recommended for flat shrink tube as cutter can also be used for perforations
- Other thermal transfer printing systems are available upon request

**Included**

- FLEXIMARK® Thermoprint A4+M/300 with operation manual and service manual on CD-ROM
- Marking software FLEXIMARK® Software 10.0
- Windows® driver
- FLEXIMARK® Ribbon R71 55/360 resin BK (article number 83259604)
- Power supply USB cable (length 1.8 m)

**Technical data**



**Dimensions**

FLEXIMARK® Thermal printer A4+M: 274x242x446 mm (HxBxT)  
 FLEXIMARK® thermoprint EOS4: 253x189x322 mm (HxBxT)

**Label rolls**

Material thickness: 0,055-1,2 mm (A4+M), 0,055-0,7 mm (EOS4)  
 Carrier width: 10-120 mm (A4+M), 10-116 mm (EOS4)  
 Max. core diameter Ø: 38.0 - 100.0 mm (A4+M), 38-76 mm (EOS4)

**Ribbons**

Ribbon length: up to 500 m (A4+M) or 360m (EOS4)

**Speed**

Up to 125.00 mm/s



**Weight**

FLEXIMARK® Thermoprint A4+M: 9.0 kg  
 FLEXIMARK® Thermoprint EOS4: 4 kg



**Material**

Labels or continuous material on coils

Article number	Article designation	PU
83259602	FLEXIMARK® Thermoprint A4+M/300	1
83259598	FLEXIMARK® Thermoprint EOS4/300	1

\* Trade product, no Lapp product  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 Contents: roll, metre, unit, marker, label  
 Picture depicts A4+M. data sheet for EOS 4 upon request

**Accessories**

- FLEXIMARK® Heat shrinkable tubing refer to page 885
- FLEXIMARK® Flexilabel TFL refer to page 886
- FLEXIMARK® Wrapping labels TCK refer to page 886
- FLEXIMARK® Software 10.0 refer to page 890
- FLEXIMARK® Accessories Transfer Printer A4+M/300 and EOS4\* refer to page 892
- FLEXIMARK® Flexiprint TF refer to page 871
- FLEXIMARK® Cablelabel PUR refer to page 883
- FLEXIMARK® Organized shrink tube refer to page 884
- FLEXIMARK® TA foam component marking refer to page 889

**New**

**FLEXIMARK® Accessories Transfer Printer A4+M/300 and EOS4\***



**Benefits**

- Suitable for each label width and surface. Resistant to scratching and abrasion (also in colour) - available in various qualities
- Use the right ribbon for the particular application
- With the cutter for FLEXIMARK® thermal printer EOS 4 diverse labels and shrink tubes can be cut
- The perforation cutter for the thermal printer FLEXIMARK® A4+M cuts as well as perforates holes

**Application range**

- Resin ribbons R 71: Solely for plastic labels with smooth and shiny surface
- FTI-Y: Excellent printing results on all labels with the exception of the diesel-resistant shrink tube
- FTI-X: Particular recommended for diesel resistant shrink tubes

**Note**

- Other versions are available upon request

Article number	Article designation	Colour	Width (mm) x length (m)	Material	PU
<b>Ribbons</b>					
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 55-360 BK	black	55.0 x 300.0	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 110-300 BK	black	110.0 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
<b>Perforation-cutter and cutter for labels</b>					
83259603	FLEXIMARK® Perforation cutter A4+M	metallic			1
83259584	FLEXIMARK® Cutter EOS4	metallic			1

\* Trade product, no Lapp product  
 Other colours, sizes and materials are available upon request.  
 Photographs are not to scale and do not represent detailed images of the respective products.  
 Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Thermoprint A4+M and EOS4\* refer to page 891



**FLEXIMARK® NM Stainless steel - character holders**



**Benefits**

- For mounting MR stainless steel characters
- Mounted with cable ties (maximum 7 mm width) or screws (up to 3 mm Ø)
- Acid-resistant

**Application range**

- Cable and component marking system
- For outdoor applications

**Product features**

- Holder for up to 46 characters

**Info**

- PR 10 NM 7 contained in FLEXIMARK® sample bag(article number M3251010)

**Technical data**

**Info**  
 Height: approx. 11 mm  
 Screw hole Ø: 3 mm

**Material**  
 Acid-resistant stainless steel SS 2348 (AISI 316)

**Temperature range**  
 -80°C to +500°C

Article number	Article designation	Length (mm)	Contents (unit)	Characters/unit	PU
83254214	FLEXIMARK® PR 10 NM4	48	50	4	1
83254213	FLEXIMARK® PR 10 NM5	60	50	8	1
83254212	FLEXIMARK® PR 10 NM7	83	50	12	1
83254211	FLEXIMARK® PR 10 NM9	109	50	16	1
83254210	FLEXIMARK® PR 10 NM24	286	50	46	1

Photographs are not to scale and do not represent detailed images of the respective products.  
 Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® MR Stainless steel character refer to page 872
- LS steel cable ties refer to page 963

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX





## FLEXIMARK® Character holders PTE



### Benefits

- Ensure high flexibility:
  - Character holders can be cut to the desired length
  - Suitable for FLEXIMARK® Flexilabels LFL, MINI character strips as well as for DYMO® industry tapes
- Additional protection against UV- radiation and diverse chemicals

### Application range

- For cable/conduit marking
- Suitable for holding text and character strips, printable LFL labels, and e.g. DYMO or Brother label strips
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

### Product make-up

- PTE = not self-adhesive
- PTES= self-adhesive

### Included

- Delivery either 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® FL52 - ERA special hole pliers refer to page 898

### Technical data

- Material**  
Halogen-free polyethylene
- Temperature range**  
-75°C up to +80°C

Article number	Article designation	Length (mm)	Max. height of holder (mm)	Contents (unit)	PU
<b>PTE standard character-holder - MINI</b>					
83253014	FLEXIMARK® PTE 6-285 mm TR (Plastic bag)	285	6.0	10	1
83253012	FLEXIMARK® PTE 6-1000 mm TR (Plastic bag)	1,000	6.0	10	1
83259950	FLEXIMARK® PTE 6-10 m TR (Box)	10,000	6.0	1	1
<b>PTE standard character-holder - MAXI</b>					
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	12.0	10	1
83252027	FLEXIMARK® PTE 12-1000 mm TR (Plastic bag)	1,000	12.0	10	1
83259952	FLEXIMARK® PTE 12-10 m TR (Box)	10,000	12.0	1	1
83251060	FLEXIMARK® PTE 19-285 mm TR (Plastic bag)	285	19.0	10	1
83259953	FLEXIMARK® PTE 19-5 m TR (Box)	5,000	19.0	1	1
83251061	FLEXIMARK® PTE 19-1000 mm TR (Plastic bag)	1,000	19.0	10	1
83259954	FLEXIMARK® PTE 25-5 m TR (Box)	5,000	25.0	1	1
<b>PTES standard character-holder - MINI</b>					
83252086	FLEXIMARK® PTES 9,5-285 mm TR (Plastic bag)	285	9.5	10	1
83252089	FLEXIMARK® PTES 9,5-1000 mm TR (Plastic bag)	1,000	9.5	10	1
<b>PTES standard character-holder - MAXI</b>					
83251063	FLEXIMARK® PTES 19-285 mm TR (Plastic bag)	285	19.0	10	1

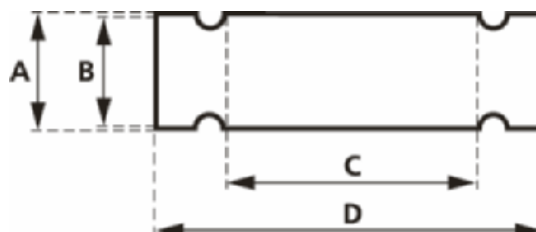
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- FLEXIMARK® FL52 - ERA special hole pliers refer to page 898



## FLEXIMARK® PTEF/ CAB



**Info**

- PTEF 9,5-35 contained in FLEXIMARK® sample bag (article number M3251010)

### Benefits

- PC labels LFL are adapted to be pushed into different sizes of character-holder
- Cost-saving, as you save the time for cutting
- Additional protection against UV- radiation and diverse chemicals

### Included

- PTEF without cable ties  
CAB: with cable ties (135x2,6 mm, transparent, not UV-resistant)

### Technical data

- Material**  
Halogen-free polyethylene
- Temperature range**  
-75°C up to +80°C

### Application range

- For cable/conduit marking
- Suitable for holding text and character strips, printable LFL labels, and e.g. DYMO or Brother label strips
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

Article number	Article designation	A mm	B in mm	C mm	D (mm)	Contents (unit)	Suitable labels	PU
<b>PTEF character-holder - without cable tie</b>								
83254960	FLEXIMARK® PTEF 9.5-18 TR	12.2	9.5	18.0	30.0	50	83254650	1
83254961	FLEXIMARK® PTEF 9.5-28 TR	12.2	9.5	28.0	40.0	50	83254660	1
83254963	FLEXIMARK® PTEF 9.5-58 TR	12.2	9.5	35.0	47.0	50	83254670	1
83254962	FLEXIMARK® PTEF 9.5-38 TR	12.2	9.5	38.0	50.0	50		1
83254964	FLEXIMARK® PTEF 9.5-58 TR	12.2	9.5	58.0	70.0	50	83254964	1
83254965	FLEXIMARK® PTEF 9.5-70 TR	12.2	9.5	70.0	82.0	50		1
83280006	FLEXIMARK® PTEF 12-18 TR	14.8	12.0	18.0	30.0	50		1
83254976	FLEXIMARK® PTEF 12-28 TR	14.8	12.0	28.0	40.0	50		1
83254977	FLEXIMARK® PTEF 12-38 TR	14.8	12.0	38.0	50.0	50	83254710	1
83254978	FLEXIMARK® PTEF 12-58 TR	14.8	12.0	58.0	70.0	50		1
<b>CAB character-holder - with cable tie</b>								
83259087	FLEXIMARK® CAB 9.5-18 TR	12.2	9.5	18.0	30.0	50	83254650	1
83259084	FLEXIMARK® CAB 9.5-28 TR	12.2	9.5	28.0	40.0	50	83254660	1
83259085	FLEXIMARK® CAB 9.5-38 TR	12.2	9.5	38.0	50.0	50		1
83259086	FLEXIMARK® CAB 9.5-58 TR	12.2	9.5	58.0	70.0	50		1
83259078	FLEXIMARK® CAB 12-18 TR	14.8	12.0	18.0	30.0	50		1
83259079	FLEXIMARK® CAB 12-28 TR	14.8	12.0	28.0	40.0	50		1
83259080	FLEXIMARK® CAB 12-38 TR	14.8	12.0	38.0	50.0	50		1
83259081	FLEXIMARK® CAB 12-58 TR	14.8	12.0	58.0	70.0	50		1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- TY - FAST® standard cable ties refer to page 957



## FLEXIMARK® Character holders PGS

**Info**

- PGS 10-285 BK contained in FLEXIMARK® sample bag (article number M3251010)

- Benefits**
- Easy to label
  - Flexible
  - Self-adhesive on many surfaces
  - Transparent cover MT ensures an additional protection of the label or the character strips
  - Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

- Application range**
- For marking component groups in the manufacturing of control cabinets
  - Suitable for FLEXIMARK® Flexilabels LFL, MINI character strips as well as for DYMO® industry tapes
  - Fastening: bonding, or at temperatures > +45°C with screws or rivets
- Product features**
- Extremely flame-retardant according to UL 94 V0

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> Black, white, grey
	<b>Material</b> ABS plastic
	<b>Temperature range</b> -20 °C to +45 °C



Article number	Article designation	Colour	Length x height (mm)	Contents (unit)	PU
83252010	FLEXIMARK® PGS 10-285 WH	white	285.0 x 10.0	10	1
83250002	FLEXIMARK® PGS 10-285 BK	black	285.0 x 10.0	10	1
83250041	FLEXIMARK® Label cover MT10-1000 MLM/PG TR	transparent	1,000.0 x 10.0	10	1
83252011	FLEXIMARK® PGS 10-1000 WH	white	1,000.0 x 10.0	10	1
83250003	FLEXIMARK® PGS 10-1000 BK	black	1,000.0 x 10.0	10	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

- Accessories**
- FLEXIMARK® FL52 - ERA special hole pliers refer to page 898



**Info**

- Snap-On 2-3,5/15 contained in FLEXIMARK® sample bag (article number M3251010)

- Benefits**
- Efficient way of marking cables that are already installed
  - Enhanced scratch-protection
  - Resistant and flexible protection
  - Halogen-free and flame-retardant
  - Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

- Application range**
- For Single core marking
  - Marking of optical fibre cables
  - Marking of UNITRONIC® Fieldbus sensor-/actuator wiring
  - Marking after assembly
- Product features**
- Extremely flame-retardant according to UL 94 V0
- Note**
- Suitable marking collar for LMB labels

**Technical data**

<b>RAL</b>	<b>Colour delivered</b> transparent
	<b>Material</b> Halogen-free polyethylene
	<b>Temperature range</b> -40°C to +80°C

- Included**
- Marking collars without labels

Article number	Article designation	Length (mm)	Cable diameter	Contents (unit)	PU
83252650	FLEXIMARK® collar SnapOn 2-3.5/10 TR	10	2 - 3.5	1,000	1
83252651	FLEXIMARK® collar SnapOn 2-3.5/15 TR	15	2 - 3.5	1,000	1
83252695	FLEXIMARK® collar SnapOn 2-3.5/23 TR	23	2 - 3.5	500	1
83252653	FLEXIMARK® collar SnapOn 2.8-5/10 TR	10	2.8 - 5	1,000	1
83252654	FLEXIMARK® collar SnapOn 2.8-5/15 TR	15	2.8 - 5	1,000	1
83252656	FLEXIMARK® collar SnapOn 5-8/10 TR	10	5 - 8	500	1
83252657	FLEXIMARK® collar SnapOn 5-8/15 TR	15	5 - 8	500	1
83252660	FLEXIMARK® collar SnapOn 8-10/15 TR	15	8 - 10	500	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

- Accessories**
- FLEXIMARK® Label LMB refer to page 882
  - FLEXIMARK® Label LMB 30-4,7 YE/WH

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## FLEXIMARK® Collar halogen-free



### ■ Benefits

- Enhanced scratch-protection
- Durable grip
- Halogen-free and flame-retardant
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

### ■ Product features

- Extremely flame-retardant according to UL 94 V0

### ■ Note

- Suitable marking collar for LMB labels

### ■ Included

- Marking collars without labels

### ■ Technical data

<b>RAL</b>	<b>Colour delivered</b> transparent
	<b>Material</b> Halogen-free PUR
	<b>Temperature range</b> -50°C to +80°C

### ■ Application range

- For Single core marking
- Marking of UNITRONIC® Fieldbus sensor-/actuator wiring
- Marking before assembly

Article number	Article designation	Length (mm)	Cable diameter	Contents (unit)	PU
83252670	FLEXIMARK® collar halogen-free 1.4-5/10 TR	10	1.4 - 5	1,000	1
83252671	FLEXIMARK® collar halogen-free 1.4-5/15 TR	15	1.4 - 5	1,000	1
83252693	FLEXIMARK® collar halogenfree 1,4-5/23 TR	23	1.4 - 5	500	1
83252672	FLEXIMARK® collar halogen-free 1.4-5/30 TR	30	1.4 - 5	500	1
83252673	FLEXIMARK collar halogen-free 5-11/10 TR	10	5 - 11	500	1
83252674	FLEXIMARK® collar halogen-free 5-11/15 TR	15	5 - 11	500	1
83252694	FLEXIMARK® collar halogen-free 5-11/23 TR	23	5 - 11	200	1
83252675	FLEXIMARK® collar halogen-free 5-11/30 TR	30	5 - 11	200	1

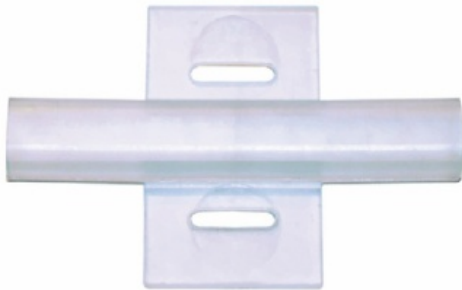
Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### ■ Accessories

- FLEXIMARK® Label LMB refer to page 882
- FLEXIMARK® Label LMB 30-4,7 YE/WH



## FLEXIMARK® Collar with cable tie



### Benefits

- Enhanced scratch-protection
- Continuous usage due to the assembly with cable ties
- Resistant and flexible protection
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

### Application range

- For cable marking (suitable for large cross-sections)
- Marking of UNITRONIC® Fieldbus sensor-/actuator wiring
- Marking before assembly

### Product features

- Extremely flame-retardant according to UL 94 V0

### Note

- Suitable marking collar for LMB labels

### Included

- Marking collars without labels

### Technical data

<b>Z<sub>∞</sub></b> Info	Dimensions: 9,3 x 20 mm
<b>RAL</b> Colour delivered	transparent
<b>Material</b>	Halogen-free PUR
<b>Temperature range</b>	-50°C to +80°C

Article number	Article designation	Length (mm)	Contents (unit)	PU
83252676	FLEXIMARK® collar for cable ties	30	200	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- TY - FAST® standard cable ties refer to page 957
- FLEXIMARK® Label LMB refer to page 882
- FLEXIMARK® Label LMB 30-4,7 YE/WH

## FLEXIMARK® FL52 - ERA special hole pliers



**Benefits**

- Creating a centred hole
- New puncher creates accurate hole-punching on cable ties
- 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

Article number	Article designation	Character holder	Contents (unit)
83252047	FLEXIMARK® Plier FL52ERA	6 / 9.5 / 12	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

- FLEXIMARK® Marking Kit MINI refer to page 873
- FLEXIMARK® character holders refer to page 893



## FLEXIMARK® FLKA Lock button / FLEXIMARK® FLG End plug



FLEXIMARK® FLKA Lock button



FLEXIMARK® FLG End plug

**Benefits**

**FLEXIMARK® FLKA Lock button**

- The buttons prevent the characters, labels and label strings from slipping out of the PTE standard character holders during tag plate mounting

**FLEXIMARK® FLG End plug**

- Protection against water and dirt
- End caps tightly seal the character-holders
- Hole for fastening the MINI standard character-holder PTE with screws or rivets, in particular.

**Application range**

- Installation accessories for character-holders

Article number	Article designation	Colour	Suitable for:	Contents (unit)	PU
83252005	FLEXIMARK® Lock Button Mini FLKA 5206 YE	natural	MINI	500	1
83252020	FLEXIMARK® End clap Mini FLG 5242 YE	yellow	MINI	100	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

**Accessories**

**FLEXIMARK® FLKA Lock button**

- FLEXIMARK® Marking Kit MINI refer to page 873

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## KMK Marking labels



### 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

### Product features

- Labelling options: by hand, typewriter, 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 KMK: 5 mm
- Bundling area of KMK: 10-25 mm
- Strap width of KMK3: 10 mm
- Bundling area of KMK3: 16-31 mm
- Fastening loops KMK2/KMK4: 5 mm

### Included

- Please order labels separately
- Labels: 10 sheets with 150 (61742922) or 50 labels (61742926)

### Technical data

	<b>Colour delivered</b> transparent
	<b>Material</b> Label-holder: PE, halogen-free Labels: cardboard, DIN A4 perforated, silicon free and halogen-free
	<b>Temperature range</b> -40°C to +80°C

Article number	Article designation	Width x height (mm)	Equipment per piece	Suitable for:	Contents (unit)
61742820	KMK 1 label-holder	29.0 x 8.0	with strap	ES/LP-BW-GB	100
61742822	KMK 2 label-holder	29.0 x 8.0	without strap	ES/LP-BW-GB	100
61742824	KMK 3 label-holder	40.0 x 17.0	with strap	ES/KMK 3 GB	50
61742826	KMK 4 label-holder	40.0 x 17.0	without strap	ES/KMK 3 GB	50
61742922	ES/LP-BW-GB labels	29.0 x 8.0	1500 labels	KMK 1, KMK 2	10
61742926	ES/KMK 3 GB labels	40.0 x 17.0	500 labels	KMK 3, KMK 4	10

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## ETB Marking labels

### Benefits

- Suitable for binding and bundling
- The marking sign can be opened and closed easily for replacement of 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

### Technical data

	<b>General</b> Available characters: A-Z, 0-9
	<b>Material</b> Polypropylene (PP)
	<b>Temperature range</b> -30°C to +110°C

### Product make-up

- Perforated sheets, approx. DIN A5
- Cable tie dimensions: 200 x 5 mm

### Included

- 61742810: including marking labels (5 sheets with 10 labels)



Article number	Article designation	Width x height (mm)	Labels per side	Contents (unit)
61742810	ETB holder, transparent	60.0 x 33.0	10	50
61742900	ETB labels	52.0 x 17.5	56	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



New

## DYMO® Industry Rhino Pro 4200



### Benefits

- Compact, easy to use, time-saving label printer for on-the-go pros
- Marking kit consists of all elements you need for marking cables on site

### Application range

- Labelling of cables and wires
- Labelling of terminal blocks
- Labelling of modules and components
- Labelling of patch panels and protective sockets

### Product features

- Familiar computer-style QWERTZ keyboard for fast and easy text entry
- Large back-lit display is easy to read, even in dimly-lit work areas
- Prints 6mm (1/4"), 9mm (3/8"), 12mm (1/2") and 19mm (3/4") wide industrial strength labels in a variety of materials and colours plus print directly on heat-shrink tubes
- "Favourites" key provides single-key access to your most commonly used labels, symbols and terms
- Integrated rubber bumpers help prevent damage from accidental drops and falls

### Product make-up

- FLEXIMARK® Kit PL 150
- Ready packed set in hard case-

Content:  
 1x label printer PL 150  
 1x vinyl labels 9mm (or 12mm) in yellow and white  
 1x special hole pliers FL52-ERA  
 1x character holders PTE 9,5-1000

### Technical data



**On request**  
 Robust hard case



**Colour delivered**  
 black, yellow and white



**Material**  
 The thermal transer printing technology ensures the labels are highly durable and resistant.  
 Li-Ion storage battery

Article number	Article designation	Contents (unit)
<b>DYMO® Rhino Pro 4200</b>		
61800337	DYMO RHINO PRO 4200	1
<b>FLEXIMARK® Kit DYMO® Rhino 4200</b>		
83257103	FLEXIMARK® Kit PL 150 9mm	1
83257104	FLEXIMARK® Kit PL 150 12mm	1

DYMO® is a registered trademark of Sanford GmbH, a Newell Rubbermaid Company  
 In the FLEXIMARK® DYMO® Set DYMO PL 150 is included (same functions as DYMO® 4200, just another branding)  
 Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- DYMO® ID1 - Industry tape D1 refer to page 901





## DYMO® ID1 - Industry tape D1



### Benefits

- The ID1 tapes are highly resistant to wear and tear, fluctuating temperatures, chemicals, solvents, water and UV-light. Due to the strong adhesive, the industrial tapes are suited for all smooth, rough, plain or bent surfaces.

### Product features

- Temperature range: -40°C to +105°C

### Product make-up

#### Permanent polyester tape:

Ideal for heavily-textured and powder-coated surfaces where extremely good adhesion and a long service life are required; for identification of junction boxes, buttons and patch panels.

#### Flexible nylon tape:

The permanent adhesive connection and a high-quality Nylon material provide the ideal solution for permanent and legible labelling. Particularly suited to cable labelling.

#### Coloured vinyl strips:

The permanent adhesive connection; a flexible coloured vinyl; and a tape that is resistant to UV, oil, scratches and solvents; provide the ideal solution for every type of labelling. For indoor and outdoor applications. Ideal for warning and safety markings and for cable labelling.

#### Shrink tube tape:

For single core and cable labelling. The combination of shrinking tube and special coloured tape gives a smudge-proof and scratch-proof lettering which is resistant to solvents, oils and UV light.

#### Non-adhesive insert label:

Ideal as an insert for label-holders (e.g. PTFE/ CAB), attached to the cable by a cable tie. Material: polypropylene

Article number	Article designation	Colour of lettering / tape	Width W (mm)	Length (m)	For cable Ø (mm)	Contents (unit)
<b>Permanent polyester labels</b>						
61800260	RP/ID1 9MM POLYESTER SW/WS	black-white	9	5.50		1
61800263	RP/ID1 9MM POLYESTER SW/METAL	black-metal	9	5.50		1
61800261	RP/ID1 12MM POLYESTER SW/WS	black-white	12	5.50		1
61800264	RP/ID1 12MM POLYESTER SW/METAL	black-metal	12	5.50		1
61800262	RP/ID1 19MM POLYESTER SW/WS	black-white	19	5.50		1
61800265	RP/ID1 19MM POLYESTER SW/METAL	black-metal	19	5.50		1
<b>Transparent polyester labels</b>						
61800285	RP/ID1 9mm POLYESTER SW/ TRANSP	black-transparent	9	5.50		1
<b>Flexible Industry D1 (ID1) nylon labels</b>						
61800266	RP/ID1 12MM NYLON SW/WS	black-white	12	3.50		1
61800268	RP/ID1 12MM NYLON SW/GELB	black-yellow	12	3.50		1
61800267	RP/ID1 19MM NYLON SW/WS	black-white	19	3.50		1
61800269	RP/ID1 19MM NYLON SW/GELB	black-yellow	19	3.50		1
<b>Flexible VINYL labels</b>						
61800274	RP/ID1 9mm VINYL SW/WS	black-white	9	5.50		1
61800275	RP/ID1 12mm VINYL SW/GELB	black-yellow	12	5.50		1
61800276	RP/ID1 12mm VINYL SW/ORANGE	black-orange	12	5.50		1
61800277	RP/ID1 12mm VINYL WS/ROT	white-red	12	5.50		1
61800278	RP/ID1 12mm VINYL WS/GRÜN	white-green	12	5.50		1
61800279	RP/ID1 12mm VINYL SW/WS	black-white	12	5.50		1
61800280	RP/ID1 19mm VINYL SW/GELB	black-yellow	19	5.50		1
61800281	RP/ID1 19mm VINYL SW/ORANGE	black-orange	19	5.50		1
61800282	RP/ID1 19mm VINYL WS/ROT	white-red	19	5.50		1
61800283	RP/ID1 19mm VINYL WS/GRÜN	white-green	19	5.50		1
61800284	RP/ID1 19mm VINYL SW/WS	black-white	19	5.50		1
<b>Shrink tube tape</b>						
61800290	RP/ID1 Shrink 1-6-1400	black-white	6	1.50	1.18 - 2.33	1
61800294	RP/ID1 Shrink 1-6-1400YL	black-yellow	6	1.50	1.18 - 2.33	1
61800291	RP/ID1 Shrink 1-9-1400	black-white	9	1.50	1.73 - 3.73	1
61800295	RP/ID1 Shrink 1-9-1400YL	black-yellow	9	1.50	1.73 - 3.73	1
61800292	RP/ID1 Shrink 1-12-1400	black-white	12	1.50	2.97 - 5.13	1
61800296	RP/ID1 Shrink 1-12-1400YL	black-yellow	12	1.50	2.97 - 5.13	1
61800293	RP/ID1 Shrink 1-19-1400	black-white	19	1.50	4.64 - 8.70	1
61800297	RP/ID1 Shrink 1-19-1400YL	black-yellow	19	1.50	4.64 - 8.70	1
<b>Non-adhesive inserts</b>						
61800340	RP/ID1 insertion plate 1-6-1600	black-white	6	5.50		1
61800341	RP/ID1 insertion plate 1-6-1600YL	black-yellow	6	5.50		1
61800342	RP/ID1 insertion plate 1-9-1600	black-white	9	5.50		1
61800343	RP/ID1 insertion plate 1-9-1600YL	black-yellow	9	5.50		1
61800344	RP/ID1 insertion plate 1-12-1600	black-white	12	5.50		1
61800345	RP/ID1 insertion plate 1-12-1600YL	black-yellow	12	5.50		1
61800346	RP/ID1 insertion plate 1-19-1600	black-white	19	5.50		1
61800347	RP/ID1 insertion plate 1-19-1600YL	black-yellow	19	5.50		1

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Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label



## M1011 Manual embossing machine



### Benefits

- Tough cast-metal labeler
- Imprints 12 mm wide metal tapes that withstand chemicals, extreme weather conditions, very high and low temperatures, salty water and abrasion
- Features a front scissor cut-off and a built-in hole-punching device that makes a hole for hanging and tacking
- Quick, simple and permanent marking on site

### Technical data

- General**  
Lettering height: 4.7 mm
- Note**  
Punching hole diameter: 2 mm  
Available characters: A-Z, 0-9

### Application range

- Cable and component marking system
- For outdoor applications

### Included

- M 1011 is delivered without embossing tape

Article number	Article designation	Lettering height (mm)	Width W (mm)	Length (m)	Contents (unit)
61742670	M 1011 embosser	4.7			1
61742710	ABS aluminium embossing tape without adhesive coating		12	4.80	1
61742720	ABS aluminium embossing tape with adhesive layer		12	3.65	1
61742700	Stainless steel embossing tape		12	6.40	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

## SP Metal print



### Benefits

- Easy to handle
- One or two-hand operation
- Small and space-saving for narrow available space

### Application range

- Stand embossing machine for metal plates
- SP Metallprint is a manually operated machine for embossing metal plates quickly and easily. The device is particularly suitable for batch production with changing data and different type plates. The sign is clamped and the desired characters are set on the embossing wheel, visible in front of the device. The adjustable automatic feed of the work table ensures that the correct distances are achieved between the characters.

### Technical data

- General**  
Max. depth: 90 mm  
Weight: 6.5 kg
- Note**  
Equipment dimensions: H = 303 mm;  
footprint 145 x 120 mm

### Product features

- Lettering sizes: 2, 3, 4, 5 mm (replaceable embossing wheels)
- Character set: uppercase A-Z, numbers 0-9, characters +/-,
- Max. label size: 140 x 90 mm
- Pressure limit for uniform embossing depth
- Adjustable stop through terminal strip

### Included

- Embossing machine incl. embossing wheel for selected font size.

Article number	Article designation	Text height (mm)	Contents (unit)
61725991	SP 2 embosser	2.0	1
61725990	SP 3 embosser	3.0	1
61725992	SP 4 embosser	4.0	1
61725993	SP 5 embosser	5.0	1
61726000	PK 2 spare embossing wheel	2.0	1
61726001	PK 3 spare embossing wheel	3.0	1
61726002	PK 4 spare embossing wheel	4.0	1
61726003	PK 5 spare embossing wheel	5.0	1

Photographs are not to scale and do not represent detailed images of the respective products.  
Contents: roll, metre, unit, marker, label

### Accessories

- FLEXIMARK® Stainless steel FCC refer to page 876

**Cutting, Stripping, Skinning**

- Cutting tools for various applications
- Cutting tools for large diameters
- Stripping tools

**Connection and crimping**

- Conductor end sleeves
- Crimping tools for conductor end sleeves
- Cable Lugs
- Panel Connectors
- Crimping tools for insulated connections
- Crimping tools for uninsulated connections
- Tube cable lugs
- Pressing pliers for CU connections
- Universal crimping tools and appliances
- EMC protection

**Insulating, protecting, shrinking**

- Insulating tapes and insulating sheaths
- Screening
- Heat-shrinking products

**Binding, bundling, fastening**

- Cable bundling engineering
- Cable ties
- Assembly tool for cable ties
- Fastening systems

**Cable guiding and fixing**

- Cable trolley systems
- Cable ducts
- Cable wedge clamps

**Installation, processing, maintenance**

- Processing and installation tools

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## Cable Accessories



### Cutting, Stripping, Skinning

#### Cutting tools for various applications

COMBINOX cable shears	907
Multipurpose shears A and B	907
BULLI cable shears	907
KT 11 cable shears	907
COMBINOX cable shears	907
Multipurpose shears A and B	907
BULLI cable shears	907
KT 11 cable shears	907

#### Cutting tools for large diameters

KS 15 cable shears	908
KS 20 cable shears	908
KT cable shears	New 908

#### Stripping tools

BASIC STRIP stripping and cutting tool	New 909
EASY STRIP stripping and cutting tool	909
UNIVERSAL STRIP stripping and cutting tool	910
STAR STRIP stripping tool	910
SMART STRIP stripping tool	911
DATA STRIP stripping tool	911
FC STRIP stripping tool	912
AS-I STRIP special stripping tool	912
SENSOR STRIP stripping tool	New 912

### Connection and crimping

#### Conductor end sleeves

Conductor end sleeves insulated	913
Deciband AHIB	914
Conductor end sleeves AHK, insulated	914
DIN-Coil conductor end sleeves	915
DIN-strips for QUADRO	915
TWIN conductor end sleeves	916
DIN-assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes	917
Conductor end sleeves XL, insulated	918
Conductor end sleeves AH, not insulated	919

#### Crimping tools for conductor end sleeves

QUADRO multifunction tool	920
MULTICRIMP 6 crimping pliers / PEW 8.84 crimping pliers	920
PEW 8.87 crimping pliers	921
KEB 1025 crimping pliers / KEB 3550 crimping pliers	921
K29 crimping pliers	922
KEBS 0560 TWIN crimping pliers	922

#### Cable Lugs

Insulated cable lugs	923
Cable lugs KB	924

#### Panel Connectors

Panel connectors insulated	926
Panel connectors non-insulated	927
ISO sleeve	927
Panel connectors with latch	928
Panel connector sockets Type M / Type F	928

#### Crimping tools for insulated connections

DSA 0110 + DSA 0725 crimping pliers	929
CSA 0760 + KSA 0760 crimping pliers	929

#### Crimping tools for uninsulated connections

DRB 0505 + DRB 0115 crimping pliers	930
KRB 0560 crimping pliers	930
DKB 0325 + DKB 0360 crimping pliers	931
KWB 4099 crimping pliers	931

#### Tube cable lugs

Tube cable lugs KR/ KRT/ KRF	932
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#### Pressing pliers for CU connections

T 2288 pressing pliers	934
V 1311 pressing pliers, hydraulic	934
Die holders for system 1311	935
Dies for system 1311	935

#### Universal crimping tools and appliances

Mobile crimp tool crimping pliers	936
Mobile crimp tool - crimping inserts	936
PEW 12 universal tool	937
EPEW 12 universal tool	New 937
Crimping inserts for PEW 12 system	New 938

#### EMC protection

RSK one-piece screen connector	939
RSK gauge	939
RSK-FLAG connector	940
ERG 740 manual pressing tool	940
crimping inserts for ERG 740	940
SHIELD-KON® two-part screen connector	941

SHIELD-KON® two-part crimping accessories	942
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### Insulating, protecting, shrinking

#### Insulating tapes and insulating sheaths

Temflex™ 1500 insulating tape	943
TI insulating tape	943
TBTA self-amalgamating tape	944
Insulating tube ISS	944
Insulating tube ISY	945

#### Screening

Copper braid	946
3M Scotch™ 1183 screening tape	946

#### Heat-shrinking products

HOTY heat-shrink tube	947
PLG - HSB box shrink tube	947
TBW / TBM shrink tube	948
CMP shrink tube	949
GYS shrink tube	950
PKG shrink tube	950
TEC sealing cap	951
TEB branch muff	951
SHRINK-KON® shrink tube set	952
SHRINK-KON® set refill packs	952
HG 2310 LCD hot-air pistol	953
KW plastic coil	953
HG 2310 LCD hot-air pistol	953
KW plastic coil	953

### Binding, bundling, fastening

#### Cable bundling engineering

Coiling tool spirals	954
Cable-Eater bunched cable conduit	954
Spare tool Cable - Eater	954

#### Cable ties

Basic Tie cable tie	955
Twist Tail™ cable tie	956
TY - FAST® standard cable ties / TY - FAST®- UV-resistant cable ties	957
TY-RAP® Detectable cable ties	New 958
TY- RAP® standard cable ties	959
TY- RAP® heat-resistant cable ties	960
TY- RAP® weather-proof, UV-stabilised	960
TY- RAP® for screwing on, cable ties	961
TY- RAP® with labelling area, cable ties	961
Quick ties KBS/ KB	962
TY-GRIP® FOL/ FO cable tie	962
Mille-Tie™ cable ties	963
LS steel cable ties	963

#### Assembly tool for cable ties

TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers	964
BASIC cable tie pliers	964
STEEL GUN HT-338 cable tie pliers	964

#### Fastening systems

TC 121 plug socket	965
TC tie socket	965
TC mounting socket with saddle	966
TC tie small socket	966
TC tie screw socket	967
TC aluminium screw socket	967
MPNY screw / adhesive socket	968
AS-I clip clamp / AS-I end sealing	968
CC cord clips	969
KS cable clamps	969
Earthing clamps	New 970

### Cable guiding and fixing

#### Cable trolley systems

Cable trolley system for round and flat cables	New 971
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#### Cable ducts

ST steel cable tunnel	972
STY plastic cable tunnel	972

#### Cable wedge clamps


RKK 01-06 round cable wedge clamps	973
FKK 08 Flat cable wedge clamp, small	973
FKK 07 cable wedge clamp, large	974
MP 11/13/12/14 installation sheets	974
MP 18/28 installation sheets	974
MP 21/22 installation sheets	975
EKK single clamp / DKK double clamp	975

### Installation, processing, maintenance

#### Processing and installation tools

Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set	976
Silicon sealing compound	976

Overview Table Connector technology

 																								
End sleeves													<b>QUADRO<sup>1</sup></b> 0.5 – 2.5 mm <sup>2</sup>	<b>Multicrimp 6<sup>1</sup></b> 0.08 – 6 mm <sup>2</sup>	<b>PEW 8.84<sup>1</sup></b> 0.08 – 10 mm <sup>2</sup>	<b>PEW 8.87<sup>1</sup></b> 0.08 – 10 mm <sup>2</sup>	<b>PEW 8.87<sup>1</sup> plus</b> 0.08 – 16 mm <sup>2</sup>	<b>KEB 1025<sup>1</sup></b> 10 – 25 mm <sup>2</sup>	<b>KEB 3550<sup>1</sup></b> 35 – 50 mm <sup>2</sup>	<b>K 29<sup>1</sup></b> 50 – 95 mm <sup>2</sup>	<b>KEBS 0560<sup>1</sup> Front pressing</b> 0.1 – 6 mm <sup>2</sup> + Twin 2 x 0.5 – 2 x 4 mm <sup>2</sup>	<b>KEBC 4010<sup>2</sup></b> Twin 2 x 4 mm <sup>2</sup> – 2 x 10 mm <sup>2</sup>	<b>PEW 12<sup>1</sup></b> Crimping inserts for 0.08 – 50 mm <sup>2</sup>	<b>MCT Mobile Crimp Tool</b> Crimping inserts for 0.1 – 10 mm <sup>2</sup>
0.25 mm <sup>2</sup>		•		•	•				•			•												
0.34 mm <sup>2</sup>		•		•	•				•			•												
0.50 mm <sup>2</sup>	•	•		•	•				•		•	•												
0.75 mm <sup>2</sup>	•	•	•	•	•				•		•	•												
1.00 mm <sup>2</sup>	•	•	•	•	•				•		•	•												
1.50 mm <sup>2</sup>	•	•	•	•	•				•		•	•												
2.50 mm <sup>2</sup>	•	•	•	•	•				•		•	•												
4.00 mm <sup>2</sup>		•	•	•	•				•		•	•												
6.00 mm <sup>2</sup>		•	•	•	•				•		•	•												
10.00 mm <sup>2</sup>			•	•	•	•					•	•												
16.00 mm <sup>2</sup>					•	•					•	•												
25.00 mm <sup>2</sup>						•					•	•												
35.00 mm <sup>2</sup>							•				•	•												
50.00 mm <sup>2</sup>							•	•			•	•												
70.00 mm <sup>2</sup>								•																
95.00 mm <sup>2</sup>								•																
120.00 mm <sup>2</sup>																								
150.00 mm <sup>2</sup>																								
Insulated TWIN end sleeves																								
2 x 0.50 mm <sup>2</sup>									•															
2 x 0.75 mm <sup>2</sup>									•															
2 x 1.00 mm <sup>2</sup>									•															
2 x 1.50 mm <sup>2</sup>									•															
2 x 2.50 mm <sup>2</sup>									•															
2 x 4.00 mm <sup>2</sup>									•	•														
2 x 6.00 mm <sup>2</sup>										•														
2 x 10.00 mm <sup>2</sup>										•														

Manual tools  
 Crimping tools for end sleeves  
 All purpose crimping tools with variable crimping inserts (also for flat plugs, cable lugs and other connectors)

<sup>1</sup> insulated + not insulated  
<sup>2</sup> insulated

**Connector and Crimping Engineering**

**Crimping Pliers for Insulated Connections**

Overview Table Connector technology													
	DSA 0110 0.1 – 1.5 mm <sup>2</sup>	DSA 0725 0.5 – 2.5 mm <sup>2</sup>	CSA 0760 0.5 – 6 mm <sup>2</sup>	KSA 0760 0.5 – 6 mm <sup>2</sup>	DRB 0505 0.05 – 0.5 mm <sup>2</sup>	DRB 0115 0.15 – 1.5 mm <sup>2</sup>	KRB 0560 0.50 – 6 mm <sup>2</sup>	DKB 0325 0.35 – 2.5 mm <sup>2</sup>	DKB 0360 0.25 – 6.0 mm <sup>2</sup>	KWB 4099 4 – 10 mm <sup>2</sup>	T 2288 10 – 25 mm <sup>2</sup>	V 1311 10 – 400 mm <sup>2</sup>	PEW 12 Crimping inserts for 0.08 – 50 mm <sup>2</sup>
<b>Insulated flat plug connectors, cable lugs and other connectors</b>													
0.25 mm <sup>2</sup>	•												•
0.50 mm <sup>2</sup>	•	•	•	•									•
0.75 mm <sup>2</sup>	•	•	•	•									•
1.00 mm <sup>2</sup>	•	•	•	•									•
1.50 mm <sup>2</sup>	•	•	•	•									•
2.50 mm <sup>2</sup>		•	•	•									•
4.00 mm <sup>2</sup>			•	•									•
6.00 mm <sup>2</sup>			•	•									•
<b>Non-insulated flat plug connectors, cable lugs and other connectors</b>													
0.50 mm <sup>2</sup>					•	•	•	•					•
0.75 mm <sup>2</sup>						•	•	•	•				•
1.00 mm <sup>2</sup>						•	•	•	•				•
1.50 mm <sup>2</sup>						•	•	•	•				•
2.50 mm <sup>2</sup>							•	•	•				•
4.00 mm <sup>2</sup>							•	•	•	•			•
6.00 mm <sup>2</sup>							•	•	•	•			•
<b>KB/KR tube cable lugs</b>													
0.75 mm <sup>2</sup>								•	•				
1.00 mm <sup>2</sup>								•	•				
1.50 mm <sup>2</sup>								•	•				
2.50 mm <sup>2</sup>								•	•				
4.00 mm <sup>2</sup>									•	•			
6.00 mm <sup>2</sup>									•	•			
10.00 mm <sup>2</sup>										•	•	•	
<b>KR/KRT/KRF tube cable lugs</b>													
10.00 mm <sup>2</sup>											•	•	
16.00 mm <sup>2</sup>											•	•	
25.00 mm <sup>2</sup>											•	•	
35.00 mm <sup>2</sup>												•	
50.00 mm <sup>2</sup>													•
70.00 mm <sup>2</sup>													•
95.00 mm <sup>2</sup>													•
120.00 mm <sup>2</sup>													•
150.00 mm <sup>2</sup>													•
185.00 mm <sup>2</sup>													•
240.00 mm <sup>2</sup>													•
300.00 mm <sup>2</sup>													•
400.00 mm <sup>2</sup>													•

Pressing tools for insulated connectors
  Pressing tools for CU connectors  
 Pressing tools for non-insulated connectors
  Universal crimping tools with variable crimping inserts

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

## COMBINOX cable shears

**Benefits**

- Wire guide integrated into blade

**Included**

- Included: stripping device

**Product make-up**

- Stainless steel shears



Article number	Article designation	Weight (kg)	Length (mm)	Pieces / PU
61735980	Combinox	0.121	193	1

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

## Multipurpose shears A and B

**Application range**

- Suitable for separating steel-wire screen braiding
- Suitable for cutting cables, lines, single cores, flat cables, bands, thin sheet metal, paper, cardboard and wires
- Very suitable for processing steel wire braiding

**Product make-up**

- Multipurpose shears A: With forged blades, spring and frames
- Multipurpose shears B: With forged blades



Article number	Article designation	Weight (kg)	Length (mm)	Pieces / PU
62120010	Multipurpose shears A	0.12	180	1
62120030	Spare spring A	-	-	1
62120020	Multipurpose shears B	0.095	175	1

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

## BULLI cable shears

**Benefits**

- Ergonomic handles
- Drawing cut is possible due to the special shape of the blades

**Included**

- Equipment: locking bolt and spring return

**Application range**

- For fine-wire conductors
- Lightweight shears with finger-protection for fine-wire conductors up to max. outer diameter 16 mm



Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
61744160	BULLI	16.0	0.135	185	1
61744161	Spare spring BULLI	-	-	-	1

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

**Benefits**

- The semi-circular cutting edges surround the cables uniformly and prevent the cable from being pinched or deformed

**Product make-up**

- Semi-circular cutting edges made of stainless steel

**Application range**

- For cutting single cores and fine-wire stranded cables up to max. outer diameter 11 mm

**Included**

- Equipment: safety-locking bar, compression spring to keep them open, and plastic handles



Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
61789580	Cable shears KT 11	11.0	0.115	170	1

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

**Cutting, Stripping, Skinning**

Cutting tools for small diameters

**KS 15 cable shears**



**Benefits**

- No crushing or deformation
- Can be used universally for cutting, removing sheath and stripping wires

**Application range**

- Cuts copper and aluminium cables with up to 15 mm outer diameter
- Easy to cut by using only one hand
- Sharp, hardened cutting with precision grinding

**Product features**

- With clamping protection and adjustable screw joint
- Material: forged Vanading steel

**Note**

- Not suitable for steel wire and hard-drawn copper conductors

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
61735975	KS 15	15.0	0.21	165	1

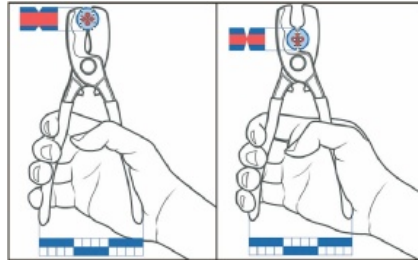
Photographs are not to scale and do not represent detailed images of the respective products.

Tools and cable accessories

**Cutting, Stripping, Skinning**

Cutting tools for large diameters

**KS 20 cable shears**



**Benefits**

- Adjustable screw-joint
- Easy and clean cut by using only one hand
- Less force required due to favourable transmission ratio and new blade geometry

**Application range**

- Cuts copper and aluminium cables with up to 20 mm outer diameter
- Cutting with precision grinding

**Product features**

- Material: special tool steel, forged, burnished head
- Pre- and after-cut (1st and 2nd blade) allows cables with an outer diameter up to 20 mm to be cut
- Not suitable for steel wire and hard-drawn copper conductors

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
62120045	KS 20	20.0	0.3	200	1

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

**New**

**KT cable shears**



**Benefits**

- Trouble-free cutting with lightweight and optimum transmission ratio
- One-hand operation through ratchet principle
- Less power required due to wave-like polished blades
- Optimum leverage due to 2-way gear rim drive (KT 6: 3-way gear rim drive)

**Application range**

- Not suitable for steel wire / hard aluminium alloys / hard-drawn copper conductors

**Product features**

- Swivel knife can be unlocked in any cutting position with a press of the thumb
- Cuts smoothly and cleanly without crushing

**Note**

- Also suitable for stripping wires

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
61813750	KT 4	32.0	0.545	250	1
61813760	Spare blade KT 4	-	-	-	1
61813770	KT 5	52.0	0.74	280	1
61813775	Spare blade KT 5	-	-	-	1
61813751	KT 6	60.0	0.825	320	1

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





**New**

## BASIC STRIP stripping and cutting tool

### Benefits

- Enables easy, quick and uniform stripping of solid and flexible conductors
- Easy to handle due to the automatic adjustment for the different cross-sections
- Ergonomic plastic handles
- Adjustable length gauge from 5-12 mm
- Removable blade head

### Application range

- Stripping and cutting tool
- Stripping wires and strands from 0.2 - 6 mm<sup>2</sup>
- Cutting of wires up to a diameter of 2 mm
- For wires with PVC core insulation

### Product features

- Made in Germany

### Norm references / Approvals

- GS-logo for proven safety



Article number	Article designation	For mm <sup>2</sup>	For insulation	Length (mm)	Weight (kg)	Pieces / PU
61725960	BASIC STRIP	0.2 - 6	PVC	165	105	1

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

## EASY STRIP stripping and cutting tool

### Benefits

- Reliable: tested for more than 150.000 stripping operations
- Flexible: easily interchangeable stripping cartridges. Largest possible stripping capacity of all tools of this type
- Precise adjustable positions ensure that insulation (including those with small dimensions) can be removed without damaging the conductors
- Ergonomic design: attractive, soft handle, optimised grip-width, angled-head, light-weight; ensuring convenience and ease of use
- Economical: spare stripping cartridges and blades available

### Technical data

- General**  
Stripping range: 0.02 - 16.0 mm<sup>2</sup>
- Weight**  
136 g
- Length**  
Overall dimensions: L x H x W = 191 x 123 x 20 mm
- Info**  
Cutting capacity:  
Solid cables - 1.5 mm<sup>2</sup>  
Flexible conductors - up to 10 mm<sup>2</sup>



### Application range

- Ergonomical, portable and lightweight tool that is also suitable for production and local use
- Easy to change stripping cassettes enable precise stripping of different insulation materials (e.g. PVC/PTFE) and diameters with a single tool
- Self-adjusting cutting and stripping tool for commercially available cables and conductors (90 % of all applications can be stripped without setting the tool manually)

### Product features

- No MTW single wires 16.00 mm<sup>2</sup> can be machined

Article number	Article designation	For mm <sup>2</sup>	Colour	For insulation	Cartridge shape	Pieces / PU
<b>Tool with cartridge</b>						
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
61735806	EASY STRIP support jaws					1
<b>Cartridges</b>						
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

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

## UNIVERSAL STRIP stripping and cutting tool



### Benefits

- Special pliers for high-quality, damage-free stripping of sheath and insulation from all single wires and possibly multi-wire cables from 0.03 to 16 mm<sup>2</sup>
- For use with a great variety of insulation with differing hardness and dimension
- Interchangeable blades for different cable cross sections

### Application range

- Universal stripping pliers with interchangeable stripping blades for cross-sections of 0.03 to 16 mm<sup>2</sup>
- Suitable for fluoropolymer & PVC cores, AS-I, Solar, POF cables

### Product features

- Design: chrome-plated with plastic handle cover
- Interchangeable blades for different cable cross sections

### Product make-up

- Additional blades are available upon request
- No crushing/deformation of cable ends

### Included

- Tool and length stop

Article number	Article designation	For mm <sup>2</sup>	Stripping of	Length (mm)	Weight (kg)	Pieces / PU
2192005	Universal Strip without stripping knife			194	0.41	1
<b>Interchangeable blade</b>						
2192009	DIN single cores	0.14 - 6	PVC			1
21920122	Solar stripping knife	1.5 - 6				1
21920126	POF 1, 2, 4-wire stripping knife		PVC/PUR			1
21920006	Fluoropolymer stripping knife	0.03 - 2	Fluoropolymer			1
21920004	Fluoropolymer stripping knife	2.5 - 10	Fluoropolymer			1
21920008	Fluoropolymer stripping knife	16	Fluoropolymer			1
21920135	AS I stripping knife		rubber/TPE/PVC			1
<b>Complete tool (incl. assembled blade)</b>						
21920141	Universal Strip DIN single wires	0.14 - 6	PVC			1
21920125	Universal Strip POF 1, 2, 4-wire		PVC/PUR			1
21920129	Universal Strip Fluoropolymer 0,03-2,08	0.03 - 2.08	Fluoropolymer			1
21920130	Universal Strip Fluoropolymer 2,5-10 mm <sup>2</sup>	2.5 - 10	Fluoropolymer			1
21920131	Universal Strip Fluoropolymer 16	16	Fluoropolymer			1
21920140	Universal Strip AS I		rubber/TPE/PVC			1
21920120	Universal Strip Solar	1.5 - 6				1

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

### Accessories

- Additional blades are available upon request

## STAR STRIP stripping tool



### Benefits

- Economical: spare blades are available and can be kept in a box on the tool
- User-friendly: 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, and the height of the blade is adjustable.
- Large capacity: with the interchangeable hook, STAR STRIP can replace two or more comparable products
- Robust: tested for more than 100,000 stripping operations
- STAR STRIP fits in your hand comfortably and is user-friendly

### Application range

- Adjustable stripping tool for round cables made with various insulation materials
- Professional stripping tool for cables of all insulation types
- The unique cable retention hook for this type of tool gives STAR STRIP an unmatched cable stripping capacity of up to 40 mm using a single tool

### Product features

- Through the various interchangeable hooks, the STAR STRIP can be used for cables with a diameter of 4.5 - 25 mm and 20 - 40 mm
- Suitable for circular, longitudinal and spiral cuts



### Info

- Special polished stripping knives suitable for problematical insulation materials such as PUR, fluoropolymers, glass fibre, TPE

### Technical data



#### Weight

STAR STRIP with large hook: 116 g



#### Length

Large hook dimensions: L x H x W  
167 x 52 x 30.5 mm  
Small hook dimensions: L x H x W  
150 x 42 x 30.5 mm

### Included

- 61735820: Tool with die, small and large hook without spare die

Article number	Article designation	For outer diameter (mm)	Length (mm)	Pieces / PU
61735820	STAR STRIP	4.5 - 40.0	150	1
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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## SMART STRIP stripping tool

### Benefits

- Adjustable cutting depth via screw-setting, which enables the stripping of multi-stage insulated cables with different sheath thicknesses
- Self-tightening handle guides the knife cleanly on the cable

### Application range

- Special stripping tool for data cables
- Adjustable stripping tool for round cables made with various insulation materials
- For fast, simple stripping of different insulation materials (especially PUR) with outer diameters up to 10 mm
- Suitable for scoring the amouring of fiber optic cables

### Note

- Pull back the knife before removing the cable from the cutting tool

### Suitable cables

- UNITRONIC® LiYD11Y Page 257



Article number	Article designation	For outer diameter (mm)	Length (mm)	Weight (kg)	Pieces / PU
61744180	Smartstrip	max. 10.0	100	0.036	1

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



## DATA STRIP stripping tool



### Benefits

- Precise due to 9 adjustable positions on the setting wheel
- User-friendly: open the stripping shaft by simply pressing the tool together, and insert the cable. Turn the tool, remove the insulation and pull the cut-off cable sheathing from the tool
- Flexible: strips most multi-core cables and glass-fibre cables with a diameter of up to 11 mm
- Tested for a minimum of 50,000 pressings

### Application range

- Precision stripping tool for stripping signal, telephone, AV, control and data transmission cables made up of copper and glass fibres.

### Note

- The "x" position on the wheel enables the tool to close so that the attached blade cartridge can be ejected and replaced with a new one quickly and safely

### Suitable cables

- UNITRONIC® LiYY Page 246

### Technical data

<input checked="" type="checkbox"/>	<b>General</b> Insulation thickness: up to 1 mm
<input checked="" type="checkbox"/>	<b>Diameter in</b> For outer diameter: 2.5 - 11 mm
<input checked="" type="checkbox"/>	<b>Weight</b> 28 g
<input checked="" type="checkbox"/>	<b>Length</b> Dimensions: L 90.5 x W 39.5 x H 19 mm

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Pieces / PU
61735810	DATA STRIP	2.5 - 11.0	0.028	1
61735811	DATA STRIP spare blade			1

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**Cutting, Stripping, Skinning**

Stripping tools



**FC STRIP stripping tool**



**Benefits**

- Fast: ready-to-connect stripping - outer sheath and copper screening braid are stripped in one simple step
- Safe: no cable damage
- Adjusting screws enable the tool to be adjusted for all Fast Connect cables

**Application range**

- Strip Fast Connect conductors in one step by using the dual-level stripping tool
- Suitable for outer diameters from 2.5 to 8.0 mm

**Suitable cables**

- UNITRONIC® BUS PB FRNC FC Page 291

Article number	Article designation	Suitable for:	Pieces / PU
21124030	FC strip incl. knife	Fast Connect cables	1
21124040	FC Strip without knife cartridge		1
21124041	FC Strip knife cartridge		1

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



**AS-I STRIP special stripping tool**



**Benefits**

- Automatic setting of blades
- No damage to single cores

**Application range**

- For AS-I cables with TPE, rubber and PUR sheathing

**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 Page 286

Article number	Article designation	Suitable for:	Stripping of	Length (mm)	Weight (kg)	Pieces / PU
61735831	AS-I STRIP special	AS-Interface	TPE, rubber, PUR	160	0.12	1

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**New**

**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
- Ergonomic 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**

- Diameter in**  
 Sensor Mini: For outer diameter: 3,2-4,4 mm  
 Sensor Special: For outer diameter: 4,4-7 mm
- Length**  
 Overall dimensions: LxHxB 165 x28 x102 mm

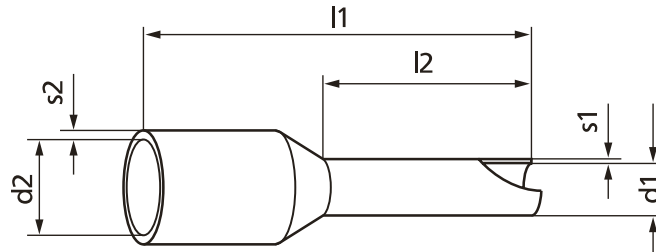
Article number	Article designation	For outer diameter (mm)	Length (mm)	Pieces / PU
61735833	SENSOR STRIP Mini stripping tool	3.2 - 4.4	165	1
61735993	SENSOR STRIP Special stripping tool	4.4 - 7.0	165	1
61718790	SENSOR STRIP Mini replacement blade set	3.2 - 4.4		1
61718800	SENSOR STRIP Special replacement blade set	4.4 - 7.0		1

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

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 ACCESSORIES  
 APPENDIX



## Conductor end sleeves insulated



### 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

### Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4
- CSA approved, File-Number: LR 105629-1

### Suitable tools

- PEW 8.87 crimping pliers refer to page 921
- K29 crimping pliers refer to page 922

### Technical data

**Note**  
Halogen-free

**Material**  
Copper/PP  
Surface: tin-plated

**Temperature range**  
-5°C to +105°C\*

Article number	Article designation	For mm <sup>2</sup>	AWG	Colour	l1 mm	l2 mm	d 1 mm	s 1 mm	d 2 mm	s 2 mm	Pieces / PU
61721866	AHI N 0,25/6	0.25	24	light blue	10.50	6.0	0.80	0.25	2.00	0.25	500
61721867	AHI L 0,25/8	0.25	24	light blue	12.50	8.0	0.80	0.25	2.00	0.25	500
61721868	AHI N 0,34/6	0.34	24	turquoise	10.50	6.0	0.80	0.25	2.00	0.25	500
61721869	AHI L 0,34/8	0.34	24	turquoise	12.50	8.0	0.80	0.25	2.00	0.25	500
61801580	AHI DIN K 0,5/6	0.50	20	white	11.50	6.0	1.10	0.15	2.50	0.25	500
61801590	AHI DIN N 0,5/8	0.50	20	white	13.50	8.0	1.10	0.15	2.50	0.25	500
61801600	AHI DIN HL 0,5/10	0.50	20	white	15.50	10.0	1.10	0.15	2.50	0.25	500
61721871	AHI N 0,5/8	0.50	20	orange	13.50	8.0	1.10	0.15	2.50	0.25	500
61801620	AHI DIN K 0,75/6	0.75	20	grey	12.00	6.0	1.30	0.15	2.80	0.25	500
61801630	AHI DIN N 0,75/8	0.75	20	grey	14.00	8.0	1.30	0.15	2.80	0.25	500
61801640	AHI DIN HL 0,75/10	0.75	20	grey	16.00	10.0	1.30	0.15	2.80	0.25	500
61801650	AHI DIN L 0,75/12	0.75	20	grey	18.00	12.0	1.30	0.15	2.80	0.25	500
61721880	AHI N 0,75/8	0.75	20	white	14.00	8.0	1.30	0.15	2.80	0.25	500
61801660	AHI DIN K 1/6	1.00	18	red	12.50	6.0	1.50	0.15	3.00	0.30	500
61801670	AHI DIN N 1/8	1.00	18	red	14.50	8.0	1.50	0.15	3.00	0.30	500
61801680	AHI DIN HL 1/10	1.00	18	red	16.50	10.0	1.50	0.15	3.00	0.30	500
61801690	AHI DIN L 1/12	1.00	18	red	18.50	12.0	1.50	0.15	3.00	0.30	500
61721890	AHI N 1/8	1.00	18	yellow	14.50	8.0	1.50	0.15	3.00	0.30	500
61801700	AHI K 1,5/6	1.50	16	black	12.50	6.0	1.80	0.15	3.40	0.30	500
61801710	AHI DIN N 1,5/8	1.50	16	black	14.50	8.0	1.80	0.15	3.40	0.30	500
61801720	AHI DIN HL 1,5/10	1.50	16	black	16.50	10.0	1.80	0.15	3.40	0.30	500
61801730	AHI DIN L 1,5/18	1.50	16	black	24.50	18.0	1.80	0.15	3.40	0.30	500
61721900	AHI N 1,5/8	1.50	16	red	14.50	8.0	1.80	0.15	3.40	0.30	500
61721910	AHI HL 1,5/10	1.50	16	red	16.50	10.0	1.80	0.15	3.40	0.30	500
61746720	AHI L 1,5/18	1.50	16	red	24.50	18.0	1.80	0.15	3.40	0.30	500
61801750	AHI DIN N 2,5/8	2.50	14	blue	15.00	8.0	2.30	0.15	4.20	0.30	500
61801760	AHI DIN HL 2,5/12	2.50	14	blue	19.00	12.0	2.30	0.15	4.20	0.30	500
61801770	AHI DIN L 2,5/18	2.50	14	blue	25.00	18.0	2.30	0.15	4.20	0.30	500
61801780	AHI DIN N 4/10	4.00	12	grey	17.50	10.0	2.90	0.20	4.80	0.30	500
61801790	AHI DIN HL 4/12	4.00	12	grey	20.00	12.0	2.90	0.20	4.80	0.30	500
61801800	AHI DIN L 4/18	4.00	12	grey	26.00	18.0	2.90	0.20	4.80	0.30	100
61801810	AHI DIN N 6/12	6.00	10	yellow	20.00	12.0	3.60	0.20	6.20	0.30	100
61801820	AHI DIN L 6/18	6.00	10	yellow	25.00	18.0	3.60	0.20	6.20	0.30	100
61721940	AHI N 6/12	6.00	10	black	20.00	12.0	3.60	0.20	6.20	0.30	100
61721950	AHI L 6/18	6.00	10	black	26.00	18.0	3.60	0.20	6.20	0.30	100
61801830	AHI DIN N 10/12	10.00	8	red	21.00	12.0	4.60	0.20	7.50	0.30	100
61801840	AHI DIN L 10/18	10.00	8	red	27.00	18.0	4.60	0.20	7.50	0.30	100
61721960	AHI N 10/12	10.00	8	ivory	21.00	12.0	4.60	0.20	7.50	0.30	100
61721970	AHI L 10/18	10.00	8	ivory	27.00	18.0	4.60	0.20	7.50	0.30	100
61801850	AHI DIN N 16/12	16.00	6	blue	23.00	12.0	6.00	0.20	8.80	0.40	100
61801860	AHI DIN L 16/18	16.00	6	blue	29.00	18.0	6.00	0.20	8.80	0.40	100
61721980	AHI N 16/12	16.00	6	green	23.00	12.0	6.00	0.20	8.80	0.40	100
61721990	AHI L 16/18	16.00	6	green	29.00	18.0	6.00	0.20	8.80	0.40	100
61801870	AHI DIN N 25/16	25.00	4	yellow	29.00	16.0	7.50	0.20	11.00	0.50	50
61801890	AHI DIN L 25/22	25.00	4	yellow	35.00	22.0	7.50	0.20	11.00	0.50	50
61746770	AHI N 25/16	25.00	4	brown	29.00	16.0	7.50	0.20	11.00	0.50	50
61746780	AHI L 25/22	25.00	4	brown	35.00	22.0	7.50	0.20	11.00	0.50	50
61801900	AHI DIN N 35/16	35.00	2	red	30.00	16.0	8.50	0.20	12.50	0.50	50
61801920	AHI DIN L 35/25	35.00	2	red	39.00	25.0	8.50	0.20	12.50	0.50	50
61746790	AHI N 35/16	35.00	2	beige	30.00	16.0	8.50	0.20	12.50	0.50	50
61746800	AHI L 35/25	35.00	2	beige	39.00	25.0	8.50	0.20	12.50	0.50	50
61801930	AHI DIN N 50/20	50.00	1	blue	36.00	20.0	10.50	0.30	15.00	0.60	50
61801940	AHI DIN L 50/25	50.00	1	blue	41.00	25.0	10.50	0.30	15.00	0.60	50
61801950	AHI N 70/20	70.00	2/0	yellow	37.00	20.0	12.70	0.40	16.00	0.60	25
61801960	AHI L 70/27	70.00	2/0	yellow	44.00	27.0	12.70	0.40	16.00	0.60	25
61801970	AHI N 95/25	95.00	3/0	red	44.00	25.0	14.70	0.40	18.00	0.60	25
61801980	AHI N 120/27	120.00	4/0	blue	48.00	27.0	16.70	0.50	21.00	0.70	25
61801990	AHI N 150/32	150.00	300	yellow	58.00	32.0	19.50	0.50	23.00	1.00	25

K = short; N = medium; HL = large; L = extra large; Other sizes and colours are available upon request

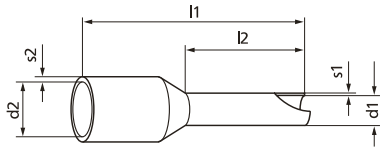
Photographs are not to scale and do not represent detailed images of the respective products.

\*Under some circumstances the end sleeves withstand temperatures under -5°C. Please contact Lapp Kabel to clarify the specific application area.

For current information see: [www.lappgroup.com](http://www.lappgroup.com)



## Deciband AHIB



### Application range

- Packs of insulated conductor end sleeves with mini-crimp seal

### Note

- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

### Included

- Insulated conductor end sleeves in standard length in strips with 10 linked mini-crimp bags of 100 conductor end sleeves
- Mini crimp lock for individual separation of bags

### Technical data



**General**  
Halogen-free



**Material**  
Copper/PP  
Surface: tin-plated



**Temperature range**  
-5°C to +105°C

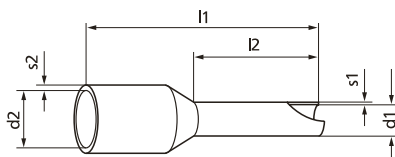
Article number	Article designation	For mm <sup>2</sup>	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Content	Pieces / PU
61794750	Deciband AHIB	0.25	light blue	10.5	6	0.8	0.25	2.0	0.25	10 x 100	1
61794760	Deciband AHIB	0.34	turquoise	10.5	6	0.8	0.25	2.0	0.25	10 x 100	1
61794770	Deciband AHIB	0.50	orange	13.5	8	1.1	0.15	2.5	0.25	10 x 100	1
61794780	Deciband AHIB	0.75	white	14.0	8	1.3	0.15	2.8	0.25	10 x 100	1
61794790	Deciband AHIB	1.00	yellow	14.5	8	1.5	0.15	3.0	0.30	10 x 100	1
61794800	Deciband AHIB	1.50	red	14.5	8	1.8	0.15	3.4	0.30	10 x 100	1
61794810	Deciband AHIB	2.50	blue	15.0	8	2.3	0.15	4.2	0.30	10 x 100	1

Other sizes and colours are available upon request.

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



## Conductor end sleeves AHK, insulated



### 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.

### Note

- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

### Suitable cables

- NSGAFÖU 1.8/3 kV Page 88

### Technical data



**Material**  
Copper/PP  
Surface: tin-plated



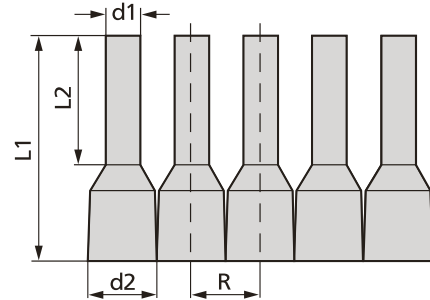
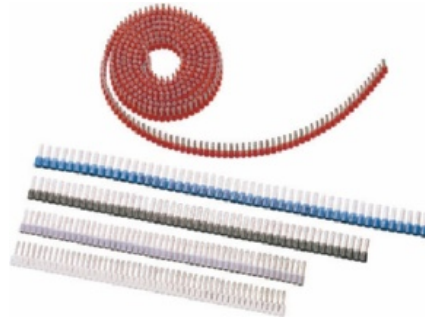
**Temperature range**  
-5°C to +105°C

Article number	Article designation	For mm <sup>2</sup>	AWG	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Pieces / PU
61746500	AHK 1,5/8	1.50	16	black	17.50	8.0	1.80	0.15	7.50	0.30	100
61746501	AHK 1,5/10	1.50	16	black	19.50	10.0	1.80	0.15	7.50	0.30	100
61746502	AHK 2,5/8	2.50	14	blue	17.50	8.0	2.30	0.15	8.00	0.30	100
61746503	AHK 2,5/12	2.50	14	blue	21.50	12.0	2.30	0.15	8.00	0.30	100
61746504	AHK 4/10	4.00	12	grey	19.50	10.0	2.90	0.20	9.50	0.30	100
61746505	AHK 6/12	6.00	10	yellow	23.00	12.0	3.60	0.20	10.00	0.30	100
61746506	AHK 10/12	10.00	8	red	24.00	12.0	4.60	0.20	11.50	0.30	100
61746507	AHK 16/12	16.00	6	blue	25.50	12.0	6.00	0.20	13.50	0.30	100

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



## DIN-Coil conductor end sleeves



### 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

### Technical data



**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 mm <sup>2</sup>	Colour	I1 mm	I2 mm	d1 mm	d2 mm	R mm	Contents (unit)
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

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



## DIN-strips for QUADRO



### Benefits

- Insulated conductor end sleeves in strips, DIN 46228, Part 4 for QUADRO

### Suitable tools

- QUADRO multifunction tool refer to page 920

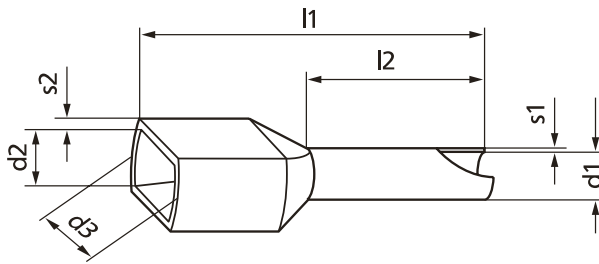
Article number	Article designation	For mm <sup>2</sup>	AWG	Colour	I1 mm	I2 mm	d 1 mm	d 2 mm	R mm	Pieces / PU
61805170	DIN Strips 0,50	0.50	20	white	14.00	8.0	1.10	2.60	3.50	500
61805180	DIN Strips 0,75	0.75	20	grey	14.00	8.0	1.30	2.80	3.60	500
61805190	DIN Strips 1,00	1.00	18	red	14.00	8.0	1.50	3.00	3.90	500
61805200	DIN Strips 1,50	1.50	16	black	14.00	8.0	1.80	3.40	4.20	500
61805210	DIN Strips 2,50	2.50	14	blue	14.00	8.0	2.30	4.20	5.00	500

Other sizes and colours are available upon request.

Photographs 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

### Application range

- Twin conductor end sleeves in the assortment box

### Note

- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

### Suitable tools

- KEBS 0560 TWIN crimping pliers refer to page 922

### Technical data



**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 mm <sup>2</sup>	AWG	Colour	l1 mm	l2 mm	d 1 mm	s 1 mm	d 2 mm	d 3 mm	s2 mm	Pieces / PU
61801999	AHI-TWIN	2.00 x 0.50	2 x 20	white	15.00	8.0	1.50	0.15	2.30	4.50	0.25	500
61802000	AHI-TWIN	2.00 x 0.75	2 x 20	grey	15.00	8.0	1.80	0.15	2.60	5.10	0.25	500
61802010	AHI-TWIN	2.00 x 1.00	2 x 18	red	15.00	8.0	2.05	0.15	3.00	5.10	0.30	500
61802020	AHI-TWIN	2.00 x 1.50	2 x 16	black	16.00	8.0	2.30	0.15	3.50	6.40	0.30	500
61802030	AHI-TWIN	2.00 x 2.50	2 x 14	blue	18.50	10.0	2.90	0.20	4.00	7.50	0.30	500
61802032	AHI-TWIN	2.00 x 4.00	2 x 12	grey	23.00	12.0	3.80	0.20	4.90	8.60	0.30	100
61802033	AHI-TWIN	2.00 x 6.00	2 x 10	yellow	25.00	14.0	4.60	0.20	5.80	9.60	0.40	100
61802034	AHI-TWIN	2.00 x 10.00	2 x 8	red	26.00	14.0	6.50	0.20	7.00	12.60	0.40	100
61802035	AHI-TWIN	2.00 x 16.00	2 x 6	BU	30.00	14.0	8.20	0.20	9.60	18.40	0.40	50

Other sizes and colours are available upon request.

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





## DIN-assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes



**DIN-assorted boxes conductor end sleeves**



**AHI assorted boxes**



**TWIN assorted boxes**

**Benefits**

- Convenient assortment boxes - several diameters always at your fingertips

**Application range**

**DIN-assorted boxes conductor end sleeves**

- DIN conductor end sleeves
- Manufacturing of control cabinets and equipment

**AHI assorted boxes**

- AHI assortment box
- Manufacturing of control cabinets and equipment

**TWIN assorted boxes**

- TWIN assortment box
- Manufacturing of control cabinets and equipment

**Norm references / Approvals**

- The insulated conductor end sleeves are in accordance with DIN 46228, part 4 (0.25 mm<sup>2</sup> and 0.34 mm<sup>2</sup> not standardised) in assortment boxes

**Note**

- For processing tools see the keyword index "crimping pliers for conductor end sleeves"

**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**

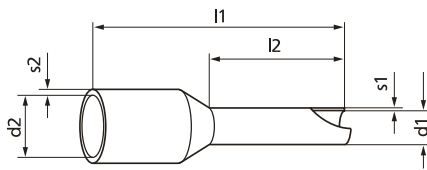
- 2x0,75 - 8mm, 2x1,00 - 8mm, 2x1,5 - 8mm, 2x2,5 - 10mm

Article number	Article designation	For mm <sup>2</sup>	Contents (unit)	PU
<b>DIN assortment box</b>				
61802040	DIN assortment box I	0.25 - 1.00	150 x 1	1
61802041	DIN assortment box II	0.50 - 2.50	400 x 1	1
61802042	DIN assortment box III	4.00 - 16.00	100 x 1	1
<b>Black, grey, orange, yellow, white</b>				
61794720	AHI assortment box I	0.25 - 1.00	150 x 1	1
61794730	AHI assortment box II	0.50 - 2.50	400 x 1	1
61794740	AHI assortment box III	4.00 - 16.00	100 x 1	1
<b>Black, white, grey, orange</b>				
61802046	Black, white, grey, orange	2 x 0,75 - 2 x 2,5	200 x 1	1

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



## Conductor end sleeves XL, insulated



**Info**

- Suitable conductor end sleeves for UL(MTW)-CSA-HAR multi-standard single cores

**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

**Norm references / Approvals**

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4

**Product make-up**

- Because of their approval 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

**Suitable cables**

- MULTI-STANDARD SC 1
- Multi-Standard SC 2.2
- Multi-Standard SC 2.1

**Suitable tools**

- MULTICRIMP 6 crimping pliers refer to page 920
- PEW 8.87 crimping pliers refer to page 921

**Technical data**



**Approvals**

In accordance with DIN 46228



**Note**

For processing tools see the keyword index "crimping pliers for conductor end sleeves"



**Info**

Halogen-free and silicone-free



**Material**

Sleeve made of tin-plated electrolytic copper  
Polypropylene plastic collar



**Temperature range**

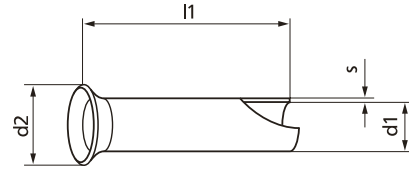
Permanent load -5°C up to +105°C,  
temporary load +120°C

Article number	Article designation	For mm <sup>2</sup>	AWG	Colour	l1 mm	l2 mm	d 1 mm	s1 mm	d 2 mm	s2 mm	Pieces / PU
61802061	Conductor end sleeves XL 0.5 WH 8	0.50	20	white	13.50	8.0	1.10	0.15	3.00	0.25	500
61802062	Conductor end sleeves XL 0.5 WH 10	0.50	20	white	15.50	10.0	1.10	0.15	3.00	0.25	500
61802063	Conductor end sleeves XL 0.75 GY 8	0.75	18	grey	14.00	8.0	1.30	0.15	3.40	0.30	500
61802064	Conductor end sleeves XL 0.75 GY 10	0.75	18	grey	16.00	10.0	1.30	0.15	3.40	0.30	500
61802065	Conductor end sleeves XL 1.0 RD 8	1.00	18	red	14.00	8.0	1.50	0.15	3.40	0.30	500
61802066	Conductor end sleeves XL 1.0 RD 10	1.00	18	red	16.00	10.0	1.50	0.15	3.40	0.30	500
61802067	Conductor end sleeves XL 1.5 BK 8	1.50	16	black	14.00	8.0	1.80	0.15	3.80	0.30	500
61802068	Conductor end sleeves XL 1.5 BK 10	1.50	16	black	16.00	10.0	1.80	0.15	3.80	0.30	500
61802069	Conductor end sleeves XL 16.0 BU 12	16.00	6	blue	23.00	12.0	6.00	0.20	9.50	0.40	100

Sleeves are available in 8 and 10 mm lengths, depending on the type of application.  
Photographs are not to scale and do not represent detailed images of the respective products.



## Conductor end sleeves AH, not insulated



**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

**Note**

- For processing tools see the keyword index "crimping pliers for conductor end sleeves"
- Other sizes are available upon request

**Suitable tools**

- KEB 1025 crimping pliers refer to page 921
- KEB 3550 crimping pliers refer to page 921

**Technical data**

- Material**  
Tinned electrolyte copper
- Temperature range**  
max. +200°C

Article number	Article designation	For mm <sup>2</sup>	AWG	l1 mm	d 1 mm	d 2 mm	s mm	Pieces / PU
<b>Conductor end sleeves AH, not insulated</b>								
62120200	AH DIN 0,5/6	0.50	20	6.00	1.00	2.10	0.15	500
62120210	AH DIN 0,75/6	0.75	20	6.00	1.20	2.30	0.15	500
61721530	AH DIN 0,75/10	0.75	20	10.00	1.20	2.30	0.15	500
62120220	AH DIN 1/6	1.00	18	6.00	1.40	2.50	0.15	500
61721540	AH DIN 1/10	1.00	18	10.00	1.40	2.50	0.15	500
62120230	AH DIN 1,5/7	1.50	16	7.00	1.70	2.80	0.15	500
61721550	AH DIN 1,5/10	1.50	16	10.00	1.70	2.80	0.15	500
62120240	AH DIN 2,5/7	2.50	14	7.00	2.20	3.40	0.15	500
61721560	AH DIN 2,5/12	2.50	14	12.00	2.20	3.40	0.15	500
62120250	AH DIN 4/9	4.00	12	9.00	2.80	4.00	0.20	500
62120260	AH DIN 6/10	6.00	10	10.00	3.50	4.70	0.20	500
62120270	AH DIN 10/12	10.00	8	12.00	4.50	5.80	0.20	500
62120280	AH DIN 16/12	16.00	6	12.00	5.80	7.50	0.20	500

Other sizes are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- PLG - HSB box shrink tube refer to page 947

**Connection and crimping**

Crimping tools for conductor end sleeves



**QUADRO multifunction tool**



**Benefits**

- The unmatched integration of four key functions: cutting - insulation stripping - twisting - crimping- in one tool
- 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

**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

**Included**

- Article no. 61805300: Case with tool and 3 magazines
- Article no. 61805301: Tool without case and magazine
- Article no. 61805302: Storage box for conductor end sleeves

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Contents (unit)
61805300	QUADRO Set	0.50 - 2.50	trapezoid	-	1
61805301	QUADRO pliers	0.50 - 2.50	trapezoid	0.22	1
61805302	QUADRO magazine	0.50 - 2.50	trapezoid	-	1

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

**Accessories**

- DIN-strips for QUADRO refer to page 915

**MULTICRIMP 6 crimping pliers / PEW 8.84 crimping pliers**



MULTICRIMP 6 crimping pliers



PEW 8.84 crimping pliers

**Benefits**

- Uniform feed on the crimp die guarantees exact crimping profiles
- Easy to handle due to the automatic adjustment for the different crimping cross-sections
- Forced locking for reliable, DIN-compliant crimping connections, unlockable

**Application range**

**MULTICRIMP 6 crimping pliers**

- Cross-section range from 0.08 - 6.0 mm<sup>2</sup> with hexagonal pressing

**PEW 8.84 crimping pliers**

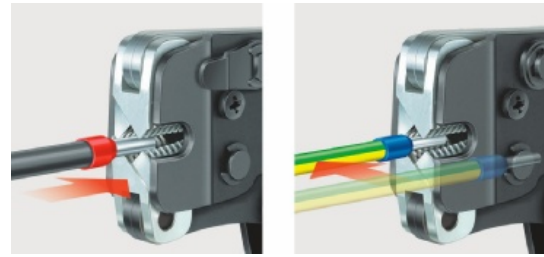
- Cross-section range from 0.08 - 10 mm<sup>2</sup> with square pressing

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61813732	Multicrimp 6	0.08 - 6.00	hexagon	0.38	180	1
61813735	PEW 8.84	0.08 - 10.00	square	0.38	180	1
61813731	PEW 8.84 spare spring	-	-	-	-	1

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**PEW 8.87 crimping pliers**



**Benefits**

- For the simplest handling where space is limited (control cabinets, machinery/internal wiring)

**Application range**

- Front crimping with large cross-sectional range from 0.08 to 16 mm<sup>2</sup>

**Product make-up**

- Side insertion of conductor end sleeves up to 2.5 mm<sup>2</sup> possible
- End insertion of the conductor end sleeves
- Square crimping profile with four profiled crimping surfaces

**Technical data**

- General**  
Pressing length: up to 16 mm  
Crimping profile: Square

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61813742	PEW 8.87	0.08 - 10.00	square	0.475	190	1
61813744	PEW 8.87 Plus	0.08 - 16.00	square	0.475	190	1

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

**Accessories**

- Conductor end sleeves insulated refer to page 913

**KEB 1025 crimping pliers / KEB 3550 crimping pliers**



KEB 1025 crimping pliers



KEB 3550 crimping pliers

**Benefits**

- Unique mechanism reduces the manual force from 450 N to 250 N
- Handles suit both large and small hands
- Locking function that is released only after completion of the pressing operation
- Tested for a minimum of 80,000 pressings

**Application range**

**KEB 1025 crimping pliers**

- Mini-force tools for pressing insulated and non-insulated conductor end sleeves from 10 - 25 mm<sup>2</sup>

**KEB 3550 crimping pliers**

- Mini-force tools for pressing insulated and non-insulated conductor end sleeves from 35 - 50 mm<sup>2</sup>

**Product features**

- Emergency release, if the pressing operation needs to be interrupted

**Norm references / Approvals**

**KEB 1025 crimping pliers**

- Tested in accordance with DIN standard EN 60352-2

**Technical data**

- Note**  
Crimping profile: Trapezoid

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61791065	KEB 1025	10.00 - 25.00	trapezoid	0.5	220	1
61791095	KEB 3550	35.00 - 50.00	trapezoid	0.5	220	1

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

**Connection and crimping**

Crimping tools for conductor end sleeves

## K29 crimping pliers



**Application range**

- Crimping tool for very large conductor end sleeves from 50 - 95 mm<sup>2</sup>
- For pressing insulated and non-insulated conductor end sleeves

**Product features**

- 3 pressing matrices with side insertion: 50/ 70/ 95 mm<sup>2</sup>

**Technical data**



**Note**

Crimping profile: Trapezoid

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
62120192	K29	50.00 - 95.00	trapezoid	0.8	335	1

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

**Accessories**

- Conductor end sleeves insulated refer to page 913



## KEBS 0560 TWIN crimping pliers



**Benefits**

- Locking function that is released only after completion of the pressing operation
- Unique mechanism reduces the manual force from 450 N to 250 N
- Handles suit both large and small hands
- Tested for a minimum of 80,000 pressings

**Application range**

- Pliers with front pressing for insulated/ non-insulated conductor end sleeves and TWIN conductor end sleeves

**Product features**

- Pressing length: up to 16 mm
- Front feed

**Technical data**



**General**

Adjustable crimping pressure



**Note**

Crimping profile: Trapezoid

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61791055	KEBS 0560 TWIN	2x0,5 - 2x4 (0,1 - 6)	trapezoid	0.5	220	1

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

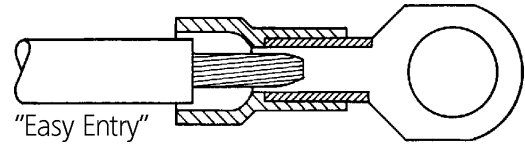
**Accessories**

- TWIN conductor end sleeves refer to page 916

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**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**

- For processing tools see the keyword index "crimping pliers for conductor end sleeves"

**Product make-up**

- 1 = ring cable lugs
- 2 = forked cable lugs
- 3 = pin cable lugs
- 4 = circular connector
- 5 = connector sleeve
- 6 = butt connector
- 7 = end connector

**Suitable tools**

- DSA 0110 + DSA 0725 crimping pliers refer to page 929
- CSA 0760 + KSA 0760 crimping pliers refer to page 929

**Technical data**



**General**

Other sizes and colours (also DIN) are available upon request  
Halogen-free



**Note**

For processing tools see the keyword index "crimping pliers for other connections"



**Material**

High-quality electrolytic copper for good conductivity  
Polyamide insulation



**Temperature range**

-40°C to +105°C  
Short-term: up to +120°C

Article number	Article designation	For mm <sup>2</sup>	UL approval	Connection bolt	Colour	Pieces / PU
<b>Ring cable lugs</b>						
63104010	L-RZ 3	0.25 - 0.75	no	M 3	green	100
63104020	L-RZ 4	0.25 - 0.75	no	M 4	green	100
63104030	L-RZ 5	0.25 - 0.75	no	M 5	green	100
63104040	L-RA 3	0.5 - 1.5	yes	M 3	red	100
63104050	L-RA 35	0.5 - 1.5	yes	M 3.5	red	100
63104060	L-RA 4	0.5 - 1.5	yes	M 4	red	100
63104070	L-RA 5	0.5 - 1.5	yes	M 5	red	100
63104080	L-RA 6	0.5 - 1.5	yes	M 6	red	100
63104160	L-RB 3	1.5 - 2.5	yes	M 3	blue	100
63104170	L-RB 4	1.5 - 2.5	yes	M 4	blue	100
63104180	L-RB 5	1.5 - 2.5	yes	M 5	blue	100
63104190	L-RB 6	1.5 - 2.5	yes	M 6	blue	100
63104200	L-RB 8	1.5 - 2.5	yes	M 8	blue	100
63104340	L-RC 4	4 - 6	yes	M 4	yellow	100
63104350	L-RC 5	4 - 6	yes	M 5	yellow	50
63104360	L-RC 6	4 - 6	yes	M 6	yellow	50
63104370	L-RC 8	4 - 6	yes	M 8	yellow	100
63104380	L-RC 10	4 - 6	yes	M 10	yellow	50
<b>Fork cable lugs</b>						
63105010	L-RZ 3 F	0.25 - 0.75	no	M 3	green	100
63105020	L-RZ 4 F	0.25 - 0.75	no	M 4	green	100
63105050	L-RA 4 F	0.5 - 1.5	yes	M 4	red	100
63105060	L-RA 5 F	0.5 - 1.5	yes	M 5	red	100
63105070	L-RA 6 F	0.5 - 1.5	yes	M 6	red	100
63105130	L-RB 4 F	1.5 - 2.5	yes	M 4	blue	100
63105140	L-RB 5 F	1.5 - 2.5	yes	M 5	blue	100
63105150	L-RB 6 F	1.5 - 2.5	yes	M 6	blue	100
63105210	L-RC 4 F	4 - 6	yes	M 4	yellow	100
63105220	L-RC 5 F	4 - 6	yes	M 5	yellow	100
63105230	L-RC 6 F	4 - 6	yes	M 6	yellow	50
<b>Narrow fork cable lugs</b>						
63105040	L-RA 35 F	0.5 - 1.5	yes	M 3.5	red	100
63105110	L-RB 3 F	1.5 - 2.5	yes	M 3	blue	100
63105120	L-RB 35 F	1.5 - 2.5	yes	M 3.5	blue	100
<b>Flange fork cable lugs</b>						
63108010	L-RA 35 FF	0.5 - 1.5	no	M 3.5	red	100
63108040	L-RB 4 FF	1.5 - 2.5	no	M 4	blue	100
63108050	L-RB 5 FF	1.5 - 2.5	no	M 5	blue	100
<b>Pin cable lugs</b>						
63107010	L-RZP	0.25 - 0.75	no		green	100
63107020	L-RAP	0.5 - 1.5	yes		red	100
63107040	L-RBP	1.5 - 2.5	yes		blue	100
63107070	L-RCP	4 - 6	yes		yellow	100

Connection and crimping

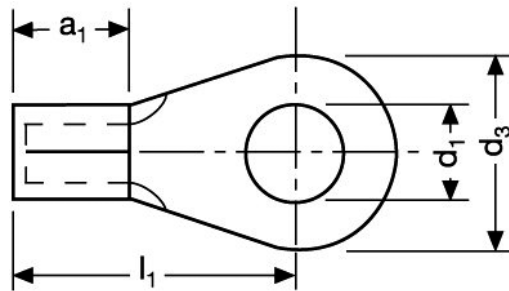
Cable Lugs

Article number	Article designation	For mm <sup>2</sup>	UL approval	Connection bolt	Colour	Pieces / PU
<b>Circular connector</b>						
63110010	L-RABM	0,5 - 1,5	no		red	100
63110020	L-RB 5 BM	1,5 - 2,5	no		blue	100
<b>Connector sleeve</b>						
63111010	L-RAB	0,5 - 1,5	no		red	100
63111020	L-RB 5 B	1,5 - 2,5	no		blue	100
<b>Butt connector</b>						
63106020	L-RAA 15	0,5 - 1,5	yes		red	100
63106040	L-RBB 25	1,5 - 2,5	yes		blue	100
63106080	L-RCC 6	4 - 6	yes		yellow	50
<b>End joint</b>						
63112010	L-RBJ	1,5 - 2,5	no		transparent	100
63112020	L-RJ	4 - 6	no		yellow	100

Other sizes and colours are available upon request.  
Photographs are not to scale and do not represent detailed images of the respective products.



## 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, non-insulated

**Note**

- For processing tools see the keyword index "crimping pliers for other connections"

**Suitable tools**

- PEW 12 universal tool refer to page 937

**Technical data**

- Note**  
s = thickness of material
- Material**  
High-quality electrolytic copper for good conductivity
- Temperature range**  
Working temperature: 90°C  
Max. temperature: +120°C

Article number	Article designation	For mm <sup>2</sup>	UL approval	AWG	Nominal size	d1	d3	l1	a1	s	Pieces / PU
63204015	KB1-2,5R DIN 46234	0,5 - 1,5	no	22-16	2,5-1,0	2,8	6,0	11,0	5,0		100
63204025	KB1-3R DIN 46234	0,5 - 1,5	no	22-16	3,2-1,0	3,2	6,0	11,0	5,0	0,8	100
63204035	KB1-3,5R DIN 46234	0,5 - 1,5	no	22-16	3,5-1,0	3,7	6,0	11,0	5,0	0,8	100
63204045	KB1-4R DIN 46234	0,5 - 1,5	no	22-16	4,0-1,0	4,3	8,0	12,0	5,0	0,8	100
63204055	KB1-5R DIN 46234	0,5 - 1,5	no	22-16	5,0-1,0	5,3	10,0	13,0	5,0	0,8	100
63204065	KB1-6R DIN 46234	0,5 - 1,5	no	22-16	6,0-1,0	6,5	10,0	13,0	5,0	0,8	100
63204075	KB1-8R DIN 46234	0,5 - 1,5	no	22-16	8,0-1,0	8,4	14,0	17,0	5,0	0,8	100
63204085	KB1-10R DIN 46234	0,5 - 1,5	no	22-16	10,0-1,0	10,5	14,0	17,0	5,0	0,8	100
63204095	KB2,5-3R DIN 46234	1,5 - 2,5	no	16-14	3,0-2,5	3,2	6,0	11,0	5,0	0,8	100
63204105	KB2,5-3,5R DIN 46234	1,5 - 2,5	no	16-14	3,5-2,5	3,7	6,0	11,0	5,0	0,8	100
63204115	KB2,5-4R DIN 46234	1,5 - 2,5	no	16-14	4,0-2,5	4,3	8,0	12,0	5,0	0,8	100
63204125	KB2,5-5R DIN 46234	1,5 - 2,5	no	16-14	5,0-2,5	5,3	10,0	14,0	5,0	0,8	100
63204135	KB2,5-6R DIN 46234	1,5 - 2,5	no	16-14	6,0-2,5	6,5	11,0	16,0	5,0	0,8	100
63204145	KB2,5-8R DIN 46234	1,5 - 2,5	no	16-14	8,0-2,5	8,4	14,0	17,0	5,0	0,8	100
63204155	KB2,5-10R DIN 46234	1,5 - 2,5	no	16-14	10,0-2,5	10,5	14,0	17,0	5,0	0,8	100
63204165	KB2,5-12R DIN 46234	1,5 - 2,5	no	16-14	12,0-2,5	13,0	18,0	20,0	5,0	0,8	100
63204175	KB6-4R DIN 46234	2,5 - 6	no	12-10	4,0-6,0	4,3	8,0	14,0	6,0	1,0	100
63204185	KB6-5R DIN 46234	2,5 - 6	no	12-10	5,0-6,0	5,3	10,0	15,0	6,0	1,0	100
63204195	KB6-6R DIN 46234	2,5 - 6	no	12-10	6,0-6,0	6,5	11,0	16,0	6,0	1,0	100
63204205	KB6-8R DIN 46234	2,5 - 6	no	12-10	8,0-6,0	8,4	14,0	19,0	6,0	1,0	100
63204215	KB6-10R DIN 46234	2,5 - 6	no	12-10	10,0-6,0	10,5	18,0	21,0	6,0	1,0	100
63204225	KB6-12R DIN 46234	2,5 - 6	no	12-10	12,0-6,0	13,0	18,0	21,0	6,0	1,0	100

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Article number	Article designation	For mm <sup>2</sup>	UL approval	AWG	Nominal size	d1	d3	l1	a1	s	Pieces / PU
63204235	KB10-5R DIN 46234	10	no	8	5.0-10.0	5.3	10.0	16.0	8.0	1.1	100
63204245	KB10-6R DIN 46234	10	no	8	6.0-10.0	6.5	11.0	17.0	8.0	1.1	100
63204255	KB10-8R DIN 46234	10	no	8	8.0-10.0	8.4	14.0	20.0	8.0	1.1	100
63204265	KB10-10R DIN 46234	10	no	8	10.0-10.0	10.5	18.0	21.0	8.0	1.1	100
63204275	KB10-12R DIN 46234	10	no	8	12.0-10.0	13.0	22.0	23.0	8.0	1.1	100
63204285	KB16-5R DIN 46234	16	no	6	5.0-16.0	5.3	11.0	20.0	10.0	1.2	100
63204295	KB16-6R DIN 46234	16	no	6	6.0-16.0	6.5	11.0	20.0	10.0	1.2	100
63204305	KB16-8R DIN 46234	16	no	6	8.0-16.0	8.4	14.0	22.0	10.0	1.2	100
63204315	KB16-10R DIN 46234	16	no	6	10.0-16.0	10.5	18.0	24.0	10.0	1.2	100
63204325	KB16-12R DIN 46234	16	no	6	12.0-16.0	13.0	22.0	26.0	10.0	1.2	100
63204335	KB25-5R DIN 46234	25	no	4	5.0-25.0	5.3	12.0	25.0	11.0	1.5	100
63204345	KB25-6R DIN 46234	25	no	4	6.0-25.0	6.5	12.0	25.0	11.0	1.5	100
63204355	KB25-8R DIN 46234	25	no	4	8.0-25.0	8.4	16.0	25.0	11.0	1.5	100
63204365	KB25-10R DIN 46234	25	no	4	10.0-25.0	10.5	18.0	26.0	11.0	1.5	100
63204375	KB25-12R DIN 46234	25	no	4	12.0-25.0	13.0	31.0	31.0	11.0	1.5	100
63204385	KB25-16R DIN 46234	25	no	4	16.0-25.0	17.0	35.0	36.0	11.0	1.5	100
63204395	KB35-6R DIN 46234	35	no	2	6.0-35.0	6.5	15.0	26.0	12.0	1.6	100
63204405	KB35-8R DIN 46234	35	no	2	8.0-35.0	8.4	16.0	26.0	12.0	1.6	100
63204415	KB35-10R DIN 46234	35	no	2	10.0-35.0	10.5	18.0	27.0	12.0	1.6	100
63204425	KB35-12R DIN 46234	35	no	2	12.0-35.0	13.0	22.0	31.0	12.0	1.6	100
63204435	KB35-16R DIN 46234	35	no	2	16.0-35.0	17.0	28.0	36.0	12.0	1.6	100
63204445	KB50-6R DIN 46234	50	no	1/0	6.0-50.0	6.5	18.0	34.0	16.0	1.8	100
63204455	KB50-8R DIN 46234	50	no	1/0	8.0-50.0	8.4	18.0	34.0	16.0	1.8	100
63204465	KB50-10R DIN 46234	50	no	1/0	10.0-50.0	10.5	18.0	34.0	16.0	1.8	100
63204475	KB50-12R DIN 46234	50	no	1/0	12.0-50.0	13.0	22.0	36.0	16.0	1.8	100
63204485	KB50-16R DIN 46234	50	no	1/0	16.0-50.0	17.0	28.0	40.0	16.0	1.8	100
63204495	KB70-6R DIN 46234	70	no	2/0	6.0-70.0	6.5	22.0	38.0	18.0	2.0	100
63204505	KB70-8R DIN 46234	70	no	2/0	8.0-70.0	8.4	22.0	38.0	18.0	2.0	100
63204515	KB70-10R DIN 46234	70	no	2/0	10.0-70.0	10.5	22.0	38.0	18.0	2.0	100
63204525	KB70-12R DIN 46234	70	no	2/0	12.0-70.0	13.0	22.0	38.0	18.0	2.0	100
63204535	KB70-16R DIN 46234	70	no	2/0	16.0-70.0	17.0	28.0	42.0	18.0	2.0	100
63204545	KB95-8R DIN 46234	95	no	3/0	8.0-95.0	8.4	24.0	42.0	20.0	2.5	50
63204555	KB95-10R DIN 46234	95	no	3/0	10.0-95.0	10.5	24.0	42.0	20.0	2.5	50
63204565	KB95-12R DIN 46234	95	no	3/0	12.0-95.0	13.0	24.0	42.0	20.0	2.5	50
63204575	KB95-16R DIN 46234	95	no	3/0	16.0-95.0	17.0	28.0	44.0	20.0	2.5	50
63204585	KB120-8R DIN 46234	120	no	4/0	8.0-120.0	8.4	24.0	44.0	22.0	3.0	25
63204595	KB120-10R DIN 46234	120	no	4/0	10.0-120.0	10.5	24.0	44.0	22.0	3.0	25
63204605	KB120-12R DIN 46234	120	no	4/0	12.0-120.0	13.0	24.0	44.0	22.0	3.0	25
63204615	KB120-16R DIN 46234	120	no	4/0	16.0-120.0	17.0	28.0	48.0	22.0	3.0	25
63204625	KB150-10R DIN 46234	150	no	5/0	10.0-150.0	10.5	30.0	50.0	24.0	3.2	25
63204635	KB150-12R DIN 46234	150	no	5/0	12.0-150.0	13.0	30.0	50.0	24.0	3.2	25
63204645	KB150-16R DIN 46234	150	no	5/0	16.0-150.0	17.0	30.0	50.0	24.0	3.2	25
63204655	KB185-10R DIN 46234	185	no	6/0	10.0-185.0	10.5	36.0	50.0	28.0	3.5	20
63204665	KB185-12R DIN 46234	185	no	6/0	12.0-185.0	13.0	36.0	50.0	28.0	3.5	20
63204675	KB185-16R DIN 46234	185	no	6/0	16.0-185.0	17.0	36.0	50.0	28.0	3.5	20
63204685	KB240-10R DIN 46234	240	no	7/0	10.0-240.0	10.5	38.0	56.0	32.0	4.0	10
63204695	KB240-12R DIN 46234	240	no	7/0	12.0-240.0	13.0	38.0	56.0	32.0	4.0	10
63204705	KB240-16R DIN 46234	240	no	7/0	16.0-240.0	17.0	38.0	56.0	32.0	4.0	10

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APPENDIX



## Panel connectors insulated



### Benefits

- For first-class connection with simple operating principle
- 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

- For breaking through the oxidation layer on the conductor when crimping

### Norm references / Approvals

- File Number E334111, see table

### Product make-up

- 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

- DSA 0110 + DSA 0725 crimping pliers refer to page 929
- CSA 0760 + KSA 0760 crimping pliers refer to page 929

### Technical data

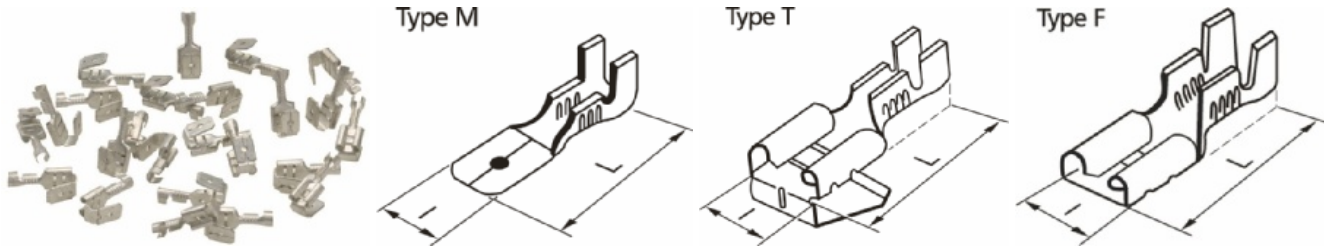
- Material**  
Nickel-plated brass  
Polycarbonate insulation
- Temperature range**  
-40°C to +100°C

Article number	Article designation	For mm <sup>2</sup>	UL approval	Footnote	Colour	Blade connection	d mm	L	W mm	Pieces / PU
<b>Blade receptacle according to DIN 46245 and similar (type H)</b>										
63101020	L-RA 29 H	0.50 - 1.50	yes		red	2.8 x 0.5	3.3	18.5	3.5	100
63101010	L-RA 28 H	0.50 - 1.50	yes		red	2.8 x 0.8	3.3	18.5	3.5	100
63101030	L-RA 49 H	0.50 - 1.50	yes	1.3	red	4.8 x 0.5	3.7	19.0	5.7	100
63101040	L-RA 48 H	0.50 - 1.50	yes	1.3	red	4.8 x 0.8	3.7	19.0	5.7	100
63101050	L-RA 63 H	0.50 - 1.50	yes		red	6.3 x 0.8	4.0	20.0	7.6	100
63101060	L-RB 48 H	1.50 - 2.50	yes	1.3	blue	4.8 x 0.5	4.4	19.0	5.7	100
63101070	L-RB 49 H	1.50 - 2.50	yes	1.3	blue	4.8 x 0.8	4.4	19.0	5.7	100
63101080	L-RB 63 H	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	20.0	7.6	100
63101110	L-RC 63 H	4.00 - 6.00	yes		yellow	6.3 x 0.8	6.4	24.0	7.6	100
63101120	L-RC 95 H	4.00 - 6.00	no		yellow	9.5 x 1.2	6.2	31.0	11.0	100
<b>Blade connector (type M)</b>										
63103010	L-RA 63 M	0.50 - 1.50	yes		red	6.3 x 0.8	4.0	22.0		100
63103020	L-RB 63 M	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	22.0		100
63103040	L-RC 63 M	4.00 - 6.00	yes	1.3	yellow	6.3 x 0.8	6.3	25.0		100
<b>Blade receptacle branch (type T)</b>										
63102010	L-RA 63 T	0.50 - 1.50	no	1.3	red	6.3 x 0.8	3.7	22.0	7.4	100
63102020	L-RB 63 T	1.50 - 2.50	no	1.3	blue	6.3 x 0.8	4.3	22.0	7.5	50
<b>Fully insulated blade receptacle (type V)</b>										
61794951	L-RA 29 V	0.50 - 1.50	yes	2.3	red	2.8 x 0.5	3.8	19.3	5.0	100
61794952	L-RA 28 V	0.50 - 1.50	yes	2.3	red	2.8 x 0.8	3.8	19.3	5.0	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	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	100
61794960	L-RA 63 V	0.50 - 1.50	yes		red	6.3 x 0.8	4.4	21.0	8.8	100
61794968	L-RB 49 V	1.50 - 2.50	yes	2.3	blue	4.8 x 0.5	3.9	19.5	7.1	100
61794969	L-RB 48 V	1.50 - 2.50	yes	2.3	blue	4.8 x 0.8	4.3	20.0	7.4	100
61794970	L-RB 63 V	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	21.0	8.8	100
61794971	L-RC 63 V	4.00 - 6.00	yes	2.3	yellow	6.3 x 0.8	5.3	26.0	9.0	100

1 = PVC insulation, not easy-entry; 2 = polyamide (nylon) insulation, not easy-entry; 3 = unsoldered, with additional brass sleeve  
Photographs are not to scale and do not represent detailed images of the respective products.



## Panel connectors non-insulated



### Benefits

- Soft and transparent PVC insulating sleeves provide electrical safety

### Suitable tools

- DRB 0505 + DRB 0115 crimping pliers refer to page 930
- KRB 0560 crimping pliers refer to page 930

### Technical data

- Material**  
Brass  
Electrolytically tinned
- Temperature range**  
max. +200°C

Article number	Article designation	For mm <sup>2</sup>	UL approval	Tool	Blade connection	I	L	Pieces / PU
<b>Blade receptacle according to DIN 46247</b>								
63501060	L-BA 285 F	0.50 - 1.00	no	DRB 0155	2.8 x 0.5	5.0	12.7	100
63501070	L-BA 288 F	0.50 - 1.00	no	DRB 0155	2.8 x 0.8	5.0	12.7	100
63501080	L-BA 485 F	0.75 - 1.50	no	KRB 0560	4.8 x 0.5	6.4	16.0	100
63501090	L-BA 488 F	0.75 - 1.50	no	KRB 0560	4.8 x 0.8	6.4	16.0	100
63501120	L-BA 638 F	0.75 - 1.50	no	KRB 0560	6.3 x 0.8	7.6	19.0	100
63501130	L-BB 638 F	1.50 - 2.50	no	KRB 0560	6.3 x 0.8	7.6	19.0	100
63501140	L-BC 638 F	4.00 - 6.00	no	KRB 0560	6.3 x 0.8	7.6	19.0	100
<b>Blade receptacle with branching</b>								
63501150	L-BA 638 T	0.50 - 1.50	no	KRB 0560	6.3 x 0.8	7.5	19.0	100
<b>Panel connectors (Plugs)</b>								
63501071	L-BA 288 M	0.50 - 1.00	no	DRB 0155	2.8 x 0.8	5.5	13.0	100
63501520	L-BA 638 M	0.50 - 1.00	no	KRB 0560	6.3 x 0.8	8.0	19.0	100
63501530	L-BB 638 M	1.50 - 2.50	no	KRB 0560	6.3 x 0.8	8.0	19.0	100

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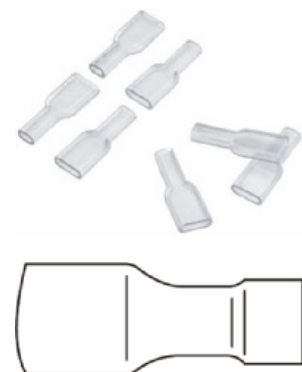
## ISO sleeve

### Benefits

- Soft and transparent PVC insulating sleeves provide electrical safety

### Application range

- For non-insulated blade connectors



Article number	Article designation	UL approval	Blade connection	For cable Ø (mm)	Pieces / PU
61794980	ISO sleeve	no	6.3	3.2	500

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## Panel connectors with latch



- Benefits**
  - For first-class connection with simple operating principle
- Suitable tools**
  - DRB 0505 + DRB 0115 crimping pliers refer to page 930

**Technical data**

**Material**  
Brass

**Temperature range**  
Typ M: max. +90°C  
Typ F: max. +110°C

Article number	Article designation	For mm <sup>2</sup>	UL approval	Blade connection	I	L	Pieces / PU
<b>Blade connector with locking notch (type M)</b>							
63501020	BM 638 M	1.50 - 2.50	no	6.3 x 0.8	16.0	28.0	100
63501022	BM-C 638 M	4.00 - 6.00	no	6.3 x 0.8	16.0	28.0	100
<b>Blade receptacle (type F)</b>							
63501010	B 638 F	1.50 - 2.50	no	6.3 x 0.8	7.5	19.0	100
63501012	B-C 638 F	4.00 - 6.00	no	6.3 x 0.8	7.5	19.0	100

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

**Similar products**

- Panel connectors, non-insulated



## Panel connector sockets Type M / Type F



- Benefits**
  - Quick and easy separation of connection
  - Together with blade connectors, these blade connector strips enable secure and easy assembly
  - New connections can be made easily without any confusion

**Technical data**

**Material**  
Polyamide

**Temperature range**  
max. +105°C

Article number	Article designation	UL approval	Number of pins	Width W (mm)	Height (mm)	Depth (mm)	Pieces / PU
<b>Blade connector strips (type M)</b>							
63300100	408-2 M	no	2.0	15.3	13.2	32.2	100
63300110	408-4 M	no	4.0	27.5	16.8	32.6	100
63300120	408-6 M	no	6.0	31.2	18.8	32.9	100
63300130	408-8 M	no	8.0	40.4	18.8	33.1	100
<b>Panel connector-sockets (type F)</b>							
63300140	408-2 F	no	2.0	12.6	10.0	23.2	100
63300150	408-4 F	no	4.0	24.5	14.1	24.0	100
63300160	408-6 F	no	6.0	28.2	14.9	24.3	100
63300170	408-8 F	no	8.0	37.4	15.4	24.4	100

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



## DSA 0110 + DSA 0725 crimping pliers



### Benefits

- Suitable for left and right-handed users
- Less force required for perfect pressing
- Clearly marked press moulds
- Cross-section of press matrix is embossed in the cable lugs for checking
- Pressing according to the forced finish system

### Application range

- Safety pressing pliers for insulated connections
- For insulated cable lugs, blade connectors and other connectors

### Product features

- Emergency release, if the pressing operation needs to be interrupted

### Norm references / Approvals

- Tested in accordance with DIN standards

### Technical data

- General**  
Adjustable crimping pressure
- Note**  
Crimping profile: Oval

Article number	Article designation	For mm <sup>2</sup>	Weight (kg)	Length (mm)	Pieces / PU
61722050	DSA 0110	0,1 - 1,5	0.35	225	1
61722060	DSA 0725	0,5 - 2,5	0.35	192	1

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

### Accessories

- Panel connectors insulated refer to page 926
- Insulated cable lugs refer to page 923



## CSA 0760 + KSA 0760 crimping pliers



### Benefits

- Clearly marked press moulds
- Less power required due to special mechanism
- Tested for a minimum of 80,000 pressings
- Pressing according to the forced finish system
- Cross-section of press matrix is embossed in the cable lugs for checking

### Application range

- The Miniforce tool for insulated connections of 0.5 - 6 mm<sup>2</sup>

### Product features

- Emergency release, if the pressing operation needs to be interrupted

### Norm references / Approvals

- Tested in accordance with DIN standard EN 60352-2

### Product make-up

- CSA 0760: With C-frame, old design
- KSA 0760: With K-frame- extremely long handles for two-handed operation, improved ergonomics

### Technical data

- Note**  
Crimping profile: Oval

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61722070	CSA 0760	0,5 - 6.00	oval	0.5	220	1
61790910	KSA 0760	0,5 - 6.00	oval	0.54	255	1
61751950	Spare spring CSA/KSA/DSA 0760	-	-	-	-	1
61722071	Crimping insert for CSA + KSA 0760	-	-	-	-	1

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

### Accessories

- Conductor end sleeves insulated refer to page 913
- Panel connectors insulated refer to page 926

**Connection and crimping**

Crimping tools for uninsulated connections



**DRB 0505 + DRB 0115 crimping pliers**



**Benefits**

- Less force required for perfect pressing
- Locking function for faultless pressing
- Clearly marked press moulds
- Tested for a minimum of 50,000 pressings

**Application range**

- Roll pressing pliers for non-insulated flat connectors with 2.8 connection
- Also suitable for blade receptacles with latch

**Product features**

- Emergency release, if the pressing operation needs to be interrupted

**Norm references / Approvals**

- Tested in accordance with DIN standard EN 60352-2

**Product make-up**

- DRB 0505: Cross-section range: 0.05 - 0.5 mm<sup>2</sup>
- DRB 0115: Cross-section range: 0.1 - 1.5 mm<sup>2</sup>

**Technical data**



**General**

Adjustable crimping pressure



**Note**

Crimping profile: Roller pressing

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	For blade connectors	Weight (kg)	Length (mm)	Pieces / PU
61790930	DRB 0505	0,05 - 0,5	roller pressing	2.8	0.35	192	1
61790940	DRB 0115	0,1 - 1,5	roller pressing	2.8	0.35	192	1

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

**Accessories**

- Panel connectors non-insulated refer to page 927
- Panel connectors with latch refer to page 928



**KRB 0560 crimping pliers**



**Benefits**

- Clearly marked press moulds
- Locking function for faultless pressing
- Handles suit both large and small hands
- Unique mechanism reduces the manual force from 450 N to 250 N
- Tested for a minimum of 80,000 pressings

**Application range**

- The convenient roll pressing pliers for non-insulated blade connectors of 0.5 - 6 mm<sup>2</sup> with connection 4.8 and 6.3

**Product features**

- Emergency release, if the pressing operation needs to be interrupted

**Norm references / Approvals**

- Tested in accordance with DIN standard EN 60352-2

**Included**

- Article number 61790950 is delivered without locator
- Article number 61791100 contains locator

**Technical data**



**General**

Adjustable crimping pressure



**Note**

Crimping profile: Roller pressing

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	For blade connectors	Weight (kg)	Length (mm)	Pieces / PU
61790950	KRB 0560 without locator	0,5 - 6.00	roller pressing	4.8 + 6.3	0.54	255	1
61791100	KRB 0560 with locator	0,5 - 6.00	roller pressing	4.8 + 6.3	0.54	255	1

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

**Accessories**

- Panel connectors non-insulated refer to page 927



## DKB 0325 + DKB 0360 crimping pliers



### Benefits

- Locking function for faultless pressing
- Clearly marked press moulds
- Less force required for perfect pressing
- Tested for a minimum of 80,000 pressings

### Application range

- Safety pressing pliers for non-insulated connections
- For non-insulated cable lugs, other connectors and tubular cable lugs KR

### Product features

- Emergency release, if the pressing operation needs to be interrupted

### Norm references / Approvals

- Tested in accordance with DIN standard EN 60352-2

### Product make-up

- DKB 0325: Cross-section range: 0.25 - 2.5 mm<sup>2</sup>
- DKB 0360: Cross-section range: 0.25 - 6.0 mm<sup>2</sup>

### Technical data

- General**  
Adjustable crimping pressure
- Note**  
Crimping profile: Mandrel pressing

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61722110	DKB 0325	0,25 - 2,5	mandrel pressing	0.35	192	1
61790920	DKB 0360	0,25 - 6.00	mandrel pressing	0.35	192	1

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

### Accessories

- Panel connectors non-insulated refer to page 927



## KWB 4099 crimping pliers



### Benefits

- Clearly marked press moulds
- Locking function for faultless pressing
- Handles suit both large and small hands
- Unique mechanism reduces the manual force from 450 N to 250 N
- Tested for a minimum of 80,000 pressings

### Application range

- The Miniforce tool for non-insulated connections of 4 - 10 mm<sup>2</sup>
- For non-insulated cable lugs, other connectors and tubular cable lugs KR

### Product features

- Emergency release, if the pressing operation needs to be interrupted

### Technical data

- General**  
Adjustable crimping pressure
- Note**  
Crimping profile: W-pressing

Article number	Article designation	For mm <sup>2</sup>	Weight (kg)	Length (mm)	Pieces / PU
61722130	KWB 4099	4.00 - 10.00	0.5	220	1

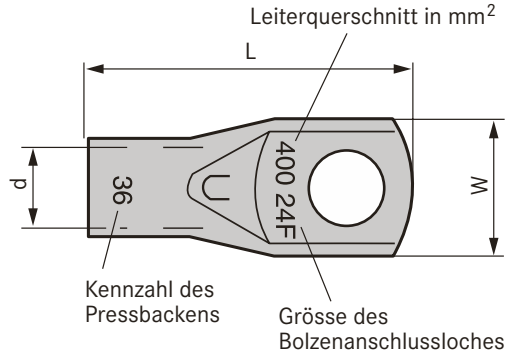
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- Panel connectors non-insulated refer to page 927



## Tube cable lugs KR/ KRT/ KRF



**Benefits**

- With inspection hole (from size 10 mm<sup>2</sup> on, KR beginning 4 mm<sup>2</sup>)
- High-quality electrolytic copper ensures a good crimping quality

**Application range**

- **KR:** For fine and multi-wire copper conductors (class 2 and 5) with a cross-sectional range of 0.75 - 10.00 mm<sup>2</sup>
- **KRT:** For multi-wire copper conductors (class 2) with a cross-sectional range of 10 - 400 mm<sup>2</sup>
- **KRF:** For fine wire copper conductors (class 2 and 5) with a cross-sectional range of 16 - 400 mm<sup>2</sup>
- Mainly for connection to rails and to copper connectors
- Max. 48 kW

**Norm references / Approvals**

- In combination with recommended crimp tool fulfill requirements of SEN 245010, BS 4579:1, VDE 0220:1, EN-IEC 61238:1
- UL file number: E205350 (see table)

**Technical data**

- Material**  
Tinned electrolyte copper
- Temperature range**  
Working temperature: 90 °C  
Max. temperature: +120 °C

Article number	Article designation	Screw hole Ø (mm)	UL approval	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
<b>KR</b>								
61796480	KR 0,75/3	3	no	16		1.3	6.0	100
61796490	KR 0,75/4	4	no	17		1.3	6.0	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		3.0	8.5	100
61796580	KR 4/5	5	yes	22		3.0	9.0	100
61796590	KR 4/6	6	yes	23		3.0	10.0	100
61796600	KR 6/4	4	yes	22		4.0	9.5	100
61796610	KR 6/5	5	yes	22		4.0	9.5	100
61796620	KR 6/6	6	yes	23		4.0	10.0	100
61796630	KR 6/8	8	yes	30		4.0	13.5	100
61796631	KR 10/5	5	yes	29	B 7 / B 8	5.0	11.5	100
61796632	KR 10/6	6	yes	29	B 7 / B 8	5.0	11.5	100
61796633	KR 10/8	8	yes	33	B 7 / B 8	5.0	13.5	100
<b>KRT</b>								
61796640	KRT 10/5	5	yes	29	B 7	4.5	10.0	100
61796650	KRT 10/6	6	yes	29	B 7	4.5	10.0	100
61796660	KRT 10/8	8	yes	34	B 7	4.5	13.0	100
61796670	KRT 10/10	10	yes	34	B 7	4.5	16.0	100
61796680	KRT 10/12	12	yes	41	B 7	4.5	19.0	100
61796690	KRT 16/5	5	yes	34	B 8.5	5.5	12.0	100
61796700	KRT 16/6	6	yes	34	B 8.5	5.5	12.0	100
61796710	KRT 16/8	8	yes	39	B 8.5	5.5	15.0	100
61796720	KRT 16/10	10	yes	39	B 8.5	5.5	16.0	100
61796730	KRT 16/12	12	yes	47	B 8.5	5.5	19.0	100
61796740	KRT 25/6	6	yes	43	B 10	7.0	14.0	100
61796750	KRT 25/8	8	yes	43	B 10	7.0	15.0	100
61796760	KRT 25/10	10	yes	43	B 10	7.0	16.0	100
61796770	KRT 25/12	12	yes	48	B 10	7.0	19.0	100
61796780	KRT 35/6	6	yes	49	B 12	8.5	17.0	100
61796790	KRT 35/8	8	yes	49	B 12	8.5	17.0	100



Article number	Article designation	Screw hole Ø (mm)	UL approval	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
61796800	KRT 35/10	10	yes	49	B 12	8.5	19.0	100
61796810	KRT 35/12	12	yes	53	B 12	8.5	22.0	50
61796820	KRT 50/6	6	yes	53	B 14	10.0	20.0	50
61796830	KRT 50/8	8	yes	53	B 14	10.0	20.0	50
61796840	KRT 50/10	10	yes	53	B 14	10.0	20.0	50
61796850	KRT 50/12	12	yes	56	B 14	10.0	22.0	50
61796860	KRT 70/8	8	yes	55	B 16	12.0	23.0	50
61796870	KRT 70/10	10	yes	55	B 16	12.0	23.0	50
61796880	KRT 70/12	12	yes	58	B 16	12.0	23.0	50
61796890	KRT 95/8	8	yes	60	B 18	13.5	26.0	50
61796900	KRT 95/10	10	yes	60	B 18	13.5	26.0	50
61796910	KRT 95/12	12	yes	63	B 18	13.5	26.0	50
61796920	KRT 95/16	16	yes	69	B 18	13.5	28.0	50
61796930	KRT 120/10	10	yes	64	B 19	15.0	28.0	50
61796940	KRT 120/12	12	yes	64	B 19	15.0	28.0	50
61796950	KRT 120/16	16	yes	70	B 19	15.0	28.0	50
61796960	KRT 150/12	12	no	76	B 22	17.0	32.0	25
61796970	KRT 150/16	16	no	76	B 22	17.0	32.0	25
61796980	KRT 150/20	20	no	83	B 22	17.0	32.0	25
61796990	KRT 185/12	12	no	79	13 B 24	19.0	35.0	25
61797000	KRT 185/16	16	no	79	13 B 24	19.0	35.0	25
61797020	KRT 240/12	12	no	86	13 B 26	21.0	38.0	25
61797030	KRT 240/16	16	no	86	13 B 26	21.0	38.0	25
61797040	KRT 240/20	20	no	93	13 B 26	21.0	38.0	25
61797050	KRT 300/16	16	no	100	13 B 30	24.0	44.0	10
61797080	KRT 400/20	20	no	114	13 B 32	26.0	48.0	10
<b>KRF</b>								
61803020	KRF 16/6	6	yes	34	B 9	6.0	13.0	100
61803030	KRF 16/8	8	yes	34	B 9	6.0	13.0	100
61803040	KRF 16/10	10	yes	38	B 9	6.0	16.0	100
61803050	KRF 16/12	12	yes	47	B 9	6.0	22.0	100
61803060	KRF 25/6	6	yes	39	B 11	8.0	16.0	100
61803070	KRF 25/8	8	yes	39	B 11	8.0	16.0	100
61803080	KRF 25/10	10	yes	42	B 11	8.0	17.0	100
61803090	KRF 25/12	12	yes	47	B 11	8.0	22.0	100
61803110	KRF 35/6	6	yes	47	B 13	9.0	18.0	100
61803120	KRF 35/8	8	yes	47	B 13	9.0	18.0	100
61803130	KRF 35/10	10	yes	47	B 13	9.0	18.0	100
61803140	KRF 35/12	12	yes	52	B 13	9.0	22.0	100
61803160	KRF 50/8	8	yes	50	B 14.4	11.0	21.0	100
61803170	KRF 50/10	10	yes	50	B 14.5	11.0	21.0	100
61803180	KRF 50/12	12	yes	53	B 14.5	11.0	21.0	100
61803190	KRF 50/16	16	yes	59	B 14.5	11.0	27.0	100
61803200	KRF 70/8	8	yes	55	B 17	13.0	25.0	50
61803210	KRF 70/10	10	yes	55	B 17	13.0	25.0	50
61803220	KRF 70/12	12	yes	58	B 17	13.0	25.0	50
61803230	KRF 70/16	16	yes	64	B 17	13.0	28.0	50
61803240	KRF 95/10	10	yes	69	B 20	15.0	29.0	50
61803250	KRF 95/12	12	yes	69	B 20	15.0	29.0	50
61803260	KRF 95/16	16	yes	69	B 20	15.0	29.0	50
61803270	KRF 120/10	10	yes	73	B 22	17.0	32.0	25
61803280	KRF 120/12	12	yes	73	B 22	17.0	32.0	25
61803290	KRF 120/16	16	yes	73	B 22	17.0	32.0	25
61803300	KRF 150/12	12	yes	80	B 25/13 B 25	19.0	36.0	25
61803310	KRF 150/16	16	yes	80	B 25/13 B 25	19.0	36.0	25
61803330	KRF 185/12	12	yes	86	13 B 27	21.0	39.0	20
61803340	KRF 185/16	16	yes	86	13 B 27	21.0	39.0	20
61803350	KRF 185/20	20	yes	93	13 B 27	21.0	39.0	20
61803360	KRF 240/12	12	yes	96	13 B 30	22.5	42.0	10
61803370	KRF 240/16	16	yes	96	13 B 30	22.5	42.0	10
61803380	KRF 240/20	20	yes	95	13 B 30	22.5	42.0	10
61803390	KRF 300/16	16	yes	99	13 B 32	24.5	46.0	10
61803400	KRF 300/20	20	yes	99	13 B 32	24.5	46.0	10
61803420	KRF 400/16	16	yes	111	13 B 38	30.0	56.0	10
61803430	KRF 400/20	20	yes	126	13 B 38	30.0	56.0	10
61803440	KRF 400/24	24	yes	118	13 B 38	30.0	56.0	10

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

**Similar products**

- Cable lugs KB refer to page 924

**Accessories**

- T 2288 pressing pliers refer to page 934
- V 1311 pressing pliers, hydraulic refer to page 934
- DKB 0325 + DKB 0360 crimping pliers refer to page 931

## 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 mm<sup>2</sup>
- For pressing tube cable lugs (KRT) and butt connectors

### ■ Norm references / Approvals

- Tested in accordance with SEN standard 245010

### ■ Technical data



#### Note

Crimping profile: Hexagonal

Article number	Article designation	For mm <sup>2</sup>	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
61790961	T 2288	10.0 - 25.0	hexagon	0.6	300	1

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

## V 1311 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 mm<sup>2</sup>

### ■ Included

- Complete unit, no external pump required
- Supplied with wooden carry box
- Pressing dies and die holders need to be ordered separately

### ■ Technical data



#### On request

Battery powered tool on request



#### Note

Crimping profile: Hexagonal  
Pressing force: 130 kN (13 t)

Article number	Article designation	For mm <sup>2</sup>	Inner die holders	Outer die holders	Weight (kg)	Length (mm)	Pieces / PU
61795925	V 1311	10.0 - 400.0	V 1316	V 1318	4.9	590	1

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

### ■ Accessories

- Die holders for system 1311 refer to page 935
- Dies for system 1311 refer to page 935

## Die holders for system 1311

### Benefits

- For the V1311 pliers, both the inner die holder V1316 and the outer die holder V1318 is needed

### Application range

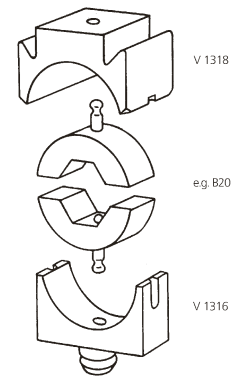
- Systems 1311 for pressing copper connections of 10 - 400 mm<sup>2</sup>

### Note

- Only needed for dies which have no "13" in article designation

### Suitable tools

- V 1311 pressing pliers, hydraulic refer to page 934



Article number	Article designation	For crimping tools	Dies per PU	PU
61795941	V 1316 inner die-holder	V 1311	1	1
61795942	V 1318 outer die-holder	V 1311	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 are not to scale and do not represent detailed images of the respective products.

### Application range

- Pressing dies for V 1311 for crimping cable lugs (KR/KRT/KRF) and butt connectors (KS/KST/KSF)

### Note

- Pressing dies for copper branch terminals are available upon request

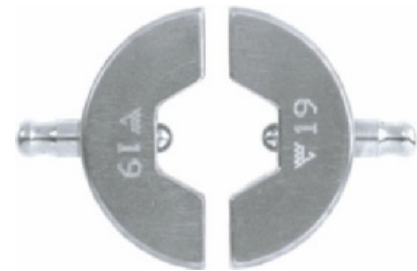
### Included

- Press inserts are delivered in pairs
- Pressing pliers where the article designation begins with "13B" contain already the die holders, for all other dies you need to order the die holders separately

### Suitable tools

- V 1311 pressing pliers, hydraulic refer to page 934

## Dies for system 1311



Article number	Article designation	For KR/KS mm <sup>2</sup>	For KRT/KST mm <sup>2</sup>	For KRF/KSF mm <sup>2</sup>	PU
<b>Pressing dies - in pairs</b>					
61795950	B7	10.0	10.0		1
61795951	B8	10.0		10.0	1
61795960	B8,5		16.0		1
61795970	B9			16.0	1
61795971	B10		25.0		1
61795972	B11			25.0	1
61795980	B12		35.0		1
61795981	B13			35.0	1
61795990	B14		50.0		1
61795991	B14,5			50.0	1
61796000	B16		70.0		1
61796001	B17			70.0	1
61796010	B18		95.0		1
61796021	B20			95.0	1
61796020	B19		120.0		1
61796030	B22		150.0	120.0	1
61796032	B25			150.0	1
61796031	B24		185.0		1
61796042	13B25			185.0	1
61796043	13B26		240.0		1
61796044	13B30		300.0	240.0	1
61796045	13B32		400.0	300.0	1
61796046	13B38			400.0	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 are not to scale and do not represent detailed images of the respective products.



## Mobile crimp tool crimping pliers



### Benefits

- Reliable – crimping performance is consistent and accurate with a parallel action stroke
- Versatile– Diverse crimping inserts can be changed easily and quick
- Lightweight
- Ergonomic plastic grips
- Particular durable: Tested for over 20.000 crimping operations

### Application range

- Ideal service tool



### Info

- Professional tool with interchangeable inserts

### Note

- Please close tool while inserting new dies

### Included

- Article no. 62000100: Mobile Crimp Tool with 1 insert for end sleeves 0,25-10<sup>2</sup> (62000115)
- Article no. 62000105: Only Service tool (without case or insert)
- Article no.62000102: Convenient plastic case for storing the service tool and various inserts

Article number	Article designation	Crimping insert	PU
62000100	MCT incl. insert for end sleeves	Conductor end sleeves 0.25 - 10 mm <sup>2</sup>	1
62000105	MCT without insert		1
62000102	MCT case, empty		1

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

### Accessories

- Mobile crimp tool - crimping inserts refer to page 936

## Mobile crimp tool - crimping inserts



### Benefits

- Crimping inserts are clearly labelled which minimises the risk of confusion
- Stored in the practical module boxes which can be joined together

### Note

- MCT crimping insert RJ45 can only be used for unshielded connectors

### Suitable tools

- Mobile crimp tool crimping pliers refer to page 936

Article number	Article designation	Specification	Specification GB	PU
62000110	MCT insert cable lugs insul. 4300-3129	0.5 - 1.5/1.5 - 2.5 mm <sup>2</sup>	AWG 22-16 / 16-14	1
62000111	MCT insert cable lugs insul. 4300-3128	0.1 - 0.4/4 - 6 mm <sup>2</sup>	AWG 26-22 / 12-10	1
62000112	MCT insert cable lugs non-insul. 4300-3142	0.5 - 2.5/4 - 6 mm <sup>2</sup>	AWG 12-10 / 22-14	1
62000113	MCT insert cable lugs non-insul. 4300-3137	0.75/1.5/2.5 mm <sup>2</sup>		1
62000114	MCT insert cable lugs non-insul. 4300-3139	4 / 6 / 10 mm <sup>2</sup>		1
62000115	MCT insert AEH 4300-3127	0.25 - 10 mm <sup>2</sup>	AWG 24-8	1
62000116	MCT insert AEH 4300-3153	16 - 25 mm <sup>2</sup>	AWG 6-4	1
62000117	MCT insert AEH 4300-3154	35-50 mm <sup>2</sup>	AWG 2-0	1
62000118	MCT insert blade connectors 4300-3150	0.1 - 0.25/0.25 - 0.5/0.5 - 1.0 mm <sup>2</sup>	AWG 26-24 / 24-22 / 22-18	1
62000120	MCT insert blade connectors 4300-3146	0.5 - 1.0/1.5 - 2.5/4 - 6 mm <sup>2</sup>	AWG 22-18 / 16-14 / 12-10	1
62000121	MCT insert LWL 4300-3141	4.52/5.41/3.84/3.25 mm	.178/.213/.151/.128 inch	1
62000122	MCT insert BNC 4300-3140 RG 174/179	4.52/3.25/1.69/0.7 mm	.178/.128/.067/.028 inch	1
62000123	MCT insert BNC 4300-3136 RG 58/59/62/71	1.69/5.41/6.48 mm	.067/.213/.255 inch	1
62000124	MCT insert BNC 4300-3138 RG 6/59	9.14/8.23 mm	.360/.324 inch	1
62000125	MCT insert RJ45 4300-3144	RJ-45 8/8	suitable for unshielded connectors	1
62000126	MCT insert RJ11 4300-3132	RJ-11 6/6, 6/4, 6/2		1
62000127	MCT insert contacts 4300-3147	0.14 - 4 mm <sup>2</sup>	AWG 26-12	1
62000128	MCT insert contacts 4300-3148	6 - 10 mm <sup>2</sup>	AWG 10-8	1

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

## PEW 12 universal tool



### Benefits

- Ensures exact, solder-free electrical connections
- Parallel jaw closing
- Good handling through ergonomic centre of gravity
- One or two-hand operation
- Many different combination possibilities

### Application range

- Compatible with all crimp dies for the PEW 12 hand crimping tool
- For crimping virtually all crimped connections with conductor cross-sections 0,08-95 mm<sup>2</sup>

### Product features

- Chrome-plated pressing pliers

### Included

- Case for 15 crimping dies, 4 locators

Article number	Article designation	Pieces / PU
<b>Pliers</b>		
61813807	PEW 12 burnished without inserts	1
61813819	Case for PEW 12	1

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

### Accessories

- Crimping inserts for PEW 12 system refer to page 938

**New**

## EPEW 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 all crimp dies for the PEW 12 hand crimping tool
- Crimping of ferrules up to 50 mm<sup>2</sup>
- Compatible with all locators, wire stops etc. for the PEW 12 hand crimping tool
- Manifold applications in the cable assembly

### Included

- Supplied in plastic case (500 x 420 x 125 mm)

### Technical data

<b>RAL</b>	<b>Colour delivered</b>
	Green

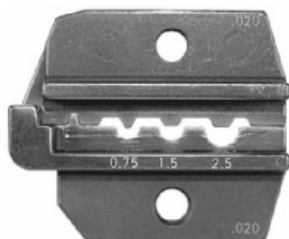
Article number	Article designation	Weight (kg)
61813817	E-PEW 12	4700

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### Accessories

- Crimping inserts for PEW 12 system refer to page 938

## Crimping inserts for PEW 12 system



### ■ Benefits

- Ensure high flexibility: All inserts can be used in PEW 12 (article number 61813807) as well as in E-PEW 12 (article number 61813817) and in crimping machine CM 25 (article number: 11147001)
- Comply with DIN 46237, DIN 46234/46235/46267 and DIN 46 247, 46 345, 46 346

### ■ Note

- On request: other inserts available

Article number	Article designation	Suitable for:	Pressing range (mm <sup>2</sup> )	Crimp dimensions (mm)	Crimp sleeve Ø (mm)	Crimping profile	PU
<b>Conductor end sleeves</b>							
61813802	PEW 12.090	insul. + non-insul. conductor end sleeves	0.5 - 6.0			trapezoid	1
61813803	PEW 12.091	insul. + non-insul. conductor end sleeves	10.0 - 25.0			square	1
61813804	PEW 12.092	insul. + non-insul. conductor end sleeves	35.0 - 50.0			square	1
<b>Cable Lugs</b>							
61813823	PEW 12.020	uninsulated cable lugs	0,5 - 2,5			mandrel pressing	1
61813824	PEW 12.030	uninsulated cable lugs	4.0 - 10.0			w-pressing	1
61813825	PEW 12.031	uninsulated cable lugs	1.5 - 10.0			Hexagonal pressing	1
61813811	PEW 12.032	uninsulated cable lugs	0.5 - 10			mandrel pressing	1
61813862	PEW 12.033	uninsulated cable lugs	16 - 25			mandrel pressing	1
61814605	PEW 12.691	insulated cable lugs	0.5 - 6.0			conical ISO crimp	
61813812	PEW 12.060	insulated cable lugs	0.5 - 6.0			conical ISO crimp	1
<b>Panel connectors (Plugs)</b>							
61814600	PEW 12.045	uninsulated panel connectors 2.8 + 4.8	0.1 - 2.5			roller pressing	1
61813826	PEW 12.063	insulated cable lugs	10.0 - 16.0			mandrel pressing	1
61814601	PEW 12.045 Locator	uninsulated panel connectors 2.8 + 4.8	0.1 - 2.5			roller pressing	1
61813808	PEW 12.050	uninsulated panel connectors 4.8 + 6.3	0.5 - 6.0			roller pressing	1
61813809	PEW 12.050 Locator	uninsulated panel connectors 4.8 + 6.3	0.5 - 6.0			roller pressing	1
61814606	PEW 12.742	uninsulated panel connectors	0,5 - 2,5			roller pressing	1
61814607	PEW 12.745	uninsulated panel connectors	1.25-6			roller pressing	1
<b>Coax connectors</b>							
61813813	PEW 12.100	COAX connector		5.4/6.48/1.72	6.4/7.6/2.1	Hexagonal pressing	1
61813814	PEW 12.11	COAX connector	RG 174, 58	5.4/4.52/1.72	6.4/5.4/2.1	Hexagonal pressing	1
61813827	PEW 12.111	COAX connector		8.23/6.48/1.72/1.07	9.4/7.6/2.1/1.3	Hexagonal pressing	1
61813816	PEW 12.114	COAX connector		10.9/2.54	12.0/3.0	Hexagonal pressing	1
61813818	PEW 12.119	COAX connector		1.75/9.73	2.1/10.7	Hexagonal pressing	1
61813852	PEW 12.158	COAX connector		7.0/8.4/8.1	7.7/9.5/9.5	Hexagonal pressing	1
61813853	PEW 12.159	COAX connector		3.25/4.52/5.4/1.72/1.07/0.72	3.9/5.4/6.4/2.1/1.3/0.95	Hexagonal pressing	1
61813861	PEW 12.772	COAX connector		2.67/3.25/3.83	3.1/3.8/4.2	Hexagonal pressing	1
<b>Other connectors</b>							
61813849	PEW 12.155	Optical fibre (POF) F-SMA/B-FOC (ST)		4.20/3.65/5.0	5.4/4.3/6.0	Hexagonal pressing	1

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## RSK one-piece screen connector

### Benefits

- The four sizes can be identified by the different colours of insulation
- Matching tool inserts have the same colour
- Reduced installation time

### Application range

- One-part screen connector allows screened cables to be connected quickly and permanently

### Norm references / Approvals

- Meets and exceeds the performance requirements of MIL-F-21608

### Product make-up

- To process, insert the connector into the tool, then insert and crimp the screen cable and leads or the earthing clamp.
- When crimped, the connector assumes a round shape and both ends are pushed above each other.

### Technical data

	<b>Material</b> Tinned electrolyte copper Insulation: laminated polyester
	<b>Temperature range</b> -65 °C to +125 °C



- When inserting the screened cable to a connector, ensure that the cable insulation overlaps with the connector's MYLAR® insulation.
- Inside the connector, there is a suspended cover plate for the leads and an insertion for the screened cable.

### Suitable tools

- ERG 740 manual pressing tool refer to page 940

Article number	Article designation	Colour	Shield Ø (mm)	Suitable dies	Pieces / PU
61721340	RSK 5101	red	1.27-2.28	101 A/B	100
61721350	RSK 5201	blue	2.29-3.65	201 C/D/E/F	100
61721360	RSK 5301	yellow	3.66-5.12	301 G/H/J	100
61743200	RSK 5401	green	5.13-7.62	401 K/L/M/N	100

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### Benefits

- For easy determination of the appropriate RSK connector and crimping insert
- Appropriate connector and tool insert is indicated by the notches (insert the stripped end of the cable into the slots located around the gauge)

### Application range

- For the one-piece SHIELD-KON® connectors RSK

## RSK gauge



Article number	Article designation	Pieces / PU
61753760	RSK gauge	1

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## RSK-FLAG connector



### Benefits

- RSK earth clamps are the quick and inexpensive alternative to conventional installation of conductors
- Easy & direct connection of the RSK-FLAG to a piece of earthed equipment thanks to the installation hole

### Application range

- For the one-piece SHIELD-KON® connectors RSK

### Technical data



#### Material

Tinned electrolyte copper

Article number	Article designation	Used for	Hole diameter (mm)	Pieces / PU
61753762	RSK-Flag-B3	RSK 5301/ 5401	M3	100
61753763	RSK-Flag-B4	RSK 5301/ 5401	M4	100
61753764	RSK-Flag-B5	RSK 5301/ 5401	M5	100

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## ERG 740 manual pressing tool



### Benefits

- Metal inserts can be changed easily and quick
- No adjustment of the tool necessary
- Ergonomic plastic handles
- Pressing dies move in parallel to each other, which enables the contorting effect of the RSK connectors

### Application range

- Crimping tool for one-screen SHIELD-KON® connectors RSK

### Included

- Pressing pliers ERG 740
- RSK gauge for easy identification of the connector
- Soft case (245x 210 x 55 mm)
- Bench-mount stand for easier use in volume production

Article number	Article designation	Suitable inserts	Pieces / PU
61753160	ERG 740 case + hand pliers + gauge	Metal	1

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## Crimping inserts for ERG 740



### Benefits

- For medium to high volumes
- Made of hardened steel, therefore no erosion
- Inserts are easy changeable
- Product Ref. is engraved on the upper part and on the lower part of the die set

### Application range

- Tool inserts for SHIELD-KON® one-piece screen connectors RSK, suitable for ERG 740

### Included

- Packaging: 1 die set in a cardboard box with Euroslot (weight: approx. 75 g, packaging size: 45 x 45 x 70 mm)

### Suitable tools

- ERG 740 manual pressing tool refer to page 940

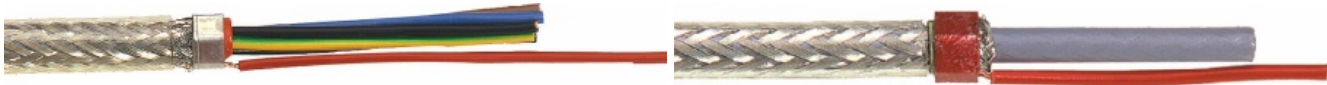
Article number	Article designation	Colour	Shield Ø (mm)	Suitable connectors	Pieces / PU
<b>Metal inserts for ERG 740</b>					
61722835	D-101 A	red	1.27-1.79	RSK 5101	1
61722825	D-101 B	red	1.80-2.28	RSK 5101	1
61722905	D-201 C	blue	2.29-2.55	RSK 5201	1
61722915	D-201 D	blue	2.56-3.00	RSK 5201	1
61722925	D-201 E	blue	3.01-3.34	RSK 5201	1
61743045	D-201 F	blue	3.35-3.65	RSK 5201	1
61722935	D-301 G	yellow	3.66-4.13	RSK 5301	1
61722945	D-301 H	yellow	4.14-4.71	RSK 5301	1
61722875	D-301 J	yellow	4.72-5.12	RSK 5301	1
61743215	D-401 K	green	5.13-5.86	RSK 5401	1
61743225	D-401 L	green	5.87-6.36	RSK 5401	1
61743235	D-401 M	green	6.37-7.00	RSK 5401	1
61743245	D-401 N	green	7.01-7.62	RSK 5401	1

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





## SHIELD-KON® two-part screen connector



### Benefits

- A hard, stable inner sleeve absorbs the pressure and protects the conductor on the inside from mechanical stress
- Soft outer sleeve is deformed in an hexagonal shape and thus 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

- WT 4454 G universal pressing pliers
- SHIELD-KON® two-part crimping accessories refer to page 942

### Technical data



**Material**  
Bronze  
Electrogalvanized



**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)	Pieces / PU
<b>Inner sleeves</b>				
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	GSB5134	orange	3.40 x 4.00	100
61749560	GSB5149	blue	3.78 x 4.54	100
61749570	GSB5156	red	3.96 x 4.90	100
61749580	GSB5165	silver	4.20 x 4.92	100
61749590	GSB5175	green	4.44 x 5.46	100
61749600	GSB5187	yellow	4.75 x 5.76	100
61749610	GSB5194	blue	4.93 x 5.76	100
61749620	GSB5205	orange	5.20 x 6.22	100
61749630	GSB5219	silver	5.56 x 6.35	100
61749640	GSB5225	yellow	5.71 x 6.50	100
61749650	GSB5232	red	5.90 x 6.70	100
61749660	GSB5250	green	6.35 x 7.14	100
61749670	GSB5261	blue	6.63 x 7.54	100
61749680	GSB5266	silver	6.75 x 7.54	100
61749690	GSB5275	orange	6.98 x 7.77	100
61749700	GSB5281	yellow	7.14 x 8.40	100
61749710	GSB5287	silver	7.29 x 8.30	100
61749720	GSB5297	red	7.54 x 8.50	100
61749730	GSB5312	purple	7.92 x 9.20	100
61749740	GSB5348	orange	8.84 x 10.20	100
61749750	GSB5375	blue	9.52 x 10.30	100
<b>Outer sleeves</b>				
61749810	GSC 101	silver	2.56 x 3.16	100
61749820	GSC 128	blue	3.25 x 3.86	100
61749830	GSC 149	purple	3.78 x 4.54	100
61749840	GSC 156	yellow	3.96 x 4.90	100
61749850	GSC 175	blue	4.40 x 5.46	100
61749860	GSC 187	orange	4.75 x 5.76	100
61749870	GSC 194	red	4.93 x 5.79	100
61749880	GSC 199	silver	5.05 x 5.97	100
61749890	GSC 205	yellow	5.20 x 6.22	100
61749900	GSC 219	green	5.56 x 6.35	100
61749910	GSC 225	purple	5.71 x 6.50	100
61749920	GSC 232	orange	5.90 x 6.70	100
61749930	GSC 261	yellow	6.63 x 7.54	100
61749940	GSC 275	silver	6.98 x 7.77	100
61749950	GSC 281	purple	7.14 x 8.40	100
61749960	GSC 287	blue	7.29 x 8.30	100
61749970	GSC 297	green	7.54 x 8.50	100
61749980	GSC 312	yellow	7.92 x 9.20	100
61749990	GSC 327	silver	8.30 x 9.45	100
61750000	GSC 348	orange	8.84 x 9.98	100
61750010	GSC 359	purple	9.12 x 10.13	100
61750020	GSC 375	yellow	9.52 x 10.30	100
61750030	GSC 405	red	10.28 x 11.50	100
61750040	GSC 415	blue	10.54 x 11.76	100
61750050	GSC 425	silver	10.80 x 12.06	100
61750060	GSC 5460	silver	11.68 x 12.95	100
61750070	GSC 5500	green	12.70 x 14.60	100

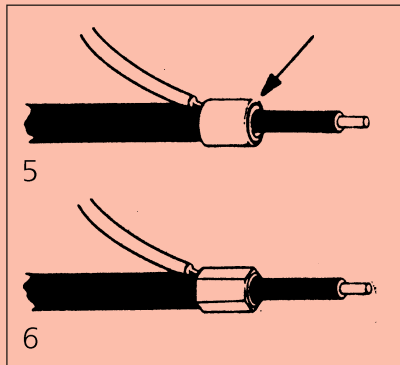
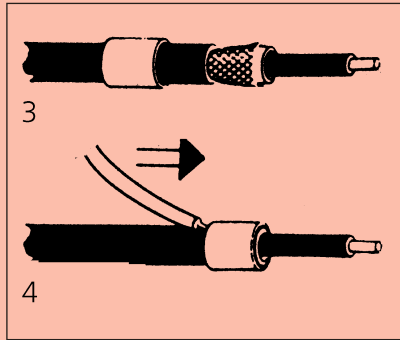
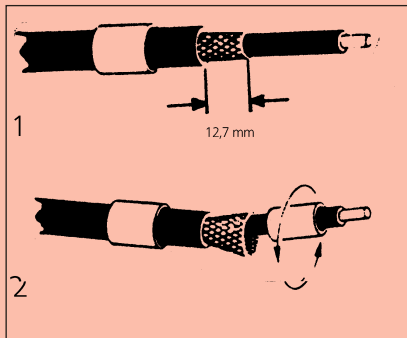
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**SHIELD-KON® two-part screen connector**

**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 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 outer sleeve and make sure that ends of all wires in the screen braiding and the outer conductor are hidden.
6. Crimp both sleeves.



**Which inner sleeve to which outer sleeve??**

**Inner sleeve GSB:**

Define the maximum outer diameter of the inner sheath under the braid/screen. Select from the chart the matching inner sleeve (outer diameter inner sheath = inner diameter inner sleeve). In case of in-between values, please select the next size.

**Outer sleeve GSC:**

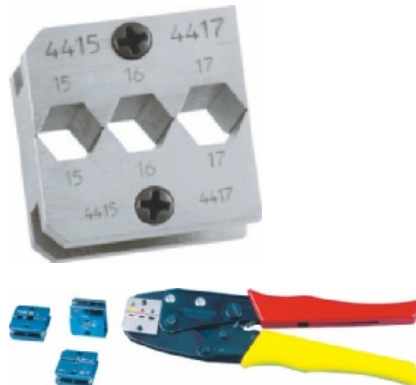
Add 1.5-2 mm to the outer diameter of the selected inner sleeve and then select the outer sleeve (resulting diameter after addition = inner diameter of outer sleeve).

**Press insert:**

By means of the selected outer sleeve, you can now determine the appropriate press insert.



**SHIELD-KON® two-part crimping accessories**



**Benefits**

- Manual pressing pliers with removable press matrices for two-part SHIELD-KON®connectors
- Integrated forced lock only allows the tool to be opened after it has completely closed (emergency opening possible)
- Appropriate press insert can be determined by using the selected outer sleeve

**Product make-up**

- Crimping profile: Hexagonal

**Included**

- Article number 61743920: Pliers without case and without pressing dies
- Article number 61792250: Empty case with space for 12 inserts
- Crimping inserts have to be ordered separately

Article number	Article designation	Suitable for outer sheaths	Pieces / PU
<b>Crimping tool</b>			
61743920	WT 4454 G		1
<b>Accessories crimping tool</b>			
61792250	WT case for WT 4454 G		1
<b>Crimping dies</b>			
61789480	4419-4403 G	GSC 101 / 128 / 149 / 156 / 175	1
61789490	4406-4410 G	GSC 187 / 194 / 199 / 205 / 219 / 225 / 232	1
61789500	4411-4414 G	GSC 261 / 275 / 281 / 287 / 297	1
61789510	4415-4417 G	GSC 312 / 327 / 348	1
61789520	5450-5451 G	GSC 359 / 375	1
61789530	5452 G	GSC 405 / 415	1
61789540	5454 G	GSC 425	1
61789550	5456 G	GSC 460	1
61789560	5457 G	GSC 500	1

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 Crimping inserts on picture of WT 4454 G are not depicting the SHIELD-KON®inserts, they are depicted in an extra picture



## Temflex™ 1500 insulating tape

### Benefits

- Waterproof
- Adhesive on one side

### 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

**Material**  
 PVC  
 Resistant to most solvents

**Temperature range**  
 -10 °C to +90 °C



Article number	Article designation	Colour	Length (m) x tape width (mm) x thickness (mm)	Material	Pieces / PU
61721040	Temflex 1015	white	10 x 15 x 0.15	PVC	10
61721030	Temflex 1015	black	10 x 15 x 0.15	PVC	10
61721050	Temflex 1015	green	10 x 15 x 0.15	PVC	10
61721060	Temflex 1015	blue	10 x 15 x 0.15	PVC	10
61721070	Temflex 1015	red	10 x 15 x 0.15	PVC	10
61721080	Temflex 1015	GN-YE	10 x 15 x 0.15	PVC	10
61721045	Temflex 1015	yellow	10 x 15 x 0.15	PVC	10
61721090	Temflex 2515	black	25 x 15 x 0.15	PVC	10
61721100	Temflex 2515	white	25 x 15 x 0.15	PVC	10
61721110	Temflex 2515	blue	25 x 15 x 0.15	PVC	10
61721120	Temflex 2515	red	25 x 15 x 0.15	PVC	10
61721130	Temflex 2515	green	25 x 15 x 0.15	PVC	10
61721140	Temflex 2525	black	25 x 25 x 0.15	PVC	10

Temflex™ 1183 is a registered trademark of 3M  
 Photographs are not to scale and do not represent detailed images of the respective products.



## 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)

### Technical data

**Colour delivered**  
 White

**Material**  
 Non-adhesive fluoropolymer tape

**Temperature range**  
 -160°C to +250°C



Article number	Article designation	Colour	Length (m) x tape width (mm) x thickness (mm)	Material	Pieces / PU
61713080	TI 1212 insulating tape	white	12 x 12 x 0.1	PTFE	10

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

**Insulating, protecting, shrinking**

Insulating tapes and insulating sheaths



## TBTA self-amalgamating tape



**Benefits**

- Contains a dense insulation layer with fault-free electrical stability and permanent resistance to the ingress of humidity, for example to protect and insulate contact rails and associated assembly elements

**Application range**

- Insulating tapes and self-amalgamating tape

**Technical data**

- Caution**  
Insulation and sheathing of cables and connections up to 65 kV
- General**  
Stretch ratio: 3:1
- Info**  
Offers UV and ozone protection
- Colour delivered**  
Black
- Material**  
Based on ethylene propylene rubber
- Temperature range**  
-55°C to +105°C

Article number	Article designation	Length (m) x tape width (mm) x thickness (mm)	Pieces / PU
61810210	TBTA-ZH-19	9 x 19 x 0.76	1
61810220	TBTA-ZH-25	9 x 25 x 0.76	1
61810230	TBTA-ZH-38	9 x 38 x 0.76	1

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



## 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
- Dielectric strength: 18 kV/mm

**Technical data**

- Material**  
Silicone  
UV-resistant
- Temperature range**  
-60°C to +200°C

Article number	Article designation	Colour	Internal Ø x wall thickness (mm)	Material	PU (m)
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

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



## Insulating tube ISY



### Application range

- Insulating tube
- For insulation of connections

### Product features

- Smooth surface

### Norm references / Approvals

- IEC 60684-3-100/DIN 40621

### Note

- Not suitable for shrinking
- Dielectric strength: 14 kV/mm

### Product make-up

- Colours: black RAL 9005, white similar to RAL 9003

### Technical data

	<b>Info</b> Without fabric
	<b>Colour delivered</b> Black and white
	<b>Material</b> Soft PVC
	<b>Temperature range</b> -20°C - +85°C

Article number	Article designation	Colour	Internal Ø x wall thickness (mm)	Material	PU (m)
61793030	ISY 2	black	2.00 x 0.40	PVC	1,000
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

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



## Copper braid



### Application range

- EMC-compliant screening
- Can be used as earthing tape
- Automotive industry

### Norm references / Approvals

- ISO-TS approved

### Product make-up

- Three available sizes: Cover a diameter range from 1 to 20 mm
- Variable diameter by tightening the braid

### Suitable conduits

- SILVYN® EMC AS-CU Page 822

### Technical data



#### 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	For mm <sup>2</sup>	Approx. Ø range in mm	Number of wires x Ø (mm)	Weight (kg)	PU (m)
61721370	CU 14	1.32	1 - 4	24 x 7 x 0,10	1.2	100.0
61721380	CU 410	4.14	4 - 10	24 x 22 x 0,10	3.9	100.0
61721390	CU 1020	8.29	10 - 20	48 x 22 x 0,10	7.6	100.0

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



## 3M Scotch™ 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



#### 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 ohms



#### 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)
61721420	3M Scotch 1183 / 9x16,5	9	16.5
61721421	3M Scotch 1183 / 12x16,5	12	16.5
61721422	3M Scotch 1183 / 19x16,5	19	16.5
61721423	3M Scotch 1183 / 25x16,5	25	16.5

Scotch™ 1183 is a registered trademark of 3M

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

### Accessories

- SKINTOP® MS-SC-M refer to page 674
- SKINTOP® MS-SC refer to page 733



**HOTY heat-shrink tube**



**Technical data**

**Info**  
Shrinking ratio: 2:1

**Colour delivered**  
Black- UV-resistant

**Material**  
PVC

**Test voltage**  
Dielectric strength: 20 kV/mm

**Temperature range**  
-20°C to +90°C  
Shrinking temperature: +120°C

- Benefits**
- Well-priced
  - Good weather and UV-resistance
  - Flame-retardant
  - Safe transport is secured via light pressure
- Application range**
- HOTY heat-shrink tubing is used for protecting and insulating contacts, cable lugs, connectors etc.

- Norm references / Approvals**
- Flame-retardant according to UL94 VO
- Note**
- Storage temperature: max. +18°C
- Suitable tools**
- HG 2310 LCD hot-air pistol refer to page 953

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	PU (m)
61716700	HOTY 1	2.5	1.2 - 2.5	0.4	100.0
61716720	HOTY 2	4.0	2.0 - 4.0	0.5	100.0
61716740	HOTY 3	6.0	3.0 - 6.0	0.5	100.0
61716760	HOTY 4	7.0	4.0 - 7.0	0.5	100.0
61716780	HOTY 6	11.0	6.0 - 11.0	0.6	100.0
61716800	HOTY 8	14.0	8.0 - 14.0	0.6	100.0
61716820	HOTY 10	17.0	10.0 - 17.0	0.8	100.0
61716840	HOTY 13	20.0	13.0 - 20.0	1.0	100.0
61716860	HOTY 16	25.0	16.0 - 25.0	1.0	50.0
61716880	HOTY 20	31.0	20.0 - 31.0	1.0	50.0

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



**PLG - HSB box shrink tube**



- Benefits**
- Convenient amount of heatshrink, for small users
  - Flexible, rapid shrinkage, non-melting for effective electrical insulation
  - Stackable boxes for easy storage
  - Flame-retardant
- Application range**
- General purpose, flexible heat shrink tubing for protection, insulation and bundling
- Suitable tools**
- HG 2310 LCD hot-air pistol refer to page 953

**Technical data**

**Note**  
Good chemical resistance  
Thin walled

**Info**  
Shrinking ratio: 2:1  
Length change during shrinking: maximum ±10 %

**Colour delivered**  
Black- UV-resistant  
Transparent - halogen-free

**Material**  
Cross-linked polyolefin, Silicone, Cadmium and Lead free

**Temperature range**  
-55°C to +125°C  
Shrinking temperature: +110°C

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	Contents (m)	PU
<b>Black</b>						
61752220	HSB 46-0	1.2	1.2 - 0.6	0.4	12.0	1
61752230	HSB 63-0	1.6	1.6 - 0.8	0.4	12.0	1
61752240	HSB 93-0	2.4	2.4 - 1.2	0.5	11.5	1
61752250	HSB 125-0	3.2	3.2 - 1.6	0.5	11.5	1
61752260	HSB 187-0	4.7	4.7 - 2.4	0.5	9.5	1
61752270	HSB 250-0	6.4	6.4 - 3.2	0.6	7.5	1
61752280	HSB 375-0	9.5	9.5 - 4.8	0.6	6.5	1
61752290	HSB 500-0	12.7	12.7 - 6.4	0.7	6.0	1
61752300	HSB 750-0	19.1	19.1 - 9.5	0.7	5.0	1
61752310	HSB 1000-0	25.4	25.4 - 12.7	0.8	3.3	1
<b>transparent</b>						
61752830	HSB 46-C	1.2	1.2 - 0.6	0.4	12.0	1
61752840	HSB 63-C	1.6	1.6 - 0.8	0.4	12.0	1
61752850	HSB 93-C	2.4	2.4 - 1.2	0.5	11.5	1
61752860	HSB 125-C	3.2	3.2 - 1.6	0.5	11.5	1
61752870	HSB 187-C	4.7	4.7 - 2.4	0.5	9.5	1
61752880	HSB 250-C	6.4	6.4 - 3.2	0.6	7.5	1
61752890	HSB 375-C	9.5	9.5 - 4.8	0.6	6.5	1
61752900	HSB 500-C	12.7	12.7 - 6.4	0.7	6.0	1
61752910	HSB 750-C	19.1	19.1 - 9.5	0.7	5.0	1
61752920	HSB 1000-C	25.4	25.4 - 12.7	0.8	3.3	1

Other colours are available upon request.

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



## TBW / TBM shrink tube



### 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

### Norm references / Approvals

- Meets requirements of ESI 09-11

### Product make-up

- TBW = thick wall
- TBM = medium wall

### Included

- Cartons with 1.22 m units

### Suitable tools

- HG 2310 LCD hot-air pistol refer to page 953

### Technical data

- Note**  
Non flame-retardant  
Double-walled
- Info**  
Shrinking ratio: 3:1  
Good UV-resistance
- Material**  
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside  
Halogen-free
- Temperature range**  
-55°C to +110°C  
Shrinking temperature: +120°C

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	Pieces / PU
61810080	TBW 0350	8.9	3.0	1.8	5.0
61810090	TBW 0750	19.1	6.1	2.4	5.0
61810100	TBW 1500	38.1	11.9	4.1	2.0
61810110	TBW 2000	50.8	16.0	4.1	1.0
61810130	TBW 4700	119.9	39.9	4.3	1.0
61810140	TBM 0750	19.1	5.6	2.0	5.0
61810150	TBM 1100	27.9	10.2	2.0	3.0
61810160	TBM 1500	38.1	12.7	2.0	2.0
61810170	TBM 2050	52.1	19.1	2.0	1.0
61810180	TBM 3500	88.9	30.0	2.4	1.0
61810190	TBM 6700	170.2	58.4	2.8	1.0
61810200	TBM 9000	228.6	77.0	3.0	1.0

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





## CMP shrink tube



### Benefits

- Various approvals for North America
- Flame-retardant

### Application range

- General purpose, flexible heat shrink tubing for protection, insulation and bundling

### Norm references / Approvals

- UR File Number: E79546
- CSA File Number: 702106
- UL 224 approval
- Meet requirements of EN 606843

### Note

- Not resistant against engine oils

### Product make-up

- Other colours are available upon request
- Red-2, yellow-4, white-9, blue-6, transparent-C.
- Article designation e.g. red-2: CMP 46-2-A

### Included

- Cartons with 1.22 m units

### Suitable tools

- HG 2310 LCD hot-air pistol refer to page 953

### Technical data

- General**  
Thin walled
- Note**  
Dielectric strength: 20 kV/mm  
Length change during shrinking: maximum ± 10 %
- Info**  
Shrinking ratio: 2:1  
Shrinking ratio: 2:1
- Colour delivered**  
Black
- Material**  
Cross-linked polyolefin, Silicone, Cadmium and Lead free
- Temperature range**  
-55 °C to +125 °C  
Shrinking temperature: +110 °C

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	PU (m)	Pieces / PU
61744530	CMP 46-0-A	1.2	1.2 - 0.6	0.4	30.5	1
61744540	CMP 63-0-A	1.6	1.6 - 0.8	0.4	30.5	1
61744550	CMP 93-0-A	2.4	2.4 - 1.2	0.5	30.5	1
61744560	CMP 125-0-A	3.2	3.2 - 1.6	0.5	30.5	1
61744570	CMP 187-0-A	4.7	4.7 - 2.4	0.5	30.5	1
61744580	CMP 250-0-A	6.4	6.4 - 3.2	0.6	30.5	1
61744590	CMP 375-0-A	9.5	9.5 - 4.8	0.6	30.5	1
61744600	CMP 500-0-A	12.7	12.7 - 6.4	0.7	30.5	1
61744610	CMP 750-0-A	19.1	19.1 - 9.5	0.7	12.2	1
61744620	CMP 1000-0-A	25.4	25.4 - 12.7	0.8	12.2	1

Other colours are available upon request (see description).  
Photographs are not to scale and do not represent detailed images of the respective products.

Insulating, protecting, shrinking

Heat-shrinking products



**GYS shrink tube**



**Benefits**

- Good weather-resistance
- Flame-retardant

**Application range**

- For identifying and marking earthing connectors and cables
- Mechanical and electrical insulation, corrosion protection

**Norm references / Approvals**

- Meets MIL-DTL-23053/5 requirements, Class 1 and Class 2

**Note**

- Non halogen-free

**Product make-up**

- Green-yellow polyolefin shrink-tubing

**Included**

- Cartons with 1.22 m units

**Technical data**



**General**

Dielectric strength: 20 kV/mm  
UV-resistant



**Info**

Shrinking ratio: 2:1  
Length change during shrinking: maximum ± 10 %



**Colour delivered**

green/yellow



**Material**

Cross-linked polyolefin, Silicone, Cadmium and Lead free



**Temperature range**

-55°C to +135°C  
Shrinking temperature: +90°C

**Suitable tools**

- HG 2310 LCD hot-air pistol refer to page 953

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	PU (m)	Pieces / PU
61744535	GYS 125-E-A	3.2	3.2 - 1.6	0.5	30.5	1
61744545	GYS 187-E-A	4.8	4.8 - 2.4	0.5	30.5	1
61744555	GYS 250-E-A	6.4	6.4 - 3.2	0.6	30.5	1
61744565	GYS 375-E-A	9.5	9.5 - 4.8	0.6	30.5	1
61744575	GYS 500-E-A	12.7	12.7 - 6.4	0.6	30.5	1
61744585	GYS 750-E-A	19.0	19.0 - 9.5	0.7	12.2	1
61744595	GYS 1000-E-A	25.4	25.4 - 12.7	0.8	12.2	1

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



**PKG shrink tube**



**Benefits**

- Heat-resistant
- 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

**Included**

- Cartons with 0.6 m units

**Suitable tools**

- HG 2310 LCD hot-air pistol refer to page 953

**Technical data**



**Note**

Dielectric strength: 10 kV/mm



**Info**

Shrinking ratio: 3:1  
Length change during shrinking: maximum ± 10 %



**Colour delivered**

Black



**Material**

Cross-linked modified polyolefin, with thermoplastic adhesive coating inside (EVA)  
Silicone, Cadmium and Lead free



**Temperature range**

-55°C to +110°C  
Shrinking temperature: +90°C

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +/- 0.1 mm	PU (m)	Pieces / PU
61810850	PKG 0301-0-C	3.0	3.0 - 1.0	1.0	12.0	1
61810860	PKG 0602-0-C	6.0	6.0 - 2.0	1.0	9.0	1
61810870	PKG 0903-0-C	9.0	9.0 - 3.0	1.4	6.0	1
61810890	PKG 1204-0-C	12.0	12.0 - 4.0	1.8	5.4	1
61810900	PKG 1806-0-C	18.0	18.0 - 6.0	2.2	3.6	1
61810910	PKG 2408-0-C	24.0	24.0 - 8.0	2.5	3.0	1
61810920	PKG 4013-0-C	40.0	40.0 - 13.0	2.5	2.4	1

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

For current information see: [www.lappgroup.com](http://www.lappgroup.com)



**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 seepage of moisture and contaminants

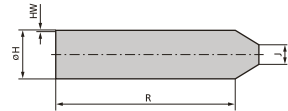
**Norm references / Approvals**

- Protection rating: IP67

**Technical data**

- 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

**TEC sealing cap**



Article number	Article description	H min. (mm)	H max. (mm)	J max. (mm)	Cable Ø (mm)	R* after shrinking (mm)	Panel thickness HW* (mm)	Pieces / PU
61830000	TEC 15/4,5	15.0	4.5	4.0	5.0 - 12.0	30.0	2.0	10.0
61830010	TEC 25/9	25.0	9.0	6.5	10.0 - 22.0	50.0	2.3	10.0
61830020	TEC 36/15	36.0	15.0	10.5	17.0 - 30.0	80.0	3.0	10.0
61830040	TEC 55/25	55.0	25.0	16.0	28.0 - 47.0	130.0	3.3	10.0
61830050	TEC 80/40	80.0	40.0	17.0	45.0 - 70.0	150.0	4.0	10.0
61830060	TEC 102/60	102.0	60.0	26.0	68.0 - 90.0	140.0	4.0	10.0
61830070	TEC 148/57	148.0	57.0	27.0	80.0 - 133.0	105.0	3.3	10.0

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



**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

**Norm references / Approvals**

- Protection rating: IP67

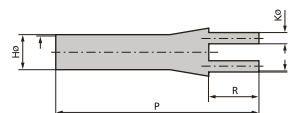
**Product make-up**

- Double-walled

**Technical data**

- 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

**TEB branch muff**



Article number	Article description	Number of branches	H min. (mm)	H max. (mm)	K min. (mm)	K max. (mm)	P* (mm)	R** (mm)	Pieces / PU
61830110	TEB 2-30/12	2.0	30.0	9.4	12.0	4.1	84.6	27.0	10.0
61830120	TEB2-50/21	2.0	50.0	24.0	21.0	7.0	107.1	30.6	1.0
61830130	TEB3-60/24	3.0	60.0	22.0	24.0	8.0	185.0	45.0	1.0
61830140	TEB4-38/11	4.0	38.0	14.0	11.0	4.0	110.0	20.0	1.0
61830150	TEB4-55/20	4.0	55.0	22.0	20.0	8.5	190.0	45.0	1.0
61830160	TEB4-72/25	4.0	72.0	22.0	25.0	8.5	190.0	45.0	1.0
61830170	TEB4-100/35	4.0	100.0	33.0	35.0	14.0	215.0	50.0	1.0

\*after shrinking +/- 10%; \*\*after shrinking +/- 20%

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



## SHRINK-KON® shrink tube set



### Benefits

- Convenient plastic kit with PLG shrink tubes including hot air pistol
- Flame-retardant

### Application range

- For repair and maintenance, for small series production and in research and development

### Note

- Shrink tubes are available as refill packs

### Included

- The shrink set in a practical case
- Assortment of common shrinking tube sizes of type PLG (in total 23 types, 9 different sizes and 6 different colours)
- With hot air pistol

Article number	Article description	Max. heating capacity	Attainable air temperature	Pieces / PU
61753180	SK 1400 G Shrink-Kon case with hot-air pistol	2,000.0	650.0	1.0

SHRINK-KON® is a registered trademark of Thomas & Betts  
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- SHRINK-KON® set refill packs refer to page 952



## SHRINK-KON® set refill packs



### Benefits

- Refill packs of SHRINK-KON® Set

### Technical data

<b>Z<sub>∞</sub></b>	<b>Info</b> Shrinking ratio: 2:1
<b>⊕</b>	<b>Material</b> Cross-linked polyolefin, Silicone, Cadmium and Lead free Transparent - halogen-free
<b>0+T</b>	<b>Temperature range</b> -55°C to +125°C Shrinking temperature: +110°C

Article number	Article designation	Colour	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk in mm	Piece x cm / PU	Pieces / PU
61753190	PLG 63-0-5R	black	1.6	0.8 - 1.6	0.4	50 x 5	1
61753200	PLG 63-C-5R	transparent	1.6	0.8 - 1.6	0.4	50 x 5	1
61753210	PLG 93-0-5R	black	2.4	1.2 - 2.4	0.5	50 x 5	1
61753220	PLG 93-C-5R	transparent	2.4	1.2 - 2.4	0.5	50 x 5	1
61753260	PLG 125-0-10R	black	3.2	1.6 - 3.2	0.5	25 x 10	1
61753250	PLG 125-C-10R	transparent	3.2	1.6 - 3.2	0.5	25 x 10	1
61753230	PLG 125-9-10R	white	3.2	1.6 - 3.2	0.5	25 x 10	1
61753240	PLG 125-4-10R	yellow	3.2	1.6 - 3.2	0.5	25 x 10	1
61753270	PLG 187-0-10R	black	4.7	2.4 - 4.7	0.5	25 x 10	1
61753300	PLG 187-C-5R	transparent	4.7	2.4 - 4.7	0.5	40 x 5	1
61753290	PLG 187-4-5R	yellow	4.7	2.4 - 4.7	0.5	40 x 5	1
61753280	PLG 187-6-5R	blue	4.7	2.4 - 4.7	0.5	40 x 5	1
61753320	PLG 250-0-10R	black	6.4	3.2 - 6.4	0.6	20 x 10	1
61753330	PLG 250-9-5R	white	6.4	3.2 - 6.4	0.6	40 x 5	1
61753340	PLG 250-4-5R	yellow	6.4	3.2 - 6.4	0.6	40 x 5	1
61753310	PLG 250-6-10R	blue	6.4	3.2 - 6.4	0.6	20 x 10	1
61753350	PLG 375-0-10R	black	9.5	4.7 - 9.5	0.6	15 x 10	1
61753360	PLG 375-6-10R	blue	9.5	4.7 - 9.5	0.6	15 x 10	1
61753380	PLG 500-0-18R	black	12.7	6.4 - 12.7	0.6	8 x 18	1
61753370	PLG 500-2-10R	red	12.7	6.4 - 12.7	0.6	15 x 10	1
61753400	PLG 750-0-18R	black	19.1	9.5 - 19.1	0.8	6 x 18	1
61753390	PLG 750-6-10R	blue	19.1	9.5 - 19.1	0.8	10 x 10	1
61753410	PLG 1000-0-18R	black	25.4	12.7 - 25.4	0.9	3 x 18	1

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



## HG 2310 LCD hot-air pistol



### Benefits

- Individual adaptation of the four preset programs
- Four programmes are preset in the factory
- Optical LCD temperature and speed display
- High-performance, electronically regulated professional hot-air blower with continuous air flow and temperature regulation and LCD display

### Application range

- Robust housing for manual and stationary operation.
- Control cabinets and equipment wiring

### Product features

- Adjustable temperature setting
- Double protection against overheating - thermostat and thermal fuse
- Air inlet with mesh to protect against coarse impurities
- Adjustable speed setting

### Product make-up

- Soft grip and soft stand for secure hold
- Set-button: for changing pre-adjusted programmes
- Programs: set ex-works

### Included

- Hot-air pistol, reflector set, case

Article number	Article description	Max. heating capacity	Attainable air temperature	Pieces / PU
61801245	HG 2310 LCD incl. reflector + case	2,300.0	650.0	1.0

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

### Accessories

- PLG - HSB box shrink tube refer to page 947
- TBW / TBM shrink tube refer to page 948



## KW plastic coil



### Technical data

- General**  
UV-resistant
- Material**  
Polyamide - black  
Polyethylen - nature
- Temperature range**  
-40 °C to +90 °C

### 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

### Norm references / Approvals

- Flammability class: UL 94 V-0

Article number	Article description	Colour / bundle Ø (mm)	PU (m)
<b>KW plastic coil</b>			
61600010	Plastic spiral KW 2	natural / 2 - 7	50
61600015	Plastic spiral KW 2	black / 2 - 7	50
61600040	Plastic spiral KW 5	natural / 5 - 20	30
61600045	Plastic spiral KW 5	black / 5 - 20	25
61600050	Plastic spiral KW 5	yellow / 5 - 20	25
61600070	Plastic spiral KW 10	natural / 10 - 40	30
61722840	Plastic spiral KW 10	black / 10 - 40	25
61600080	Plastic spiral KW 10	yellow / 10 - 40	25

Other sizes and colours are available upon request.

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

### Accessories

- Coiling tool spirals refer to page 954



## Coiling tool spirals



### Application range

- Fr winding coils
- No time-consuming preparation and installation

Article number	Article description	Pieces / PU
61759940	Winding tool	1

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



## Cable-Eater bunched cable conduit



### Benefits

- The cable eater offers the ideal solution for bundling cable/wires.

### Application range

- The main fields of application include the bundling and protection of cables in cable pre-assembly, the electrical industry and switch cabinet and plant construction.

### Included

- Suitable insertion tool
- SHR protective cable conduit

### Technical data

<b>i</b> Note	Halogen-free Flame-retardant according to UL 94 HB
<b>RAL</b> Colour delivered	White Black
<b>Material</b>	Polypropylene (PP)

Article number	Article description	Colour / bundle Ø (mm)	Inner Ø (mm)	Panel thickness (mm)	Processing tool/installation tool	PU (m)
61830300	SHR-08-PPB	black / 6 - 9	8.0	0.8	STKP 8	100
61830310	SHR-15-PPB	black / 10 - 16	15.0	0.8	STKP 15	50
61830320	SHR-20-PPB	black / 17 - 21	20.0	0.9	STKP 20	30
61830330	SHR-25-PPB	black / 21 - 28	25.0	1.0	STKP 25	20
61830302	SHR-08-PPW	white / 6 - 9	8.0	0.8	STKP 8	100
61830312	SHR-15-PPW	white / 10 - 16	15.0	0.8	STKP 15	50
61830322	SHR-20-PPW	white / 17 - 21	20.0	0.9	STKP 20	30
61830332	SHR-25-PPW	white / 21 - 28	25.0	1.0	STKP 25	20

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

### Accessories

- Spare tool Cable - Eater refer to page 954

## Spare tool Cable - Eater



### Application range

- Cable pull-in tool for SILVYN® RILL PA6 SINUS and Cable-Eater

### Suitable conduits

- SILVYN® RILL PA6 SINUS Page 818

Article number	Article description	Pieces / PU
<b>Cable Eater tool</b>		
61830340	STKP 8	1
61830350	STKP 15	1
61830360	STKP 20	1
61830370	STKP 25	1

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



## Basic Tie cable tie



### Benefits

- Good UV-resistance of the black cable tie
- High resistance to bases, oils, greases, oil derivatives, solvents containing chlorine

### Application range

- Multipurpose cable tie for many applications

### Product features

- Flame retardancy: UL 94 class V2
- Water absorption: 2.5 % (50 % relative humidity)

### Norm references / Approvals

- E-File Number: E 86244 (M)

### Note

- Not resistant to phenols
- Limited resistance to acids



### Info

- The standard cable ties for many applications

### Technical data



#### General

Dielectric strength:  
50,000 volts/mm  
For higher tensile strength



#### Note

Melting point: +256 °C



#### Material

Polyamide 6.6 - halogen-free



#### Temperature range

-40 °C to +85 °C  
Max. temperature: +110 °C (short-term)

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	PU
<b>natural</b>						
61831001	Basic Tie 98x2.5 nat.	yes	98.0 x 2.5	1.0 - 21.0	80	1,000
61831003	Basic Tie 160x2.6 nat.	yes	160.0 x 2.6	1.0 - 40.0	80	1,000
61831004	Basic Tie 200x2.6 nat.	yes	200.0 x 2.6	1.0 - 52.0	80	1,000
61831005	Basic Tie 140x3.6 nat.	yes	140.0 x 3.6	2.0 - 35.0	130	1,000
61831006	Basic Tie 200x3.6 nat.	yes	200.0 x 3.6	2.0 - 50.0	130	1,000
61831007	Basic Tie 290x3.6 nat.	yes	290.0 x 3.6	2.0 - 80.0	130	500
61831013	Basic Tie 370x3.6 nat.	yes	370.0 x 3.6	2.0 - 103.0	130	100
61831009	Basic Tie 160x4.5 nat.	yes	160.0 x 4.5	2.5 - 40.0	220	1,000
61831011	Basic Tie 200x4.8 nat.	yes	200.0 x 4.8	3.0 - 50.0	220	1,000
61831014	Basic Tie 290x4.8 nat.	yes	290.0 x 4.8	3.5 - 79.0	220	100
61831016	Basic Tie 360x4.8 nat.	yes	360.0 x 4.8	3.5 - 103.0	220	100
61831020	Basic Tie 240x7.8 nat.	yes	240.0 x 7.8	3.5 - 63.0	540	100
61831021	Basic Tie 300x7.8 nat.	yes	300.0 x 7.8	4.0 - 80.0	540	100
61831022	Basic Tie 365x7.8 nat.	yes	365.0 x 7.8	8.0 - 100.0	540	100
61831023	Basic Tie 450x7.8 nat.	yes	450.0 x 7.8	35.0 - 130.0	540	100
61831024	Basic Tie 540x7.8 nat.	yes	540.0 x 7.8	35.0 - 158.0	540	100
61831025	Basic Tie 750x7.8 nat.	yes	750.0 x 7.8	35.0 - 200.0	540	100
61831026	Basic Tie 780x9.0 nat.	yes	780.0 x 9.0	32.0 - 233.0	700	100
<b>Black- UV-resistant</b>						
61831041	Basic Tie 98x2.5 bk	yes	98.0 x 2.5	1.0 - 21.0	80	1,000
61831043	Basic Tie 160x2.6 bk	yes	160.0 x 2.6	1.0 - 40.0	80	1,000
61831044	Basic Tie 200x2.6 bk	yes	200.0 x 2.6	1.0 - 52.0	80	1,000
61831045	Basic Tie 140x3.6 bk	yes	140.0 x 3.6	2.0 - 35.0	130	1,000
61831046	Basic Tie 200x3.6 bk	yes	200.0 x 3.6	2.0 - 50.0	130	1,000
61831047	Basic Tie 290x3.6 bk	yes	290.0 x 3.6	2.0 - 80.0	130	500
61831053	Basic Tie 370x3.6 bk	yes	370.0 x 3.6	2.0 - 103.0	130	100
61831049	Basic Tie 160x4.5 bk	yes	160.0 x 4.5	2.5 - 40.0	220	1,000
61831051	Basic Tie 200x4.8 bk	yes	200.0 x 4.8	3.0 - 50.0	220	1,000
61831054	Basic Tie 290x4.8 bk	yes	290.0 x 4.8	3.5 - 79.0	220	100
61831056	Basic Tie 360x4.8 bk	yes	360.0 x 4.8	3.5 - 103.0	220	100
61831060	Basic Tie 240x7.8 bk	yes	240.0 x 7.8	3.5 - 63.0	540	100
61831061	Basic Tie 300x7.8 bk	yes	300.0 x 7.8	4.0 - 80.0	540	100
61831062	Basic Tie 365x7.8 bk	yes	365.0 x 7.8	8.0 - 100.0	540	100
61831063	Basic Tie 450x7.8 bk	yes	450.0 x 7.8	35.0 - 130.0	540	100
61831064	Basic Tie 540x7.8 bk	yes	540.0 x 7.8	35.0 - 158.0	540	100
61831065	Basic Tie 750x7.8 bk	yes	750.0 x 7.8	35.0 - 200.0	540	100
61831066	Basic Tie 780x9.0 bk	yes	780.0 x 9.0	32.0 - 233.0	700	100

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

### Accessories

- BASIC cable tie pliers refer to page 964



## Twist Tail™ cable tie



**Info**

- Economic and safe cable tie

### Benefits

- Wrap the cable tie around a bundle of cables, bend the excess tail in two directions and twist
- Quick and easy to install, no tool required
- Safe, tail breaks off neat and clean, with no sharp edge
- Minimal risk of injury for users

### Application range

- Industrial cable ties for quick and secure assembly
- General purpose applications, indoors and outdoors

### Norm references / Approvals

- File number: E49405
- Fire behaviour according to UL 94V-2

### Product make-up

- Available in 3 different lengths and 2 colours (white and UV-resistant black)

### Technical data

- General**  
Tensile strength: 130 N  
Width: 4,7 mm
- Material**  
Polyamide 6.6  
Halogen-free and silicone-free
- Temperature range**  
-40°C to +85°C

Article number	Article description	UL approval	Length (mm)	Max. bundle Ø (mm)	Pieces / PU
<b>white</b>					
61832007	TWIST TAIL TT-7-30-9-L	yes	181	45.0	50
61832009	TWIST TAIL TT-11-30-0-L	yes	282	76.0	50
61832011	TWIST TAIL TT-14-30-9-L	yes	358	102.0	50
<b>Black (RAL 9005), UV-resistant</b>					
61832008	TWIST TAIL TT-7-30-0-L	yes	181	45.0	50
61832010	TWIST TAIL TT-11-30-0-L	yes	282	76.0	50
61832012	TWIST TAIL TT-14-30-0-L	yes	358	102.0	50

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







**TY - FAST® standard cable ties / TY - FAST®- UV-resistant cable ties**



TY - FAST® standard 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**

- Cable ties for industrial applications

**Norm references / Approvals**

- File number: E49405, see table
- Fire behaviour according to UL 94V-2

**Product make-up**

**TY - FAST® Standard Kabelbinder**

- TY-FAST® cable ties are also available in UV-resistant and weather-resistant design, in black.

**Suitable tools**

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964

**Technical data**

**RAL** Colour delivered  
**TY - FAST® standard cable ties**  
 Natural colour  
**TY - FAST®- UV-resistant cable ties**  
 Black

**Material**  
 Polyamide 6.6  
 Halogen-free and silicone-free

**Temperature range**  
 -40°C to +85°C

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>natural</b>						
61810350	TY100-18	yes	114.0 x 2.4	25.0	80.0	1,000
61810360	TY125-18	yes	136.0 x 2.4	32.0	80.0	1,000
61810370	TY200-18	yes	203.0 x 2.4	50.0	80.0	1,000
61810380	TY125-40	yes	142.0 x 3.6	32.0	180.0	1,000
61810390	TY200-40	yes	205.0 x 3.6	50.0	180.0	1,000
61810400	TY300-40	yes	290.0 x 3.6	76.0	180.0	1,000
61810410	TY175-50	yes	186.0 x 4.6	44.0	220.0	1,000
61810420	TY300-50	yes	305.0 x 4.6	76.0	220.0	1,000
61810430	TY400-50	yes	376.0 x 4.6	102.0	220.0	1,000
61810440	TY200-120	no	219.0 x 7.6	50.0	540.0	500
61810450	TY400-120	yes	376.0 x 7.6	102.0	540.0	500
<b>Black- UV-resistant</b>						
61810460	TY100-18x	yes	114.0 x 2.4	25.0	80.0	1,000
61810470	TY125-18x	yes	136.0 x 2.4	32.0	80.0	1,000
61810480	TY200-18x	yes	203.0 x 2.4	50.0	80.0	1,000
61810490	TY125-40x	yes	143.0 x 3.6	32.0	180.0	1,000
61810500	TY200-40x	yes	205.0 x 3.6	50.0	180.0	1,000
61810510	TY300-40x	yes	290.0 x 3.6	76.0	180.0	1,000
61810520	TY175-50x	yes	186.0 x 4.6	44.0	220.0	1,000
61810530	TY300-50x	yes	305.0 x 4.6	76.0	220.0	1,000
61810540	TY400-50x	yes	376.0 x 4.6	102.0	220.0	1,000
61810550	TY200-120x	no	219.0 x 7.6	50.0	540.0	500
61810560	TY400-120x	no	376.0 x 7.6	102.0	540.0	500

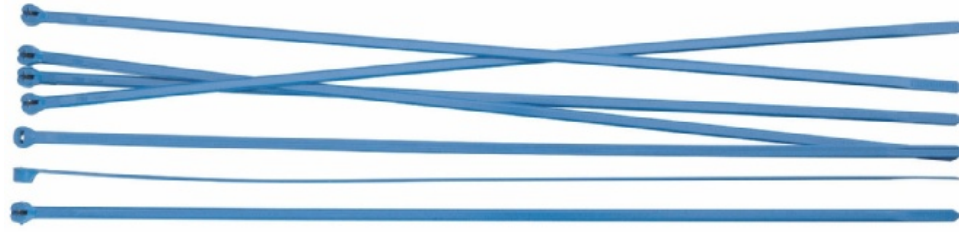
TY-FAST® is a registered trademark of Thomas & Betts  
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**Accessories**

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964



## TY-RAP® Detectable cable ties



### Benefits

- Detectable cable ties with a 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
- Available as standard polyamide 6.6 or in buoyant Polypropylene version for liquid-processing applications

### Application range

- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Applications with strong chemical influences
- Pharmaceutical production

### Norm references / Approvals

- Flammability class: UL 94 V-2 / polyamide 6.6
- Flammability class: UL 94 HB / polypropylene

### 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 refer to page 964

### Technical data

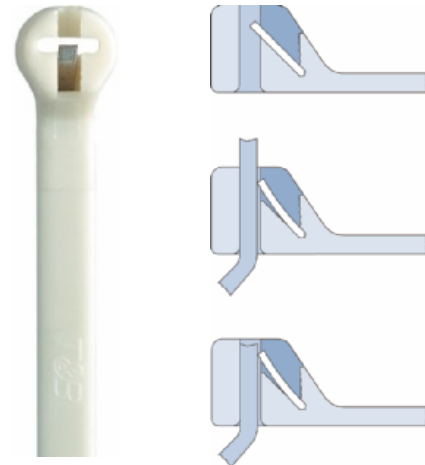
	<b>Colour delivered</b> Blue
	<b>Material</b> Polyamide 6.6 or polypropylene Halogen-free and silicone-free
	<b>Temperature range</b> -40°C up to +85°C

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>Detectable polyamide 6.6</b>						
61723351	Cable tie TY-RAP TY523M-NDT	no	92 x 2	2.0 - 6.0	80	100
61723352	Cable tie TY-RAP TY525M-NDT	no	186 x 4	3.5 - 45.0	220	100
61723353	Cable tie TY-RAP TY528M-NDT	no	360 x 4	3.5 - 102.0	220	100
61723354	Cable tie TY-RAP TY527M-NDT	no	340 x 7	6.0 - 90.0	540	50
<b>Detectable polypropylene</b>						
61723355	Cable tie TY-RAP TY523M-PDT	no	92 x 2	2.0 - 16.0	50	100
61723356	Cable tie TY-RAP TY525M-PDT	no	186 x 4	3.5 - 45.0	130	100
61723357	Cable tie TY-RAP TY528M-PDT	no	360 x 4	3.5 - 102.0	130	100
61723358	Cable tie TY-RAP TY527M-PDT	no	340 x 7	6.0 - 90.0	270	50

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



**TY- RAP® standard cable ties**



**Benefits**

- Steel nose ensures secure and durable binding
- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations

**Application range**

- Good quality cable ties with steel blade

**Product features**

- The steel blade is fixed to the tie head and is made from corrosion-resistant, anti-magnetic steel (type 316)

**Norm references / Approvals**

- File number: E49405, see table
- Fire behaviour according to UL 94V-2

**Included**

- TY-X: Packed in a recyclable plastic bag
- Items provided with the add-in "B" (e.g. TYB 24 M) are supplied in a handy work-box, where the cable ties are arranged properly

**Suitable tools**

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964

**Technical data**

**Material**  
Polyamide 6.6  
Halogen-free

**Temperature range**  
-40°C to +85°C

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>TY-RAP® Standard</b>						
61715000	TYB* 23 M	no	92.0 x 2.4	2.0 - 16.0	80.0	1,000
61716250	TY 232 M	yes	203.0 x 2.4	2.0 - 50.0	80.0	1,000
61716310	TY 234 M	yes	356.0 x 2.4	2.0 - 102.0	80.0	1,000
61715060	TYB* 24 M	no	140.0 x 3.6	2.0 - 29.0	180.0	1,000
61716370	TY 242 M	yes	204.0 x 3.6	2.0 - 50.0	180.0	1,000
61715180	TY 26 M	yes	284.0 x 3.6	2.0 - 76.0	180.0	1,000
61716430	TY 244 M	yes	368.0 x 3.6	2.0 - 103.0	180.0	1,000
61715120	TYB* 25 M	no	186.0 x 4.8	3.5 - 45.0	220.0	1,000
61716490	TY 253 M	yes	295.0 x 4.8	3.5 - 78.0	220.0	1,000
61715300	TY 28 M	yes	361.0 x 4.8	3.5 - 102.0	220.0	1,000
61716550	TY 272 M	yes	223.0 x 7.6	6.0 - 50.0	540.0	500
61715240	TY 27 M	yes	340.0 x 7.0	6.0 - 90.0	540.0	500
61715360	TY 29 M	yes	771.0 x 6.9	6.0 - 229.0	540.0	500

B = box, otherwise plastic bag  
 TY-RAP® is a registered trademark of Thomas & Betts  
 TY-RAP® Standard in other colours are available upon request (see description).  
 Photographs are not to scale and do not represent detailed images of the respective products.

**Accessories**

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## TY- RAP® heat-resistant cable ties



### 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 UL 94V-2

### Product make-up

- Heat-resistant cable ties have the extension "M"

### Technical data

**RAL Colour delivered**  
Light green- transparent

**Material**  
Heat-resistant polyamide 6.6  
Halogen-free and silicone-free

**Temperature range**  
-40 °C to +105 °C

### Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>TY-RAP® heat-resistant</b>						
61723470	TYH 23 M	yes	92.0 x 2.4	2.0 - 16.0	80.0	1,000
61723460	TYH 232 M	yes	203.0 x 2.4	2.0 - 50.0	80.0	1,000
61723440	TYH 24 M	yes	140.0 x 3.6	2.0 - 29.0	130.0	1,000
61723430	TYH 242 M	no	208.0 x 3.6	2.0 - 50.0	130.0	1,000
61723410	TYH 26 M	yes	284.0 x 3.6	2.0 - 76.0	130.0	1,000
61723420	TYH 25 M	yes	186.0 x 4.8	3.5 - 45.0	220.0	1,000
61723380	TYH 28 M	yes	360.0 x 4.8	3.5 - 102.0	220.0	1,000
61723390	TYH 272 M	no	222.0 x 7.6	6.0 - 50.0	540.0	500
61723400	TYH 27 M	yes	340.0 x 7.0	6.0 - 90.0	540.0	500
61723350	TYH 29 M	no	761.0 x 6.9	6.0 - 229.0	530.0	500

TY-RAP® is a registered trademark of Thomas & Betts  
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## TY- RAP® weather-proof, UV-stabilised



### Benefits

- Weather-resistant for harsh environmental conditions
- Heat-resistant

### Application range

- Used for outdoor installation and maintenance of power plants

### Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL 94V-2

### Included

- TY-X: Packed in a recyclable plastic bag

### Technical data

**RAL Colour delivered**  
RAL 9005 black/UV-resistant

**Material**  
Polyamide 6.6  
Halogen-free and silicone-free

**Temperature range**  
-40°C to +85°C

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>TY-RAP® weather-resistant</b>						
61723010	TYB* 23 MX	no	92.0 x 2.4	2.0 - 16.0	80.0	1,000
61723110	TY 232 MX	no	200.0 x 2.4	2.0 - 50.0	80.0	1,000
61723120	TY 234 MX	no	356.0 x 2.4	2.0 - 102.0	80.0	1,000
61723020	TYB* 24 MX	no	140.0 x 3.6	2.0 - 29.0	180.0	1,000
61723130	TY 242 MX	yes	208.0 x 3.6	2.0 - 50.0	180.0	1,000
61723040	TY 26 MX	yes	281.0 x 3.6	2.0 - 76.0	180.0	1,000
61723140	TY 244 MX	no	368.0 x 3.6	2.0 - 103.0	180.0	1,000
61723030	TYB* 25 MX	no	186.0 x 4.8	3.5 - 45.0	220.0	1,000
61723150	TY 253 MX	no	293.0 x 4.8	3.5 - 78.0	220.0	1,000
61723060	TY 28 MX	yes	360.0 x 4.8	3.5 - 102.0	220.0	1,000
61723160	TY 272 MX	no	223.0 x 7.6	6.0 - 50.0	540.0	500
61723050	TY 27 MX	yes	340.0 x 7.0	6.0 - 90.0	540.0	500
61723070	TY 29 MX	no	762.0 x 7.6	6.0 - 229.0	540.0	500

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## TY-RAP® for screwing on, cable ties

### Benefits

- Cable ties with fasteners
- Allow 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 UL 94V-2

### Technical data

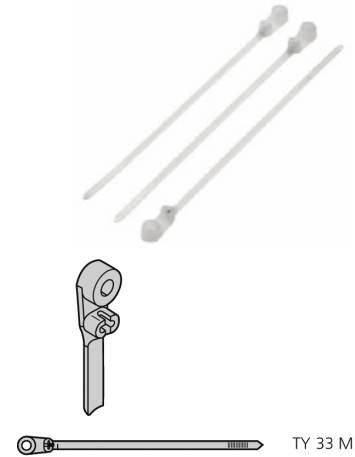
- Material**  
Polyamide 6.6  
Halogen-free and silicone-free
- Temperature range**  
-40°C to +85°C

### Product make-up

- Also deliverable in black and UV-resistant

### Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964



Article number	Article description	UL approval	Hole Ø (mm)	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
<b>TY-RAP® for screwing on</b>							
61715420	TY 33 M	yes	2.8	102.0 x 2.3	2.0 - 16.0	80	1,000
61715480	TY 34 M	yes	4.2	151.0 x 3.5	2.0 - 29.0	180	1,000
61720000	TY 635 M	yes	3.5	198.0 x 4.8	3.5 - 45.0	220	1,000
61715540	TY 35 M	yes	4.8	198.0 x 4.7	3.5 - 45.0	220	1,000
61720070	TY 1435 M	yes	6.3	198.0 x 4.8	3.5 - 45.0	220	1,000
61715600	TY 37 M	yes	6.3	356.0 x 7.7	6.0 - 90.0	540	500

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## TY-RAP® with labelling area, cable ties

TY 53 M / TY 532 M



TY 51 M



### Benefits

- Cable ties with marking area
- Allow 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 UL 94V-2

### Product make-up

- 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

### Included

- TY-X: Packed in a recyclable plastic bag

### Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 964

### Technical data

- 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 approval	Length x width (mm)	Bundling Ø (mm)	Labelling surface (mm)	Tensile strength (N)	Pieces / PU
<b>Right-angled surface</b>							
61716020	TY 51 M	yes	92.0 x 2.4	10.0 - 16.0	25 x 8	80	500
<b>Parallel surface</b>							
61715840	TY 46 MD	yes	184.0 x 4.8	9.5 - 45.0	30 x 24	220 Double	500
61715880	TY 46 MT	yes	184.0 x 4.8	9.5 - 45.0	46 x 24	220 Triple	500
61715920	TY 46 MF	yes	184.0 x 4.8	9.5 - 45.0	63 x 24	220 Quadruple	250
61715780	TY 546 M	yes	184.0 x 4.8	9.5 - 45.0	13 x 24	220	100
61715950	TY 548 M	yes	360.0 x 4.8	19.0 - 102.0	13 x 54	220	100
<b>Right-angled area above</b>							
61716080	TY 53 M	yes	102.0 x 2.4	2.0 - 16.0	21 x 9	80	500
61716560	TY 532 M	yes	212.0 x 2.4	2.0 - 51.0	21 x 9	80	1,000

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Smaller packing units are available upon request.  
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### Similar products

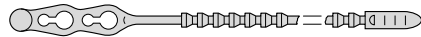
- KMK Marking labels refer to page 899

### Accessories

- MS Marker pens refer to page 875



## Quick ties KBS/ KB



### Benefits

- Releasable cable tie
- Round profile guarantees high mechanical strength and a firm seal
- With the dual-closure design it is 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

### Product make-up

- With one hole strip (KBS) or two-hole strip (KB)

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Black red
	<b>Material</b> Polyethylene

Article number	Article description	UL approval	Length (mm)	Max. bundle Ø (mm)	Pieces / PU
<b>KBS - single-hole</b>					
61710110	KBS 12-red	no	140	20.0	1,000
61721180	KBS 12-black	no	120	20.0	1,000
<b>KB - two-hole</b>					
61710090	KB 12-red	no	120	20.0	1,000
61721160	KB 12-black	no	120	20.0	1,000
61710111	KB 18-red	no	180	35.0	1,000
61710112	KB 18-black	no	180	35.0	1,000
61710130	KB 24-red	no	240	50.0	1,000
61721170	KB 24-black	no	240	50.0	1,000
61710150	KB 27-red	no	320	80.0	1,000
61721190	KB 27-black	no	320	80.0	1,000
61710170	KB 70-red	no	700	190.0	500
61721200	KB 70-black	no	700	190.0	500

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## TY-GRIP® FOL/ FO cable tie



### Benefits

- For easy and quick bundling
- Cable friendly: Prevent injuries of cable outer sheathing
- Could be reused again

### Application range

- Ideal for applications where they frequently need to be changed or constant access is required
- For bundling of sensitive cables as fiber optic cables and network cables
- Light and sound applications

### Norm references / Approvals

- Flame-retardant according to UL 94 HB

### Product make-up

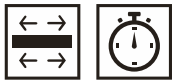
- FOL with strap: Strap made of high-quality polymer provides additional stability and safety
- FO with loop: Slitted head makes quick and easy fastening possible

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Black
	<b>Material</b> Polyamide Halogen-free and silicone-free
	<b>Temperature range</b> -20°C to +93°C (FO)/ 104°C (FOL)

Article number	Article description	UL approval	Length x width (mm)	Pieces / PU
<b>FO with loop: Slitted head makes quick and easy fastening possible</b>				
61823720	FO 200-40-0	no	228.0 x 12.7	10
61823730	FO 350-40-0	no	330.0 x 12.7	10
<b>FOL with strap: Strap made of high-quality polymer provides additional stability and safety</b>				
61823740	FOL 300-50-0	no	304.0 x 19.0	10
61823750	FOL 500-50-0	no	457.0 x 19.0	10

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**Info**

- Environmentally friendly

**Mille-Tie™ cable ties**



- Benefits**
- Could be reused again
  - Adjusts and controls the tension automatically by means of a self-regulating mechanism
  - Fast assembly as binder can be mounted in any direction
  - No sharp edges, avoids injuries
  - No cable damage and crushing due to the elasticity of the tie

- Application range**
- For high-quality and complex cable management systems
  - For bundling of sensitive cables as fiber optic cables and network cables
- Product make-up**
- One size for all applications

**Technical data**

**Material**  
TPE

**Temperature range**  
-20°C to +80°C

Article number	Article description	Colour	UL approval	Length (mm)	Pieces / PU
61710200	MT-00	black	no	305	100
61710201	MT-01	red	no	305	100
61710202	MT-02	blue	no	305	100
61710203	MT-03	yellow	no	305	100
61710204	MT-04	green	no	305	100
61710205	MT-05	natural	no	305	100
61710206	MT-06	grey	no	305	100

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**Info**

- LS 4,6-100 contained in FLEXIMARK® sample bag (article number M3251010)

**LS steel cable ties**



- Benefits**
- Acid-resistant
  - Minimum space required due to the flat binder heads
  - Cable ties are self-locking, time-consuming folding and crimping is not longer required
  - Steel ball at the end of the tie makes it easy to thread it in
  - If pulled in the opposite direction to re-open or loosen the tie, the ball is locked at the end of the tie and re-opening is impossible

- Application range**
- Outdoor applications and usage under extreme conditions, e.g. high corrosion risk
  - For fixing NM FLEXIMARK® stainless steel labelling character holders (width: 7,9 mm)
- Norm references / Approvals**
- DNV 2397
  - UL File number: E193947

**Technical data**

**Material**  
Stainless steel AISI 316

**Temperature range**  
-80°C to +500°C

- Suitable tools**
- STEEL GUN HT-338 cable tie pliers refer to page 964

Article number	Article description	Length x width (mm)	Bundling Ø (mm)	Minimum tensile strength (N/mm²)	Pieces / PU
61812950	LS 4.6 - 200 B	200.0 x 4.6	51.0	45.3	100
61812960	LS 4.6 - 360 B	360.0 x 4.6	102.0	45.3	100
61812970	LS 4.6 - 520 B	520.0 x 4.6	152.0	45.3	100
61812980	LS 4.6 - 680 B	680.0 x 4.6	203.0	45.3	100
61812990	LS 4.6 - 840 B	840.0 x 4.6	254.0	45.3	100
61813000	LS 7.9 - 200 B	200.0 x 7.9	51.0	113.3	100
61813010	LS 7.9 - 360 B	360.0 x 7.9	102.0	113.3	100
61813020	LS 7.9 - 520 B	520.0 x 7.9	152.0	113.3	100
61813030	LS 7.9 - 680 A	680.0 x 7.9	203.0	113.3	100
61813040	LS 7.9 - 840 B	840.0 x 7.9	254.0	113.3	100
61813050	LS 7.9 - 1010 A	1,016.0 x 7.9	305.0	113.3	100

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**Binding, bundling, fastening**

Assembly tool for cable ties



## TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers



**Benefits**

- Allows quick and economical binding, fixing and mounting of plastic cable ties
- Ergonomic design and user-friendliness
- Reduced user stress and strain
- Adjustable tension-setting and automatic cutting mechanism
- Large feed-opening facilitates inserting of the cable ties

**Application range**

- Cable tie gun for plastic cable ties

**Product features**

- Tip can be rotated 360° for easy assembly
- Anti-recoil mechanism prevents shaking

**Product make-up**

- Interchangeable head for the other cable tie width is available as a component

**Technical data**

**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

**RAL Colour delivered**  
Orange  
Black

**Material**  
Shock-resistant polymer  
Soft rubber grip

Article number	Article description	For cable ties	Cable tie width (mm)	Colour of handle	Weight (kg)	Pieces / PU
<b>Mounting pistol TY-GUN ERG 50</b>						
62120120	Mounting pistol TY-GUN ERG 50	Plastic	2.4 - 4.8	black	0.26	1
62120121	TY-GUN ERG 50B spare blades	Plastic	2.4 - 4.8			1
62120122	TY-GUN ERG 50 interchangeable head	Plastic	2.4 - 4.8			1
<b>TY-GUN ERG 120</b>						
62120125	Mounting pistol TY-GUN ERG 120	Plastic	4.8 - 7.6	black	0.278	1
62120126	TY-GUN ERG 120B spare blades	Plastic	4.8 - 7.6			1
62120127	TY-GUN ERG 120 interchangeable head	Plastic	4.8 - 7.6			1

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## BASIC cable tie pliers



**Benefits**

- The tightening force can be adapted gradually
- Low-cost starter product

**Application range**

- Cable tie gun for plastic cable ties
- For tightening and cutting cable ties

Article number	Article description	For cable ties	Cable tie width (mm)	LxH, mm	Weight (kg)	PU
62120321	BASIC - cable tie pliers	Plastic	2.2 - 4.8	160 x 130	0.31	1

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**Accessories**

- TY - FAST® standard cable ties refer to page 957

## 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

Article number	Article description	For cable ties	Max. cable tie width (mm)	LxH, mm	Weight (kg)	Pieces / PU
<b>FLEXIMARK® Stainless steel tie gun HAT-338</b>						
83250022	FLEXIMARK® HT-338	Stainless steel	7.9	178 x 140	0.56	1
83250023	FLEXIMARK® Spare Part HT-338				0.018	1

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## TC 121 plug socket

### Benefits

- The plug-in socket has two openings for two different cable-tie sizes, while the plug nose and low height allows for flexible use.

### Application range

- Fastening elements for cable ties
- The quick and safe mounting method makes these plug-in sockets ideal for applications in control cabinet manufacture, household appliances, motor vehicles and office equipment.

### Product make-up

- For cable ties: 2.8 / 4.8 mm

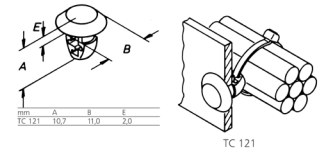
### Technical data



**Material**  
Polyamide 6.6



**Temperature range**  
-40 °C to +80 °C



Article number	Article description	For wall thickness up to (mm)	Fastening opening (mm)	Tie width (mm)	Pieces / PU
61724000	TC 121	3.3	6.1	2.4 - 4.8	1,000

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## TC tie socket

### Benefits

- These tie sockets have a low height and are easy to install
- Can support extreme loads and can be glued permanently
- TCZ 347: Excellent resistance against most solvents, chemicals, acids and radioactivity

### Application range

- Fastening elements for cable ties
- For fastening cables harnesses or similar parts
- Typical areas of application: Wiring in control cabinets, motor vehicles, office machines and similar

### Product features

- The glue and screw tie sockets TC 344 A / TC 344 AX / TC 347 A have a foam coating to level out any unevenness on the mounting surface

### Product make-up

- UL 94 V2

### Product make-up

- Type 344 and 347: Cross-mounting facilitates handling even in inaccessible areas

### Included

- Without screws, rivets, etc.

### Technical data



**Material**  
TC 347: ETFE  
All others: Polyamid 6.6



**Temperature range**  
Polyamid 6.6: -40 °C bis +85 °C  
ETFE: -46 °C bis +150 °C



mm	A	B	C	E	F
TC 344 A	50	19.2	19.2	2.0	
TC 344 AX	50	19.2	19.2	2.0	
TC 353 A	9.0	26.5	52.0	2.5	
TC 347 A	8.7	29.0	29.0	2.1	29.0
TCZ 347	8.0	29.0	29.0	1.6	29.0

Article number	Article description	Fastening type	Material	Adhesive strength on steel (N/cm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
61742890	TC 344 A	Gluing/screwing	PA 6.6	52	3.6	76	1,000
61723895	TC 344 AX	Gluing/screwing	PA 6.6 UV stable	52	3.6	76	1,000
61710070	TC 347 A	Gluing/screwing	PA 6.6	52	7.6	240	1,000
61744630	TCZ 347	Screws (4.2 mm)	Fluoropolymer	52	7.6	240	500

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## TC mounting socket with saddle



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

### 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 V2

### Included

- Without screws, rivets, etc.

### Technical data

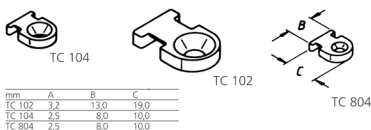
<b>RAL</b>	<b>Colour delivered</b> White
	<b>Material</b> Polyamide 6.6 Halogen-free and silicone-free
	<b>Temperature range</b> -40°C to +85°C

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/ 100 pieces)	Pieces / PU
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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## TC 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 V2

### Included

- Without screws, rivets, etc.

### Technical data

<b>RAL</b>	<b>Colour delivered</b> Natural colour
	<b>Material</b> Polyamide 6.6 Halogen-free and silicone-free
	<b>Temperature range</b> -40°C to +85°C

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/ 100 pieces)	Pieces / PU
61724400	TC 102	screwing	PA 6.6	4,4	4,8	50	1,000
61724420	TC 104	screwing	PA 6.6	3,4	2,4	11	1,000
61724720	TC 804	screwing	PA 6.6	2,4	2,4	11	250

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## TC tie screw socket

### 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

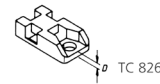
- File number: E49405
- UL 94 V2

### Included

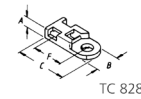
- Delivered without screws

### Technical data

- Colour delivered**  
Natural colour
- Material**  
Polyamide 6.6  
Halogen-free and silicone-free
- Temperature range**  
-40°C to +85°C



mm	A	B	C	D	E	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	



Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
61724810	TC 826	screwing	PA 6.6	4.2	4.8	197	1,000
61724820	TC 828	screwing	PA 6.6	4.2	4.8	40	1,000

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



### 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

- Material**  
Aluminium (3003, ASTM-B209)
- Temperature range**  
-100°C to +450°C



mm	A	B	C	E	F
TC 105	5,0	13,0	25,0	5,0	0,8

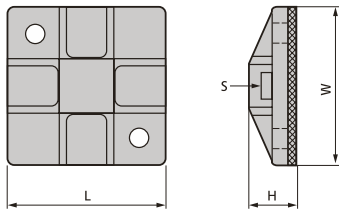


Article number	Article description	Fastening type	Material	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
61724430	TC 105	screwing	aluminium	4.8	67	1,000

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



## MPNY screw / adhesive socket



### Benefits

- Option for cross-mounting / double-mounting on the crossover points of the cable harness
- Easy to handle
- Self-adhesive

### Application range

- Fastening elements for cable ties
- Areas of application: Wiring of switch cabinets, motor vehicles and office machines, etc.

### Norm references / Approvals

- UL 94 V2

### Included

- Delivered without screws

### Technical data



#### General

MPNY-750: for cable ties with a load capacity of 80 - 180 N  
MPNY-1000: for cable ties with a load capacity of 80 - 225 N



#### Colour delivered

Black  
Natural colour



#### Material

Polyamide 6.6  
Halogen-free and silicone-free



#### Temperature range

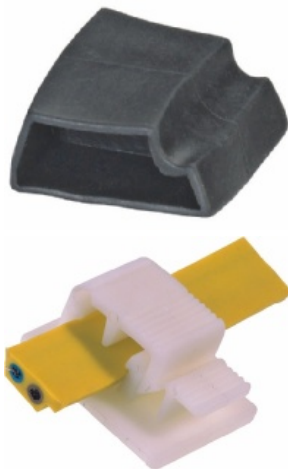
-40 °C to +85 °C

Article number	Article description	Colour	Length x width (mm)	Height (mm)	Slot height (mm)	Slot width (mm)	Pieces / PU
61718610	MPNY-750-0-C	black	19.0 x 19.0	5.21	1.27	3.18	100
61718620	MPNY-750-9-C	natural	19.0 x 19.0	5.21	1.27	3.18	100
61718630	MPNY-1000-0-C	black	25.0 x 25.0	5.46	1.78	5.16	100
61718640	MPNY-1000-9-C	natural	25.0 x 25.0	5.46	1.78	5.16	100

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



## AS-I clip clamp / AS-I end sealing



### Benefits

- AS-i clip clamp: Conical shape of the receptacle in the socket ensures that the cable is firmly secured, releasable closure
- AS-I end seal:
  - Easy to assemble
  - Can be used on both sides
  - Compact dimensions save space
  - Cost-effective method of sealing AS-Interface cables
- The high-grade acrylate adhesive allows quick mounting and the socket can be immediately stressed, can also be secured using a screw

### Application range

- Fastening elements for cables and conductors
- For use with UNITRONIC® AS-Interface bus cables

### Suitable cables

- UNITRONIC® BUS ASI Page 286

### Technical data



#### Note

Adhesive: acrylic with lining made of PUR foam



#### Material

AS-i clip clamp: Polyamid 6.6 - halogen-free  
AS-I end seal: TPE (colour: black)



#### Temperature range

AS-i clip clamp: -40 °C to +80 °C  
AS-I end seal: -40 °C to +110 °C

Article number	Article description	Colour	Diameter (mm)	Length x width (mm)	Adhesive tape thickness (mm)	Height (mm)	Pieces / PU
<b>AS-I clip clamp</b>							
61825000	AS-I clip clamp	white	3.3	25.0 x 20.0	0.8	11.70	500
<b>End seal</b>							
22260047	AB-ASI-PC-BK	black		20.0 x 4.7		11.00	100

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



## CC cord clips

### Benefits

- Special mounting preparations are no longer necessary
- Easy to handle
- Self-adhesive

### Application range

- Fastening elements for cables and conductors
- Excellent for laying several cables in parallel

### Norm references / Approvals

- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

### Note

- Upon request: Black colour

### Technical data

- General**  
Self-adhesive on many surfaces
- Colour delivered**  
Natural colour
- Material**  
Polyamide 6.6  
Halogen-free
- Temperature range**  
-40°C to +80°C



Article number	Article description	Max. bundle Ø (mm)	Socket area x height (mm)	Pieces / PU
61723810	CC 5	5.0	19 / 19 x 8	100
61723820	CC 11	9.0	26 / 26 x 12	100
61723840	CC 21	17.0	26 / 26 x 17	100

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

### Benefits

- Stick permanently on any clean and dry surface due to high adhesive strength
- Good foam-padding properties
- Suitable for quick fastening of cables

### Application range

- Fastening elements for cables and conductors
- Recommended for surfaces where it's not possible to use screws as plastic, metal, and glass

### Technical data

- General**  
Adhesive coating: 3M
- Material**  
PVC

## KS cable clamps



Article number	Article description	Length (mm)	For cable Ø (mm)	Pieces / PU
61717440	KS 20 / 6	33	4 - 6	100
61710730	KS 25 / 8	38	6 - 8	100
61717460	KS 25 / 10	44	7 - 10	100
61717480	KS 30 / 13	50	10 - 13	100

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

New

## Earthing clamps



### Benefits

- Typ K: Only one open side- no interrupted earthing cable
- Typ G: can be mounted both horizontally and vertically
- Fast and easy assembly
- Large contact surface thanks to two contact screws

### Application range

- Electrical installations in buildings
- For secure contact with metallic conduits
- Secure equipotential bonding
- Easy connection of multiple adjacent conduits to the potential equalisation point without interrupting the potential equalisation conductor
- Potential equalisation is not interrupted when removing a conduit

### Norm references / Approvals

- Complies with DIN EN 60947-2-2:2009 and SEV 1078:1980

### Product make-up

- Prooved up to a cross section of the earthing cable of 50 mm<sup>2</sup>

### Technical data



**Material**  
Brass tin-plated



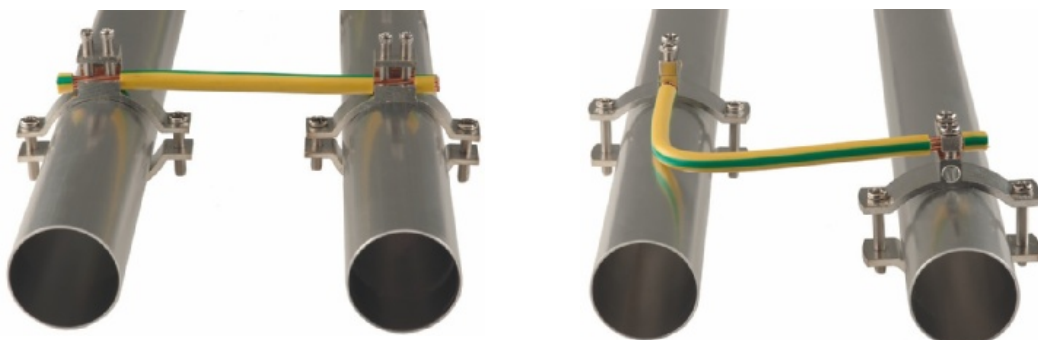
**Temperature range**  
-40°C to +200°C

Article number	Article description	NenngroÙe	Diameter (mm)	Pieces / PU
61718700	Earthing clamp K 3/8-3/4	3/8" - 3/4"	16,6 - 26,5 mm	10
61718710	Earthing clamp K 1-1 1/4	1" - 1 1/4"	33,5 - 41,9 mm	10
61718720	Earthing clamp K 1 1/2-2	1 1/2" - 2"	47,9 - 59,6 mm	10
61718730	Earthing clamp K 2 1/2-3	2 1/2" - 3"	75,2 - 87,9 mm	10
61718740	Earthing clamp G 3/8-3/4	3/8" - 3/4"	16,6 - 26,5 mm	10
61718750	Earthing clamp G 3/4-1	3/4" - 1"	26,5 - 33,5 mm	10
61718760	Earthing clamp G 1 1/4-1 1/2	1 1/4" - 1 1/2"	41,9 - 47,9 mm	10
61718770	Earthing clamp G 1 1/2-2	1 1/2" - 2"	47,9 - 59,6 mm	10
61718780	Earthing clamp G 2 1/2-3	2 1/2" - 3"	75,2 - 87,9 mm	10

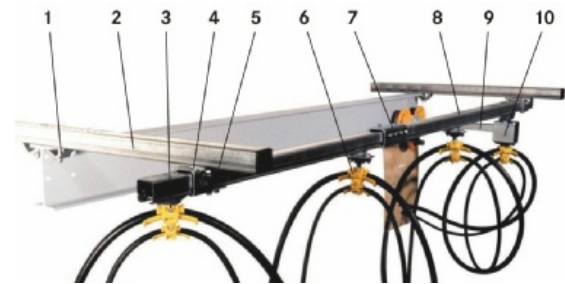
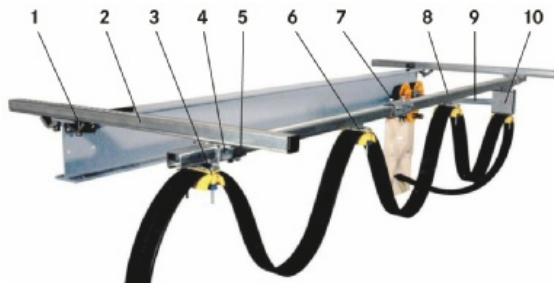
Photographs are not to scale and do not represent detailed images of the respective products.

### Accessories

- ESUY Copper Earthing Cable refer to page 133
- X00V3-D Copper Earthing Cable refer to page 134



## Cable trolley system for round and flat cables



**Info**

- Our Configuration tool on our homepage (Downloadcenter-cable accessories) supports you in choosing the correct cable trolley system
- 3D drawings available

- **Benefits**
  - The guiding rollers have ball bearings and guarantee easy, smooth running in the C-profile rails.
  - The cables in the clamping devices are clamped gently, and an appropriately shaped pressing piece prevents sharp bends at the clamping point.
- **Application range**
  - Crane and conveying machinery
  - For hoisting equipment and conveyor systems
  - Mechanical engineering
  - Nut suitable for applications for Ex-Areas
- **Product features**
  - Certain components (such as the cable trailer) made of galvanised steel
  - Dustproof ball bearing (wheels)
  - Cable clamp and protection plate made of polyamide

- **Product make-up**
  - Complete system consisting of the following components:
    1. Clamps (steel girder)
    2. Extension arm
    3. End clamp
    4. Rail bracket
    5. Stopper
    6. Cable trailer
    7. Track coupler
    8. C-profile rail
    9. Towing arm
    10. Towing trolley
- **Note**
  - Round- and flat cables are not allowed to combine a sight below and above

- **Product make-up**
  - The delivery length of the C-profile rail is 6 m.
  - The rail opening is 11 mm
  - The installation of a system depends on various criteria, e.g. maximum cable slack (cable weight) and working length.
- **Suitable conduits**
  - Even air-pressure lines can be installed
- **Suitable cables**
  - Flat cables (ÖLFLEX® CRANE and ÖLFLEX® LIFT up to 54 mm)
  - All round cables up to 36mm outer diameter

Article number	Article designation	Pieces / PU
<b>Cable trailer system for flat cables</b>		
62200420	Towing trolley, flat	1
62200421	Cable trailer, flat	1
62200422	End clamp, flat	1
<b>Cable trailer system for round cables</b>		
62200434	Cable trailer, round	1
62200435	Towing trolley, round	1
62200436	End clamp, round	1
62200437	Cable clamp, round, 10-16 mm	1
62200438	Cable clamp for cable 17-25 mm	1
62200439	Cable clamp, round, 26-36 mm	1
<b>Components for both systems</b>		
62200423	Rail bracket, vertical	1
62200425	Stopper	1
62200424	Track coupler	1
62200427	Rail bracket with flexible fastening	1
62200428	Rail bracket for ceiling mounting	1
62200429	Rail bracket for wall mounting	1
62200430	Towing arm, 400 mm	1
62200431	Towing arm, 630 mm	1
62200432	Extension arm, 800 mm	1
62200433	Steel girder clamp	1
<b>Fastening options:</b>		
62200426	Rail curve: 90°	1
62200440	C-profile rail, 6 m	1

CIBES® is a registered trade mark of INOMEK AB  
 The complete system is also available in stainless steel.  
 Photographs are not to scale and do not represent detailed images of the respective products.

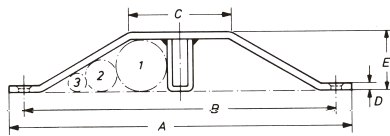
- **Similar products**
  - SILVYN® CHAIN cable protection and guiding systems

- **Accessories**
  - SKINDICHT® SVFK

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX



## ST steel cable tunnel



### Benefits

- A central strength element strengthens and stiffens the design
- Point loads are thus distributed onto the floor
- The ST cable tunnel offers additional advantages in the area of building safety as it is flame-retardant and halogen-free.

### Application range

- Protects cables laid on the ground against mechanical influences
- Can be fixed onto the floor by using countersunk screws

### Technical data

**Material**  
Steel, galvanized  
Fireproof

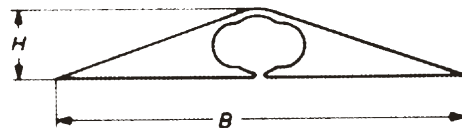
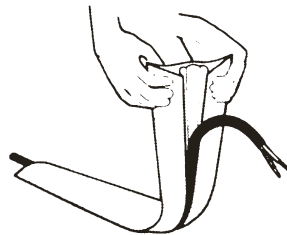
### Product make-up

- ST 1: A = 250, B = 230, C = 70, D = 5, E = 45
- Material thickness: 5 mm
- ST 2: A = 200, B = 182, C = 60, D = 4, E = 34,
- ST 3: A = 150, B = 134, C = 60, D = 4, E = 24, hole diameter = 6.6 mm

Article number	Article description	Length (mm)	Ø combinations (mm)	Weight (kg/piece)	Pieces / PU
61717000	ST 1	1,000	36/25/15 or 40/24	14	1
61717040	ST 2	1,000	25/20 or 30/18	9	1
61717070	ST 3	1,000	17/14 or 20/13	7	1

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## STY plastic cable tunnel



### Technical data

**RAL Colour delivered**  
Colour: grey (RAL 7001)

**Material**  
PVC

### Benefits

- High flexibility of the material enables easy installation of cables
- Cutting to size is possible up to 10 m

### Application range

- Reliable anti-tripping guard used to cover cables that are laid on the ground

### Product make-up

- STY5: (W)idth = 48 mm, (H)eight = 8 mm
- STY9: (W)idth = 70 mm, (H)eight = 12 mm
- STY12: (W)idth = 85 mm, (H)eight = 15 mm

Article number	Article description	Width x height (mm)	Number of cables x outer Ø	PU (m)
61746870	STY 5	48 x 8	1 x 5 - 2 x 4	10
61746880	STY 9	70 x 12	1 x 9 - 2 x 7	10
61746890	STY 12	85 x 15	1 x 12 - 2 x 9	10

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



## RKK 01-06 round cable wedge clamps

### Benefits

- The wedged clamps hold the cable without damaging it and without restricting the necessary movement of the cable.
- Other cable combinations are possible

### Application range

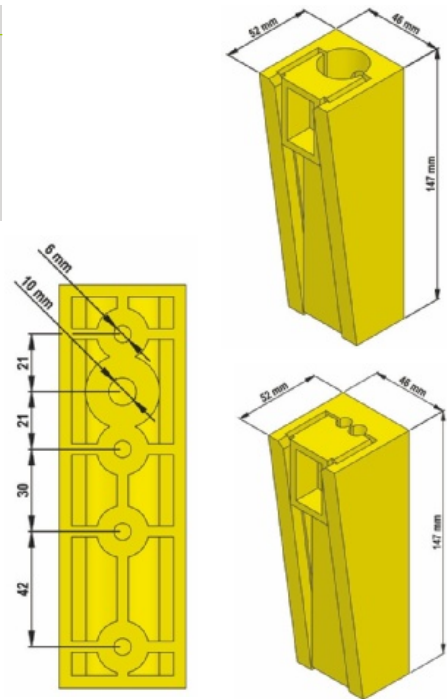
- The wedged clamps can be used to secure round control cables.

### Product make-up

- Round cable wedged clamps

### Technical data

- Note**  
Clamping force: 343N
- Material**  
Polyamide 6.6
- Temperature range**  
-20°C to +50°C



Article number	Article designation	Number of cables	For cable outer Ø (mm)	Weight (g)	Pieces / PU
52026020	RKK 01	2	8.0-11.0 and 7.0-10.0	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	150	1
52026022	RKK 06	1	11.5-14.0	190	1

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

## FKK 08 Flat cable wedge clamp, small

### 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

- Flat cable wedge clamps are suitable for securing flat control cables.

### Product make-up

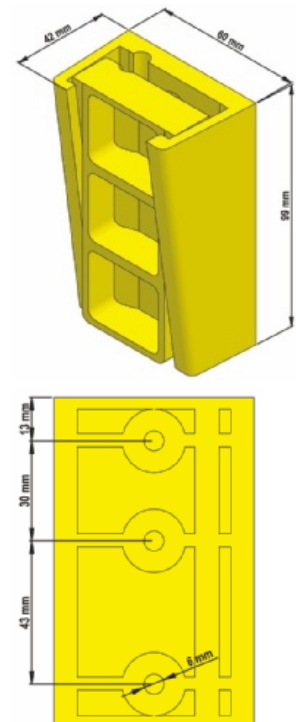
- Maximum cable thickness: 10 mm
- The small wedge-shaped cable clamp can hold up to two flat cables.

### Suitable cables

- ÖLFLEX® LIFT F Page 162

### Technical data

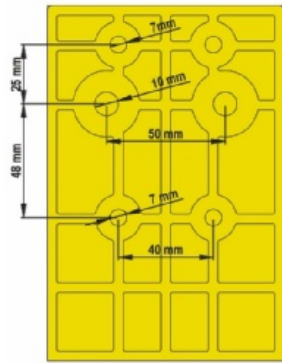
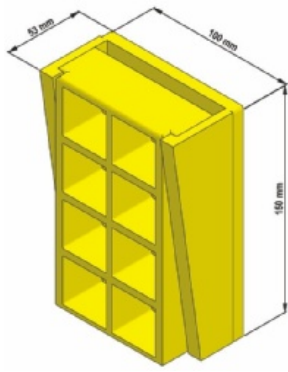
- Info**  
Clamping force: at overall cable thickness 2-10 mm = 600-800 N  
Minimum insert depth for wedge: 60 mm = 60 mm
- Material**  
Polyamide 6.6 - halogen-free
- Temperature range**  
Operating temperature: -20°C to +50°C



Article number	Article designation	Number of cables	Max. total cable length (mm)	Weight (g)	Pieces / PU
52026051	FKK 08	1-2	50 x 10	105	1

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## FKK 07 cable wedge clamp, large



### Application range

- Flat cable wedge clamps are suitable for securing flat control cables.

### Product make-up

- Maximum cable thickness: 17 mm
- The large wedge-shaped cable clamp can hold up to three flat cables.

### Suitable cables

- ÖLFLEX® LIFT F Page 162

### Technical data



#### Info

Clamping force: at overall cable thickness 2-9 mm and 16-17 mm = 800 N  
Minimum insert depth for wedge: 60 % = 90 mm



#### Material

Polyamide 6.6 - halogen-free



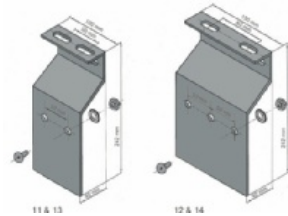
#### Temperature range

Operating temperature: -20°C to +50°C

Article number	Article designation	Number of cables	Max. total cable length (mm)	Weight (g)	Pieces / PU
52026050	FKK 07	1-3	90x17	345	1

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

## MP 11/13/12/14 installation sheets



### Application range

- Installation sheets
- Installation sheet for all-round and large flat cable wedges (primed)

### Included

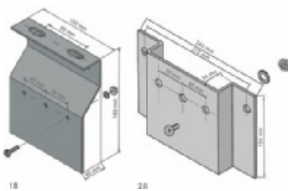
- 2 or 3 hexagonal nuts
- 2 or 3 countersunk screws
- 2 or 3 serrated lock washers
- 1 mounting plate

Article number	Article designation	Number of terminals and types	Pieces / PU
52026031	MP 11	1-2 RKK (01-06)	1
52026032	MP 13	1-2 RKK (01-06) or 1 FKK (07)	1
52026033	MP 12	1-3 RKK (01-06)	1
52026034	MP 14	1-3 RKK (01-06) or 1 FKK (07) and 1 RKK (01-06)	1

RKK = round cable wedge clamp; FKK = flat cable wedge clamp

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

## MP 18/28 installation sheets



### Application range

- Installation sheets
- Installation sheet for small flat cable wedges (zinc-plated)

### Included

- 2 or 3 hexagonal nuts
- 2 or 3 countersunk screws
- 2 or 3 serrated lock washers
- 1 mounting plate

Article number	Article designation	Number of terminals and types	Pieces / PU
52026060	MP 18	1-2 FKK (08)	1
52026061	MP 28	1-2 FKK (08)	1

FKK = flat cable wedge clamp

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

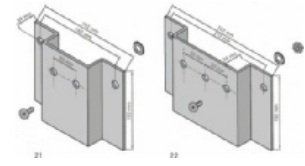
## MP 21/22 installation sheets

### Application range

- Installation sheets
- Installation sheet for all-round and large flat cable wedges (zinc-plated)

### Included

- 2 or 3 hexagonal nuts
- 2 or 3 serrated lock washers
- 2 or 3 countersunk screws
- 1 mounting plate



Article number	Article designation	Number of terminals and types	Pieces / PU
52026062	MKK 21	1 FKK (07) or 2 RKK (01-06)	1
52026063	MKK 22	1 FKK (07) + 1 RKK (01-06) or 3 RKK (01-06)	1

RKK = round cable wedge clamp; FKK = flat cable wedge clamp

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

## 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



#### Temperature range

high mechanical load: +65 °C  
low mechanical load: +100 °C

Article number	Article designation	For cable Ø (mm)	Length x width x height (mm)	Weight (kg/piece)	Pieces / PU
<b>Single clamp</b>					
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
<b>Double clamp</b>					
52026010	DKK 18	15-18	125 x 85 x 120	1.9	1
52026012	DKK 26	19-26	125 x 85 x 120	1.9	1

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



## Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set



### Benefits

- Mounting tool for EPIC® connector systems, SKINTOP® CUBE and sensor-actuator cables
- Fatigue-free due to ergonomic grip design
- Simple, free assembly in any position
- Safety close at hand
- Quick and easy change of tools due to quick-change chuck

### Application range

- Prevents misjudgements of the user which often lead to significantly higher extracting values. The consequences are ripped-off screw heads and over-twisted screw threads.

### Included

- Article number 61813958: Kraftform® torque screwdriver for 0.3 - 1.2 Nm
- Article number 61813990: Kraftform Kompakt® - 10-piece screwdriver set  
- 10-piece screwdriver set  
- Bits: 1xR, 1xTZ, 1xTZ PH, 1xTZ PZ, 1xTZ TORX®  
- 1x hand screwdriver without torque system
- Traceable calibration certificate contained in the scope of delivery

### Technical data

- Caution**  
Can be used in areas requiring ESD protection  
ESD version in acc. with EN 100-015 Part 1
- General**  
Philips screwdriver PH (Phillips recess)
- Approvals**  
Robust industrial design with excellent accuracy in accordance with ISO 6789/EN 26789
- Info**  
Controlled torque of 0.3-1.2 Nm is possible
- Colour delivered**  
Black

Article number	Article designation	Measuring range	Length (mm)	Pieces / PU
61813958	Kraftform® torque screwdriver	0.3 - 1.2	180	1
61813990	Kraftform Kompakt® 10			1

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## Silicon sealing compound



### Benefits

- Fast-hardening sealing material

### Application range

- Protection against humidity, electrostatic discharges, vibrations

### Norm references / Approvals

- Hardness according to ISO 7619-1: 25 °C Shore A
- Specific contact resistance in accordance with DIN 53482

### Technical data

- General**  
Dielectric strength in accordance with DIN 53481: 17 kV/mm  
Dry measurement at 23°C: 14 ohm-cm
- Temperature range**  
-50 °C to +180 °C  
(adequate ventilation required)

Article number	Article designation	Content (ml)	Pieces / PU
61713130	SILICON sealing compound	90	1

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

**Appendix**

Selection tables  
Technical tables  
Item number list  
Product list

979  
1004  
1062  
1082



# Appendix



## Appendix

### Selection tables


A1:	flexible connecting and control cables	979
A2:	highly flexible FD® cables	982
A3:	conveyor cables	984
A4:	halogen-free cables	986
A5:	data network cables for low-frequency analogue/digital signal transmission	989
A6:	UNITRONIC® COAXIAL/BUS/LAN cables	990
A7:	UNITRONIC® BUS and ETHERLINE®	992
A8:	cable entries at a glance	996
A9:	DESINA®-compliant cables	997
A10:	technical data for EPIC® rectangular connectors	998
A11:	applications of HITRONIC® fibre-optic cable components	1000
A12:	applications of servo cables in electrical power drive systems (PDS)	1001
A13:	cables for expanded ambient temperature ranges	1002
A15:	FLEXIMARK® Marking systems	1003

### Technical tables

T0:	safe use of our products	1004
T1:	chemical resistance of cables	1008
T2:	assembly guidelines – PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®)	1010
T3:	assembly guidelines – ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and Hitronic® FD cables in power chains	1011
T4:	assembly guidelines – ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR	1012
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T25:	registered trademarks	1050
T26:	products with certification for Russia	1051
T27:	fire load calculations for cables	1054
T28:	radiation resistance	1055
T29:	using UL-approved cables	1056
T30:	environmental information	1061

<b>Item number list</b>	1062
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<b>Product list</b>	1082
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Usage criteria	Cable designation (fixed installation and/or occasional flexing)																											
	Page	24	26	27	28	29	30	31	34	35	36	37	38	39	40	42	43	44	45	46	47	48	49	50	51	52	53	54
		ÖLFLEX® CLASSIC 100	ÖLFLEX® CLASSIC 100 Yellow	ÖLFLEX® CLASSIC 100 CY	ÖLFLEX® CLASSIC 100 SY	ÖLFLEX® CLASSIC 100 BK POWER 0.6/1 KV	ÖLFLEX® SMART 108	ÖLFLEX® CLASSIC 110	ÖLFLEX® CLASSIC 110 Cold	ÖLFLEX® CLASSIC 110 Orange	ÖLFLEX® CLASSIC 110 CY	ÖLFLEX® CLASSIC 110 SY	ÖLFLEX® CLASSIC 110 SY	ÖLFLEX® CLASSIC 110 CY black	ÖLFLEX® CLASSIC 115 CY	ÖLFLEX® EB	ÖLFLEX® EB CY	ÖLFLEX® 140	ÖLFLEX® 140 CY	ÖLFLEX® 150	ÖLFLEX® 150 CY	ÖLFLEX® 191	ÖLFLEX® 191 CY	ÖLFLEX® CONTROL TM	ÖLFLEX® CONTROL TM CY	ÖLFLEX® Tray II	ÖLFLEX® Tray II CY	ÖLFLEX® SF
<b>Use</b>																												
For non-deactivatable circuits: EN 60204																												
For intrinsically safe circuits in hazardous areas/VDE 0165																												
Handheld devices and lights on building sites																												
Oil-resistant to UL + CSA specification																												
Enhanced oil resistance to VDE																												
Bio-oil-resistant																												
Chemical-resistant cables																												
UV-resistant cables																												
Servomotors/drive systems																												
For torsion in wind turbine generators (see catalogue page)																												
<b>Standards</b>																												
Based on VDE/HAR/DIN																												
According to standard with VDE certification																												
With VDE registration																												
With HAR certification																												
With UL certification																												
With CSA certification																												
<b>Temperature range</b>																												
+105 °C																												
+90 °C																												
+80 °C																												
+70 °C																												
+60 °C																												
-5 °C																												
-10 °C																												
-15 °C																												
-25 °C																												
-30 °C																												
-40 °C																												
-50 °C																												
-55 °C																												
<b>Installation</b>																												
Outdoor use, unprotected, fixed installation																												
Outdoor use, UV light protection, fixed installation																												
Outdoor use, unprotected, occasional flexing																												
Inside, on plaster, in pipe/conduit, in partitions, fixed installation																												
Inside, occasional flexing																												
<b>Bending radius (occasional flexing)</b>																												
5 x D																												
10 x D																												
12.5 x D																												
15 x D																												
20 x D																												
<b>Nominal voltage</b>																												
300/500 V																												
600 V acc. to UL/CSA																												
450/750 V																												
600/1000 V																												
<b>Design</b>																												
Fine wire, VDE class 5, stranded copper conductor																												
Extra-fine wire, VDE class 6, stranded copper conductor																												
Ultra-fine wire, VDE class 6, stranded copper conductor																												
PUR core insulation																												
Rubber core insulation																												
PVC/special PVC core insulation																												
PE/PP core insulation																												
Halogen-free core insulation																												
Number printing																												
Colour code acc. to VDE 0293																												
ÖLFLEX® colour code																												
Screening Cu braid/cover																												
Shared inner sheath under overall screening/braid																												
Steel wire braiding																												
PVC sheath																												
PUR sheath, abrasion-resistant, cut-resistant																												
Halogen-free outer sheath																												
Bio-oil-resistant outer sheath P4/11																												
Rubber compound sheath acc. to standard																												

 Main application/design  
 Possible application  
 Flexible use  
 Fixed and flexible use  
 Fixed installation

ÖLFLEX®  
 UNITRONIC®  
 ETHERLINE®  
 HITRONIC®  
 EPIC®  
 SKINTOP®  
 SILVYN®  
 FLEXIMARK®  
 ACCESSORIES  
 APPENDIX





A1: flexible connecting and control cables

Usage criteria	Cable designation (fixed installation and/or occasional flexing)																						
	85	87	90	91	92	93	94	95	97	96	98	105	144	145	145	155	152	153	154	157	158	159	
<b>Use</b>	<p>For non-deactivatable circuits: EN 60204</p> <p>For intrinsically safe circuits in hazardous areas/VDE 0165</p> <p>Handheld devices and lights on building sites</p> <p>Oil-resistant to UL + CSA specification</p> <p>Enhanced oil resistance to VDE</p> <p>Bio-oil-resistant</p> <p>Chemical-resistant cables</p> <p>UV-resistant cable</p> <p>Servomotors/drive systems</p> <p>For torsion in wind turbine generators (see catalogue page)</p>																						
<b>Standards</b>	<p>Based on VDE/HAR/DIN</p> <p>According to standard with VDE certification</p> <p>With VDE registration</p> <p>With HAR certification</p> <p>With UL certification</p> <p>With CSA certification</p>																						
<b>Temperature range</b>	<p>+105 °C</p> <p>+90 °C</p> <p>+80 °C</p> <p>+70 °C</p> <p>+60 °C</p> <p>-5 °C</p> <p>-10 °C</p> <p>-15 °C</p> <p>-25 °C</p> <p>-30 °C</p> <p>-40 °C</p> <p>-45 °C</p> <p>-50 °C</p> <p>-55 °C</p>																						
<b>Installation</b>	<p>Outdoor use, unprotected, fixed installation</p> <p>Outdoor use, UV light protection, fixed installation</p> <p>Outdoor use, unprotected, occasional flexing</p> <p>Inside, on plaster, in pipe/conduit, in partitions, fixed installation</p> <p>Inside, occasional flexing</p>																						
<b>Bending radius (occasional flexing)</b>	<p>5 x D</p> <p>6 x D</p> <p>7.5 x D</p> <p>10 x D</p> <p>12.5 x D</p> <p>15 x D</p> <p>20 x D</p>																						
<b>Nominal voltage</b>	<p>300/500 V</p> <p>600 V acc. to UL/CSA</p> <p>450/750 V</p> <p>600/1000 V</p>																						
<b>Design</b>	<p>Fine wire, VDE class 5, stranded copper conductor</p> <p>Extra-fine wire, VDE class 6, stranded copper conductor</p> <p>Ultra-fine wire, VDE class 6, stranded copper conductor</p> <p>PUR core insulation</p> <p>Rubber core insulation</p> <p>PVC/special PVC core insulation</p> <p>PE/PP core insulation</p> <p>Halogen-free core insulation</p> <p>Number printing</p> <p>Colour code acc. to VDE 0293</p> <p>ÖLFLEX® colour code</p> <p>Tensile strain relief element (ZEE)</p> <p>Screening Cu braid/cover</p> <p>Shared inner sheath under overall screening/braid</p> <p>Steel wire braiding</p> <p>Jacket-integrated support braid against torsion + ovalisation</p> <p>PVC sheath</p> <p>PUR sheath, abrasion-resistant, cut-resistant</p> <p>Halogen-free outer sheath</p> <p>Bio-oil-resistant outer sheath P4/11</p> <p>Rubber compound sheath acc. to standard</p>																						
	<p>✓ Main application/design</p> <p>✓ Possible application</p> <p>● Flexible use</p> <p>□ Fixed and flexible use</p> <p>▲ Fixed installation</p>																						
	<p>***Acc. to HD 516/VDE 0298-300; with other applications, partially different bending radii acc. to HD 516/VDE 0298-300, in some cases up to 8 x D</p>																						

**A2 Selection tables**

A2: highly flexible FD® cables - use in power chains or robot applications


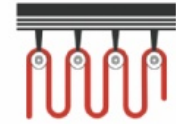
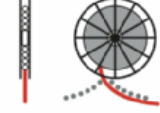
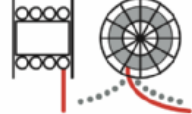
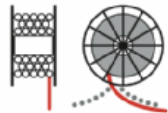
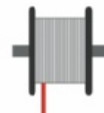


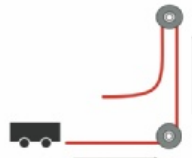

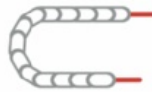
Usage criteria	Cable designation																	
	Page	99	100	101	102	103	104	105	106	116	117	118	119	118	119	123	124	122
<b>Use</b>		ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® SERVO FD 798 CP	SERVO cable acc. to SIEMENS® standard 6FX 8PLUS - green or orange	SERVO cable acc. to INDRAMAT® standard INK	SERVO cable acc. to LENZE® standard	Special Encoder & Resolver cables	ÖLFLEX® CHAIN 808 P	ÖLFLEX® CHAIN 808 CP	ÖLFLEX® CLASSIC FD 810	ÖLFLEX® CLASSIC FD 810 CY	ÖLFLEX® CLASSIC FD 810 P	ÖLFLEX® CLASSIC FD 810 CP	ÖLFLEX® ROBUST FD	ÖLFLEX® ROBUST FD C	ÖLFLEX® PETRO FD 865 CP
<b>Temperature range</b>																		
+105 °C																		
+90 °C																		
+80 °C																		
+70 °C		●	□	□			●	●	●	●	●	●	●	●	●		□	
+60 °C						□												
+5 °C		●																
-5 °C		●						●	●	●	●	●	●	●	●			
-10 °C																		
-20 °C						●												
-30 °C							●	□	●									
-40 °C		▲	●	●	●				●	▲	▲	▲	▲	▲	▲	▲	▲	▲
-50 °C		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
<b>Minimum bending radius</b>																		
5 x D																		
6.5 x D																		
7.5 x D		✓	✓	✓	✓	✓												
10 x D							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.5 x D										✓	✓	✓	✓	✓	✓	✓	✓	✓
15 x D										✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Installation</b>																		
For chains with low radii		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For chains with minimal space		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For lower power/weight ratio in chain		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For 24-hour operation with high cycle numbers		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For high acceleration > 10 m/s²		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For very high acceleration up to 50 m/s²		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For travel speeds up to 5 m/s, travel lengths up to 10 m		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For travel speeds up to 10 m/s, travel lengths up to 10 m		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
For travel speeds up to 5 m/s, travel lengths up to 100 m		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Nominal voltage</b>																		
350 Vss						✓	✓	✓	✓									
30/300 V AC									✓									
300/500 V AC										✓								
600/1000 V AC		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
600 V acc. to UL/CSA																		
<b>Design</b>																		
Fine wire, VDE class 5, stranded copper conductor										✓	✓							
Extra-fine wire, VDE class 6, stranded copper conductor		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ultra-fine wire, VDE class 6, stranded copper conductor																		
PVC/special PVC core insulation										✓	✓	✓	✓	✓	✓	✓	✓	✓
Elastomer core insulation																		
PE/cellular PE/cellular PE foam skin core insulation																		
Polyethylene/polypropylene core insulation		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TPE core insulation																		
Special TPE (P4/11) core insulation																		
Halogen-free compound																		
Number printing		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VDE colour code																		
DIN 47100 colour code/special colour code																		
Pair screening PiCY/PiMF/STP																		
Overall screening		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special PVC sheath		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PUR sheath, abrasion-resistant, cut-resistant																		
Rubber sheath																		
Special TPE (P4/11) sheath, bio-oil-resistant																		
Halogen-free compound		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ Main application/design  
 ✓ Possible application  
 ● Flexible use  
 □ Fixed and flexible use  
 ▲ Fixed installation





A3-2: conveyor cables – ÖLFLEX® CRANE application areas

Usage criteria		Page	152	153	154	155	161	156	157	158	159	160	162	Cable designation				
			ÖLFLEX® CRANE NSHTÖU	ÖLFLEX® CRANE VS (N)SHTÖU	ÖLFLEX® CRANE PUR	ÖLFLEX® CRANE	ÖLFLEX® CRANE CF	ÖLFLEX® CRANE 2S	ÖLFLEX® LIFT	ÖLFLEX® LIFT T	ÖLFLEX® LIFT S	ÖLFLEX® CRANE F	ÖLFLEX® LIFT F					
Application																		
Cable trailer systems						✓	✓					✓	✓					
Reeling, light stress (monospiral configuration - stacked)			✓	✓														
Reeling, moderate stress (multispiral configuration - single layer)			✓	✓														
Reeling, heavy stress (multispiral configuration - multilayer)			✓	✓														
Vertical reeling			✓	✓														
Reel storage (horizontal)			✓	✓														
Reel storage (vertical)					✓													
Re-routing under tensile load			✓	✓														
Push-button control unit			✓	✓				✓										
Drag chain			✓	✓	✓	✓						✓	✓					
Lift									✓	✓	✓	✓	✓					

✓ Main application  
✓ Possible application

**A4** Selection tables

A4: halogen-free cables

Usage criteria		Cable designation																												
Page		55	56	57	58	59	60	61	63	64	65	72	73	77	78	83	85	89	97	120	121	139	142	143	150	100	122	100	102	126
		ÖLFLEX® CLASSIC 100 H	ÖLFLEX® CLASSIC 110 H	ÖLFLEX® CLASSIC 110 CH	ÖLFLEX® 120 H	ÖLFLEX® 120 CH	ÖLFLEX® CLASSIC 130 H	ÖLFLEX® CLASSIC 135 CH	ÖLFLEX® CLASSIC 130 H BK 0.6/1 KV	ÖLFLEX® CLASSIC 135 CH BK 0.6/1 KV	ÖLFLEX® PETRO C HFFR	ÖLFLEX® 440 P	ÖLFLEX® 440 CP	ÖLFLEX® 540 P	ÖLFLEX® 540 CP	H07RN-F, enhanced version	H07ZZ-F	NSHXAF6 1.8/3 KV*	SERVO cable acc. to SIEMENS® standard 6FX 8Plus	ÖLFLEX® FD 855 P	ÖLFLEX® FD 855 CP	ÖLFLEX® SOLAR XLS-R/XLS-RT/V4A	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® PETRO FD 865 CP	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 798 CP	ÖLFLEX® CHAIN 896 P			
Use																														
<b>Machines and systems:</b>																														
External wiring of machinery		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Internal wiring of control cabinets																			✓											
<b>Other circuits in buildings:</b>																														
Lighting circuits		✓																												
Power circuits		✓																												
Network cables																														
Standards																														
Low smoke density		✓	✓	✓	✓	✓	✓	✓	✓	✓								✓	✓											
Low toxicity of flue gas		✓	✓	✓	✓	✓	✓	✓	✓	✓								✓	✓											
Flame-retardant to IEC 60332.1-2		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Highly flame-retardant to IEC 60332.3		✓	✓	✓	✓	✓	✓	✓	✓	✓								✓	✓											
In accordance with VDE/HAR/DIN/UL		✓	✓	✓	✓	✓	✓	✓	✓	✓										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
With certification VDE/HAR/DIN/UL/TÜV/GL/DNV		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature range																														
+180 °C																														
+145 °C																														
+120 °C																														
+110 °C																														
+90 °C																														
+80 °C			▲	▲	▲			▲	▲	▲	▲																			
+70 °C		●	●	●	□	□	●	●	●	●									□											
+50 °C																														
0 °C																														
-5 °C																														
-15 °C																														
-25 °C																														
-30 °C		●	●	●																										
-40 °C		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
-50 °C																														
-60 °C																														
Nominal voltage																														
250 Vss																														
300/500 V			✓	✓	✓	✓	✓	✓				✓	✓	✓	✓						✓	✓								
450/750 V																														
600/1000 V			✓																											
1.8/3 KV									✓	✓	✓									✓							✓			
Design																														
Solid wire VDE 0295 class 1																														
Multi-wire VDE 0295 class 2																														
Fine wire VDE 0295 class 5		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓											
Extra-fine wire VDE 0295 class 6																														
Number printing VDE 0293			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓											
Colour code to VDE 0293-308; HD 308-S2		✓																												
Colour code to DIN 47100																														
Special core ident. code																														
Single colours											✓									✓						✓		✓		
<b>Halogen-free accessories:</b>	<b>Cable protection hoses</b>	<b>Cable entries</b>	<b>Marking</b>	<b>Accessories</b>																										
	SILVYN® RILL PA6 SILVYN® RILL PA12 SILVYN® FPAS SILVYN® HCC SILVYN® HFX SILVYN® LCCH-2 SILVYN® AS SILVYN® EDU-AS SILVYN® TC	SILVYN® EMC AS-CU SILVYN® SSUE SILVYN® UI 511 SILVYN® HFX SILVYN® CHAIN SILVYN® CHAIN STEEL SILVYN® HIPROJACKET	SKINTOP® ST-HF-M SKINTOP® GMP-HF-M SKINTOP® BLK-GL-M SKINTOP® GMP-GL-M SKINDICHT® KW-M SKINDICHT® KU-M SKINDICHT® EKU-M	FLEXIMARK® single core marking Flexipart, marking sleeves, Flexiprint FLEXIMARK® cable labelling MINI system, shrink tube labelling FLEXIMARK® component labelling LB LA labels DYMO® label strips	Embossed metal plates, insulated conductor end sleeves Insulated cable lugs, TBTA insulating tape Shrink hoses CMP/PKG/HSB/PLG TEC end caps TEB branch joints KW plastic coil Cable ties Basic Tie/TY-RAP®/TY-FAST®																									

✓ Main application/design  
 ✓ Possible application

● Flexible use  
 □ Fixed and flexible use  
 ▲ Fixed installation

Other halogen-free cables on request.

\*Use of NSHXAF6 – all standard nominal voltage classes: no lagged cables, just "outer sheath" acc. to design standard VDE 0250-606.

Usage criteria		Cable designation																																
		Page	141	138	140	154	164	165	166	167	168	169	170	171	172	179	180	145	147	191	210	225	288	263	264	265	272	273	274	326	323	324	311	
			ÖLFLEX® TRAFOL XL V1,8/3KV	ÖLFLEX® SOLAR XLR-R	ÖLFLEX® SOLAR XLSv	ÖLFLEX® CRANE PUR	ÖLFLEX® HEAT 145 MC	ÖLFLEX® HEAT 145 C MC	ÖLFLEX® HEAT 180 SHF	ÖLFLEX® HEAT 180 H05SS-F EWKF	ÖLFLEX® HEAT 180 MS	ÖLFLEX® HEAT 180 C MS	ÖLFLEX® HEAT 180 EWKF	ÖLFLEX® HEAT 180 EWKF C	ÖLFLEX® HEAT 180 GLS	ÖLFLEX® HEAT 125 SC	ÖLFLEX® HEAT 180 single core	ÖLFLEX® TORSION FRNC	ÖLFLEX® TORSION D FRNC	ÖLFLEX® CHARGE OG	H05Z-K, H07Z-K 90°C*	(N)HXMH	ÖLFLEX® SPIRAL 540 P	UNITRONIC® BUS PB H FC	UNITRONIC® LIHH	UNITRONIC® LHCH	UNITRONIC® LHCH (TP)	UNITRONIC® FD P plus	UNITRONIC® FD CP plus	UNITRONIC® FD CP (TP) plus	UNITRONIC® BUS EIB	UNITRONIC® BUS IBS P COMBI	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS LD FD P
<b>Use</b>																																		
<b>Machines and systems:</b>																																		
External wiring of machinery		✓																																
Internal wiring of control cabinets		✓																																
<b>Other circuits in buildings:</b>																																		
Lighting circuits		✓																																
Power circuits		✓																																
Network cables		✓																																
<b>Standards</b>																																		
Low smoke density		✓																																
Low toxicity of flue gas		✓																																
Flame-retardant to IEC 60332.1-2		✓																																
Highly flame-retardant to IEC 60332.3		✓																																
In accordance with VDE/HAR/DIN/UL		✓																																
With certification VDE/HAR/DIN/UL/TÜV/GL/DNV		✓																																
<b>Temperature range</b>																																		
+180 °C		●																																
+145 °C		●																																
+120 °C		▲																																
+110 °C		●																																
+90 °C		☐																																
+80 °C		☐																																
+70 °C		●																																
+50 °C		●																																
0 °C		●																																
-5 °C		●																																
-15 °C		▲																																
-25 °C		●																																
-30 °C		▲																																
-40 °C		☐																																
-50 °C		●																																
-60 °C		●																																
<b>Nominal voltage</b>																																		
250 Vss		✓																																
300/500 V		✓																																
450/750 V		✓																																
600/1000 V		✓																																
1.8/3 KV		✓																																
<b>Design</b>																																		
Solid wire VDE 0295 class 1		✓																																
Multi-wire VDE 0295 class 2		✓																																
Fine wire VDE 0295 class 5		✓																																
Extra-fine wire VDE 0295 class 6		✓																																
Number printing VDE 0293		✓																																
Colour code to VDE 0293-308; HD 308-S2		✓																																
Colour code to DIN 47100		✓																																
Special core ident. code		✓																																
Single colours		✓																																
<b>Halogen-free accessories:</b>																																		
<b>Cable protection hoses</b>		SILVYN® RILL PA6 SILVYN® RILL PA12 SILVYN® FPAS SILVYN® HCC SILVYN® LCCH-2 SILVYN® AS SILVYN® EDU-AS SILVYN® TC																																
<b>Cable entries</b>		SILVYN® EMC AS-CU SILVYN® SSUE SILVYN® UI 511 SILVYN® HFX SILVYN® CHAIN SILVYN® CHAIN STEEL SILVYN® HIPROJACKET																																
<b>Marking</b>		SKINTOP® ST-HF-M SKINTOP® GMP-HF-M SKINTOP® BLK-GL-M SKINTOP® GMP-GL-M SKINDICHT® KW-M SKINDICHT® KU-M SKINDICHT® EKU-M																																
<b>Accessories</b>		FLEXIMARK® single core marking Flexipart, marking sleeves, Flexiprint FLEXIMARK® cable labelling MINI system, shrink tube labelling FLEXIMARK® component labelling LB LA labels DYMO® label strips																																
		Embossed metal plates, insulated conductor end sleeves Insulated cable lugs, TBTA insulating tape Shrink hoses CMP/PKG/HSB/PLG TEC end caps TEB branch joints KW plastic coil Cable ties Basic Tie/TY-RAP®/TY-FAST®																																

✓ Main application/design  
 ✓ Possible application

● Flexible use  
 ☐ Fixed and flexible use  
 ▲ Fixed installation

Other halogen-free cables on request.

\*Nominal voltage U<sub>0</sub>/U: for 05Z-K = 300/500 V<sub>ac</sub>  
 for 07Z-K = 450/750 V<sub>ac</sub>

**A4** Selection tables

A4: halogen-free cables

Usage criteria	Cable designation																					
	287	397	394	404	426	427	428	429	430	431	397	398	392	398	399	401	403	405	405	406	404	408
	UNITRONIC® BUS ASI FD P FRNC	ETHERLINE® H Cat.5e	ETHERLINE® Cat.5 FRNC HYBRID	ETHERLINE® FD P Cat.6	UNITRONIC® LAN 200 Cat.5e LSZH	UNITRONIC® LAN 250 Cat.6 LSZH	UNITRONIC® LAN 500 Cat.6 <sub>A</sub> LSZH	UNITRONIC® LAN 1000 Cat.7 LSZH	UNITRONIC® LAN 1200 Cat.7 <sub>A</sub> LSZH	UNITRONIC® LAN 1500 Cat.7 <sub>A</sub> LSZH	ETHERLINE® P Cat.5e	ETHERLINE® H/P FLEX Cat.5e	ETHERLINE® Cat.5e FD	ETHERLINE® PN FLEX FRNC	ETHERLINE® PN Cat.5 FD	ETHERLINE® TORSION Cat.5	ETHERLINE® FIRE Cat.5e PH60	ETHERLINE® Cat.6 <sub>A</sub> H/7 H	ETHERLINE® Cat.6 <sub>A</sub> P/7 P	ETHERLINE® Cat.6 <sub>A</sub> FRNC FLEX	ETHERLINE® Cat.6 <sub>A</sub> FD P	ETHERLINE® Cat.6 <sub>A</sub> TORSION P

**Use**

Machines and systems:																						
External wiring of machinery	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Internal wiring of control cabinets																						
Other circuits in buildings:																						
Lighting circuits																						
Power circuits																						
Network cables			✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**Standards**

DIN VDE																						
Low smoke density		✓	✓		✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
Low toxicity of flue gas		✓	✓		✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
Flame-retardant to IEC 60332.1-2	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Highly flame-retardant to IEC 60332.3																						
In accordance with VDE/HAR/DIN/UL	✓	✓	✓																			
With certification VDE/HAR/DIN/UL/TÜV/GL/DNV				✓																		

**Temperature range**

Temperature range																						
+180 °C																						
+145 °C																						
+120 °C																						
+110 °C																						
+90 °C																						
+80 °C	▲	▲		□							□	□	▲			●	▲	▲	▲	▲	▲	▲
+70 °C	●		□										●	▲	▲	▲					●	●
+60 °C		●			▲	▲	▲	▲	▲	▲	●	●		▲	●					●		
+50 °C																						
0 °C																						
-5 °C		●									●	●										
-15 °C																						
-20 °C					▲	▲	▲	▲	▲	▲			●		●	▲				●		
-25 °C			□																			
-30 °C	●	▲		●							▲	▲	▲	▲	▲					●	●	
-40 °C	▲		▲													●				▲	▲	
-50 °C																						
-60 °C																						

**Nominal voltage**

Nominal voltage																						
250 Vss	✓																					
300/500 V																						
450/750 V																						
600/1000 V																						
1.8/3 KV																						

**Design**

Design																						
Solid wire VDE 0295 class 1		✓			✓	✓	✓	✓	✓	✓												
Multi-wire VDE 0295 class 2																						
Fine wire VDE 0295 class 5			✓																			
Extra-fine wire VDE 0295 class 6	✓																					
Number printing VDE 0293																						
Colour code to VDE 0293-308; HD 308-S2																						
Colour code to DIN 47100																						
Special core ident. code	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Single colours																						

Halogen-free accessories:	Cable protection hoses	Cable entries	Marking	Accessories
SILVYN® RILL PA6	SILVYN® EMC AS-CU	SKINTOP® ST-HF-M	FLEXIMARK® single core marking	Embossed metal plates, insulated conductor end sleeves
SILVYN® RILL PA12	SILVYN® SSUE	SKINTOP® GMP-HF-M	Flexipart, marking sleeves, Flexiprint	Insulated cable lugs, TBTA insulating tape
SILVYN® FPAS	SILVYN® UI 511	SKINTOP® BLK-GL-M	FLEXIMARK® cable labelling	Shrink hoses CMP/PKG/HSB/PLG
SILVYN® HCC	SILVYN® HFX	SKINTOP® GMP-GL-M	MINI system, shrink tube labelling	TEC end caps
SILVYN® LCCH-2	SILVYN® CHAIN	SKINDICHT® KW-M	FLEXIMARK® component labelling	TEB branch joints
SILVYN® AS	SILVYN® CHAIN STEEL	SKINDICHT® KU-M	LB LA labels	KW plastic coil
SILVYN® EDU-AS	SILVYN® HIPROJACKET	SKINDICHT® EKU-M	DYMO® label strips	Cable ties Basic Tie/TY-RAP®/TY-FAST®

✓ Main application/design  
 ✓ Possible application  
 ● Flexible use  
 □ Fixed and flexible use  
 ▲ Fixed installation

Other halogen-free cables on request.



A5: data network cables for low-frequency analogue/digital signal transmission

Usage criteria		Cable designation																														
		Page	244	244	246	248	250	251	253	254	255	256	257	258	259	260	262	263	264	265	270	271	272	273	274	279	280	281	284	285	285	
			UNITRONIC® 100	UNITRONIC® 100 CY	UNITRONIC® LIYY	UNITRONIC® LIYC	UNITRONIC® LIYY (TP)	UNITRONIC® LIYC (TP)	UNITRONIC® LIYC-CY	UNITRONIC® LIYC (TP)	UNITRONIC® CY PIDY (TP)	UNITRONIC® ST	UNITRONIC® LYD 11Y	UNITRONIC® PUR CP	UNITRONIC® PUR CP (TP)	UNITRONIC® LI2YC(TP)-LI2YCv (TP)	UNITRONIC® LI2YC PIMF	UNITRONIC® LIHH	UNITRONIC® LIHCH	UNITRONIC® LIHCH (TP)	UNITRONIC® FD	UNITRONIC® FD CY	UNITRONIC® FD P plus	UNITRONIC® FD CP plus	UNITRONIC® FD CP (TP) plus	JE-Y(ST)Y...BD	JE-LIYC...BD	Indoor telephone cable J-Y(ST)Y	Fire alarm cable J-Y(ST)Y red	J-2Y(ST)Y...ST III BD	Outdoor telephone cable	
<b>Use</b>		Access control/time recording system (ZK/ZE)																														
		Production data acquisition systems (BDE)																														
		Clock systems																														
		Intrusion detection systems (EMA)																														
		Fire alarm systems (BMA)																														
		Telephone private branch exchanges																														
		Intercom systems																														
		Electro-acoustic systems (ELA/PA)																														
		Recording studio cables/microphone cables																														
		Printers/plotters																														
		DC stepper motors																														
		Encoders (position or angle)																														
		Industrial sensors, U < 50 Veff																														
		Industrial actuators, U < 50 Veff																														
		Measurement and control purposes, analogue (MSR)																														
		MSR, digital																														
		In electronic devices																														
		For cutting/clamping technology (0.34 mm <sup>2</sup> /AWG 22)																														
<b>Temperature range</b>		+80 °C																														
		+70 °C																														
		+50 °C																														
		-5 °C																														
		-30 °C																														
		-40 °C																														
<b>Installation</b>		For fixed installation outdoors																														
		For direct routing underground																														
		For fixed installation indoors																														
		For flexing applications (indoors), occasional																														
		For permanent flexing (indoors/outdoors)																														
<b>Design</b>		Halogen-free																														
		Flame-retardant, self-extinguishing																														
		For el. symmetrical signal transmission (TP), twisted pair																														
		For high pair decoupling, pair screening																														
		For el. screening effect, overall screening																														
		For low-attenuation transmission, low-capacitance																														
		With individually screened cores																														
		With colour code DIN 47100																														
		With UNITRONIC® colour code																														
		With industrial electronics colour code as per VDE 0815																														
		With star quad colour code "BD" as per VDE 0815/0816																														
		With pair colour code "LG" as per VDE 0815																														
		With special colour code																														
		With PVC/special PVC outer sheath																														
		With PUR sheath, abrasion-resistant, cut-resistant																														
		With PE outer sheath (not flame-retardant)																														
		With halogen-free outer sheath																														
<b>Halogen-free accessories:</b>		<b>Cable protection hoses</b>	SILVYN® RILL PA6 SILVYN® RILL PA12 SILVYN® FPAS SILVYN® HCC SILVYN® LCCH-2 SILVYN® AS SILVYN® EDU-AS SILVYN® TC	SILVYN® EMC AS-CU SILVYN® SSUE SILVYN® UI 511 SILVYN® HFX SILVYN® CHAIN SILVYN® CHAIN STEEL SILVYN® HIPROJACKET	<b>Cable entries</b>	SKINTOP® ST-HF-M SKINTOP® GMP-HF-M SKINTOP® BLK-GL-M SKINTOP® GMP-GL-M SKINDICHT® KW-M SKINDICHT® KU-M SKINDICHT® EKU-M	<b>Marking</b>	FLEXIMARK® single core marking Flexipart, marking sleeves, Flexiprint FLEXIMARK® cable labelling MINI system, shrink tube labelling FLEXIMARK® component labelling LB LA labels DYMO® label strips	<b>Accessories</b>	Embossed metal plates, insulated conductor end sleeves Insulated cable lugs, TBTA insulating tape Shrink hoses CMP/PKG/HSB/PLG TEC end caps TEB branch joints KW plastic coil Cable ties Basic Tie/TY-RAP®/TY-FAST®																						

- ✓ Main application/design
- ✓ Possible application
- Flexible use
- Fixed and flexible use
- ▲ Fixed installation

# A6 Selection tables

## A6: UNITRONIC® COAXIAL/BUS/LAN cables – COAXIAL/BUS/LAN cable interfaces

Usage criteria	Cable designation																																							
	385	385	385	385	385	385	385	385	385	385	385	385	385	386	386	386	323	324	325	323	323	325	310	311	288	295	292	294	299	299	297	300	301	300	287	326				
	COAXIAL CABLE RG 6 A/U	COAXIAL CABLE RG 58 C/U	COAXIAL CABLE RG 174 A/U	COAXIAL CABLE RG 178 B/U	COAXIAL CABLE RG 188 A/U	COAXIAL CABLE RG 213 /U	COAXIAL CABLE RG 214 /U	COAXIAL CABLE RG 223 /U	COAXIAL CABLE RG 11 A/U	COAXIAL CABLE RG 11 A/U outdoor	COAXIAL CABLE RG 59 B/U	COAXIAL CABLE RG 187 A/U	COAXIAL CABLE RG 62 A/U	MULTI COAXIAL CABLE RG 59 B/U	COAXIAL CABLE RGB	COAXIAL CABLE RGB-FD	UNITRONIC® BUS IBS	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS IBS Yv	UNITRONIC® BUS IBS P COMBI	UNITRONIC® BUS IBS FD P COMBI	UNITRONIC® BUS IBS Yv COMBI	UNITRONIC® BUS LD	UNITRONIC® BUS LD FD P	UNITRONIC® BUS PB	UNITRONIC® BUS PB FD P	UNITRONIC® BUS PB Yv	UNITRONIC® BUS PB 7-W	UNITRONIC® BUS PB FD P COMBI	UNITRONIC® BUS PB PE	UNITRONIC® BUS PB FD P FRNC FC	UNITRONIC® BUS PB TORSION	UNITRONIC® BUS PB FEESTOON	UNITRONIC® BUS PB FD Y HYBRID	UNITRONIC® BUS ASI FD P	UNITRONIC® BUS EIB				
<b>Use</b>																																								
Suitable for network type as per:																																								
IEEE 802.3 (Ethernet)	✓																																							
IEEE 802.4 (MAP)										✓																														
IEEE 802.5 (IBM)																																								
ISDN 64 K Bit																																								
IBM 3270, 3600, 4300														✓																										
IBM AS 400, 36, 38																																								
IBM PC Network								✓																																
10 base 5 Ethernet																																								
10 base 2 Cheapernet		✓																																						
10 base T (UTP) 100 ohms							✓																																	
Token Ring (STP) 150 ohms																																								
Token Bus																																								
Radio/TV																																								
Video BAS/FBAS																																								
Video RGB monitors																																								
EIA RS 232/V.24																																								
EIA RS 422/V.11																																								
EIA RS 485																																								
EIA RS 232/20 mA (TTY)																																								
<b>Standards</b>																																								
PROFIBUS																																								
INTERBUS (Phoenix Contact)																																								
BITBUS (Intel)																																								
For LAN installations (IBM, Ethernet etc.)	✓						✓	✓	✓			✓	✓	✓																										
With IBM reference approval																																								
PROFINET																																								
<b>Temperature range</b>																																								
+205 °C																																								
+90 °C		▲	▲		▲	▲	▲	▲		▲	▲	▲	▲	▲																										
+80 °C																																								
+70 °C																																								
+60 °C																																								
-5 °C																																								
-20 °C																																								
-30 °C																																								
-40 °C		▲	▲		▲	▲	▲	▲		▲	▲	▲	▲	▲																										
-50 °C																																								
-90 °C																																								
<b>Installation</b>																																								
Installation outdoors in open air		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓																										
Indirect routing underground	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓																										
Indoor use																																								
Direct routing underground																																								
<b>Characteristic impedance</b>																																								
≥ 150 ohms																																								
≥ 120 ohms																																								
≥ 100 ohms																																								
≥ 93 ohms																																								
≥ 75 ohms	✓																																							
≥ 60 ohms		✓	✓	✓	✓	✓	✓	✓																																
≥ 50 ohms		✓	✓	✓	✓	✓	✓	✓																																
<b>Output category</b>																																								
CAT.5 ≤ 100 MHz																																								
CAT.6 ≤ 250 MHz																																								
CAT.6a ≤ 500 MHz																																								
CAT.7 ≤ 600 MHz																																								
CAT.7a ≤ 1200 MHz																																								
<b>Design</b>																																								
PVC sheath	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓																										
Halogen-free sheath																																								
PE sheath																																								
PUR sheath, abrasion-resistant, cut-resistant																																								
FEP outer sheath																																								

✓ Main application/design  
 ✓ Possible application  
 ● Flexible use  
 □ Fixed and flexible use  
 ▲ Fixed installation



# A7 Selection tables


A7: UNITRONIC® BUS and ETHERLINE® – which cable suits which fieldbus system?


Usage criteria	Cable designation																											
	Page	323	323	324	324	325	311	292	292	294	312	295	300	301	299	293	288	291	288	312	297	293	315	315	316	317	319	
		UNITRONIC® BUS IBS + A	UNITRONIC® BUS IBS P COMBI A	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS IBS FD P COMBI	UNITRONIC® BUS IBS Yv COMBI	UNITRONIC® BUS LD A + BUS FD P A	UNITRONIC® BUS PB A	UNITRONIC® BUS PB PE	UNITRONIC® BUS PB 7-W A	UNITRONIC® BUS PA	UNITRONIC® BUS PB FD P	UNITRONIC® BUS PB TORSION	UNITRONIC® BUS PB FEESTOON	UNITRONIC® BUS PB FD P HYBRID	UNITRONIC® BUS PB Yv, PB YY	UNITRONIC® BUS PB PE FC	UNITRONIC® BUS PB H FC	UNITRONIC® BUS PB P FC	UNITRONIC® BUS PA FC	UNITRONIC® BUS PB FD P FC	UNITRONIC® BUS PB BURIAL FC	UNITRONIC® BUS CAN	UNITRONIC® BUS CAN FD P	UNITRONIC® BUS CAN BURIAL	UNITRONIC® BUS PB HEAT 180	UNITRONIC® BUS IS	
<b>DIN VDE Standards</b>																												
UL/CSA-approved		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Installation</b>																												
Fixed installation		✓	✓				✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Flexible										✓																	✓	
Highly flexible (drag chains etc.)				✓	✓		✓					✓	✓	✓	✓													
Suitable for outdoor use/direct burial, UV-resistant						✓									✓	✓						✓			✓		✓	
<b>Z<sub>∞</sub> Characteristic impedance</b>																												
100 – 120 ohms		✓	✓	✓	✓	✓	✓				✓										✓		✓	✓	✓	✓		
150 ohms								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Dimensions</b>																												
<b>In mm<sup>2</sup>, or diameter in mm, or AWG size</b>																												
3 x 2 x 0.22		✓																										
3 x 2 x 0.25			✓																									
3 x 2 x 0.25 + 3 x 1.0				✓																								
3 x 2 x 0.22 + 3 x 1.0					✓																							
1 x 2 x 0.22/2 x 2 x 0.22/3 x 2 x 0.22						✓																						
1 x 2 x 0.64							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1 x 2 x 1.0										✓																		
1 x 2 x 0.8												✓																
1 x 2 x 0.64 + 4 x 1.5														✓														
1 x 2 x 0.25/2 x 2 x 0.25																						✓	✓	✓	✓	✓	✓	
1 x 2 x 0.34/2 x 2 x 0.34																						✓	✓	✓	✓	✓	✓	
1 x 2 x 0.5/2 x 2 x 0.5																						✓	✓	✓	✓	✓	✓	
1 x 2 x 0.75/2 x 2 x 0.75																						✓	✓	✓	✓	✓	✓	
2 x 6 + 2 x 2.5 + 1 x 4 x 0.5																											✓	
<b>Bus systems</b>																												
INTERBUS® DIN 19258 EN 50251 sensor/actuator bus		✓																										
INTERBUS® (Phoenix Contact)		✓	✓	✓	✓	✓																						
SUCOnet p® (Klöckner-Möller), Modulink® P (Weidmüller) MODBUS VariNet®-P (Pepperl + Fuchs)							✓																					
PROFIBUS-DP, FMS, FIP								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
PROFIBUS-PA, Foundation™ Fieldbus											✓										✓							
CAN ISO 11898, CAN open																							✓	✓	✓	✓	✓	
AS-INTERFACE																												
EIB																												
CC-Link®																												
Device Net™ (Allen-Bradley/Rockwell Automation)																												
Industrial Ethernet/Fast Ethernet																												
ISOBUS (ISO 11783-2)																											✓	
<b>Legend</b>																												
7-W	= 7-wire braided conductor	LD	= Long distance																									
AS-I	= AS-INTERFACE	P	= Polyurethane outer sheath																									
COMBI IBS	= Installation bus cable for INTERBUS	PB	= PROFIBUS																									
DN	= Device Net	PE	= Polyethylene outer sheath																									
EIB	= European Installation Bus	PROFIBUS-DP	= Decentralised Periphery																									
FD	= Cable suitable for drag chains	PROFIBUS-FMS	= Fieldbus Message Specification																									
FRNC	= Flame Retardant Non Corrosive	PROFIBUS-PA	= Process Automation																									
G	= Rubber outer sheath (EPDM)	TPE	= Thermoplastic elastomer																									
H	= Halogen-free material	Yv	= Cable for routing outdoors/underground with reinforced PVC outer sheath																									
IBS	= Remote bus cable for INTERBUS	YY	= Twin PVC outer sheath																									
L2	= Abbr. for SINEC L2-DP																											
<b>Trademarks</b>																												
CC-Link®	= is a registered trademark of CLPA, Japan																											
DeviceNet™	= is a registered trademark of Open Device Vendors Association (ODVA)																											
Foundation™	= is a registered trademark of Foundation Fieldbus																											
INTERBUS®	= is a registered trademark of Phoenix Contact GmbH & Co.																											
Modulink® P	= is a registered trademark of Weidmüller GmbH & Co.																											
SIMATIC®	= is a registered trademark of SIEMENS AG																											
SINEC®	= is a registered trademark of SIEMENS AG																											
SUCOnet P®	= is a registered trademark of Klöckner + Moeller GmbH																											
VariNet®-P	= is a registered trademark of Pepperl + Fuchs GmbH																											



Appendix  
A7 Selection tables


A7: UNITRONIC® BUS and ETHERLINE® – technical data


Usage criteria		Cable designation									
Page		323	324	325	310	311	288	295	292	312	315
		UNITRONIC® BUS IBS fixed installation	UNITRONIC® BUS IBS FD P highly flexible application	UNITRONIC® BUS IBS Yv suitable for outdoor use/direct burial	UNITRONIC® BUS LD fixed installation	UNITRONIC® BUS LD FD P highly flexible application	UNITRONIC® BUS PB fixed installation	UNITRONIC® BUS PB FD P + PB FD P FC highly flexible application	UNITRONIC® BUS PB Yv suitable for outdoor use/direct burial	UNITRONIC® BUS PA (blue + black) fixed installation	UNITRONIC® BUS CAN fixed installation (0.22 mm <sup>2</sup> )
Parameter											
Characteristic impedance Ω		100	100	100	100-120	100-120	150+/-15	150+/-15	150+/-15	100+/-20	120
Mutual capacitance (800 Hz) max. nF/km		60	60	60	60	60	30	30	30	52	40
Peak operating voltage V (not for power applications)		250	250	250	250	250	250	250	250	250	250
Test voltage, core/core, Ueff. V		1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Conductor resistance (loop) Data network cable pair max. Ω/km		186	159.8	186	186	159.8	110	145, 133	115	44	186
Minimum bending radius, fixed installation		8 x D	-	8 x D	8 x D	-	75 mm	-	75 mm	65 mm	8 x D
Minimum bending radius, flexing		-	15 x D	-	-	15 x D	-	**	-	-	-
Temperature range fixed installation	from °C to °C	-30 +80	-40 +80	-40 +70	-40 +80	-40 +80	-40 +80	-40 +80	-40 +80	-30 +80	-30 +80
Temperature range flexing	from °C to °C	- +70	-30 +70	- -	-5 +70	-30 +70	- +60	-30 +70	- +60	- +60	-5 +70

Usage criteria		Cable designation									
Page		315	320	320	321	321	390	390	390	390	398
		UNITRONIC® BUS FD P CAN FD P highly flexible application (0.25 mm <sup>2</sup> )	UNITRONIC® BUS FF 3 ARM fixed installation	UNITRONIC® BUS FF 2 fixed installation	UNITRONIC® BUS CC fixed installation	UNITRONIC® BUS CC FD P FRNC highly flexible application	ETHERLINE® H Cat.5e fixed installation	ETHERLINE® P Cat.5e fixed installation	ETHERLINE® H-H Cat.5e fixed installation	ETHERLINE® H FLEX Cat.5e flexible	ETHERLINE® P FLEX flexible
Parameter											
Characteristic impedance Ω		120	100	100	110	110	100	100	100	100	100
Mutual capacitance (800 Hz) max. nF/km		40	56	65	60	60	48	46	46	48	48
Peak operating voltage V (not for power applications)		250	300	300	300	300	125	125	125	125	125
Test voltage, core/core, Ueff. V		1500	1500	1500	2000	2000	1000	1000	1000	1000	1000
Conductor resistance (loop) Data network cable pair max. Ω/km		159.8	≤ 24	≤ 24	37.8	37.8	192	186.6	186.6	284	284
Minimum bending radius, fixed installation		-	15 x D	15 x D	15 x D	4 x D	42 mm	42 mm	60 mm	30 mm	30 mm
Minimum bending radius, flexing		15 x D	-	-	-	8 x D	-	-	-	78 mm	78 mm
Temperature range fixed installation	from °C to °C	-40 +80	-25 +80	-25 +105	-40 +70	-40 +80	-30 +80	-30 +80	-30 +80	-30 +80	-30 +80
Temperature range flexing	from °C to °C	-30 +70	- -	- -	- -	-40 +80	-5 +60	-5 +60	-5 +60	-5 +60	-5 +60

\*\*without FC = 65 mm/FC = 120 mm

**A7: UNITRONIC® BUS and ETHERLINE® - technical data**

Usage criteria		Cable designation									
Page		400	400	400	400	400	400	399	322	286	287
		ETHERLINE®V CAT.5e AWG 22/1 fixed installation	ETHERLINE®V UL/CSA CAT.5e AWG 22/1 fixed installation	ETHERLINE®V CAT.5e AWG 22/1 fixed installation	ETHERLINE®V FC CAT.5e AWG 22/1 fixed installation	ETHERLINE®VY CAT.5e AWG 22/1 suitable for outdoor use/direct burial	ETHERLINE® FD P CAT.5e AWG 26/19 highly flexible application	ETHERLINE® PN Cat.5 FD highly flexible application	UNITRONIC® BUS SAFETY fixed installation/highly flexible	UNITRONIC® BUS ASI (G) yellow + black fixed installation/flexible	UNITRONIC® BUS ASI (TPE) yellow + black fixed installation/flexible
Parameter											
Characteristic impedance Ω		100	100	100	100	100	100	100	100-200	-	-
Mutual capacitance (800 Hz) max. nF/km		48	48	48	48	48	48	48	45	-	-
Peak operating voltage V (not for power applications)		125	125	125	125	125	125	125	250	300	300
Test voltage, core/core, Ueff. V		1000	1000	1000	1000	1000	1000	1000	3000	2000	2000
Conductor resistance (loop) Data network cable pair max. Ω/km		192	192	192	192	192	192	192	52	27.4	27.4
Minimum bending radius, fixed installation		-	-	-	-	-	-	-	8 x D	3 x D	3 x D
Minimum bending radius, flexing		78 mm	90 mm	90 mm	90 mm	90 mm	90 mm	100 mm	-	-	-
Temperature range fixed installation	from °C to °C	-30 +80	-30 +70	-30 +80	-30 +80	-30 +80	-30 +80	-20 +70	-40 +80	-40 +85	-40 +85
Temperature range flexing	from °C to °C	-5 +60	-5 +60	-5 +60	-5 +60	-5 +60	-5 +60	-5 +60	-30 +80	-	-

Usage criteria		Cable designation									
Page		287	287	287	286	313	313	313	313	326	326
		UNITRONIC® BUS ASI LD FD P yellow + black highly flexible application	UNITRONIC® BUS ASI FD (TPE) A yellow + black highly flexible application	UNITRONIC® BUS ASI FD P FRNC yellow + black fixed installation	UNITRONIC® BUS ASI (PVC) A yellow + black fixed installation	UNITRONIC® DeviceNet THICK + THIN (halogen-free) fixed installation	UNITRONIC® DeviceNet THICK + THIN (PVC) fixed installation	UNITRONIC® DeviceNet THICK + THIN (PUR) highly flexible	UNITRONIC® DeviceNet THICK + THIN (PVC) highly flexible	UNITRONIC® BUS EIB fixed installation	UNITRONIC® BUS COMBI EIB fixed installation
Parameter											
Characteristic impedance Ω		-	-	-	-	120	120	120	120	-	-
Mutual capacitance (800 Hz) max. nF/km		-	-	-	-	39.8	39.8	39.8	39.8	max. 100	max. 100
Peak operating voltage V (not for power applications)		300	300	300	300	300	300	300	300	250	250
Test voltage, core/core, Ueff. V		2000	2000	2000	2000	2000	2000	2000	2000	4000	4000
Conductor resistance (loop) Data network cable pair max. Ω/km		16.5	27.4	27.4	27.4	THICK 45 THIN 180	THICK 45 THIN 180	THICK 45 THIN 180	THICK 45 THIN 180	max. 130	max. 130
Minimum bending radius, fixed installation		3 x D	3 x D	3 x D	3 x D	10 x D	10 x D	-	-	10 x D	10 x D
Minimum bending radius, flexing		6 x D	6 x D	-	-	-	-	10 x D	10 x D	-	-
Temperature range fixed installation	from °C to °C	-40 +80	-40 +105	-40 +80	-30 +90	-25 +80	-20 +80	-	-	-30 +70	-30 +70
Temperature range flexing	from °C to °C	-30 +70	-30 +105	-30 +70	-	-	-	-40 +80	-10 +80	-	-

# Appendix A8 Selection tables

A8: cable entries at a glance

Usage criteria	Cable glands																																					
Page	654	657	662	669	686	728	728	660	659	661	661	663	671	731	725	670	674	675	733	665	671	671	672	699	700	698	727	726	677	668								
	SKINTOP® ST-M/STR-M/ST(R) M ISO	SKINTOP® CLICK/CLICK-R	SKINTOP® CLICK BS	SKINTOP® COLD/COLD-R	SKINTOP® CUBE	SKINTOP® ST and STR	SKINTOP® ST (NPT) and STR (NPT)	SKINTOP® ST-HF-M	SKINTOP® SOLAR (plus)	SKINTOP® BS-M/BS M ISO	SKINTOP® BS	SKINTOP® BS (NPT)	SKINTOP® BT and BT-M	SKINTOP® MS-M	MSR-M/MS-M-XL and MSR-M-XL	SKINTOP® MS and MSR	SKINTOP® MS (NPT) and MSR (NPT)	SKINTOP® MS-IS-M	SKINTOP® MS-SC-M	SKINTOP® MS-M BRUSH/BRUSH plus	SKINTOP® MS-SC	SKINTOP® K-M ATEX plus/plus blue	SKINTOP® KR-M ATEX plus/plus blue	SKINTOP® MS-M ATEX/MS-M-XL ATEX	SKINTOP® MSR-M ATEX	SKINTOP® MS-M BRUSH ATEX/ SKINDICHT® SHVE-M ATEX	SKINDICHT® MINI	SKINDICHT® CN and CN-M	SKINDICHT® SHV-M	SKINTOP® MS-NPT BRUSH	SKINTOP® MS-SC NPT	SKINTOP® INOX/INOX-R	SKINTOP® BS-M METALL					
<b>Properties</b>																																						
IP protection rating/NEMA	68/69K	68	68	68	64	68	68	68	68	68	68	68	**	68	68	68	68	68/69K	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68				
Metric connection thread	✓			✓				✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
PG connection thread						✓	✓								✓	✓	✓	✓																				
NPT connection thread						✓	✓								✓	✓	✓	✓																				
For round cables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
For flat cables																																						
Metal																																						
Plastic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Angled																																						
Strain relief	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Vibration protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Anti-kink protection																																						
Screening connection																																						
Suitable for Ex safety area																																						
Halogen-free								✓																														
<b>Approval</b>																																						
cULus, cURus, TÜV, VDE, DNV	✓																																					
VDE, cULus, cURus, DNV		✓	✓																																			
VDE				✓																																		
UL, UR, CSA, TÜV																																						
UL, UR, CSA																																						
cULus, cURus, VDE, DNV																																						
cULus, cURus, DNV																																						
VDE, cULus, DNV																																						
DNV, ATEX																																						
cULus, cURus, DNV, ATEX																																						
ATEX, DNV																																						
cULus																																						

Usage criteria	Cable glands																																					
Page	698	699	699	696	696	695	695	737	745	745	694	694	701	702	701	701	692	692	739	739	736	735	734	734	688	688	689	689	740	738	709							
	SKINDICHT® SHV	SKINDICHT® SHV-M-VITON®	SKINDICHT® SHV-VITON®	SKINDICHT® SHVE-M	SKINDICHT® SHVE	SKINDICHT® SR-SV-M	SKINDICHT® SR-SV	SKINDICHT® FL	SKINDICHT® SRE-M	SKINDICHT® SRE	SKINDICHT® SR-M	SKINDICHT® SR	SKINDICHT® KW-M	SKINDICHT® SE and SE-M	SKINDICHT® RWV-M	SKINDICHT® RWV	SKINDICHT® SKZ-M	SKINDICHT® SKZ	SKINDICHT® SHZ-M	SKINDICHT® SHZ	SKINDICHT® SVF and SVF-M	SKINDICHT® SVFK	SKINDICHT® SVRE-M	SKINDICHT® SVRE	SKINDICHT® SVRN-M	SKINDICHT® SVRN	SKINDICHT® SVRX-W	SKINDICHT® SVRX-Z	SKINDICHT® SK	SKINDICHT® SH	SKINDICHT® VENT							
<b>Properties</b>																																						
IP protection rating/NEMA	68	68	68	68	68	65	65	65	65	65	65	65	55	55	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	20	20	68						
Metric connection thread	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
PG connection thread	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
NPT connection thread																																						
For round cables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
For flat cables																																						
Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Plastic																																						
Angled																																						
Strain relief	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Vibration protection																																						
Anti-kink protection																																						
Screening connection																																						
Suitable for Ex safety area																																						
Halogen-free																																						

\*\*68/69K, NEMA 4x/NEMA 6

VITON® is a registered trademark of DuPont de Nemours.





**Increase efficiency through standardisation and decentralisation**

The Verein Deutscher Werkzeugmaschinenfabriken e. V. (VDW) [German Machine Tool Manufacturing Federation] developed **DESINA®** (DEcentralised and Standardised INstallation technology), a comprehensive overall concept for the standardisation of electrical installation of equipment and machinery. State-of-the-art technologies are employed with the aim of simplifying installation work, speeding up assembly and repair work and improving quality. Decentralisation means that control components and their related functions are moved from the central control cabinet to field level.



**Lapp Kabel and DESINA®-compliant products**

The VDW used existing fieldbus systems as a basis for defining new standards for connectors and for increasing efficiency when cabling, working in partnership with the mechanical engineering, automotive and supplier sectors. As the leading supplier to machine tool manufacturers, Lapp Kabel is fully committed to the **DESINA®** concept. We can quickly and easily develop solutions for you that comply with **DESINA®** requirements, from the individual components right through to assembled cables that are ready for connection/installation.

Usage criteria	Cable designation																														
	95	100	101	102	69	44	74	72	46	48	55	56	99	107	120	110	111	109	114	125	126	272	361	52	218	220	97	103	98	300	
<b>Servo cable</b>																															
Screened		✓	✓																												
Orange sheath	●												✓						✓							✓	✓		✓	✓	
RAL 2003																															
<b>Cable for measurement systems</b>																															
Screened				✓																											
Green sheath	●																										✓	✓	✓	✓	
RAL 6018																															
<b>Power cable</b>																															
Unscreened																															
Black sheath	●	✓			✓		✓									✓	✓			✓	✓	✓			✓						
RAL 9005																															
<b>24-volt control cable</b>																															
Unscreened																															
Grey sheath	●				✓	✓	✓	✓	✓	✓	✓	✓		✓	✓							✓									
RAL 7040 (similar to 7001)																															
<b>Fieldbus hybrid cable</b>																															
Cu and fibre-optic cable																															
Violet sheath	●																														
RAL 4001																															
<b>PROFIBUS DP Hybrid cable</b>																															
<b>Sensor/actuator cable</b>																															
Unscreened																															
Yellow sheath	●																								✓						
RAL 1021																															
<b>DESINA® marking on the sheath</b>	✓	✓	✓	✓	✓																		✓								
Suitable for power chains	✓	✓	✓	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sheath compound with enhanced oil resistance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UL and/or CSA approval	✓	✓	✓	✓			✓		✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ Main application/design  
✓ Possible application

# A10 Selection tables

A10: technical data for EPIC® rectangular connectors

Usage criteria		EPIC® rectangular connectors/inserts																				
Page		488	488	489	489	489		490	490	491	491	492	492	493	494	494	493	495	495	496	496	497
Image																						
		EPIC® H-A 3	EPIC® H-A 4	EPIC® H-A 10	EPIC® H-A 16	EPIC® H-A 32	EPIC® H-A 48	EPIC® STA 6	EPIC® STA 6	EPIC® STA 14	EPIC® STA 14	EPIC® STA 20	EPIC® STA 20	EPIC® H-Q.5	EPIC® H-D 7	EPIC® H-D 7	EPIC® H-D 8	EPIC® H-D 15	EPIC® H-D 15	EPIC® H-D 25	EPIC® H-D 25	EPIC® H-D 40
Parameter		3 + PE	4 + PE	10 + PE	16 + PE	32 + PE	48 + PE	6	6	14	14	20	20	5 + PE	7 + PE	7 + PE	8	15 + PE	15 + PE	25 + PE	25 + PE	40 + PE
Number of contacts																						
Connection system:	screw	✓	✓	✓	✓	✓	✓	✓		✓		✓										
	solder								✓				✓									
	crimp													✓	✓	✓	✓	✓	✓	✓	✓	✓
	cage clamp																					
Suitable contacts:	H-BE 2.5, machined													✓								
	H-D 1.6, machined														✓		✓	✓	✓	✓	✓	✓
	H-D 1.6, stamped															✓						
Cross-section [mm²]		0.5 -2.5	0.5 -2.5	0.5 -2.5	0.5 -2.5	0.5 -2.5	0.5 -2.5	0.5 -1.5	max. 1.5	0.5 -1.5	max. 1.5	0.5 -1.5	max. 1.5	0.5 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5
IEC: rated voltage [V]	400	✓	✓																			
	250			✓	✓	✓	✓												✓	✓	✓	✓
	24 AC/60 DC							✓	✓	✓	✓	✓	✓									
	230/400													✓								
	24 AC/60 DC/250														✓	✓	✓					
500																						
IEC: rated current [A]		23	23	16	16	16	16	10	10	10	10	10	10	16	10	10	10	10	10	10	10	10
UL: rated voltage [V]		600	600	600	600	600	600	48	48	48	48	48	48	600	250	250	250	250	250	250	250	250
UL: rated current [A]		10	10	14	14	14	14	10	10	10	10	10	10	16	10	10	10	10	10	10	10	10
CSA: rated voltage [V]		400	400	600	600	600	600	48	48	48	48	48	48	600	-	-	-	-	-	-	-	-
CSA: rated current [A]		10	10	16	16	16	16	10	10	10	10	10	10	16	-	-	-	-	-	-	-	-
Suitable housing		H-A 3	H-A 3	H-A 10	H-A 16	H-A 32	H-A 48	H-A 3	H-A 3	H-A 10	H-A 10	H-A 16	H-A 16	H-A 3	H-A 3	H-A 3	H-A 3	H-A 10	H-A 10	H-A 16	H-A 16	H-B 16

Usage criteria		EPIC® rectangular connectors/inserts																				
Page		497	498	498	499	499	500	500		501	501	501	502	502	502	503	503	503	504	504	504	
Image																						
		EPIC® H-D 40	EPIC® H-D 64	EPIC® H-D 64	EPIC® H-DD 24	EPIC® H-DD 42	EPIC® H-DD 72	EPIC® H-DD 108	EPIC® H-DD 144	EPIC® H-DD 216	EPIC® H-BE 6	EPIC® H-BE 6	EPIC® H-BE 6	EPIC® H-BE 10	EPIC® H-BE 10	EPIC® H-BE 10	EPIC® H-BE 16	EPIC® H-BE 16	EPIC® H-BE 16	EPIC® H-BE 24	EPIC® H-BE 24	EPIC® H-BE 24
Parameter		40 + PE	64 + PE	64 + PE	24 + PE	42 + PE	72 + PE	108 + PE	144 + PE	216 + PE	6 + PE	6 + PE	6 + PE	10 + PE	10 + PE	10 + PE	16 + PE	16 + PE	16 + PE	24 + PE	24 + PE	24 + PE
Number of contacts																						
Connection system:	screw										✓			✓								
	solder																					
	crimp	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓								
	cage clamp														✓							
Suitable contacts:	H-BE 2.5, machined													✓								
	H-D 1.6, machined		✓		✓	✓	✓	✓	✓	✓												
	H-D 1.6, stamped	✓		✓																		
Cross-section [mm²]		0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.14 -2.5	0.5 -2.5	0.5 -4.0	0.5 -2.5	0.5 -2.5	0.5 -4.0	0.5 -2.5	0.5 -2.5	0.5 -4.0	0.5 -2.5	0.5 -2.5	0.5 -4.0	0.5 -2.5
IEC: rated voltage [V]	400																					
	250	✓	✓	✓	✓	✓	✓	✓	✓	✓												
	24 AC/60 DC																					
	230/400																					
	24 AC/60 DC/250										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
500																						
IEC: rated current [A]		10	10	10	10	10	10	10	10	10	16	16	16	16	16	16	16	16	16	16	16	16
UL: rated voltage [V]		250	250	250	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
UL: rated current [A]		10	10	10	8.5	8.5	8.5	8.5	8.5	8.5	16	16	16	16	16	16	16	16	16	16	16	16
CSA: rated voltage [V]		-	-	-	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
CSA: rated current [A]		-	-	-	10	10	10	10	10	10	16	16	16	16	16	16	16	16	16	16	16	16
Suitable housing		H-B 16	H-B 24	H-B 24	H-B 6	H-B 10	H-B 16	H-B 24	H-B 32	H-B 48	H-B 6	H-B 6	H-B 6	H-B 10	H-B 10	H-B 10	H-B 16	H-B 16	H-B 16	H-B 24	H-B 24	H-B 24

**Selection tables**



Usage criteria		EPIC® rectangular connectors/inserts																				
Page																						
Parameter																						
Number of contacts		32 + PE	32 + PE	32 + PE	48 + PE	48 + PE	48 + PE	10 + PE	18 + PE	32 + PE	46 + PE	64 + PE	92 + PE	6 + PE	12 + PE	3+2 + PE	6+2 + PE	10+2 + PE	6 + PE	10 + PE	16 + PE	24 + PE
Connection system:																						
screw		✓			✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
solder																						
crimp			✓			✓		✓	✓	✓	✓	✓	✓									
cage clamp				✓			✓															
Suitable contacts:		H-BE 2.5, machined																				
Cross-section [mm²]		0.5 -2.5	0.5 -4.0	0.5 -2.5	0.5 -2.5	0.5 -4.0	0.5 -2.5	0.5 -4.0	0.5 -4.0	0.5 -4.0	0.5 -4.0	0.5 -4.0	0.5 -4.0	0.5 -6.0	0.5 -6.0	0.5 -2.5	0.5 -2.5	0.5 -2.5	0.5 -4.0	0.5 -4.0	0.5 -4.0	0.5 -4.0
IEC: rated voltage [V]		500	500	500	500	500	500	500	500	500	500	500	500	500	500	630	630	630	500	500	500	500
IEC: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
UL: rated voltage [V]		600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
UL: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
CSA: rated voltage [V]		600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
CSA: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
Suitable housing:		H-B 32	H-B 32	H-B 32	H-B 48	H-B 48	H-B 48	H-B 6	H-B 10	H-B 16	H-B 24	H-B 32	H-B 48	H-B 16	H-B 32	H-B 10	H-B 16	H-B 24	H-B 6	H-B 10	H-B 16	H-B 24



Usage criteria		EPIC® rectangular connectors/inserts																			
Page																					
Parameter																					
Number of contacts		1 + PE	2	3	4 + PE	3	4	4	5	10	10	20	3	2 + screen	4 + screen	8 + 4	-	-	-	-	
Connection system:																					
screw		✓	✓												✓	✓					
solder														✓							
crimp				✓	✓	✓	✓			✓	✓	✓				✓					
cage clamp								✓													
Suitable contacts:		MC 3.6, machined																			
MC 2.5, stamped					✓																
H-BE 2.5, machined							✓														
MC 2.5, machined										✓											
H-D 1.6, machined											✓					✓					
H-D 1.6, stamped												✓									
MD 1.0, stamped													✓								
MC coaxial														✓							
for 2 modules																	✓				
for 3 modules																		✓			
for 5 modules																			✓		
for 7 modules																				✓	
Cross-section [mm²]		10.0 -25.0	10.0 -25.0	1.5 -10.0	0.5 -2.5	1.5 -10.0	0.5 -4.0	0.5 -2.5	0.5 -4.0	0.14 -2.5	0.14 -2.5	0.08 -0.52	-	max. 1.5	max. 1.5	Cat.5 0.14 -2.5	-	-	-	-	
IEC: rated voltage [V]		1000	1000	1000	1000	630	630	400	400	250	250	100	250	30	30	125/600	-	-	-	-	
IEC: rated current [A]		82	82	50	16	40	25	14	20	10	10	4	-	1	1	1.5/10	-	-	-	-	
UL: rated voltage [V]		600	600	-	-	-	-	600	-	-	-	-	-	-	-	-	-	-	-	-	
UL: rated current [A]		82	82	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	
CSA: rated voltage [V]		-	-	-	-	-	-	600	-	-	-	-	-	-	-	-	-	-	-	-	
CSA: rated current [A]		-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	
Suitable housing:		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	H-B 6	H-B 10	H-B 16	H-B 24

\*\* Module frame

Appendix  
A11 Selection tables

A11: applications of HITRONIC® fibre-optic cable components at a glance

Usage criteria	Lapp Kabel plastic fibre-optic cables (POF) – fibre type, item number										PCF fib. op. cable range								
Page	454	454	456	456	456	455						462	463	463	464				
	HITRONIC® POF Simplex PE	HITRONIC® POF Simplex PE-PUR	HITRONIC® POF Duplex PE	HITRONIC® POF Duplex PE-PUR	HITRONIC® POF Duplex Heavy PE-PUR	HITRONIC® POF FD PE-PUR						HITRONIC® PCF Simplex Outdoor	HITRONIC® PCF Duplex FRNC-PUR Indoor	HITRONIC® PCF Duplex FRNC-PUR Outdoor	HITRONIC® PCF Duplex FD				
																			
 Properties																			
For indoor use						✓													
For outdoor use																			
For aerial use																			
Installation by blowing/compressed air																			
Direct burial																			
Armoured																			
Rodent protection																			
Heavy duty																			
Flame-retardant (IEC 60332-3)		✓		✓	✓	✓							✓						
Fire-resistant (IEC 60331-25)																			
Water-resistant																			
UV-resistant	✓		✓									✓		✓					
Power/drag chain																			
Flexible						✓													
Torsion -resistant																			
Reelable																			
Halogen-free	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓				
Low-smoke emission	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓				

Usage criteria	GOF fib. op. cable range																			
Page	450	451	453	452	467	468	469	470	471	472	473	473	474	475	476	477				
	HITRONIC® FIRE	HITRONIC® TORSION, A/J-V(ZN)H11Y	HITRONIC® HRM-FD, A/J-V(ZN)H(ZN)11Y	HITRONIC® HDM, A/J-V(ZN)11Y	HITRONIC® HQN Outdoor Cable, A-DQ(ZN)BZY	HITRONIC® HVN Outdoor Cable, A-DQ(ZN)BZY	HITRONIC® HVN-Micro Outdoor Cable, A-DQ(ZN)BZY	HITRONIC® HOW Armoured Outdoor Cable, A-DQ(ZN)(SR)ZY	HITRONIC® HWV Armoured Outdoor Cable, A-DQ(ZN)(SR)ZY	HITRONIC® HOW-Plus Armoured Outdoor Cable, A-DQ(ZN)2(SR)ZY	HITRONIC® HOA Aerial Cable, A-DQ(ZN)BZY	HITRONIC® HOA-Plus Aerial Cable, A-DQ2Y(ZN)BZY	HITRONIC® HUN Universal Cable, A/J-DQ(ZN)BH	HITRONIC® HUW Armoured Outdoor Cable, A/J-DQ(ZN)(SR)H	HITRONIC® HRH Breakout Cable, J-V(ZN)HH	HITRONIC® HDH Mini Breakout Cable, J-V(ZN)H				
																				
 Properties																				
For indoor use	✓	✓	✓	✓									✓	✓	✓	✓				
For outdoor use	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓				
For aerial use																				
Installation by blowing/compressed air																				
Direct burial						✓														
Armoured	✓																			
Rodent protection	✓																			
Heavy duty	✓																			
Flame-retardant (IEC 60332-3)	✓	✓	✓	✓																
Fire-resistant (IEC 60331-25)	✓																			
Water-resistant	✓																			
UV-resistant	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓				
Power/drag chain																				
Flexible		✓	✓	✓																
Torsion -resistant		✓																		
Reelable																				
Halogen-free	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓				
Low-smoke emission	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓				

Please note: the standard lengths for fibre-optic cables are 100 m and 500 m; any other lengths will incur a surcharge.  
O.r. = on request

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

A12: applications of servo cables in electrical power drive systems (PDS)

Usage criteria		Cable designation (fixed installation or occasional flexing)																
		Page	91	92	95	93	38	39	94	96	98							
			ÖLFLEX® SERVO 700	ÖLFLEX® SERVO 700 CY	ÖLFLEX® SERVO 709 CY	ÖLFLEX® SERVO 720 CY	ÖLFLEX® CLASSIC 110 BLACK 0.6/1 KV	ÖLFLEX® CLASSIC 110 CY BLACK 0.6/1 KV	ÖLFLEX® SERVO ZYSLCY low capacitance	ÖLFLEX® SERVO 9YSLCY low capacitance	Servo cable as per SEW® standard, static	Servo cable as per SIEMENS® FX5 series						
Use																		
Power drive systems	Mains		✓				✓											
	Motor		✓	✓	✓			✓	✓	✓								
SEW®	Power										✓							
	Signal																	
SIEMENS®	Power											✓						
	Signal											✓						
INDRAMAT®	Power				✓													
	Signal																	
LENZE®	Power							✓										
	Signal								✓									
Heidenhain®	Power																	
	Signal				✓													

Usage criteria		Cable designation (permanent flexing, e.g. in power chains)																	
		Page	89	100	101	102	103	104	105										
			ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® SERVO FD 798 CP	Servo cable as per SIEMENS® FX8PLUS series	Servo cable as per INDRAMAT® standard INK	Servo cable as per LENZE® standard	Servo cable as per Heidenhain® standard	Servo cable as per ELAU® standard	Servo cable as per KEB® standard	Servo cable as per Controles Techniques® standard	Servo cable as per Berger Lahr® standard	Servo cable as per B & R® standard	Servo cable as per FANUC® standard	UNITRONIC® FD CP (TP) plus		
Use																			
Power drive systems	Mains																		
	Motor		✓	✓	✓	✓													
SEW®	Power																		
	Signal															✓			
SIEMENS®	Power			✓	✓		✓												
	Signal					✓	✓												
INDRAMAT®	Power			✓	✓			✓											
	Signal					✓		✓											
LENZE®	Power				✓				✓										
	Signal								✓										
Heidenhain®	Power		✓																
	Signal									✓									
ELAU®	Power				✓														
	Signal										✓								
KEB®	Power											✓							
	Signal												✓						
Controles Techniques®	Power																		
	Signal											✓							
Berger Lahr®	Power																		
	Signal												✓						
B & R®	Power																		
	Signal													✓					
FANUC®	Power																		
	Signal														✓				

✓ Main application/design  
 ✓ Possible application

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# A 13 Selection tables

A 13: cables for expanded ambient temperature ranges

Usage criteria	Cable designation																											
	Page	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	182	181	182	182	183	184	185	186	
<b>Use</b>		ÖLFLEX® HEAT 105 MC	ÖLFLEX® HEAT 145 MC	ÖLFLEX® HEAT 145 C MC	ÖLFLEX® HEAT 180 SIHF	ÖLFLEX® HEAT 180 H05SS-F EWKF	ÖLFLEX® HEAT 180 MS	ÖLFLEX® HEAT 180 C MS	ÖLFLEX® HEAT 180 EWKF	ÖLFLEX® HEAT 180 EWKF C	ÖLFLEX® HEAT 180 GLS	ÖLFLEX® HEAT 205 MC	ÖLFLEX® HEAT 260 MC	ÖLFLEX® HEAT 260 C MC	ÖLFLEX® HEAT 260 GLS	ÖLFLEX® HEAT 350 MC	ÖLFLEX® HEAT 1565 MC	ÖLFLEX® HEAT 125 SC	ÖLFLEX® HEAT 180 SIF	ÖLFLEX® HEAT 180 SIF/GL	ÖLFLEX® HEAT 180 SID	ÖLFLEX® HEAT 180 SIZ	ÖLFLEX® HEAT 180 FZLSI	ÖLFLEX® HEAT 205 SC	ÖLFLEX® HEAT 260 SC	ÖLFLEX® HEAT 350 SC	ÖLFLEX® HEAT 1565 SC	
Internal and external machine cabling		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓											
Internal wiring of control units/machinery		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
In dry rooms		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
In dry and damp rooms		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outdoors, fixed installation (mech. protection)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chemical resistance																												
In EMC-sensitive environments				✓				✓		✓			✓	✓	✓													
Suitable for extreme applications in paint shops											✓		✓	✓										✓	✓			
<b>Standards</b>																												
Halogen-free according to IEC 60754-1			✓	✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓					
Low smoke density according to IEC 601034			✓	✓														✓	✓	✓	✓	✓	✓					
Low smoke toxicity according to NES 02-713			✓	✓														✓	✓	✓	✓	✓	✓					
Flame-retardant according to IEC 60332-1-2		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Flame-retardant according to IEC 60332.3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
In line with VDE/HAR/DIN		✓			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
With VDE/HAR certification							✓										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
With UL/CSA certification							✓	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
With GL/DNV certification			✓	✓											✓		✓											
<b>Temperature range</b>																												
+1565 °C																	◆											◆
+400 °C																	▲											▲
+350 °C																												
+300 °C																												
+260 °C																												
+200 °C						◆	◆	◆	◆	◆	◆	□																
+180 °C						□	□	□	□	□	□	□																
+145 °C			◆	◆																								
+125 °C			●	●																								
+105 °C																												
+90 °C			▲																									
-20 °C			▲																									
-35 °C			●	●																								
-50 °C			▲	▲	□	□	□	□	□	□	□																	
-80 °C												●																
-100 °C												▲																
-140 °C												●	●	●														
-190 °C												▲	▲	▲														
<b>Nominal voltage</b>																												
300/500 volts		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
450/750 volts			✓	✓																								
600/1000 volts			✓	✓																								
10 kV																												
600 volts as per UL/CSA								✓	✓																			
<b>Design</b>																												
Solid wire as per VDE 0295, class 1																												
Fine-wire according to VDE 0295, class 5		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PVC core insulation/sheath, heat-resistant		✓																										
Halogen-free special core insulation/sheath			✓	✓																								
Silicone core insulation/sheath					✓	✓	✓	✓	✓	✓	✓																	
Silicone, notch-resistant (EWKF) sheath						✓			✓	✓																		
Fluoropolymer core insulation/sheath (FEP/PTFE)												✓	✓	✓	✓													
Glass fibre core insulation/sheath																												
Printed numbers according to VDE 0293			✓	✓	✓																							
Colour code according to VDE 0293-308		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual colours																												
Overall screening				✓				✓		✓																		
Steel wire armouring											✓				✓													

✓ Main application/design  
 ✓ Possible application  
 ● Flexible use  
 □ Fixed and flexible use  
 ▲ Fixed installation  
 ◆ Fixed installation (briefly)





## 1. General

The **resistance** of the product materials in the application environment, correct product assembly and subjected load in the context of permitted limit values (technical data) have a significant impact on the safety and durability of our products. 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–A13 provide an overview of similar products and enable comparisons on the basis of 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–T30) 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 power 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 represent guidelines on the use and application of our products, but do not cover the competent project planning of electrical equipment in all its aspects.

### Questions?

Contact us; we are happy to help: **Tel.: 0049 1805 101212-9300**



## 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 perform a professional examination as to the existence of **specific** product standards with other/extended requirements that may take precedence.

In this case, support is provided by 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 area of low voltage harmonised cables (e.g. H05VV5-F/ÖLFLEX® 140), DIN VDE 0298-300 in table A4 provides a list of requirements and criteria that are largely applicable to other low voltage cables as well as notes on recommended applications.

**DIN VDE 0298-300 is the German version of the harmonisation document HD 516 S2:1997 + A1:2003 + A2:2008.**

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” 2006/95/EC 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. In the case of a DC supply, the nominal supply voltage must not exceed the nominal voltage of the cable by a factor greater than 1.5. The continuous operating voltage of AC and DC supplies must not exceed the nominal supply voltage by more than 10%.

The nominal voltage of cables and wires is expressed by the ratio  $U/U_0$  in volts, whereby:

- $U_0$  is the effective voltage between a phase conductor and the earth (metal sheath/screening of the cable or surrounding medium)
- $U$  is the effective voltage between two phase conductors of a multi-core cable or a system of single core cables

The dielectric strength of the insulation of cables, conductors and wires must be sufficient for the required test voltage. 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. The AC test voltages are detailed on the individual product pages in the catalogue under “technical data” and can also be used to make selections in cases where no meaningful  $U/U_0$  ratio can be provided.





## 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 support 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<sup>2</sup> 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<sup>2</sup> 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 power chains, automated assemblies, etc.

#### • Flexible/occasional flexing

Cables are moved randomly in a non-automated application. They are susceptible to occasional uncontrolled conditions of 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 purposes of maintenance, repair or retrofitting.

Typical application:

Cable trays, conduits, wire ways installed in buildings, machines, manufacturing facilities, etc.

### Cables for use in power/drag chains

These cables are indicated by the code “FD” or “CHAIN” in their product names. In addition to the generally applicable information on assembly and project planning contained in technical table T3, particular attention must be paid to the specifications relating to

individual cables that are provided on the relevant product pages in the catalogue.

These are specifically:

- Restrictions of the traversing path length (e.g.: “... up to 10 m”).
- Restrictions of the minimum bending radius for flexible applications. The radius implemented with the power/drag 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.

### Torsion movement in wind turbine generators

The torsional motion of wind turbines is very different from those in robotic applications. In comparison to 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 about 150° per 1 m cable and the rotational speed with 1 revolution per minute is less than usual robotic applications. To confirm 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 classified to the LAPP-internal rating for torsion in wind turbine generators which is adapted to the requirements of leading manufacturers of wind turbines:

	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 in the lower temperature ranges, mechanical stress through 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 of cables and wires before use and without prior testing:

- One year if stored outdoors
- Two years if stored indoors



## 3. Industrial connectors

Connectors must not be joined or separated under load! Provision of the protective conductor function must be assured by the installation type of the connector. This can be achieved by means of metallically conductive EPIC® connector housings or through the implementation of suitable measures on the part of the operator prior to installation.

### 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.

Assurance of the technical properties can only be given 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



#### 4. Cable glands and cable bushings

SKINTOP® and SKINDICHT® cable glands and cable entries represent highest quality levels 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 power chains” must be followed. With regards 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

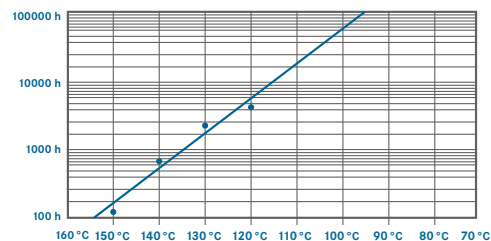
Products in the area of cable accessories are system-tested to ensure optimal assembly. The commissioning and processing of

these products must only be performed by authorised electricians and following 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 drag 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 (directive (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 catalogues 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 safe use of our products.

Please note that as the catalogue gets increasingly old, the specified standards/standard extracts 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.). 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, [www.vde-verlag.de](http://www.vde-verlag.de) and Beuth Verlag GmbH, Burggrafenstraße 6, 10787 Berlin.

T1 Technical tables

T1: chemical resistance of cables

All data is for a temperature of +20 °C

Cable designations



ÖLFLEX® SMART 108, ÖLFLEX® CLASSIC 100, 110, 115 CY, 100 BK POWER, 110 BK, ÖLFLEX® SERVO 700, 700 CY, 2YSLCY, 720, 9YSLCY, UNITRONIC® 100, 100 CY, EB

ÖLFLEX® FD 90, FD 90 CY, ÖLFLEX® 140, 140 CY, ÖLFLEX® CHAIN 809 SC, ÖLFLEX® 150, 150 CY, 191, 191 CY, ÖLFLEX® FD 891/891 CY, Tray II, ÖLFLEX® SERVO 709 CY, ÖLFLEX® SERVO FD 781 CY, ÖLFLEX® CONTROL TM/TM CY, SERVO cables as per SEW®, SIEMENS® FX 5008 Standard

ÖLFLEX® CLASSIC 100 SY, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 110 SY, 110 CY

ÖLFLEX® CLASSIC 400 P, 400 CP, 415 CP, 440 P, 440 CP, 450 P, 500 P, 540 CP, 540 P, 550 P, ÖLFLEX® PETRO C HFFR, ÖLFLEX® SERVO FD 796 P, 796 CP, 798 CP, CLASSIC 810 P, 810 CP, 855 P, 855 CP, ÖLFLEX® FD 891 P, ÖLFLEX® CHAIN 896 P, ÖLFLEX® Robot 900, F1, ÖLFLEX® CRANE PUR, UNITRONIC® LYD 11Y, UNITRONIC® FD P, UNITRONIC® FD CP, UNITRONIC® FD CP (TP), UNITRONIC® 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® 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	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

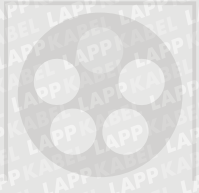
**Organic chemicals**

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										
 <p>Halogen-free cables: NHXMH, J-H(ST)H, ÖLFLEX® CLASSIC 110 H/CH, ÖLFLEX® 120 H, 120 CH, 130 H, 135 CH, 130 H BK 0.6/1 KV, 135 CH BK 0.6/1 KV, ÖLFLEX® FD 820 H, UNITRONIC® LIH, LIHC, LIHCH(TP)</p> <p>HITRONIC® fibre-optic cables</p> <p>UNITRONIC® Li2YCY(TP), Li2YCY PIMF, UNITRONIC® computer cables, LAN</p> <p>ÖLFLEX® FD CLASSIC 810, 810 CY, UNITRONIC® LiY, LiYCY, LiYCY(TP), UNITRONIC® FD, FD CY,</p> <p>J-Y(STY), JE-Y(STY), JE-LiYCY, J-2Y(STY), J-Y, JE-Y</p> <p>Coaxial cables (PE), A-2Y(L)2Y, A-2YF(L)2Y, HITRONIC® with PE sheath</p> <p>ESUY copper earthing cable, X00V3-D</p> <p>ÖLFLEX® CRANE NSHTÖU, NSGAFÖU; H01N2-D, ÖLFLEX® CRANE VS (N)SHTÖU, H05RN-F, H07RN-F, 07RN8-F</p> <p>LIY single cores, H05V-K, H07V-K, LIF, LIF 1 kV, Multi-Standard SC 1, Multi-Standard SC 2.1, Multi-Standard SC 2.2</p> <p>H05RR-F</p> <p>ÖLFLEX® ROBUST 200, 210, 215 C, ÖLFLEX® FD ROBUST, FD ROBUST C</p>											

**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.

# T2 Technical tables

T2: assembly guidelines



## PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®)

- Use only 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.
- For PROFINET, a distinction is made between type A (fixed installation, solid conductor), type B (flexible applications, e.g. 7-wire stranded conductor) and type C (highly flexible applications, Torsion, Trailing applications, e.g. 19-wire stranded conductor). As a rule, the conductor cross-section for PROFINET with two pairs is 22 AWG. For PROFINET with four pairs cable, the cross-selection for Type A and B is min. 23 AWG. PROFINET Type C has the min. cross-selection of 24 AWG.
- We recommend routing different cable categories (e.g. for the network power supply, auxiliary power supply, data network cables and sensitive cables for measurement) as separate bundles in a system.
- Ensure there is a minimum clearance of 10 cm between cables used for power applications and data network cables. Alternatively, fit a metallic partition between the two, or route the data network cable in a metal pipe. If this is not possible, use separate cable carrier systems.
- Cables must always cross one another at an angle of 90°.
- Ground the screening of all cables running into a control cabinet at the entry to the control cabinet or at the connector.
- We recommend the use of fibre-optic cables when installing cables outdoors. Use only approved outdoor cables. Observe all warning signs (power lines, gas pipes etc.).
- Always route backup cables along a separate path to ensure they remain undamaged, should damage occur to the main cable.
- Protect copper and fibre-optic cables located outside cable carrier systems by routing them through plastic pipes (or through metal pipes if subject to high mechanical loads).
- Replace any cables that have been 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 cable.
- Data network cables (Cu + fibre-optic cables) must only be subjected to a defined tensile load in order to maintain the transmission characteristics. For this reason, a strain relief must also be used.
- Applications involving torsion require a special cable design, as do cables for drag chains and cable trailer systems. These cables cannot be swapped.
- For drag chain cables, it is imperative that the minimum bending radius is complied with and that this does not fall below the prescribed values, otherwise the cable may be damaged and there is a risk of system failure.
- When unreeling cables from cable drums, make sure the cable does not grind against any objects. Likewise, make sure the cable is not pulled over sharp edges.
- For Cu cables, implement an equipotential bonding concept and ensure a distinction is made between hazardous (ex) and non-hazardous areas.
- Electrical, magnetic and electromagnetic fields affect signal transmission and may disrupt electronic components. “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.

Website: [www.profibus.com](http://www.profibus.com)  
E-mail: [info@profibus.com](mailto:info@profibus.com)



**ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD cables in power chains**

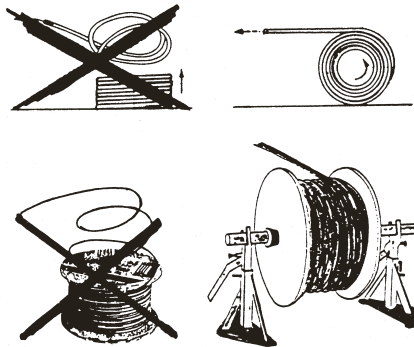
1. Power chains must be selected in line with the requirements for the necessary cables.

**PLEASE NOTE:** If possible, we recommend avoiding a multi-layer cable configuration, i.e. > 25 cores, and instead distributing the number required amongst several cables.

2. The values for the minimum permissible bending radii of the cables must not fall below the prescribed values (stated in the Technical Data of this catalogue as the bending radius for flexible use).

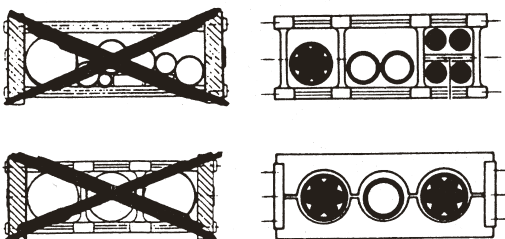
3. The cables must be free of twists when laid out in the power chain. As such, never pull a cable overhead from drums and coils resting on their side, but rather unroll the cables from the drum or the coil and lay them out or suspend them, if necessary. We recommend only taking cables to be used for power chain applications directly from the drums.

**PLEASE NOTE:** Due to the manufacturing process, the marking on the cables runs in a gentle spiral round the cables. As such, it cannot be used as an indicator of whether the cable is free of twists. When the cables are drawn in, the chain should be laid out longitudinally. It can then be brought into the operating position once the cables are in position.



4. The cables must lie loosely next to each another in the cable stays. As far as possible they should be arranged individually, divided by separating pins or placed within individual holders in the neutral zone of the chain. The free space for the cables in the chain stay must be at least 10% of the cable diameter. Avoid arranging the cables above one another without the use of separating pins.

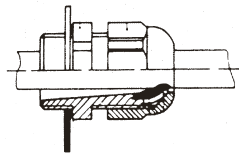
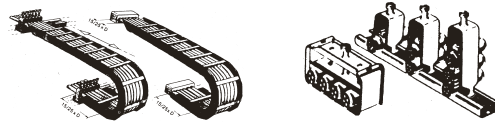
**PLEASE NOTE:** If the chain configuration is suspended vertically, additional free space must be provided in terms of the stay height, as the cables are extended during operation. After brief periods of operation, check the length adjustment of the cables and correct if necessary.



5. The cables **must not be secured or bound together in the chain.**

6. The cable should be secured at both ends of the chain. For long drag chains where the return side comes to lie on the carrying side, only secure the cable at the driver end. Under no circumstances may the cable bending include the fastening points.

The distance between the end point of the bending movement and the fastening must be as large as possible. For UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD, a minimum of 20 x the cable diameter applies. For ÖLFLEX® FD/CHAIN, ÖLFLEX® CLASSIC FD, ÖLFLEX® SERVO and ÖLFLEX® ROBUST FD, a minimum of 10 x the cable diameter applies.



Tighten the SKINTOP® screw connection by hand only (without tools). **Avoid crushing or pinching the cable.**

7. Make sure that cables in the bending section have complete freedom of movement, i.e. there must be no forced guidance, so that the cables can still move relative to one another and to the chain. We recommend checking the position of the cable after a brief period of operation. This check must be carried out after the thrust and pull movements.



8. If a chain breaks, also replace the cables as damage caused by excess stretching cannot be ruled out.

9. If, for a horizontal configuration, the return side lies against and slides along the carrying side, it is particularly important that the weight of the cables is distributed symmetrically throughout the chain, in order to safeguard the service life of the entire configuration. If it is not, weight exerted on one side will cause the return side to twist or tilt and will prevent a level, parallel movement along the carrying side. Failure to comply with this instruction may substantially reduce the service life of the drag chain configuration as a whole.

10. The power chain must be selected, assembled, maintained and repaired in compliance with the currently applicable guidelines specified by the chain manufacturer, in line with the intended application. For critical applications, for example where high acceleration speeds are involved (> 10 m/s<sup>2</sup>), we recommend that you consult our system specialists as early on as possible, or take advantage of the expertise of the chain manufacturer.

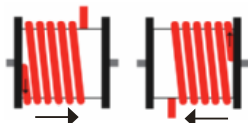


ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR

- The delivery drum must be transported to (or as close as possible to) the installation location. If possible, avoid rolling the drum unnecessarily. If it is not possible to transport the delivery drum to the system, we recommend unreeling the cable from the drum using guide pulleys, together with a drag rope and cable grip.
- To unreel the cable, the drum must be mounted such that it can rotate, and the cable must only be unreeled from the top. When doing so, the cable must also be stretched out straight, and must not be deflected or pulled over any edges. During the unreeling process, the cable temperature must not be less than + 5 °C (Lapp's recommendation).
- The entire length of cable to be assembled must be laid out in full prior to installation. Avoid rewinding the cable from the shipping drum onto the unit drum (please see chapter 4). When laying the cable, avoid S-shaped bends or other similar deflections.



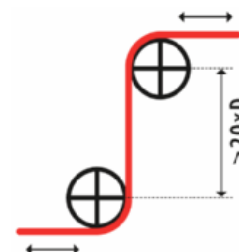
- The cable must be free of twists when wound on the unit drum. Likewise, the cable must not be twisted when connecting and fastening it to the feed-in point. The core layer structure of windable ÖLFLEX® CRANE cables has an "S"-shaped core stranding design. Depending on the position of the cable attachment side or feed-in point on the motor-driven drum, we therefore strongly recommend that you ensure the cable is wound onto the unit drum in the correct direction, as shown in the figure below:



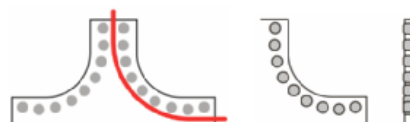
- If the feed-in point is passed over during operation, use a compensating pulley with an appropriate diameter carrying 1 to 2 cable windings. If the feed-in point is underground below the surface, fit a deflection funnel to the compensating pulley.
- To prevent the cable being crushed, it is imperative that sufficiently sized clamps or cable support grips are used to secure the cable to the end of the travel length (length  $\geq 4 \times D$ ). The length of cable left unreeled before the fastening point must be at least  $40 \times D$ , however, we also recommend the use of a compensating pulley here.
- If the cable is fully unreeled and the maximum travel distance has been reached, at least 2 cable windings must remain on the unit drum.
- The inner 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. For ÖLFLEX® CRANE VS (N)SHTÖU, the inner bending diameter must generally be at least 15 times the cable diameter. For ÖLFLEX® CRANE PUR, the inner bending diameter must not be less than 15 times

the cable diameter. The minimum bending radius can be found on the relevant catalogue page or the product data sheet.

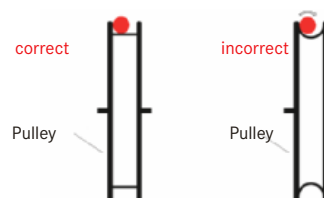
- Avoid "S"-shaped bends in the cable. However, if the configuration involved renders this impossible, the space between the two deflection pulley axes must be at least 20 times the cable diameter for cables with an outer diameter of up to 21.5 mm, and at least 25 times for cables with larger outer diameters. Definitely, Lapp can not warrant "S"-shaped bending for ÖLFLEX® CRANE NSHTÖU.



- During installation and operation of the cables (ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR), the maximum tensile strength of the cable based on the integrated tensile strain relief elements has to be respected, depending on the cable dimension (please, see the products catalogue pages). For cables with very large outer diameters, we recommend using guide pulleys to minimise friction on the outer sheath when changing direction.



- The inner contact surface of the pulley must not have a concave shape in order to prevent the cable twisting, which could be caused by extensive contact between the sheath and the inside of the pulley. To ensure that the cable runs smoothly, the inner width of the guiding groove must be 10 to 15% larger than the cable outer diameter.



- The actual current rating (I) in continuous operation also depends on:

- the conductor cross-section ( $I_{max}$ )
- the ambient temperature ( $f_1$ )
- the amount of cable reeled onto the drum ( $f_2$ )

In case of theoretical limitation of the calculation of final current rating and hereby, focus on the three above mentioned influencing factors, for better understanding and independently from reality, the maximum permissible load that can be exerted on the installed cable will be based on the following simplified formula:  $I = I_{max} \times f_1 \times f_2$

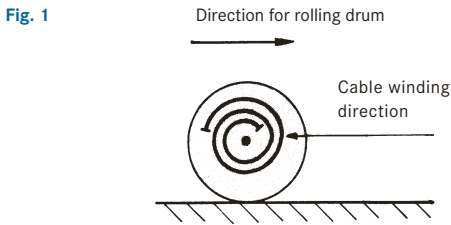
- These cables meet the requirements stipulated by VDE 0250 and VDE 0298-3 (application/installation). Any loads going beyond those specified will reduce the service life of the cables.



**Lift/elevator control cables – ÖLFLEX® LIFT, ÖLFLEX® LIFT T, ÖLFLEX® LIFT S**

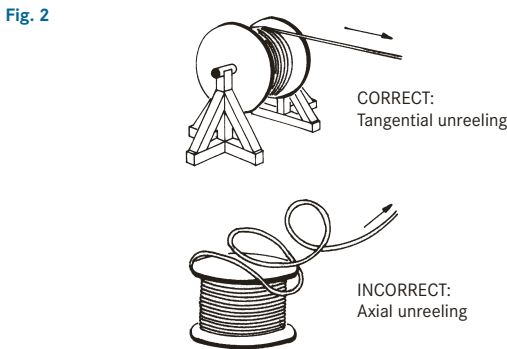
**A General information**

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 products 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**

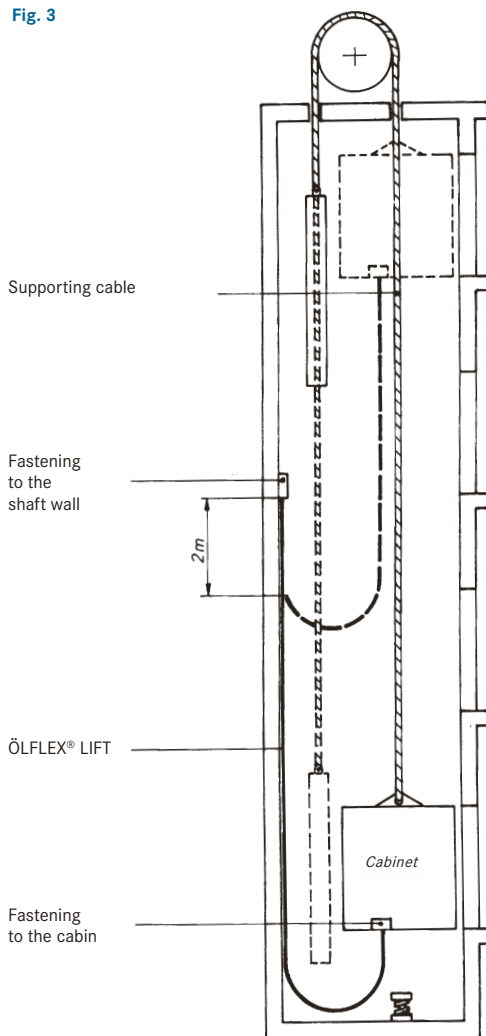
1. When pulling the cables into the shaft, unreel them tangentially from the drum. Unreeling the cable axially from the drum will result in the cable twisting and will affect the core stranding, which may in turn cause malfunctions (see fig. 2).



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).

**C General 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).



# T6 Technical tables

T6: type designations



## 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  
(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, light mechanical loads  
MH Connecting cable, moderate mechanical loads  
SH Connecting cable, 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, 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 mm<sup>2</sup>

### 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 harmonized 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, 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 for welding cable  
E Extra-fine wire conductor 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 mm<sup>2</sup>

### 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 mm<sup>2</sup>

#### 9. Stranding element

St Star quad (phantom)  
StI Star quad (trunk cable)  
StII 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: NSHTÖU 24G 1.5

ÖLFLEX® CRANE NSHTÖU cable, 24-core, with protective cond., cross-section: 1.5 mm<sup>2</sup>

#### EXAMPLE: H05 VV-F 3G 1.5

Medium PVC hose, 3-core, with protective cond., cross-section: 1.5 mm<sup>2</sup>

#### EXAMPLE: A2Y(L)2Y 6 x 2 x 0.8 Bd

Telephone cable for local network with PE insulation and layered sheath

Type designations for telecommunications cables and fibre-optic cables

### Fibre-optic cables

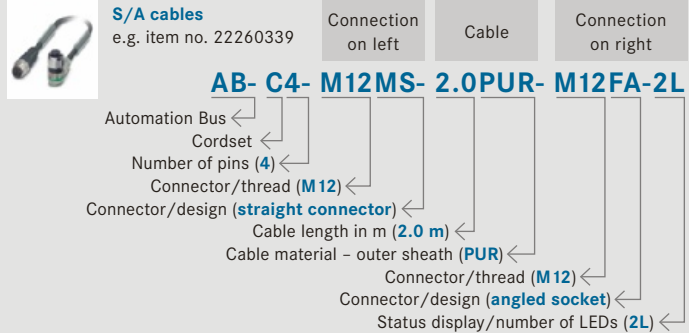
□ - □ □ □ □ □ □ □ □ □ □  
 1 2 3 4 5 6 7 8 9 10

- Basic type**
  - A Outdoor cable
  - AT Outdoor cable, divisible
  - J Indoor cable
  - J/A or U Indoor/outdoor cable, universal cable
- Fibres**
  - B Loose tube, unfilled
  - D Loose tube, filled
  - V Tight-buffered fibres
- Design elements**
  - F Petroleum jelly filling
  - Q Swelling tape
- Further design elements**
  - S Metal element in cable core
- Sheath**
  - 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
- 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 casing
- Number of fibres**
  - Number of fibres
- Fibre type**
  - E Single-mode fibre glass/glass (SM GOF)
  - G Gradient fibre glass/glass (MM GOF)
  - K Step fibre glass/plastic (PCF)
  - P Polymer optical fibre/plastic (POF)
- 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
- 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

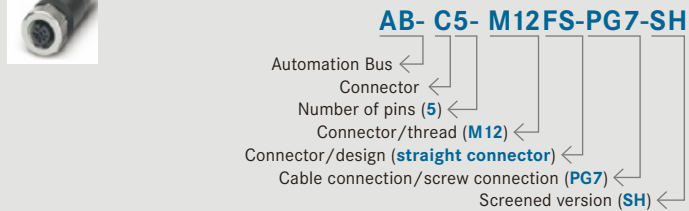
**EXAMPLE 2: J-V2Y(ZN)11Y 2P 980/1000**  
 Plastic fibre-optic cable, two-fibre (duplex), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

### Type designations for UNITRONIC® field bus



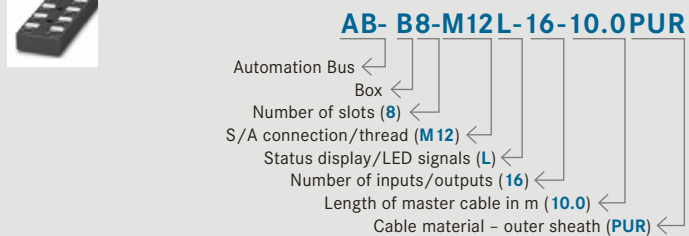
- MS - straight connector
- MA - angled connector
- FS - straight socket
- FA - angled socket
- M8, M12, M16, M23 - thread
- L - status display/LEDs
- SH - screened version
- HD - Hygienic Design
- VA - stainless steel knurl
- M12Y - M12 Y connector
- B - bridged
- 3-, 4-, 5-, 8-, .. number of pins
- A, AD, B, BI, C, CI - valve connector type
- S - valve connector with Z diode
- SVC - valve connector with varistor and connector
- SUP - valve connector with suppressor diode

**Ready-made connector** e.g. item no. 22260127



- 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
- FO.34 (fast connection, max. 0.34 mm² cond. cross-sec.)
- FO.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



**INFO: S/A box with double assignment** →  $\frac{\text{(number of inputs/outputs)}}{\text{(number of slots)}} = 2$

- 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-CAN - Automation Bus CAN
  - AB-ASI - Automation Bus AS-Interface
  - AB-ASI-J - AS-Interface distributor
  - DI - Digital Inputs
  - DO - Digital Outputs
  - R - Relay outputs

**T7** Technical tables

T7: core ID code for ÖLFLEX® cables



**Colour code for ÖLFLEX® cables**

The colour code applies to the following cables starting from 6 cores: ÖLFLEX® CLASSIC 100, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 100 SY and ÖLFLEX® CLASSIC 100 BK Power 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.

<p><b>Basic colours</b></p> <ul style="list-style-type: none"> <li>0 green/yellow </li> <li>1 white </li> <li>2 black </li> <li>3 blue </li> <li>4 brown </li> <li>5 grey </li> <li>6 red </li> <li>7 violet </li> <li>8 pink </li> <li>9 orange </li> <li>10 transparent </li> <li>11 beige </li> </ul> <p><b>Basic colours with white stripe</b></p> <ul style="list-style-type: none"> <li>12 black/white </li> <li>13 blue/white </li> <li>14 brown/white </li> <li>15 grey/white </li> <li>16 red/white </li> <li>17 violet/white </li> <li>18 pink/white </li> <li>19 orange/white </li> <li>20 transparent/white </li> <li>21 beige/white </li> </ul> <p><b>Basic colours with black stripe</b></p> <ul style="list-style-type: none"> <li>22 blue/black </li> <li>23 brown/black </li> <li>24 grey/black </li> <li>25 red/black </li> <li>26 violet/black </li> <li>27 pink/black </li> <li>28 orange/black </li> <li>29 transparent/black </li> <li>30 beige/black </li> </ul> <p><b>Basic colours with blue stripe</b></p> <ul style="list-style-type: none"> <li>31 brown/blue </li> <li>32 grey/blue </li> <li>33 red/blue </li> <li>34 pink/blue </li> <li>35 orange/blue </li> <li>36 transparent/blue </li> <li>37 beige/blue </li> </ul>	<p><b>Basic colours with brown stripe</b></p> <ul style="list-style-type: none"> <li>38 grey/brown </li> <li>39 red/brown </li> <li>40 violet/brown </li> <li>41 pink/brown </li> <li>42 orange/brown </li> <li>43 transparent/brown </li> <li>44 beige/brown </li> </ul> <p><b>Basic colours with grey stripe</b></p> <ul style="list-style-type: none"> <li>45 red/grey </li> <li>46 violet/grey </li> <li>47 pink/grey </li> <li>48 orange/grey </li> <li>49 transparent/grey </li> <li>50 beige/grey </li> </ul> <p><b>Basic colours with red stripe</b></p> <ul style="list-style-type: none"> <li>51 orange/red </li> <li>52 transparent/red </li> <li>53 beige/red </li> </ul> <p><b>Basic colours with violet stripe</b></p> <ul style="list-style-type: none"> <li>54 pink/violet </li> <li>55 orange/violet </li> <li>56 transparent/violet </li> <li>57 beige/violet </li> </ul> <p><b>Basic colours with pink stripe</b></p> <ul style="list-style-type: none"> <li>58 transparent/pink </li> <li>59 beige/pink </li> </ul> <p><b>Basic colours with orange stripe</b></p> <ul style="list-style-type: none"> <li>60 transparent/orange </li> <li>61 beige/orange </li> </ul> <p><b>Basic colours with white/black stripes</b></p> <ul style="list-style-type: none"> <li>62 blue/white/black </li> <li>63 brown/white/black </li> <li>64 grey/white/black </li> <li>65 red/white/black </li> <li>66 violet/white/black </li> <li>67 pink/white/black </li> <li>68 orange/white/black </li> <li>69 transp./white/black </li> <li>70 beige/white/black </li> </ul>	<p><b>Basic colours with white/blue stripes</b></p> <ul style="list-style-type: none"> <li>71 brown/white/blue </li> <li>72 grey/white/blue </li> <li>73 red/white/blue </li> <li>74 violet/white/blue </li> <li>75 pink/white/blue </li> <li>76 orange/white/blue </li> <li>77 transp./white/blue </li> <li>78 beige/white/blue </li> </ul> <p><b>Basic colours with white/brown stripes</b></p> <ul style="list-style-type: none"> <li>79 grey/white/brown </li> <li>80 red/white/brown </li> <li>81 violet/white/brown </li> <li>82 pink/white/brown </li> <li>83 orange/white/brown </li> <li>84 transp./white/brown </li> <li>85 beige/white/brown </li> </ul> <p><b>Basic colours with white/grey stripes</b></p> <ul style="list-style-type: none"> <li>86 red/white/grey </li> <li>87 violet/white/grey </li> <li>88 pink/white/grey </li> <li>89 orange/white/grey </li> <li>90 transp./white/grey </li> <li>91 beige/white/grey </li> </ul> <p><b>Basic colours with white/red stripes</b></p> <ul style="list-style-type: none"> <li>92 blue/white/red </li> <li>93 brown/white/red </li> <li>94 violet/white/red </li> <li>95 pink/white/red </li> <li>96 orange/white/red </li> </ul> <p><b>Basic colours with white/violet stripes</b></p> <ul style="list-style-type: none"> <li>97 brown/white/violet </li> <li>98 orange/white/violet </li> </ul> <p><b>Basic colours with black/blue stripes</b></p> <ul style="list-style-type: none"> <li>99 brown/black/blue </li> <li>100 grey/black/blue </li> <li>101 red/black/blue </li> </ul>
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**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	

**T8** Technical tables

T8: international colour codes for thermoelectric and compensating cables

Thermo couple						
	IEC 60584-3	DIN 43710*	ANSI MC 96.1	BS 4937	NF C 42-324	
Material	Designation		Designation		Designation	
⊕ ⊖	TEC	CC	TEC	CC	TEC	CC
T Cu - CuNi	<b>TX</b>  -25 °C up to +100 °C		<b>TX</b>  0 °C up to +100 °C	<b>TX</b>  0 °C up to +100 °C	<b>TX</b>  -25 °C up to +100 °C	
U Cu - CuNi		<b>UX</b>  0 °C up to +200 °C				
J Fe - CuNi	<b>JX</b>  -25 °C up to +200 °C		<b>JX</b>  0 °C up to +200 °C	<b>JX</b>  0 °C up to +200 °C	<b>JX</b>  -25 °C up to +200 °C	
L Fe - CuNi		<b>LX</b>  0 °C up to +200 °C				
E NiCr - CuNi	<b>EX</b>  -25 °C up to +200 °C		<b>EX</b>  0 °C up to +200 °C	<b>EX</b>  0 °C up to +200 °C	<b>EX</b>  -25 °C up to +200 °C	
NiCr - Ni	<b>KX</b>  -25 °C up to +200 °C	<b>KX</b>  0 °C up to +200 °C	<b>KX</b>  0 °C up to +200 °C	<b>KX</b>  0 °C up to +200 °C	<b>KX</b>  -25 °C up to +200 °C	
K NiCr - Ni	 0 °C up to +150 °C	 0 °C up to +150 °C			 0 °C up to +150 °C	
NiCr - Ni	 0 °C up to +100 °C			 0 °C up to +100 °C	 0 °C up to +100 °C	
N NiCrSi - NiSi	<b>NX</b>  -25 °C up to +200 °C	<b>NC</b>  0 °C up to +150 °C				
R PtRh13 - Pt	 0 °C up to +200 °C	 0 °C up to +200 °C	 0 °C up to +200 °C	 0 °C up to +200 °C	 0 °C up to +200 °C	
S PtRh10 - Pt						
B PtRh30 - PtRh6			 0 °C up to +100 °C		 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.

TEC = thermoelectric cables  
CC = compensating cables

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**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 the supply of permanently secured or portable supplies 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 with printed numbers	BK with printed numbers	BK 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 (harmonised)	Cables without 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 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

# T9 Technical tables

T9: core ID code as per DIN colour code



## 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 line, 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/yellow/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

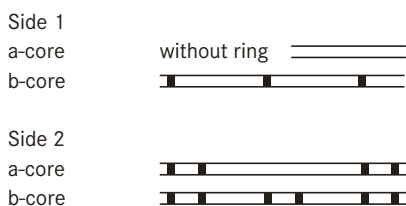
Exemption:

The twin-pair installation cable is twisted into a star quad:

Side 1: a-core: rot, 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:



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 to 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

Exemption:

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 13<sup>th</sup> 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

# T11 Technical tables

T11: conductor resistances and strand structure (metric)



## Conductor resistances and conductor stranding (metric)

Conductor resistances: up to 0.38 mm<sup>2</sup> as per DIN VDE 0812 and DIN VDE 0881 for stranded conductors, from 0.5 mm<sup>2</sup> as per IEC 60228/DIN EN 60228 (VDE 0295) for conductors made of soft-annealed copper and single and multi-core cables.

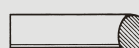
Nominal cross-section in mm <sup>2</sup>	Conductor resistances at 20 °C for 1 km in Ω (max. value)			
	Made of wires with metal sheath		Made of bare wires	
	Class 2	Class 5 + 6	Class 2	Class 5 + 6
0.08		252.0		243.0
0.14		148.0		138.0
0.25		79.9		79.0
0.34		57.5		57.0
0.38		52.8		48.5
0.5	36.7	40.1	36.0	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	

Example conductor stranding (metric)

Cross-section in mm <sup>2</sup>	Multi-wire conductor	Several-wire conductor	Fine-wire conductor	Extra-fine wire conductor			
0.14				~ 18 x 0.10	~ 18 x 0.1	~ 36 x 0.07	~ 72 x 0.05
0.25			~ 14 x 0.15	~ 32 x 0.10	~ 32 x 0.1	~ 65 x 0.07	~ 128 x 0.05
0.34		7 x 0.25	~ 19 x 0.15	~ 42 x 0.10	~ 42 x 0.1	~ 88 x 0.07	~ 174 x 0.05
0.38		7 x 0.27	~ 19 x 0.16	~ 19 x 0.16	~ 48 x 0.1	~ 100 x 0.07	~ 194 x 0.05
0.5	7 x 0.30	7 x 0.30	~ 16 x 0.20	~ 28 x 0.15	~ 64 x 0.1	~ 131 x 0.07	~ 256 x 0.05
0.75	7 x 0.37	7 x 0.37	~ 24 x 0.20	~ 42 x 0.15	~ 96 x 0.1	~ 195 x 0.07	~ 384 x 0.05
1.0	7 x 0.43	7 x 0.43	~ 32 x 0.20	~ 56 x 0.15	~ 128 x 0.1	~ 260 x 0.07	~ 512 x 0.05
1.5	7 x 0.52	7 x 0.52	~ 30 x 0.25	~ 84 x 0.15	~ 192 x 0.1	~ 392 x 0.07	~ 768 x 0.05
2.5	7 x 0.67	~ 19 x 0.41	~ 50 x 0.25	~ 140 x 0.15	~ 320 x 0.1	~ 651 x 0.07	~ 1280 x 0.05
4	7 x 0.85	~ 19 x 0.52	~ 56 x 0.30	~ 224 x 0.15	~ 512 x 0.1	~ 1040 x 0.07	
6	7 x 1.05	~ 19 x 0.64	~ 84 x 0.30	~ 192 x 0.20	~ 768 x 0.1	~ 1560 x 0.07	
10	7 x 1.35	~ 49 x 0.51	~ 80 x 0.40	~ 320 x 0.20	~ 1280 x 0.1	~ 2600 x 0.07	
16	7 x 1.70	~ 49 x 0.65	~ 128 x 0.40	~ 512 x 0.20	~ 2048 x 0.1		
25	7 x 2.13	~ 84 x 0.62	~ 200 x 0.40	~ 800 x 0.20	~ 3200 x 0.1		
35	7 x 2.52	~ 133 x 0.58	~ 280 x 0.40	~ 1120 x 0.20			
50	~ 19 x 1.83	~ 133 x 0.69	~ 400 x 0.40	~ 705 x 0.30			
70	~ 19 x 2.17	~ 189 x 0.69	~ 356 x 0.50	~ 990 x 0.30			
95	~ 19 x 2.52	~ 259 x 0.69	~ 485 x 0.50	~ 1340 x 0.30			
120	~ 37 x 2.03	~ 336 x 0.67	~ 614 x 0.50	~ 1690 x 0.30			
150	~ 37 x 2.27	~ 392 x 0.69	~ 765 x 0.50	~ 2123 x 0.30			
185	~ 37 x 2.52	~ 494 x 0.69	~ 944 x 0.50	~ 1470 x 0.40			
240	~ 37 x 2.87	~ 627 x 0.70	~ 1225 x 0.50	~ 1905 x 0.40			
300	~ 61 x 2.50	~ 790 x 0.70	~ 1530 x 0.50	~ 2385 x 0.40			
400	~ 61 x 2.89		~ 2035 x 0.50				
500	~ 61 x 3.23		~ 1768 x 0.60				
630	~ 91 x 2.97		~ 2286 x 0.60				

**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



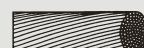
single-wire



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 regulations 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 took out of the 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 mapped at this point.

	Cable category			
	<b>A</b> Single-core cables • Rubber insulation • PVC insulation • TPE insulation • Heat-resistant	<b>B</b> Multi-core cables for domestic/handheld equipment • Rubber insulation • PVC insulation • TPE insulation	<b>C</b> Multi-core cables excl. domestic/handheld equipment • Rubber insulation • PVC insulation • TPE insulation • Heat-resistant	<b>D</b> Multi-core rubber-sheathed cables min. 0.6/1 kV Single-core <b>Special rubber core cables</b> 0.6/1 or 1.8/3 kV
Installation type				
Number of cores under load	1 <sup>3)</sup>	2      3	2 or 3	3      1 <sup>3)</sup>
Nominal cross-section in mm <sup>2</sup>	Current rating in A	Current rating in A		Current rating in A
0.08 <sup>1)</sup>	1.5	-	-	-
0.14 <sup>1)</sup>	3	-	-	-
0.25 <sup>1)</sup>	5	-	-	-
0.34 <sup>1)</sup>	8	-	-	-
0.5	12 <sup>2)</sup>	3	3	9 <sup>2)</sup>
0.75	15	6	6	12
1.0	19	10	10	15
1.5	24	16	16	18
2.5	32	25	20	26
4	42	32	25	34
				41
				55

<sup>1)</sup> Current rating values for small conductor cross-sections taken from VDE 0891-1 (0.08 mm<sup>2</sup> – 0.34 mm<sup>2</sup>)

<sup>2)</sup> Extended range for 0.5 mm<sup>2</sup> in line with VDE 0298-4, 2003-08, table 11

<sup>3)</sup> 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 10mm<sup>2</sup> 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

**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 0298-3, 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

# T12 Technical tables

T12: current ratings – reduction tables



**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 took out of the DIN VDE 0298 part 4, 2013-06, table 17.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped 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)					
Ambient temperature in °C	60 °C	70 °C	80 °C	85 °C	90 °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 mm<sup>2</sup>. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 26.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped 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 took out of the DIN VDE 0298 part 4, 2013-06, table 18.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped 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)				
Ambient temperature in °C	90 °C	110 °C	135 °C	180 °C
Conversion factors to be applied to the current rating values for heat-resistant cables in T 12-1, column A, C or D. (Source: DIN VDE 0298-4, 2003-08, table 18)				
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**

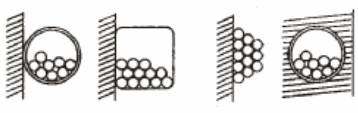

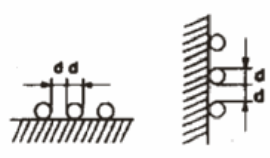
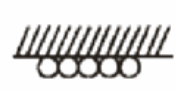
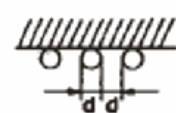
The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 27.

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 took out of the DIN VDE 0298 part 4, 2013-06, table 21.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Number of multi-core cables or number of AC or three-phase circuits formed by single-core cables (2 or 3 live conductors)						
Configuration for installation	1	2	3	4	6	10
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.

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APPENDIX

**T12** Technical tables

T12: current ratings – reduction tables



**Table 12-7: conversion factors**

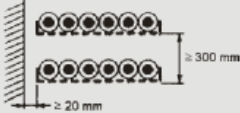
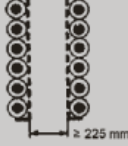
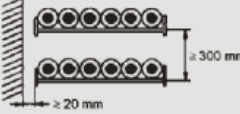
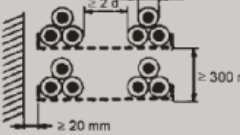
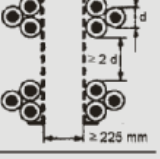
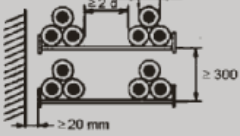
For bundling multi-core cables on troughs and conduits. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 22.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Configuration for installation		Number of troughs or conduits	Number of multi-core cables						
			1	2	3	4	6	9	
<b>Conversion factors</b>									
Non-perforated cable troughs	touching		1	0.97	0.84	0.78	0.75	0.71	0.68
	touching		1	1.00	0.88	0.82	0.79	0.76	0.73
Perforated cable troughs	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
Cable conduits	with gap		1	1.00	1.00	1.00	1.00	1.00	-
	touching		1	1.00	0.87	0.82	0.80	0.79	0.78

**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 took out of the DIN VDE 0298 part 4, 2013-06, table 23.  
For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Configuration for installation	Number of troughs or conduits	Number of 3-pin circuits formed by single-core cables			To be used as the multiplier for the measurement value of:		
		1	2	3			
<b>Conversion factors</b>							
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
	touching		1	1.00	0.98	0.96	Three cables arranged in a horizontal, triangular configuration
Perforated cable troughs	touching		1	1.00	0.91	0.89	Three cables arranged in a vertical, triangular configuration
	touching		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.

**T12** Technical tables

T12: current ratings – reduction tables



**Table 12-9: current rating of rubber-sheathed cables**

Current rating of flexible cables with cross-linked Elastomer insulation for industrial applications (H07RN-F und A07RN-F).  
 The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 13.  
 For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped 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
Nominal cross-section of copper cond. in mm <sup>2</sup>	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			-		T12-3		-

**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 took out of the DIN VDE 0298 part 4, 2013-06, table 18.1.

Ambient temperature in °C	Permissible operating temperature	
	90 °C	
	conversion factors to be applied to the current rating values in 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 und H01N2-E**

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 16. For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped 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 mm <sup>2</sup>		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 mm <sup>2</sup>		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 illustration is taken out 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 switchgears and controlgears under idealised conditions. The computational methods used to create the values are given in order to calculate values for other conditions.

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) continuously charged		Single-core cable, touching, installed in the open air or on a perforated cable trough. 6 cables (2 three-phase circuits) continuously charged		Single-core cable, installed horizontally in the open air with a specified gap	
Conductor cross section	Conductor resistance at 20 °C, R <sub>20</sub> <sup>a</sup>	Max. operating current I <sub>max</sub> <sup>b</sup>	Power loss per core P <sub>v</sub>	Max. operating current I <sub>max</sub> <sup>b</sup>	Power loss per core P <sub>v</sub>	Max. operating current I <sub>max</sub> <sup>b</sup>	Power loss per core P <sub>v</sub>
mm <sup>2</sup>	mΩ/m	A	W/m	A	W/m	A	W/m

# T13 Technical tables

T13: current rating as per National Electrical Code of the USA



### Table 13-1: current rating of cables in the USA

**Excerpt from NEC table T310.15 (B)(16) page 336**

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). No 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) page 337**

Permissible current rating of single-core cables with copper conductor with a nominal voltage of 0 to 2000 V, installed in the open air, based on an ambient temperature of 30 °C.

(NEC edition 2011)

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)	AWG or kcmil (MCM)	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)
18	-	-	14	18	-	-	18	18	-	-	18
16	-	-	18	16	-	-	24	16	-	-	24
14	20*	20*	25*	14	25*	30*	35*	14	25*	30*	35*
12	25*	25*	30*	12	30*	35*	40*	12	30*	35*	40*
10	30	35*	40*	10	40*	50*	55*	10	40*	50*	55*
8	40	50	55	8	60	70	80	8	60	70	80
6	55	65	75	6	80	95	105	6	80	95	105
4	70	85	95	4	105	125	140	4	105	125	140
3	85	100	115	3	120	145	165	3	120	145	165
2	95	115	130	2	140	170	190	2	140	170	190
1	110	130	145	1	165	195	220	1	165	195	220
1/0	125	150	170	1/0	195	230	260	1/0	195	230	260
2/0	145	175	195	2/0	225	265	300	2/0	225	265	300
3/0	165	200	225	3/0	260	310	350	3/0	260	310	350
4/0	195	230	260	4/0	300	360	405	4/0	300	360	405
250	215	255	290	250	340	405	455	250	340	405	455
300	240	285	320	300	375	445	500	300	375	445	500
350	260	310	350	350	420	505	570	350	420	505	570
400	280	335	380	400	455	545	615	400	455	545	615
500	320	380	430	500	515	620	700	500	515	620	700
600	350	420	475	600	575	690	780	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 - 70	-	0.33	0.58		
71 - 80	-	-	0.41		

**\*IMPORTANT:** Unless explicitly approved elsewhere in the NEC, the overload protection of the values marked with an \* (including consideration of the correction values for a different ambient temperature and, if necessary, a different number of current-carrying conductors) must not exceed 15 amps for AWG 14 conductors, or 20 amps for AWG 12 and 30 amps for AWG 10.

**NOTE:** The current rating of cables in industrial machinery and equipment can be found in section 12, NFPA 79 Edition 2012.

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 APPENDIX



The European Construction Product Regulation (CPR)

Requirements for fire behaviour of cables and their classification

Cables in buildings

Cables are used for different applications in buildings. In addition to energy supply, they are also used for signal and data transmission.

The increasing number of electrically-powered equipments and the increase in networking (e.g. intelligent controls, Internet distribution etc.) result in a rise in the number of cables required. Therefore, their behaviour in case of fire is becoming increasingly important.

The EU has responded to this situation by including cables in the new regulations for construction products.

The Construction Product Regulation and its significance

Regulation no. 305/2011 of the European Parliament and of the Council of 9<sup>th</sup> March 2011 laid down harmonised conditions for the marketing of construction products and is known as the Construction Product Regulation (CPR).

It has been in force since 01.07.2013 and replaces the previous construction products directive (no. 89/106/EEC) from 1988.

Along with many other construction products, the regulations cover energy, control and data cables intended for permanent use (installation) in buildings.

The regulation defines basic requirements for buildings, e.g. fire prevention, but does not set out specific product properties or stipulate the use of particular construction products.

Underlying standards – Euro classes

The products intended for use must be classified using standardised rules (harmonised standards), which requires testing and certification by a notified body.

The standards that define the fire behaviour requirements for cables (prEN 50575) and describe the classification (prEN 13501-6) had not yet been officially adopted at the time when CPR come into force on 01.07.2013. As a result, it was not possible to assign cables to fire classes (Euro classes A-F, see Table 1) or to issue certificates of conformity.

The standards are expected to be finished in 2014 and will be published in the EU Official Journal. Only then can testing bodies be notified, and there will be a transitional period during which products with and without CE marking under CPR can be brought into circulation.

Table 1: Euro classes under prEN 13501-6 respectively 2006/751/EG

Class	Test method(s)	Classification criteria	Additional Classification
A <sub>CA</sub>	EN ISO 1716	PCS ≤ 2.0 MJ/kg	
B1 <sub>CA</sub>	EN 50399 (30 kW burner) and	FS ≤ 1.75 m and THR <sub>1200s</sub> ≤ 10 MJ and Peak-HRR ≤ 20 kW and FIGRA ≤ 120 Ws <sup>-1</sup>	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
B2 <sub>CA</sub>	EN 50399 (20.5 kW burner) and	FS ≤ 1.5 m and THR <sub>1200s</sub> ≤ 15 MJ and Peak-HRR ≤ 30 kW and FIGRA ≤ 150 Ws <sup>-1</sup>	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
C <sub>CA</sub>	EN 50399 (20.5 kW burner) and	FS ≤ 2.0 m and THR <sub>1200s</sub> ≤ 30 MJ and Peak-HRR ≤ 60 kW and FIGRA ≤ 300 Ws <sup>-1</sup>	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	

Table 1: Euro classes under prEN 13501-6 respectively 2006/751/EG

Class	Test method(s)	Classification criteria	Additional Classification
D <sub>CA</sub>	EN 50399 (20.5 kW burner) and	THR <sub>1200s</sub> ≤ 70 MJ and Peak-HRR ≤ 400 kW and FIGRA ≤ 1300 Ws <sup>-1</sup>	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
E <sub>CA</sub>	EN 60332-1-2	H ≤ 425 mm	
F <sub>CA</sub>	No performance determined		

PCS – Gross calorific potential  
 FS – Flame Spread  
 THR – Total Heat Release  
 HRR – Heat Release Rate  
 FIGRA – Fire Growth Rate

Certificate of conformity

The familiar procedure for cables covered by the Low Voltage Directive required the manufacturer to establish the conformity of their products with the directives or compliance with the corresponding standards and to certify this in an EU Declaration of Conformity.

However, this is not sufficient for products affected by the Construction Products Regulation. Depending on the intended Euro class, a conformity assessment process will have to be completed, with the scope outlined in Table 2. Except for Class F, a minimum of type testing by a notified body will be required. In association with the certificate of conformity, the manufacturer will have to issue a performance declaration, providing details of the fire behaviour (Euro class A-F).

Table 2: Conformity certification system under prEN50575

Euro class	Conformity certification system	Tasks of notified body
A <sub>CA</sub> , B1 <sub>CA</sub> , B2 <sub>CA</sub> , C <sub>CA</sub>	1+	- Type testing - Regular plant auditing - Regular sampling from ongoing production
D <sub>CA</sub> , E <sub>CA</sub>	3	Type testing
F <sub>CA</sub>	4	none

This process for classifying products and obtaining the certificate of conformity will apply equally to all member states and is a response to the requirement to eliminate barriers to trade in the construction product sector and improve the free movement of goods for these products in the internal market.

Use of classified cables in buildings

Incorporation of the corresponding cables into building regulations and assignment of fire classes to building types or areas within buildings is the responsibility of the relevant member states.

For example, in Germany, the individual states will implement the standards according to their own state building regulations, as building law is under state jurisdiction. The DIBt (Centre of Competence in Civil Engineering) is expected to publish a convergence table.

Definitive assignments of classes to buildings were not set at the time of going to press, although a possible classification can be found in a white paper from the ZVEI (German association of electrical equipment manufacturers), which can be found in German at www.zvei.de.

Certification status of our products

We are currently working on establishing the suitability and classification of our products and on adding any modified or new products required to our range, so that we will be in a position to supply compliant cables.

Until the standards specified above are published, we cannot issue any information about fire classes. The current status of our products can be found in our online catalogue at <http://products.lappgroup.com/online-catalogue/appendix/technical-tables.html>

**T15** Technical tables

T15: 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	Heat-resistant polyvinylchloride	High-pressure polyethylene	Low-pressure polyethylene	Polyurethane	Polyamide	Polybutyleneterephthalate	Polytetrafluoroethylene	Tetrafluoroethylene Hexafluoropropylene copolymer
<b>Parameter</b>										
Abbreviations	Lapp type: P4/11	PVC	PVC	LDPE	HDPE	PUR	PA	PBTP	PTFE	FEP
Code as per VDE	–	Y	Y	2Y	2Y	11Y	4Y	–	5Y	6Y
Operating temperature	-40 +120	-30 +70	-20 +90	-50 +70	-50 +100	-40 +90/100	-40 +80	-60 +110	-190 +260	-100 +200
Dielectric constant (10 <sup>-3</sup> )	2.4	4.0	3.5	2.3	2.3	4.0 – 6.0	3.5 – 7.0	3.0 – 4.0	2.1	2.1
Spec. contact resistance (Ω x cm)	10 <sup>15</sup>	10 <sup>12</sup> – 10 <sup>15</sup>	10 <sup>12</sup> – 10 <sup>15</sup>	10 <sup>17</sup>	10 <sup>17</sup>	10 <sup>12</sup>	10 <sup>14</sup>	10 <sup>16</sup>	10 <sup>18</sup>	10 <sup>18</sup>
Tensile strength in N/mm <sup>2</sup> MPa	10 – 20	10 – 25	10 – 25	20 – 30	30	30 – 45	50 – 180	50 – 100	14 – 40	20 – 25
Elongation at break in %	450 – 550	150 – 300	150 – 300	500	800	300 – 600	200 – 300	50 – 300	240 – 400	250 – 350
Water absorption (20 °C) in %	1 – 2	0.4	0.4	0.1	0.1	1.5	1 – 2	0.5	0.01	0.01
Weather resistance	very good	moderate	moderate	good	moderate	very good	good	good	very good	very good
Fuel resistance	good	moderate	moderate	low	low	good	moderate	good	very good	very good
Oil resistance	Resistance to org. oil: very good	good	good	moderate	moderate	good	good	good	very good	very good
Flammability	flammable	self-extinguishing	self-extinguishing	flammable	flammable	self-extinguishing*	flammable	flammable	non-flammable	non-flammable

Usage criteria	Material								
	Ethylene tetrafluoroethylene	Perfluoroalkoxy polymer	Chloroprene rubber	Silicone rubber	Ethylene vinyl acetate	Ethylene propylene rubber	Thermoplastic polyolefin elastomer	Thermoplastic polyester elastomer	Styrene three-block copolymer
<b>Parameter</b>									
Abbreviations	ETFE	PFA	CR	SI	EVA	EPM/EPDM	TPE-O	TPE-E	TPE-S
Code as per VDE	7Y	–	5G	2G	4G	3G	–	12Y	–
Operating temperature	-100 +150	-190 +260	-40 +100	-60 +180	-30 +125	-30 +120	-40 +120	-70 +125	-75 +105/140
Dielectric constant (10 <sup>-3</sup> )	2.6	2.1	6.0 – 8.0	2.8 – 3.2	5 – 7	3.2	2.7 – 3.6	3.7 – 5.1	2.2 – 2.6
Spec. contact resistance (Ω x cm)	10 <sup>16</sup>	10 <sup>15</sup>	10 <sup>13</sup>	10 <sup>15</sup>	10 <sup>13</sup>	10 <sup>14</sup>	5 x 10 <sup>14</sup>	10 <sup>12</sup>	10 <sup>16</sup>
Tensile strength in N/mm <sup>2</sup> MPa	40 – 50	30	25	5 – 10	5	5 – 25	≥ 6	3 – 25	9 – 25
Elongation at break in %	100 – 300	300	450	200 – 350	200	200 – 450	≥ 400	280 – 650	500 – 700
Water absorption (20 °C) in %	0.01	0.01	1	1.0	0.01	0.02	1.5	0.3 – 0.6	1 – 2
Weather resistance	very good	very good	very good	very good	good	good	very good	very good	moderate
Fuel resistance	very good	very good	low	low	low	low	moderate	good	good
Oil resistance	very good	good	good	moderate	low	low	moderate	very good	low
Flammability	non-flammable	non-flammable	self-extinguishing	hardly flammable	flammable	flammable	flammable	flammable	flammable

\* only with additional flame retardant

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**US 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 mm<sup>2</sup> is stated as the nominal size) as well 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.

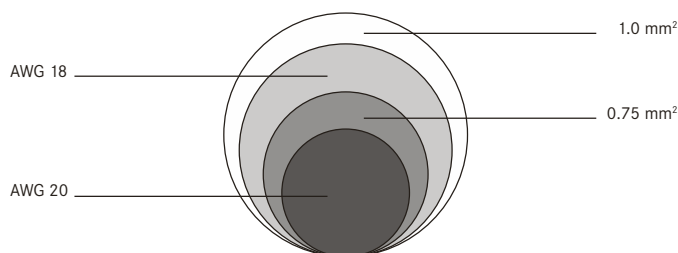
Standards required as part of project planning, such as UL1581 or IEC 60228 (VDE 0295), must be applied accordingly.

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	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	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	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	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 mm<sup>2</sup>.

**EXAMPLE 2:**

The electro-technical project planning requirements as per European standards stipulate that you require a cable of 0.75 mm<sup>2</sup>.

The product page in the catalogue lists only AWG figures or large metric cross-sections. Nominal cross-section 0.75 mm<sup>2</sup> 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 mm<sup>2</sup>. Thus, you will require a cable with size AWG 18.

# T16 Technical tables

## T16: Anglo-American dimensions



### 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 statute 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 <sup>3</sup>
1 cubic foot	=	0.0283 m <sup>3</sup>
1 cubic yard	=	0.765 m <sup>3</sup>
1 US 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 <sup>-3</sup> mm <sup>2</sup>
1 kcmil (MCM)	=	0.5067 mm <sup>2</sup>
1 square inch (sq. in.)	=	645.16 mm <sup>2</sup>
1 square foot (sq.ft.)	=	0.0929 m <sup>2</sup>
1 square yard	=	0.836 m <sup>2</sup>
1 acre	=	0.00405 km <sup>2</sup>
1 square mile	=	2.59 km <sup>2</sup>
1 m <sup>2</sup>	=	10.764 sq. ft.

#### 4. Units of mass

British gravitational system:

1 slug = 1 lbs · s<sup>2</sup>/ft

British absolute system:

1 pound = 1 lb

1 slug = 32.174 lb, with 32.174 ft/s<sup>2</sup>

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 US 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<sup>2</sup>

1 lbf = 32.174 pdl – 9.80665 lb · m/s<sup>2</sup>

#### 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<sup>3</sup> = 16.02 kg/m<sup>3</sup>

#### 10. Specific weight

1 lbf/ft<sup>3</sup> = 16.02 kp/m<sup>3</sup>

#### 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.



Table 17-1: example using “copper”

**Copper prices**

Cables, wires and piece goods are sold at daily copper prices (DEL). DEL is the stock exchange listing for German electrolytic copper for conducting purposes, i. e. 99.5% pure copper. The DEL is expressed in euros per 100 kg and can usually be found in the business section of daily newspapers under “Commodity markets”.

**FOR EXAMPLE:** DEL 576.93 means: 100 kg copper (Cu) costs EUR 576.93. Currently a 1% procurement surcharge is added to the daily quotation for cables, wires and piece goods. Further information, particularly concerning the DEL quote, can be obtained from the ZVEI professional association for cables and insulated wires: [www.zvei.org](http://www.zvei.org)

**Copper price basis**

A proportion of the copper price is already included in the list price for many cables and almost all wires and piece goods. This is also expressed in euros per 100 kg

- EUR 150.00 / 100 kg for most flexible cables (e. g. ÖLFLEX® CLASSIC 100) and piece goods (e. g. ÖLFLEX® SPIRAL 540 P)
- EUR 100.00 / 100 kg for telephone cables (e. g. J -Y(St)Y)
- EUR 0.00 / 100 kg for underground cables (e. g. power cable NYY), i. e. hollow price.

Exact details can be found on each page of the catalogue beneath the article table.

**Copper index**

The copper index is the calculated copper weight of a cable, wire (kg/km) or piece good (kg/ 1000 pc) and is specified for each catalogue item.

**Other metals**

This same method is also used for other metals, e. g. “aluminium”. In this case, replace “copper” with “aluminium”. General term: “metal”.

**Example I: Calculating the copper surcharge for goods sold by the metre:**

Cable ÖLFLEX® CLASSIC 100, 3G1.5 mm<sup>2</sup>  
Copper index as per catalogue 43 kg/km  
The calculated copper weight of the cable is 43 kg per 1 km.

$$\text{Copper index (kg/km)} \times \frac{(\text{DEL} + 1\% \text{ procurement costs}) - \text{copper price basis}}{1000} = \text{Copper surcharge in EUR/100 m}$$

ÖLFLEX® CLASSIC 110, 3G1.5 mm<sup>2</sup>.  
DEL: EUR 576.93/ 100 kg. Cu basis EUR 150.00/ 100 kg.  
Cu index: 43 kg/km

$$43 \text{ kg/km} \times \frac{(576.93 + 5.77) - 150.00}{1000} = \text{EUR } 18.61 / 100 \text{ m}$$

Assuming a DEL quotation of EUR 576.93/ 100 kg, this figure represents the copper surcharge for 100 m ÖLFLEX® CLASSIC 110 3G1.5 mm<sup>2</sup>.

**Example II: Calculating the copper surcharge for piece goods:**

ÖLFLEX®SPIRAL 540P 3G1.5 mm<sup>2</sup> (item no.: 73220150).  
Copper index as per catalogue: 605.5 kg/ 1000 pc.  
Copper price basis as per catalogue: EUR 150.00/ 100 kg  
The calculated copper weight (copper index) of the piece good spiral cable is 605.5 kg/ 1000 pc.  
Formula for calculating the copper surcharge for piece goods:

$$\text{Copper index (kg/ 1000 pc)} \times \frac{(\text{DEL} + 1\% \text{ procurement costs}) - \text{copper price basis}}{1000} = \text{Copper surcharge in EUR/ 100 pc}$$

$$605.5 \text{ kg / 1000 pc} \times \frac{(576.93 + 5.77) - 150.00}{1000} = \text{EUR } 261.78 / 100 \text{ pc}$$

**Price including copper:**

The net price is calculated as follows:  
Gross price – % discount + copper surcharge = net price including copper.  
The copper surcharge is shown separately on the invoice.

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# T17 Technical tables

## T17: calculating metal surcharges



### Table 17-2: background information on cables

For the majority of our product range, the construction of conductors for cables and insulated wires is governed by the international standard DIN EN 60228 (VDE 0295)/IEC 60228. Normative threshold values are defined for the nominal cross sections and the conductor materials copper/aluminium/aluminium alloy listed in the standard. The application of these threshold values varies for the different conductor classes, however, they all exhibit a maximum conductor resistance at 20 °C.

Conductor resistance at 20 °C is an important normative compliance value. Other geometric requirements in DIN EN 60228 et seqq. and in product standards that reference DIN EN 60228 et seqq., serve to ensure the compatibility of conductors and connectors and do not contain any requirements concerning the weight of the conductor materials used in the wire or cable.

For example, the density of copper used in the manufacture of cables and wires is specified as 8.89 g/cm<sup>3</sup> in accordance with DIN EN 13602. Therefore, a single-core cable with a nominal cross section of 1 mm<sup>2</sup> has a copper content of 8.89 kg/km. This simple formula for calculating the copper content provides an indication. However, the actual value may be lower than this, as it is the maximum conductor resistance at 20 °C that is important. The extent of the (+/-) deviation from this calculation value depends on the production process employed by individual manufacturers and the semifinished conductors they use.

When it comes to invoicing, e.g. for copper surcharges, the copper index is used. You may also see the term “calculated copper weight” being used instead of “copper index”. This typical industry value\* is 9.6 kg/km\*\* – based on the nominal cross section of 1 mm<sup>2</sup> – and factors in the necessary increased use of material/copper.

This increase generalises individual (manufacturer-dependent) additional expenditure during the manufacturing process. In particular, this includes irreversible losses resulting from lead-in lengths and abrasion on the drawing dies as well as from the widening (wearing) of the dies during wire production. It also includes additional expenditure due to twisting of the conductors and the resulting enlargement of the stretched length. There are also surcharges to ensure the conductor resistance at unavoidable manufacturing tolerances – e.g. cross section reduction due to the tensile load during extrusion and twisting. It should also be mentioned that the copper index calculated in this manner is the only way to enable standardisation across manufacturers – particularly in the case of unshielded cables – and therefore serves as the basis for price comparisons, particularly when calculating copper surcharges.

The aim of this customer information is to explain the technical and commercial background for determining and using the copper index and to demonstrate the benefits and efficiency of its use for manufacturers, traders and customers alike.

\*U.I. Lapp GmbH is a member of the professional association for cables and insulated wires of ZVEI

\*\*The corresponding figure to be used for aluminium is 2.9 kg/km



**Trademark approvals**

Thanks to their outstanding characteristics, many of our products have been tested and approved by the following approval associations. You will find the certification marks on the individual product pages, if applicable.



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 UND INFORMATIONSTECHNIK  
 Germany



SCHWEIZERISCHER ELEKTROTECHNISCHER VEREIN  
 Switzerland



UNDERWRITERS LABORATORIES INC.  
 USA



CANADIAN STANDARDS ASSOCIATION  
 Canada



GERMANISCHER LLOYD  
 Germany



LLOYD'S REGISTER OF SHIPPING  
 United Kingdom



DET NORSKE VERITAS  
 Norway



GOST R STANDARD  
 Russia



TÜV RHEINLAND GROUP  
 Germany



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## Laying guidelines for cables and wires

Cables must be selected in accordance with the laying and operating conditions. They must be protected against mechanical, thermal and chemical effects as well against moisture penetrating through the cable ends.

Insulated power cables must not be laid underground. Temporary covering of NSSHÖU rubber-sheathed cables or trailing cables with soil, sand or a similar material, e.g. on building sites, does not constitute underground installation.

Fasteners and fixtures must not cause any damage to fixed wires and cables. Where cables or wires running horizontally along walls or ceilings are fixed using clips, the following guidelines regarding clip spacing must be observed:

For non-reinforced cables and wires, 20 x outside diameter.

These spacing guidelines also apply when laying cables in conduits and racks. When laying cables vertically, the spacing between clips can be increased depending on the type of cable or clip.

When connecting flexible cables (e.g. ÖLFLEX® cables, UNITRONIC® cables) to portable power consumers, there must be no strain or thrust at the insertion points and the cables must be secured against twisting and kinking. Outer cable sheaths must not be damaged at the insertion points or by the strain relief devices. Standard version flexible PVC cables are not designed for outdoor use.

Flexible rubber-sheathed cables (e.g. ÖLFLEX® CRANE cables) are only suitable for permanent outdoor use if their outer sheath is made of a compound, generally based on polychloroprene (NEOPRENE®). Special cables must be deployed for permanent underwater use.

### Thermal stress

The temperature limits for the respective cable designs can be found in the technical data. The upper temperature limits must not be exceeded as a result of the cable heating up due to current heat and thermal environmental factors.

The lower temperature limits denote the lowest permitted ambient temperature.

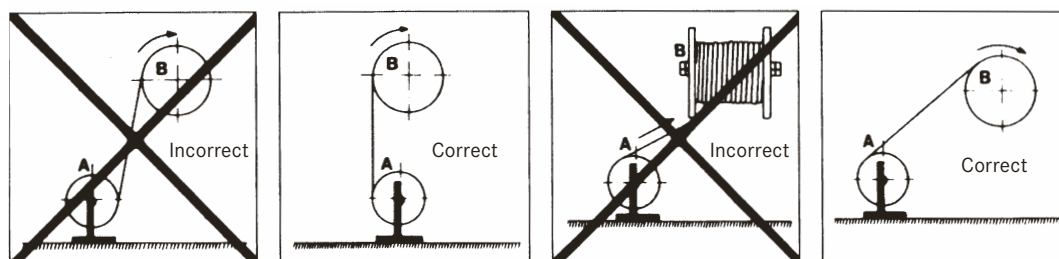
### Tensile strain

Tensile strain on the conductor should be as low as possible.

The following tensile strains for conductors must not be exceeded for cables.

- When laying and operating copper cables for portable equipment: 15 N per mm<sup>2</sup> conductor cross-section; this does not include screening, concentric conductors and divided protective conductors. In the case of cables that are subjected to dynamic stresses, e.g. in crane systems with high acceleration or power chains subject to frequent movement, appropriate measures must be taken, e.g. enlargement of the bending radius in individual cases. A shorter service life may be expected.
- Cables for static installation. When laying permanent cables, 50 N per mm<sup>2</sup> conductor cross-section.
- For fibre optic cables, BUS, LAN, industrial and Ethernet cables, the respective permitted strain must be observed. These values can be found in the product data sheets or are available on request.

For more information on this subject, see tables T3, T4 and T5.

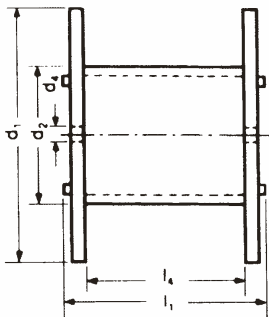


Winding and unwinding cables

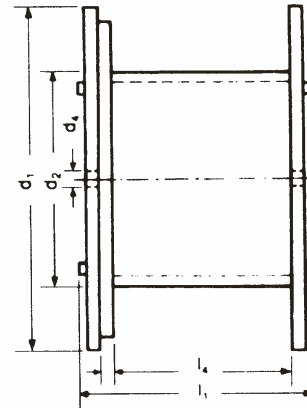
**Wooden drums: holding capacity**

Drum ID number	Cable Ø mm										
	6	9	12	15	20	25	30	40	50	60	80
71	2024	892	468	297	165	-	-	-	-	-	-
81	2755	1152	643	430	219	151	-	-	-	-	-
91	-	2202	1206	749	402	285	162	-	-	-	-
101	-	-	1540	1000	576	365	220	-	-	-	-
121	-	-	-	1991	1139	688	450	249	-	-	-
141	-	-	-	2479	1352	839	564	327	-	-	-
161	-	-	-	-	2435	1608	1028	549	319	-	-
181	-	-	-	-	-	1867	1197	640	373	256	-
201	-	-	-	-	-	2522	1583	812	558	296	163
221	-	-	-	-	-	-	2383	1328	678	566	278
250	-	-	-	-	-	-	-	1892	1107	699	363

Up to drum size 10 with cable bushing



From drum size 12 with spiral



**Wooden drums: dimensions and load-bearing capacity**

Drum ID number	Drum size	Diameter (mm)			Width (mm)		Load-bearing capacity kg	Weight kg
		d <sub>1</sub>	d <sub>2</sub>	d <sub>4</sub>	l <sub>1</sub>	l <sub>4</sub>		
071	07	710	355	80	520	400	250	25
081	08	800	400	80	520	400	400	31
091	09	900	450	80	690	560	750	47
101	10	1000	500	80	710	560	900	71
121	12	1250	630	80	890	670	1700	144
141	14	1400	710	80	890	670	2000	175
161	16/8	1600	800	80	1100	850	3000	280
181	18/10	1800	1000	100	1100	840	4000	380
201	20/12	2000	1250	100	1340	1045	5000	550
221	22/14	2240	1400	125	1450	1140	6000	710
250	25/14	2500	1400	125	1450	1140	7500	875
251	25/16	2500	1600	125	1450	1130	7500	900
281	28/18	2800	1800	140	1635	1280	10000	1175

## T20 Technical tables

T20: cable drums – transport damage, losses, rental and handling



### Transport damage

**We take great care when selecting our transport service providers.**

However, please inspect all delivered goods to make sure that:

- there are no external signs of damage
- you have received the correct goods and
- the delivery is complete.

If you find any of these faults, please ask the carrier to confirm this on your shipping documents before accepting the goods. You should also always record the fault on the carrier's delivery receipt.

If you fail to write down an obvious fault on the shipping documents, we shall not be legally held liable for any damage claims.

In the event of damage, please also contact your local sales representative at our company and provide us with the delivery note and/or invoice number.

If you find a concealed fault, please notify your sales representative straight away.



### Information on our cable drums

**Our cable drums. Free of charge to you!**

We ship our cables on IPPC-compatible Lapp cable drums. We do not charge any rental for drums.

**Returning drums. Please note the following.**

Our partner responsible for all packaging and disposal matters is the disposal and recycling service provider INTERSEROH Dienstleistungs GmbH. Please address any queries regarding the new packaging regulation to:

Interseroh Dienstleistungs GmbH  
 Telephone: 0049 2203 9147-1366  
 Fax: 0049 2203 9147-1390  
 E-mail: kabeltrommeln@interseroh.com

Of course, you can also contact us directly:  
 Tel: 0049 711 7838-2233, fax: 0049 711 7838-6620 or by  
 e-mail: lo-service@lappkabel.de

**KTG drums. Only at your request.**

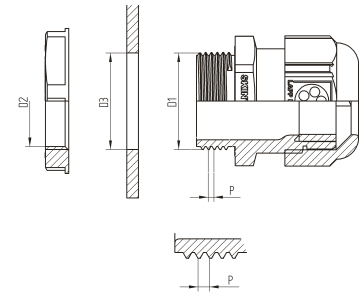
If you wish, we can also supply our cables on KTG drums subject to charge. These drums are subject to the terms & conditions for hiring cable and rope drums from Kabeltrommel GmbH & Co. KG (KTG) in Troisdorf.

You can view these on the Internet at <http://www.kabeltrommel.de>. Your contractual partner for hiring these drums is not the U.I. Lapp GmbH, but rather KTG in Troisdorf.

**Thread and hole dimensions – technical data for installation**

**Metric thread to EN 60423** (for screw connections to EN 50 262)

Nominal size	Ø D1	P	Ø D2	Hole Ø D3
M12 x 1.5	12	1.5	10.6	12.3 - 0.2
M16 x 1.5	16	1.5	14.6	16.3 - 0.2
M20 x 1.5	20	1.5	18.6	20.3 - 0.2
M25 x 1.5	25	1.5	23.6	25.3 - 0.2
M32 x 1.5	32	1.5	30.6	32.3 - 0.2
M40 x 1.5	40	1.5	38.6	40.4 - 0.3
M50 x 1.5	50	1.5	48.6	50.4 - 0.3
M63 x 1.5	63	1.5	61.6	63.4 - 0.3
M75 x 1.5	75	1.5	73.6	75.4 - 0.3
M90 x 2	90	2	88.8	90.4 - 0.3
M110 x 2	110	2	108.8	110.4 - 0.3



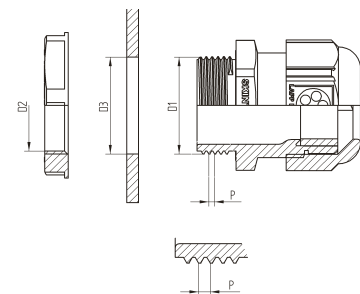
- D1 = External Ø
- D2 = Core Ø internal thread
- D3 = Hole Ø
- P = Pitch

**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**

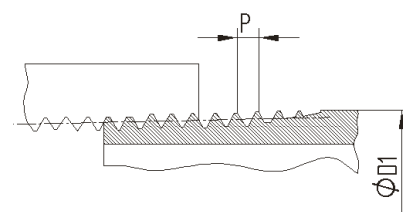
Nominal size	Ø D1	P	Ø D2	Hole Ø D3
PG 7	12.5	1.27	11.3	12.8 ± 0.2
PG 9	15.2	1.41	13.9	15.5 ± 0.2
PG 11	18.6	1.41	17.3	18.9 ± 0.2
PG 13.5	20.4	1.41	19.1	20.7 ± 0.2
PG 16	22.5	1.41	21.2	22.8 ± 0.2
PG 21	28.3	1.588	26.8	28.6 ± 0.2
PG 29	37.0	1.588	35.5	37.4 ± 0.3
PG 36	47.0	1.588	45.5	47.4 ± 0.3
PG 42	54.0	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 internal thread
- D3 = Hole Ø
- P = Pitch

**NPT thread to ANSI B1.20.2 – 1983**

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

# T21 Technical tables

T21: tightening torques and installation dimensions for cable glands



## Tightening torques\* for SKINTOP® metric screw connections

Table of recommended tightening torques (domed cap nut, connection thread) for SKINTOP® metric design to achieve category A protection rating and strain relief to EN 50262. For more information regarding the protection rating, see the product page.

Nominal size	Tightening torque in Nm	
	Plastic	Metal
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	-	45
M110 x 2	-	55

\*NOTE: 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 screw connections

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

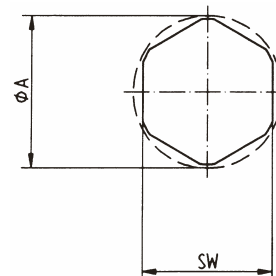
\*\*NOTE: The values in the table above constitute the tightening torques for fittings and the maximum tightening torques for domed cap nuts under normal climatic conditions. Note that lower torques must be used with different cable insulation materials; otherwise, the cable insulation may be damaged.



## 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.

WS	Ø A	WS	Ø A	WS	Ø A	WS	Ø A
9	10.4	22	25.0	37	41.5	54	61.0
11	12.5	24	27.3	39	44.0	55	62.0
13	14.9	25	28.3	40	45.2	57	64.4
14	16.0	26	29.5	41	46.1	60	67.5
15	17.1	27	30.6	42	47.0	64	72.3
16	18.2	28	31.8	45	51.2	65	73.1
17	19.4	29	32.5	45	51.2	66	74.5
18	20.4	30	34.0	46	52.5	67	74.5
19	22.0	32	36.2	47	52.5	95	105.0
20	22.7	33	37.2	50	58.3	115	127.0
21	23.9	36	40.5	53	60.0	135	150.0





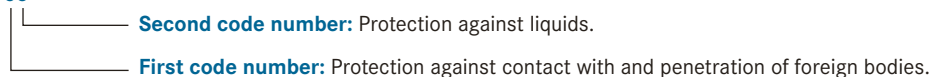
**Definition of protection ratings to EN 60529 (DIN 0470) and DIN 40050**

The protection ratings are indicated by a code that is always made up of the same two identification letters IP and the code numbers for the degree of protection, e.g. IP 54.

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.
9K	High-pressure/steam-jet cleaning	Water projected against the housing from any direction under very high pressure shall have no harmful effects.

**FOR EXAMPLE:** Identification letters IP **65**



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Table 23-1: PG/metric

Getting the link to the future – now

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 EN 50262 for metric threads – means that with 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 EN 502262 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.

EN 50262 is a safety standard, and no longer a construction standard with the function 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.

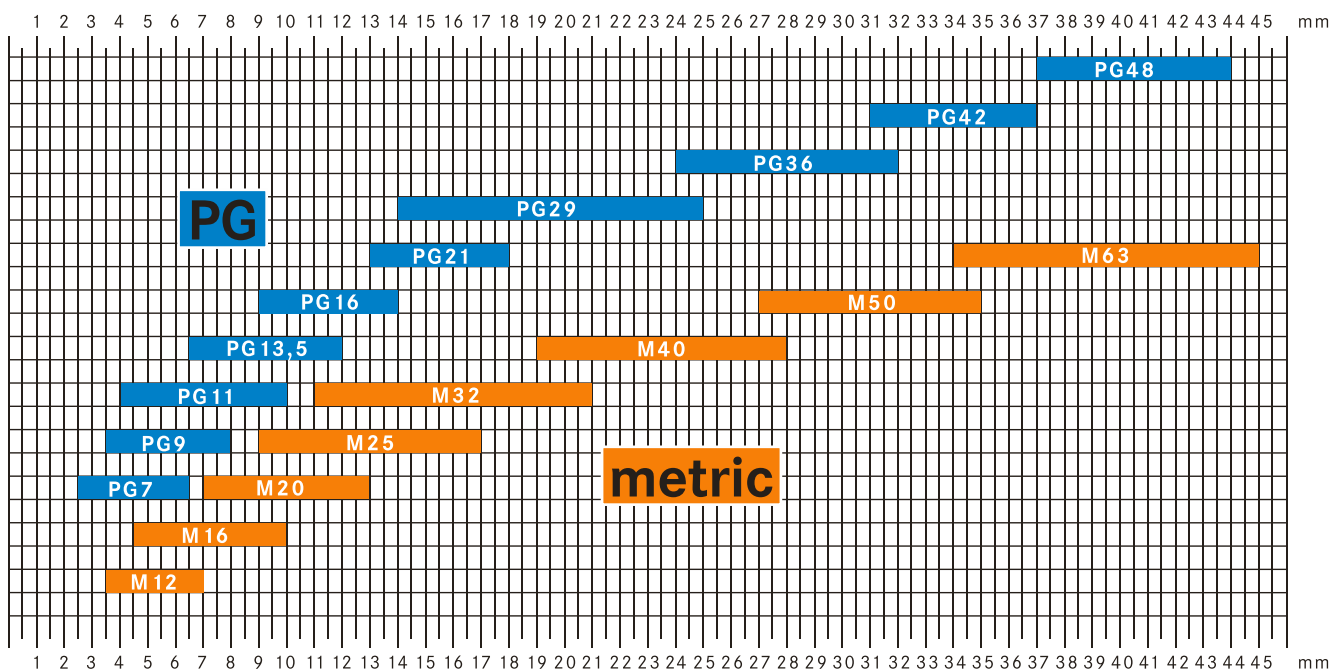
With our cable glands SKINTOP® and SKINDICHT®, we have transposed the requirements of EN 50262. Our metric SKINTOP® glands combine all the features of the proven SKINTOP® series: easy, fast, permanent installation, optimal strain relief, protection against vibration, variable clamping range and sealing according to Protection Class 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

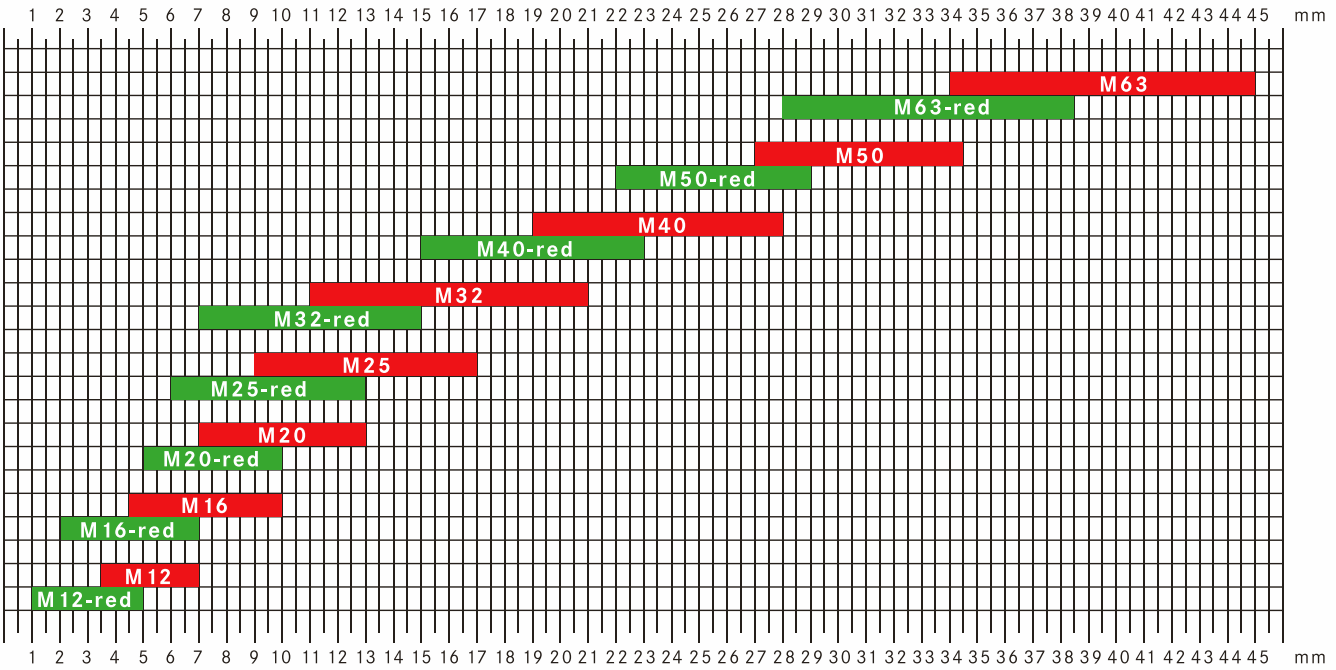
SKINTOP® ST and SKINTOP® ST-M





**Table 23-1: PG/metric**

Clamping ranges SKINTOP® metric  
 SKINTOP® ST-M and SKINTOP® STR-M



SKINTOP® ST/SKINTOP® ST-M  
 Comparison and classification  
 of cable glands spanner size PG/metric

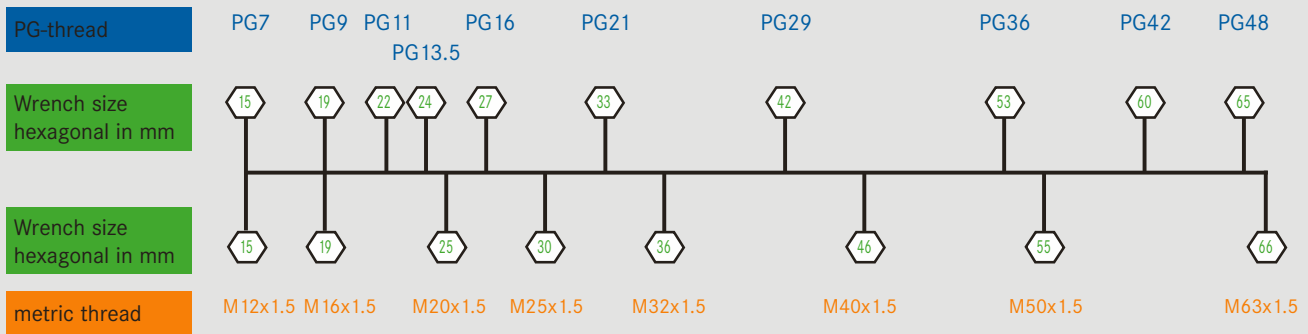




Table 23-2: Optimized screening

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. Result: 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 has proved to be an effective countermeasure. 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. It enables the use of various different cable designs within a large diameter range.

#### Screening concepts

With the interference phenomena typically found in the 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 interferences. 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 screen effect depends to a great extent on the texture and thickness of the braiding. In addition, optimum attachment of the 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 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. Preferably 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 practical application, simplicity of 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 a 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 upon 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 of test equipment, two possible measuring procedures 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  $R_A$  is documented via the frequency. This provides information as to what extent charges on the cable screening can be derived against the potential of the housing.

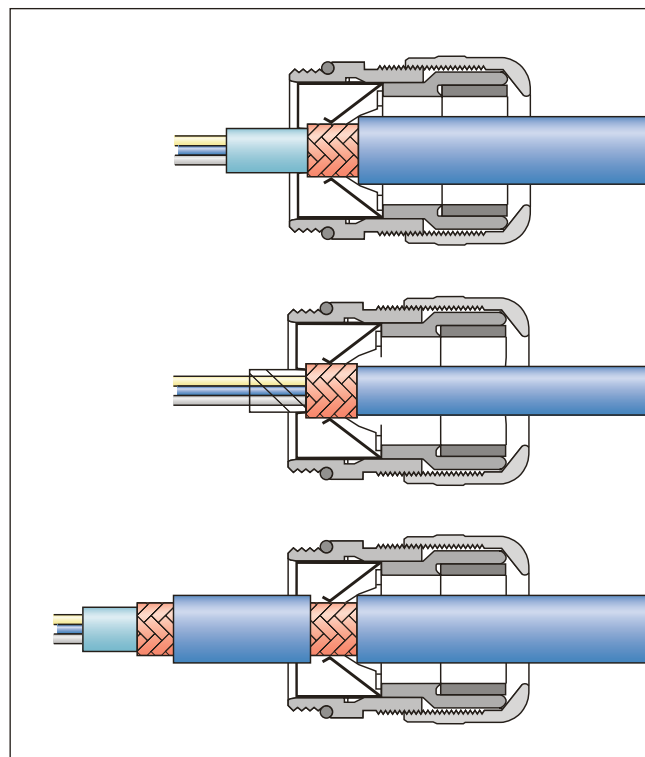




Table 23-2: Optimized screening

	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 interferences.	Description of how effectively interferences on the screening can be derived to an earthing mass (e.g. wall of switch cabinet)

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:

$$aA \text{ (in dB)} = 20 \log (2RA / (2RA + 50 \text{ W})).$$

**Triaxial Method**

In the Triaxial Method, 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 for evaluation of the screening effect of the connectors depending upon their material characteristics and their construction, according to the formula:  $AS = 20 \log (50 \text{ W} / ZK)$ .

A precondition for measurement according to these standards is a solid sheathing of 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 upon the conditions, these can be achieved only with difficulty or not at all.

**Comparison of both methods**

In order to provide by means of the measured values a description of practical use of the a/m products, the measurement procedure of the derivation impedance and conversion into screen attenuation have been used (see Table)

**Measurement Results**

Measurements were made in example upon glands of type SKINTOP® MS-SC-M in various sizes with screened cables ÖLFLEX® CLASSIC CY in diameters of 6–22 mm, by 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 frequency range are thus reduced at least by the factor 30, maximum by the factor 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**

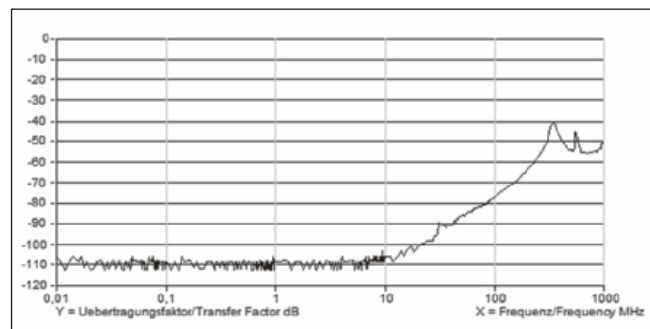
Measurements were performed as described above, in accordance with the German Defence Equipment Standard VG 95373, Procedure KS 01 B. The DC resistance of the glands equals 1 mW; this produces screening attenuation values which, depending upon the size and type of the gland, can amount to >100 dB.

**Comparison of results**

The results reveal a clear difference between derivation attenuation and the screening attenuation in a system with identical components 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, with 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 interferences (Triaxial Method); the value “derivation attenuation”, on the other hand, expresses how effectively interferences on the screening can be derived to an earthing mass (measurement of derivation impedance). This means that attenuation values cannot be simply 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

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**T24** Technical tables

T24: chemical resistance of plastics

Reagent	Concentration		Material									
	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 <sub>2</sub>	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 ✖		☒			✖	✖	
Benzene	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.

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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 sulfide, 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

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# T25 Technical tables

T25: registered trademarks



## Lapp Group trademarks registered in multiple countries

LAPP®	SKINTOP®
ÖLFLEX®	SKINMATIC®
HITRONIC®	UNITRONIC®
EPIC®	SILVYN®
FLEXIMARK®	ETHERLINE®
SKINDICHT®	



## Registered trademarks of other companies

Temflex™ 1500	(3M)	Netware	(Novell)
Scotch™ 1183	(3M)	Novell	(Novell)
NEOPRENE®	(DuPont de Nemours)	Arcnet	(Datapoint)
TEFLON®	(DuPont de Nemours)	Apple	(Apple)
KEVLAR®	(DuPont de Nemours)	Macintosh	(Apple)
TERMI-POINT®	The Whitaker Corporation	HP	(Hewlett Packard)
INTERBUS®	(Phoenix Contact)	SIMATIC®	(SIEMENS®)
VariNET®	(Pepperl + Fuchs)	Mille-Tie™	(Thomas & Betts)
DEC®	(Digital Equipment Corporation)	SHRINK-KON®	(Thomas & Betts)
LAT®	(Digital Equipment Corporation)	SHIELD-KON®	(Thomas & Betts)
Thinwire® (net)	(Digital Equipment Corporation)	TY-FAST™	(Thomas & Betts)
IBM	(International Business Machines)	TY-GUN™	(Thomas & Betts)
PS/2	(International Business Machines)	TY-RAP®	(Thomas & Betts)
Netview	(International Business Machines)	Safe-Ty™	(Thomas & Betts)
AS/400	(International Business Machines)	TWIST TAIL™	(Thomas & Betts)
DYMO®	(Sanford GmbH)	CIBES®	(Inomec AB)
VITON®	(DuPont Dow Elastomers)	SafetyBUS p	(Pilz)
OS/2	(IBM)	QUICKON®	(PhoenixContact)
DeviceNET™	(Open Device Net Vendor Association, ODVA)	INDRAMAT®	(Bosch Rexroth)
Microsoft®	(Microsoft)	Ecofast	(SIEMENS®)
Microsoft® Windows	(Microsoft)	DESINA®	VDW (Verein Deutscher Werkzeugmaschinenfabriken – German Machine Tool Builders Association)
SCO®	(Santa Cruz Operation)	NYLON®	(DuPont de Nemours)
Perbunan®	(Bayer AG)	EtherCAT®	(EtherCAT Organisation)
PROFINET®	(PI, PROFINET International)	EtherNet/IP®	(Open Device Net Vendor Association, ODVA)
PROFIBUS®	(PI, PROFIBUS International)	CANopen	(CAN in Automation)

Certificate type				
Product	Page	Gost R	Fire protection	EAC R
ÖLFLEX® CLASSIC 100	24	✓	✓	
ÖLFLEX® CLASSIC 100 Yellow	26	✓	✓	
ÖLFLEX® CLASSIC 100 CY	27	✓	✓	
ÖLFLEX® CLASSIC 100 SY	28	✓	✓	
ÖLFLEX® CLASSIC 100 BK 0.6/1 kV	29	✓	✓	
ÖLFLEX® SMART 108	30	✓	✓	
ÖLFLEX® CLASSIC 110	31	✓	✓	
ÖLFLEX® CLASSIC 110 COLD	34	✓	✓	
ÖLFLEX® CLASSIC 110 Orange	35	✓	✓	
ÖLFLEX® CLASSIC 110 CY	36	✓	✓	
ÖLFLEX® CLASSIC 110 SY	37	✓	✓	
ÖLFLEX® CLASSIC 110 Black	38	✓	✓	
ÖLFLEX® CLASSIC 110 CY Black	39	✓	✓	
ÖLFLEX® CLASSIC 115 CY	40	✓	✓	
ÖLFLEX® EB	42	✓	✓	
ÖLFLEX® EB CY	43	✓	✓	
ÖLFLEX® 140	44	✓	✓	
ÖLFLEX® 140 CY	45	✓	✓	
ÖLFLEX® 150	46	✓	✓	
ÖLFLEX® 150 CY	47	✓	✓	
ÖLFLEX® 191	48	✓	✓	
ÖLFLEX® 191 CY	49	✓	✓	
ÖLFLEX® CONTROL TM	50	✓	✓	
ÖLFLEX® CONTROL TM CY	51	✓	✓	
ÖLFLEX® Tray II	52	✓	✓	
ÖLFLEX® Tray II CY	53	✓	✓	
ÖLFLEX® SF	54	✓	✓	
ÖLFLEX® CLASSIC 100 H	55	✓	✓	
ÖLFLEX® CLASSIC 110 H	56	✓	✓	
ÖLFLEX® CLASSIC 110 CH	57	✓	✓	
ÖLFLEX® 120 H	58	✓	✓	
ÖLFLEX® 120 CH	59	✓	✓	
ÖLFLEX® CLASSIC 130 H	60	✓	✓	
ÖLFLEX® CLASSIC 135 CH	61	✓	✓	
ÖLFLEX® CLASSIC 130 H BK 0.6/1 kV	63	✓	✓	
ÖLFLEX® CLASSIC 135 CH BK 0.6/1 kV	64	✓	✓	
ÖLFLEX® PETRO C HFFR	65	✓	✓	
ÖLFLEX® ROBUST 200	66	✓		
ÖLFLEX® ROBUST 210	67	✓		
ÖLFLEX® ROBUST 215 C	68	✓		
ÖLFLEX® CLASSIC 400 P	69	✓		
ÖLFLEX® CLASSIC 400 CP	70	✓		
ÖLFLEX® CLASSIC 415 CP	71	✓		
ÖLFLEX® 440 P	72	✓	✓	
ÖLFLEX® 440 CP	73	✓	✓	
ÖLFLEX® 491 P	74	✓	✓	
ÖLFLEX® 450 P	75	✓	✓	
ÖLFLEX® 500 P	76	✓	✓	
ÖLFLEX® 540 P	77	✓	✓	
ÖLFLEX® 540 CP	78	✓	✓	
ÖLFLEX® 550 P	79	✓	✓	
H05RR-F	80	✓		
H05RN-F	81	✓	✓	
H07RN-F	82	✓	✓	
H07ZZ-F	85	✓	✓	
H01N2-D	86	✓	✓	
NSSHÖU	87	✓	✓	
NSGAFÖU 1.8/3kV	88	✓	✓	

Certificate type				
Product	Page	Gost R	Fire protection	EAC R
NSHXAFÖ 1.8/3kV	89	✓	✓	
H07RN8-F	90	✓	✓	
ÖLFLEX® SERVO 700	91	✓	✓	
ÖLFLEX® SERVO 700 CY	92	✓	✓	
ÖLFLEX® SERVO 720 CY	93	✓	✓	
ÖLFLEX® SERVO 2YSLCY-JB	94	✓	✓	
ÖLFLEX® SERVO 2YSLCYK-JB	94	✓	✓	
ÖLFLEX® SERVO 709 CY	95	✓	✓	
ÖLFLEX® SERVO 9YSLCY-JB	96	✓	✓	
ÖLFLEX® SERVO 9YSLCY-JB BK	96	✓	✓	
SERVO LK SMS 6FX 5 (SIEMENS® Standard)	97	✓	✓	
SERVO LK SEWX STATIC (SEW® Standard)	98	✓	✓	
ÖLFLEX® SERVO FD 781 CY	99	✓	✓	
ÖLFLEX® SERVO FD 796 CP	101	✓	✓	
SERVO LK SMS 6FX 8PLUS (SIEMENS® Standard)	103	✓	✓	
SERVO LK INX (INDRAMAT® Standard)	104	✓	✓	
SERVO LK LZM (LENZE® Standard)	105	✓	✓	
SERVO LK LZM-FD (LENZE® Standard)	106	✓	✓	
SERVO LK LZR (LENZE® Standard)	106	✓	✓	
SERVO LK LZR-FD (LENZE® Standard)	106	✓	✓	
SERVO LK LZE (LENZE® Standard)	106	✓	✓	
SERVO LK LZE-FD (LENZE® Standard)	106	✓	✓	
SERVO LK HDH (HEIDENHAIN® Standard)	106	✓	✓	
SERVO LK ELX (ELAU® Standard)	106	✓	✓	
SERVO LK KEB (KEB® Standard)	106	✓	✓	
SERVO LK BLX (BERGER LAHR Standard)	106	✓	✓	
SERVO LK BRX (B&R Standard)	106	✓	✓	
SERVO LK FNC (FANUC® Standard)	106	✓	✓	
ÖLFLEX® FD CLASSIC 810	118	✓	✓	
ÖLFLEX® FD CLASSIC 810 CP	119	✓	✓	
ÖLFLEX® CHAIN 808 P	116	✓		
ÖLFLEX® CHAIN 808 CP	117	✓		
ÖLFLEX® FD CLASSIC 810 P	118	✓	✓	
ÖLFLEX® FD CLASSIC 810 CP	119	✓	✓	
ÖLFLEX® FD 855 P	120	✓	✓	
ÖLFLEX® FD 855 CP	121	✓	✓	
ÖLFLEX® PETRO FD 865 CP	122	✓	✓	
ÖLFLEX® FD ROBUST	123	✓		
ÖLFLEX® FD ROBUST C	124	✓		
ÖLFLEX® FD 90	111	✓	✓	
ÖLFLEX® FD 90 CY	109	✓	✓	
ÖLFLEX® CHAIN 809	112	✓	✓	
ÖLFLEX® CHAIN 809 CY	113	✓	✓	
ÖLFLEX® FD 891	114	✓	✓	
ÖLFLEX® FD 891 CY	115	✓	✓	
ÖLFLEX® FD 891 P	114	✓	✓	
ÖLFLEX® ROBOT 900 P	127	✓	✓	
ÖLFLEX® ROBOT 900 DP	128	✓	✓	
ÖLFLEX® ROBOT F1 + ROBOT F1 C	129	✓	✓	
LIFY	131	✓	✓	
X00V3-D	134	✓	✓	
ESUY	133	✓	✓	
ÖLFLEX® SOLAR XLR-R	138	✓	✓	
ÖLFLEX® SOLAR XLS-R	139	✓	✓	
ÖLFLEX® SOLAR XLSv	140	✓	✓	
ÖLFLEX® SOLAR XLS-R T	142	✓	✓	
ÖLFLEX® SOLAR V4A	143	✓	✓	
ÖLFLEX® TORSION	144	✓	✓	

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

# Appendix

## T26 Technical tables

T26: products with certification for Russia

Certificate type	Page	Gost R	Fire protection	EAC R
ÖLFLEX® TORSION FRNC	145	✓	✓	
ÖLFLEX® TORSION D FRNC	145	✓	✓	
ÖLFLEX® CRANE NSHTÖU	152	✓	✓	
ÖLFLEX® CRANE VS (N)SHTÖU	153	✓	✓	
ÖLFLEX® CRANE PUR	154	✓	✓	
ÖLFLEX® CRANE	155	✓	✓	
ÖLFLEX® CRANE 2S	156	✓	✓	
ÖLFLEX® LIFT	157	✓	✓	
ÖLFLEX® LIFT T	158	✓	✓	
ÖLFLEX® LIFT S	159	✓	✓	
ÖLFLEX® CRANE CF	161	✓	✓	
ÖLFLEX® LIFT F	162	✓	✓	
ÖLFLEX® HEAT 105 MC	163	✓	✓	
ÖLFLEX® HEAT 145 MC	164	✓	✓	
ÖLFLEX® HEAT 145 C MC	165	✓	✓	
ÖLFLEX® HEAT 180 SiHF	166	✓	✓	
ÖLFLEX® HEAT 180 H05SS-F EWKF	167	✓	✓	
ÖLFLEX® HEAT 180 MS	168	✓	✓	
ÖLFLEX® HEAT 180 C MS	169	✓	✓	
ÖLFLEX® HEAT 180 EWKF	170	✓	✓	
ÖLFLEX® HEAT 180 EWKF C	171	✓	✓	
ÖLFLEX® HEAT 180 GLS	172	✓	✓	
ÖLFLEX® HEAT 205 MC	173	✓	✓	
ÖLFLEX® HEAT 205 PTFE/FEP	173	✓	✓	
ÖLFLEX® HEAT 260 MC	174	✓	✓	
ÖLFLEX® HEAT 260 C MC	175	✓	✓	
ÖLFLEX® HEAT 260 GLS	176	✓	✓	
ÖLFLEX® HEAT 350 MC	177	✓	✓	
ÖLFLEX® HEAT 1565 MC	178	✓	✓	
ÖLFLEX® HEAT 180 SiF	180	✓	✓	
ÖLFLEX® HEAT 180 SiD	181	✓	✓	
ÖLFLEX® HEAT 180 SiF/GL	182	✓	✓	
ÖLFLEX® HEAT 180 SiZ	182	✓	✓	
ÖLFLEX® HEAT 180 FZLSi	182	✓	✓	
ÖLFLEX® HEAT 205 SC	183	✓	✓	
ÖLFLEX® HEAT 260 SC	184	✓	✓	
ÖLFLEX® HEAT 350 SC	185	✓	✓	
ÖLFLEX® HEAT 1565 SC	186	✓	✓	
LiY	187	✓	✓	
ÖLFLEX® CRANE F	160	✓	✓	
H05V-K	191	✓	✓	
X05V-K	189	✓	✓	
H07V-K	192	✓	✓	
X07V-K	194	✓	✓	
S07V-K	194	✓	✓	
Multi-Standard SC 1	197	✓	✓	
Multi-Standard SC 2.1	198	✓	✓	
Multi-Standard SC 2.2	201	✓	✓	
H05Z-K (90°)	203	✓	✓	
H07Z-K (90°)	204	✓	✓	
LiYCY	206	✓	✓	
Li2YCY	206	✓	✓	
ÖLFLEX® STATIC CY BLACK	207	✓	✓	
NYM-J	209	✓	✓	
NHXMH	210	✓	✓	
NYY-J	211	✓	✓	
NYY-O	211	✓	✓	
NYCY	213	✓	✓	

Certificate type	Page	Gost R	Fire protection	EAC R
NYCWY	214	✓	✓	
SERVO KON. LK 6FX5002 (SIEMENS® Standard)	216	✓	✓	
SERVO KON. LK 6FX8002 (SIEMENS® Standard)	217	✓	✓	
SERVO KON. LK IKG (INDRAMAT® Standard)	218	✓	✓	
SERVO KON. RKL (INDRAMAT® Standard)	218	✓	✓	
SERVO KON. LK IKS (INDRAMAT® Standard)	219	✓	✓	
SERVO KON. RKG (INDRAMAT® Standard)	219	✓	✓	
SERVO KON. EYL (LENZE® Standard)	220	✓	✓	
SERVO KON. EYP (LENZE® Standard)	220	✓	✓	
SERVO KON. EYF (LENZE® Standard)	220	✓	✓	
SERVO KON. LK-EWLM (LENZE® Standard)	220	✓	✓	
SERVO KON. LK-EWLR (LENZE® Standard)	220	✓	✓	
SERVO KON. LK-EWLL (LENZE® Standard)	220	✓	✓	
SERVO KON. LK-EWLE (LENZE® Standard)	220	✓	✓	
ÖLFLEX® SPIRAL 400 P	222	✓	✓	
SPIRAL H07BQ-F BLACK	224	✓	✓	
ÖLFLEX® SPIRAL 540 P	225	✓	✓	
UNITRONIC® SPIRAL	227		✓	
ÖLFLEX® PLUG H05VV-F	229		✓	
ÖLFLEX® PLUG 540 P	230		✓	
ÖLFLEX® PLUG CEE	233		✓	
SIM. S7-300 (SIMATIC®)	233	✓	✓	
SIM. S7-400 (SIMATIC®)	233	✓	✓	
UNITRONIC® 100	244		✓	
UNITRONIC® 100 CY	244		✓	
UNITRONIC® LiYY	246		✓	
UNITRONIC® LiYCY	248		✓	
UNITRONIC® LiYY (TP)	250		✓	
UNITRONIC® LiYCY (TP)	251		✓	
UNITRONIC® EB CY (TP)	252		✓	
UNITRONIC® LiYCY-CY	253		✓	
UNITRONIC® LiFYCY (TP)	254		✓	
UNITRONIC® CY PiDY (TP)	255		✓	
UNITRONIC® ST	256		✓	
UNITRONIC® PUR CP	258		✓	
UNITRONIC® PUR CP (TP)	259		✓	
UNITRONIC® LiYD 11Y	257		✓	
UNITRONIC® LiHH	263		✓	
UNITRONIC® LiHCH	264		✓	
UNITRONIC® LiHCH (TP)	265		✓	
UNITRONIC® LiYY A	266		✓	
UNITRONIC® LiYCY A	267		✓	
UNITRONIC® LiYCY (TP) A	268		✓	
UNITRONIC® 300	269		✓	
UNITRONIC® 300 CY	269		✓	
UNITRONIC® FD	270		✓	
UNITRONIC® FD CY	271		✓	
UNITRONIC® FD P plus	272		✓	
UNITRONIC® FD CP plus	273		✓	
UNITRONIC® FD CP (TP) plus	274		✓	
UNITRONIC® Li2YCY (TP)	260		✓	
UNITRONIC® Li2YCYv (TP)	260		✓	
UNITRONIC® Li2YCY PiMF	262		✓	
RE-2Y(ST)Yv	276		✓	
RE-2Y(ST)Yv PiMF	277		✓	
RD-Y(ST)Y	278		✓	
JE-Y(ST)Y...BD	279		✓	
JE-LiYCY...BD	280		✓	

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.



Certificate type				
Product	Page	Gost R	Fire protection	EAC R
J-Y(ST)Y...LG	281		✓	
J-H(ST)H...BD	284		✓	
J-2Y(ST)Y...ST III BD	285		✓	
UNITRONIC® BUS ASI (PVC) A	286		✓	
UNITRONIC® BUS ASI FD	287		✓	
UNITRONIC® BUS ASI FD (TPE) A	287		✓	
UNITRONIC® BUS ASI FD P FRNC	287		✓	
UNITRONIC® BUS PB	288		✓	
UNITRONIC® BUS PB A	292		✓	
UNITRONIC® BUS PB 7-W A	294		✓	
UNITRONIC® BUS PB H 7-W	294		✓	
UNITRONIC® BUS PB FC	293		✓	
UNITRONIC® BUS PB 7-W FC	294		✓	
UNITRONIC® BUS PB-H FC	290		✓	
UNITRONIC® BUS PB P FC	297		✓	
UNITRONIC® BUS PB TORSION	300		✓	
UNITRONIC® BUS PB 105	290		✓	
UNITRONIC® BUS PB ROBUST	289		✓	
UNITRONIC® BUS PB FRNC FC	291		✓	
UNITRONIC® BUS PB ARM	292		✓	
UNITRONIC® BUS PB Yv	292		✓	
UNITRONIC® BUS PB YY	293		✓	
UNITRONIC® BUS PB Y 7-W FC BK	294		✓	
UNITRONIC® BUS PB FD P	295		✓	
UNITRONIC® BUS PB FD P A	296		✓	
UNITRONIC® BUS PB FD P FC	297		✓	
UNITRONIC® BUS PB FD FRNC FC	298		✓	
UNITRONIC® BUS PB FD P COMBI	299		✓	
UNITRONIC® BUS PB FD P HYBRID	299		✓	
UNITRONIC® BUS PB FD Y HYBRID	300		✓	
UNITRONIC® BUS PB FESTOON	301		✓	
UNITRONIC® BUS LD	310		✓	
UNITRONIC® BUS LD FD P	311		✓	
UNITRONIC® BUS LD FD P A	311		✓	
UNITRONIC® BUS PA	312		✓	
UNITRONIC® BUS PA FC	312		✓	
UNITRONIC® BUS PA (BK)	312		✓	
UNITRONIC® BUS PA FC (BK)	312		✓	
UNITRONIC® BUS DN THICK FRNC	313		✓	
UNITRONIC® BUS DN THIN FRNC	313		✓	
UNITRONIC® BUS DN THICK Y	313		✓	
UNITRONIC® BUS DN THIN Y	313		✓	
UNITRONIC® BUS DN THICK FD P	314		✓	
UNITRONIC® BUS DN THIN FD P	314		✓	
UNITRONIC® BUS DN THICK FD Y	314		✓	
UNITRONIC® BUS DN THIN FD Y	314		✓	
UNITRONIC® BUS CAN	315		✓	
UNITRONIC® BUS CAN FD P	315		✓	
UNITRONIC® BUS FF 2	320		✓	
UNITRONIC® BUS FF 3	320		✓	
UNITRONIC® BUS FF 3 ARM	320		✓	
UNITRONIC® BUS CC	321		✓	
UNITRONIC® BUS CC FD P FRNC	321		✓	
UNITRONIC® BUS SAFETY	322		✓	
UNITRONIC® BUS SAFETY FC	322		✓	
UNITRONIC® BUS SAFETY FD P	322		✓	
UNITRONIC® BUS IBS	323		✓	
UNITRONIC® BUS IBS P COMBI	324		✓	

Certificate type				
Product	Page	Gost R	Fire protection	EAC R
UNITRONIC® BUS IBS A	323		✓	
UNITRONIC® BUS IBS Yv	325		✓	
UNITRONIC® BUS IBS Yv COMBI	325		✓	
UNITRONIC® BUS IBS FD P	324		✓	
UNITRONIC® BUS IBS FD P COMBI	324		✓	
UNITRONIC® BUS IBS FD P COMBI A	324		✓	
UNITRONIC® BUS EIB	326		✓	
UNITRONIC® BUS EIB COMBI	326		✓	
UNITRONIC® BUS EIB-H	326		✓	
UNITRONIC® SENSOR	361		✓	
UNITRONIC® SENSOR FD	361		✓	
Coaxial RG	385		✓	
ETHERLINE® H CAT. 5e	390		✓	
ETHERLINE® P CAT. 5e	390		✓	
ETHERLINE® H Flex CAT. 5e	391		✓	
ETHERLINE® P Flex CAT. 5e	391		✓	
ETHERLINE® H-H CAT. 5e			✓	
ETHERLINE® Cat. 5 FRNC HYBRID	394		✓	
ETHERLINE® FD P FC CAT. 5			✓	
ETHERLINE® PN Cat. 5e Y	397		✓	
ETHERLINE® PN Cat. 5e YY	397		✓	
ETHERLINE® Y FC CAT. 5			✓	
ETHERLINE® PN CAT. 5 Y FLEX FC	398		✓	
ETHERLINE® Y CAT. 5e BK	400		✓	
ETHERLINE® TORSION CAT. 5	401		✓	
ETHERLINE® Cat. 6 <sub>A</sub> P	405		✓	
ETHERLINE® Cat. 7 P	405		✓	
ETHERLINE® FD P CAT. 6	407		✓	
ETHERLINE® CAT. 6 <sub>A</sub> H	405		✓	
ETHERLINE® CAT. 7 H	405		✓	
ETHERLINE® CAT. 6 <sub>A</sub> Y	405		✓	
ETHERLINE® CAT. 7 Y	405		✓	
UNITRONIC® LAN 200 U/UTP Cat. 5e	426		✓	
UNITRONIC® LAN 200 F/UTP Cat. 5e	426		✓	
UNITRONIC® LAN 200 SF/UTP Cat. 5e	426		✓	
UNITRONIC® LAN 200 U/UTP Cat. 5e LSZH	426		✓	
UNITRONIC® LAN 200 SF/UTP Cat. 5e LSZH	426		✓	
UNITRONIC® LAN 250 U/UTP Cat. 6	427		✓	
UNITRONIC® LAN 250 U/UTP Cat. 6 LSZH	427		✓	
UNITRONIC® LAN 250 F/UTP Cat. 6 LSZH	427		✓	
UNITRONIC® LAN 500 S/FTP Cat. 6 <sub>A</sub>	428		✓	
UNITRONIC® LAN 500 U/FTP Cat. 6 <sub>A</sub> LSZH	428		✓	
UNITRONIC® LAN 500 F/FTP Cat. 6 <sub>A</sub> LSZH	428		✓	
UNITRONIC® LAN 1000 S/FTP Cat. 7 LSZH	429		✓	
UNITRONIC® LAN 1000 S/FTP Cat. 7 duplex	429		✓	
UNITRONIC® LAN 1200 S/FTP Cat. 7 <sub>A</sub> LSZH	430		✓	
UNITRONIC® LAN 1500 S/FTP Cat. 7 <sub>A</sub> LSZH	431		✓	
UNITRONIC® LAN 200 F/UTP Cat. 5e FLEX	426		✓	
UNITRONIC® LAN 200 SF/UTP Cat. 5e FLEX	426		✓	
UNITRONIC® LAN 600 S/FTP Cat. 7 Y FLEX			✓	
UNITRONIC® LAN 200 F/UTP Cat. 5e LSZH FLEX	426		✓	
UNITRONIC® LAN 200 SF/UTP Cat. 5e LSZH FLEX	426		✓	

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

## T27 Technical tables

T27: fire load calculations for cables



## 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. See supplement 1 to VDE 0108 Part 1.

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 27-1 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® CLASSIC 110 CH, ÖLFLEX® 120 H, ÖLFLEX® 120 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 ionising radiation**

As a rule, cables are only tested for radiation resistance if their intended usage actually includes exposure to ionising radiation. For all other cables, specifications as to radiation resistance can thus only be made for the materials normally employed for such cables. As a result, these values are not representative of the durability of a complete cable.

However, the values do provide a basic point of reference and are particularly useful for relative comparisons of different products.

The radiation resistance of materials is defined via the Radiation Index (RI) in IEC 544-4 as the base 10 logarithm of the absorbed dose in grays (rounded to two decimal places) at which the elongation at break is reduced to  $\geq 50\%$  of the original value.

Lapp Kabel table T28 lists the typical maximum dose of the individual materials in grays (or rad) of a gamma radiation source at which the elongation at break of the test sample remains above 50% of its unaged value.

Conversions:

100 kGy = approx. 10 Mrad; 1 Gy = 1 J/kg; 1 Mrad = approx. 10 kGy

Material type	Radiation resistance in Gy approx.	Radiation resistance 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)	$1 \times 10^5$	$1 \times 10^7$
PS	$5 \times 10^6$	$5 \times 10^8$
PA	$1 \times 10^5$	$1 \times 10^7$
PP	$1 \times 10^3$	$1 \times 10^5$
PETP	$1 \times 10^7$	$1 \times 10^7$
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	$2 \times 10^5$	$2 \times 10^7$
CSM	$5 \times 10^4$	$5 \times 10^6$
PVDF	$1 \times 10^5$	$1 \times 10^7$
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	$1 \times 10^3$	$1 \times 10^5$

ÖLFLEX®  
UNITRONIC®  
ETHERLINE®  
HITRONIC®  
EPIC®  
SKINTOP®  
SILVYN®  
FLEXIMARK®  
ACCESSORIES  
APPENDIX

## T29 Technical tables

T29: using UL-approved cables



### Table 29-1: UL mark on cables and wires and its significance with regard to intended usage

#### or (UL) UL Listing Mark for listed cables & wires

The intended use of cables and wires in this category is for fixed wiring in residential buildings as well as for commercial and industrial use. Listed cables and wires not only have to meet individual UL product standards, but must also comply with the relevant articles of the National Electrical Code (NEC). The NEC contains detailed specifications relating to the correct usage of listed cables and wires.

Such products can be used both for factory wiring of electrical equipment, devices, appliances and machines as well as for on-site or field wiring of industrial machinery and systems according to NFPA 79.

#### Typical codes for listed cables and wires:

MTW, TC, PLTC, CM, CL2, THHN, THWN; SO, SOO, ST, STO, SJT, SJTO.

#### A selection of Lapp Kabel products with multiple listings/approvals:

ÖLFLEX® CONTROL TM, ÖLFLEX® TRAY II, ÖLFLEX® AUTO-X; UNITRONIC® BUS, UNITRONIC® 300. See table T29-4 for more details.

#### Approval mark on product:

(UL) = UL Listing Mark.

#### UL Recognition Mark for AWM cables and wires

Appliance Wiring Material (abbrev. "AWM") comprises cables and wires intended for fully factory-wired electrical equipment, devices, appliances, control cabinets and industrial machinery.

AWM is not intended for direct on-site wiring (field wiring). Cables and wires with UL AWM style labelling must be used for the applications stipulated by the relevant style designation.

#### Quick and simple: check Lapp UL approvals online

Any Internet user can visit <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm> to gain direct access to the Online Certification Directory of Underwriters Laboratories. Our UL approvals can be viewed by entering "U. I. Lapp" or "Lapp USA" in the "Company name" field; the individual File Numbers and Control Category Numbers (CCN) are also provided.

AWM-recognized cables and wires can only be used for the applications listed in their associated style description ([www.ul.com](http://www.ul.com)).

If the manufacturer of an electrical device, appliance or machine wishes to obtain an officially recognised "UL listing" to release the relevant item as a series product or acquire a "field labelling" for a stand-alone machine or system, the body tasked with the certification (the National Recognized Testing Laboratory or NRTL) must be provided with all construction-relevant documentation.

The entire listing process will be significantly faster, simpler and cheaper if all installed cables and wires are already "listed" or "recognized", as any cables that do not meet these criteria will have to be tested for suitability.

#### NOTE:

##### Multi-standard cables and wires

Multi-standard cables with mm<sup>2</sup> and AWG/MCM conductor sizes generally have special conductor stranding, as a result of which one of the specified conductor cross-sections is always a little larger (oversized). In individual cases, this may cause problems when connecting terminals designed for AWG conductor sizes.

#### For further information on the topic of this appendix, see:

Table T11 "Conductor resistances and conductor stranding (metric)"  
Table T16 "Anglo-American dimensions" Table T13 "Current rating of cables according to NFPA 70 (National Electrical Code) NFPA 79 Electrical Standard of Industrial Machinery".



**Table 29-2: NFPA – using cables in industrial machinery in the USA (part 1)**

NFPA 79 is the section of the National Electric Code (NEC®) which includes the requirements for electrical wiring of industrial machinery. NFPA 79 generally applies to electrical components used in individual machines and machine configurations operating together (machine groups).

Examples of industrial machinery include: Machine tools, injection moulding, woodworking, assembly and material handling machines – generally, any machines for material processing and transport in the broader sense, but with a clear distinction from “passenger transport”, for example.

The application area of NFPA 79 includes all electrical and electronic components of a machine with a maximum nominal voltage of 600 V.

Important aspects of NFPA 79 were revised in 2006. One of the main objectives of this revision was the further harmonisation of NFPA 79 with its European “counterpart”, IEC/EN 60204. As a result, the chapter structure of NFPA 79 has been aligned with IEC/EN 60204 and safety standards adopted to represent the latest state of the art.

In NFPA 79 – Edition 2007 AWM, single cores or multi-core AWM cables were explicitly prohibited, with the exception of those with a discretionary provision. The new Edition 2012 greatly relaxes the strict restrictions regarding the use of AWM cables. In future, AWM cables will be permitted, provided that at least one of the following conditions is met:

- cable as part of a, for this purpose, “listed assembly”
- cable specified for use in listed system or machine and utilised according to the instructions of the component supplier
- cable meets all design requirements stipulated by NFPA 79 (sections 12.2 to 12.6) incl. modifications with regard to conductor stranding, flame retardancy, insulation wall thickness and insulation/sheath labelling

“Machine Tool Wire (MTW)” – as a single-core or multi-core cable is a permitted alternative. In the case of wiring between elements of a machine group, “Tray Cable” (TC) is often a standard-compliant and cost-effective solution.

In the newly revised version of NFPA 79, particular significance is attached to the selection of cables. This reflects the high demands placed on the reliability of industrial machines as well as the frequently draconian impact of liability claims. The global means of cable procurement also carry a certain amount of risk. It is therefore all the more important that the relevant technical standards are met.



This schematic of an industrial machine shows the main applications of cables and wires with reference to the relevant sections in NEC®/NFPA. “NEC” is a trademark of the National Fire Protection Association (NFPA).

We are committed to informing our customers of any significant changes to important technical standards. For this purpose, we work closely together with our colleagues at the production and sales location in Florham Park, New Jersey ([www.lappusa.com](http://www.lappusa.com)).

Lapp offers a range of products with the “UL – Recognition Mark” and “UL – Listing”, fully compliant with the specifications of NFPA 79, Edition 2012.

Examples are: ÖLFLEX® CONTROL TM, ÖLFLEX® TRAY II. Further information on this topic can be found at: [www.lappkabel.de](http://www.lappkabel.de) → SERVICE → Knowledge Centre → NFPA 79.

## T29 Technical tables

T29: using UL-approved cables



### Table 29-3: NFPA – using cables in industrial machinery in the USA (part 2)

#### The following general rules apply to the construction and operation of machinery in the USA:

The machinery must comply with federal safety laws issued by the Occupational Safety and Health Administration (OSHA.: [www.osha.gov](http://www.osha.gov)) as well as the national or local codes (legal regulations) applicable at the installation location.

Machines are only deemed safe if they have been constructed and manufactured in accordance with the relevant standards (NFPA 70, NFPA 79, ...) and their safety both tested and confirmed by a Nationally Recognized Testing Laboratory (NRTL: [www.osha.gov/dts/otpca/nrtl/](http://www.osha.gov/dts/otpca/nrtl/)). Meeting of the above conditions must be clearly indicated to the local inspector/safety officer/authority (Authority Having Jurisdiction, AHJ) by the attachment of an NRTL label (listing or field labelling) to the machine.

#### NFPA 79 Electrical Standard for Industrial Machinery – Edition 2012

This important standard is published by the National Fire Protection Association ([www.nfpa.org](http://www.nfpa.org)).

It is basically the US counterpart of IEC 60204-1, which equates to the European standard EN 60204-1 for machine safety. Section 12 deals with the application of conductors, cables and flexible wires. As a rule, only “listed cables” must be used – although “UL AWM recognized cables & wires” can be used for “factory-wired equipment” if one of the conditions specified in table T29-2 is met.

#### Below are a few general rules:

- Motor cables must be configured for at least 115% of the nominal motor voltage.
- The minimum conductor cross-section for power circuits is 14 AWG, or 18 AWG in special cases.
- The minimum conductor cross-section for (mains voltage) control circuits is 18 AWG
- The minimum conductor cross-section for electronic circuits of programmable logic controllers (I/O) is 24 AWG.
- Maximum fill level of 50% for cables in cable ducts.
- Cables must be installed such that they are protected against mechanical, chemical and thermal influences.

Outside of control cabinets, distribution boxes or other closed electrical installations/equipment, this is assured if the lines are installed in closed cable channels (raceways/wireways/ducts), pipes (conduits) or flexible hoses (flexible conduits), which must be made of metal or flame-resistant plastic and lead all the way up to the equipment. Any lines laid on (open) cable conduits or cable trays must be approved for this purpose (cable tray rating).

In the case of industrial installations, in which permanent maintenance and repair by qualified electricians is assured, cables with the addition “open wiring” or “ER” (which stands for “exposed run” and replaces the previous designation “open wiring”) can also be laid directly up to the equipment without the need for additional mechanical protection [NEC® < NFPA 70 > 2011, Article 336.10 (7)].

The use of cables with such ratings – such as the Lapp Kabel types: ÖLFLEX® CONTROL TM, ÖLFLEX® TRAY II, ÖLFLEX® AUTO X, ÖLFLEX® AUTO I, UNITRONIC® 300 – enables significant material and time savings during installation.

In many sections, NFPA 79 refers to the US National Electrical Code (NEC®). This applies particularly to wiring between machines or machine groups where the cable routing utilises the building structures. In such cases, the wiring must comply with the appropriate wiring method specified by the NEC®.

#### NEC (National Electrical Code) Handbook Edition NEC® < NFPA 70 > 2011

This code contains the standard NFPA 70. As well as the normative content, the handbook also provides many useful explanations, tables, graphics, photos and comments. Both the NEC® and the NFPA 79 standard can be ordered via the website at [www.nfpa.org](http://www.nfpa.org).

#### UL 508-A

In addition to the aforementioned basic and technical standards, there are also special standards such as UL 508-A, according to which control cabinets for machines can also be configured and labelled on the basis of this separate standard for industrial control panels ([www.ul.com](http://www.ul.com)).



**Table 29-4: overview of corresponding products in this catalogue – type “Listed”**

Lapp cable type with UL listing	Listed type	Voltage in V	Temperature in °C	Material	Compliant with NFPA 79 Ed. 2012
Multi-Standard SC 2.1	MTW	600	90	PVC	✓
Multi-Standard SC 2.2	MTW	600	90	PVC	✓
ÖLFLEX® CONTROL TM	MTW, TC-ER, WTTC	600, 1000	90	Special PVC compound	✓
ÖLFLEX® CONTROL TM CY	MTW, TC-ER, WTTC	600, 1000	90	Special PVC compound	✓
ÖLFLEX® Tray II	MTW, TC-ER or DP-1, WTTC	600, 1000	90	Special PVC compound	✓
ÖLFLEX® Tray II CY	MTW, TC-ER or DP-1, WTTC	600, 1000	90	Special PVC compound	✓
UNITRONIC® 300	CMG, PLTC, Open Wiring, Oil Res 1	300	105	PVC	✓
UNITRONIC® 300 S	CMG, PLTC, Open Wiring, Oil Res 1	300	105	PVC	✓
UNITRONIC® FD CP plus	CMX	250	75	PUR	✓
UNITRONIC® FD CP (TP) plus	CMX	250	75	PUR	✓
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	CMG	250	60	PUR	✓
UNITRONIC® BUS PB FD FRNC FC	CMG	250	60	PUR	✓
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 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	125	75	PVC	✓
ETHERLINE® Y FC UL/CSA Cat.5	CMG	600	75	PVC	✓
ETHERLINE® PN Cat.5e YY	CMG	125	70	PVC	✓
ETHERLINE® PN Cat.5 Y Flex FC	CMG	600	70	PVC	✓
ETHERLINE® FD P FC Cat.5e	CMX	300	75	PUR	✓
ETHERLINE® PN Cat.5e FRNC FLEX FC	CMG	100	75	FRNC	✓
ETHERLINE® Y FLEX Cat.5e	CMG	100	75	PVC	✓
ETHERLINE® Y EC FLEX Cat.5e	CMX	300	75	PVC	✓
ETHERLINE® P EC FLEX Cat.5e	CMX	125	75	PUR	✓
ETHERLINE® P EC FD Cat.5e	CMX	125	75	PUR	✓
ETHERLINE® PN Cat.6, Y FLEX	CMG	300	75	PVC	✓
ETHERLINE® PN Cat.6, FRNC FLEX	CMG	300	75	FRNC	✓
ETHERLINE® PN Cat.6, FD Y	CMX	125	75	PVC	✓
ETHERLINE® PN Cat.6, FD P	CMX	125	75	PUR	✓
ETHERLINE® PN Cat.6, TORSION Y	CMX	125	75	PVC	✓
ETHERLINE® PN Cat.6, TORSION P	CMX	125	75	PUR	✓
ETHERLINE® FD P Cat.6	CMX	125	75	PUR	✓

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

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# T29 Technical tables

T29: using UL-approved cables



**Table 29-5: overview of corresponding products in this catalogue – type AWM**

Lapp cable type with AWM style	Style number	Voltage in V	Temperature in °C	Material	Compliant with NFPA 79 Ed. 2012	
Multi-Standard SC 2.1	1015	600	105	PVC	✓	
Multi-Standard SC 2.2	10269	1000	105	PVC	✓	
Multi-Standard SC 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	21089	600	75	Special compound, halogen-free	✓	
ÖLFLEX® CLASSIC 135 CH	21089	600	75	Special compound, halogen-free	✓	
ÖLFLEX® CLASSIC 130 H BK	21288	1000	80	Special compound, halogen-free	✓	
ÖLFLEX® CLASSIC 135 CH BK	21288	1000	80	Special compound, halogen-free	✓	
ÖLFLEX® 150 CY	2587, 21098	600	90	PVC	✓	
ÖLFLEX® 150	2587, 21098	600	90	PVC	✓	
ÖLFLEX® 191	2587, 21098	600	90	PVC	✓	
ÖLFLEX® 191 CY	2587, 21098	600	90	PVC	✓	
ÖLFLEX® 491 CP	20234	600	80	PUR	✓	
ÖLFLEX® 491 P	20234	600	80	PUR	✓	
ÖLFLEX® CONTROL TM	20886	1000	105	Special PVC compound	✓	
ÖLFLEX® CONTROL TM CY	20886	1000	105	Special PVC compound	✓	
ÖLFLEX® CHAIN 809	20886	1000	80	PVC	✓	
ÖLFLEX® CHAIN 809 CY	20886	1000	80	PVC	✓	
ÖLFLEX® FD 891	2587, 21098	600	90	PVC	✓	
ÖLFLEX® FD 891 CY	2587, 21098	600	90	PVC	✓	
ÖLFLEX® FD 855 P	20940	600	80	PUR	✓	
ÖLFLEX® FD 855 CP	20940	600	80	PUR	✓	
ÖLFLEX® FD 891 P	20234	600	80	PUR	✓	
ÖLFLEX® CHAIN 896 P	20234	1000	80	PUR	✓	
ÖLFLEX® CHAIN 809 SC	10107	600	90	PVC	✓	
ÖLFLEX® FD 90	10107	600	90	PVC	✓	
ÖLFLEX® FD 90 CY	10107	600	90	PVC, DESINA <sub>90</sub> -compliant	✓	
ÖLFLEX® TORSION	10012, 20886	1000	90	Cold-resistant 90 °C, PVC compound	✓	
ÖLFLEX® TORSION FRNC	21288	1000	80	Special compound, halogen-free	✓	
ÖLFLEX® TORSION D 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® PETRO C HFFR	10587, 20234	1000	80	PUR	✓	
ÖLFLEX® ROBOT F1	20940	Up to 1.5 mm <sup>2</sup> : From 2.5 mm <sup>2</sup> : 1000	600 1000	80	PUR	✓
ÖLFLEX® SERVO 709 CY	20886	1000	90	PVC	✓	
ÖLFLEX® SERVO 9YSLCY-JB	2570, 20886	1000	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	✓	
SERVO cables acc. to INDRAMAT® standard INK	Power cables: 20234 Signalling cables: 20236	Power cables: 600/1000 Signalling cables: 300	80	PUR	✓	
SERVO cables acc. to LENZE® standard	Resolver + encoder cable: 2464, 21165 Motor cable: 2570, 20940	Resolver + encoder cable: 300 Motor cable: 600	80	PUR	✓	
SERVO cables acc. to SIEMENS® standard 6FX 5008	Power cables: 2570 Signalling cables: 2502	Power cables: 1000 Signalling cables: 30	80	Special PVC compound, DESINA <sub>90</sub> -compliant	✓	
SERVO cables acc. to SIEMENS® standard FX 8PLUS	Power cables: 21223 Signalling cables: 20236	Power cables: 1000 Signalling cables: 30	80	PUR	✓	
UNITRONIC® 300	2464	300	105	PVC	✓	
UNITRONIC® 300 S	2464	300	105	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® 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	125	70	FRNC	✓	
ETHERLINE® TORSION Cat.5	21161	125	80	PUR	✓	

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**Table 30: our products – contained substances and legislation**

The use of hazardous substances in products is subject to ever stricter international laws and restrictions. Applies at the time of catalogue production (07.2013): The products in the catalogue meet the following legal requirements (among others):

- REACH – Regulation No 1907/2006/EC
- RoHS – Directive 2011/65/EU, respectively 2002/95/EC
- 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.

REACH came into force on 1 June 2007 and replaced a number of former specifications relating to the material composition of products, as previously governed, for example, by directive 76/769/EEC, which included restrictions on the marketing and use of certain dangerous substances. Lapp Group sells products within the meaning of REACH. The following requirements of the REACH regulation are therefore particularly significant:

1. Information requirement for 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.

The Lapp Group has attributed 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.

To meet the periodic updates of the Candidate List of Substances of Very High Concern (SVHC), we offer the latest information on REACH on [www.lappgroup.com/rohs-reach](http://www.lappgroup.com/rohs-reach). Please contact our competent REACH experts regarding specific substances.

**RoHS:**

Directive 2011/65/EU represents the updated version of the EU’s directive on the restriction of the use of hazardous substances in electrical and electronic equipment and supersedes the previous directive 2002/95/EC. Directive 2011/65/EC was published on 1 July 2011, different transitional periods apply for the amendments introduced by the directive. This directive results in national laws (e. g. the German ElektroStoffV).

In addition to the extended scope of the directive, which now also comprises “other” electrical and electronic equipment (EEE), one significant new feature is the obligation to assure compliance with the requirements of the RoHS directive by means of a conformity assessment procedure. LAPP certifies the “RoHS-conformity” of EEE covered by the directive with a product-specific EC declaration of conformity and the application of the CE mark.

Irrespective of the scope of the RoHS directive, all products in this catalogue meet the substance-specific requirements of the RoHS. The exceptions detailed in the RoHS directive notwithstanding, our products do not contain any of the restricted substances specified in the RoHS directive or exceed the maximum concentrations stipulated therein.

**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 through 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.



**WEEE directive 2012/19/EU**

The WEEE directive governs the disposal and recycling of electrical and electronic goods. A list of products from our range falling under the category of electrical and electronic tools and equipment is provided below, along with the relevant registration numbers:

Article number	Registration number
61801245	39896667
83259601, 83259602	42488170

The article/registration numbers are subject to change as a result of any modifications to the scope of the WEEE directive after printing of this catalogue.



**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. The products listed in this catalogue do not constitute or contain batteries, nor are any batteries provided with these products.

Therefore, the articles in this catalogue do not fall within the scope of this directive or its associated national laws.

Exception: EPIC® M23 Tool, article 11148001 EPIC® CIRCON CRIMPTOOL DIGITAL is supplied with a standard 3V lithium battery (button cell CR2025) which can be recycled at the designated collection points for waste batteries.

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00009045	625	00103153	25	0012202	75	00127813	78	0013631	79	0016064	28	0021933	67
00009057	626	0010400	26	00122033	75	00127823	78	00136323	79	0016065	28	0021934	67
00009082	626	0010401	26	00122043	75	0012800	72	00136333	79	00160663	28	0021936	67
00009135	626	00104023	26	0012302	75	0012801	72	0014150	55	00160673	28	0021937	67
00009371	626	00104033	26	00123043	75	0012802	72	0014151	55	0016069	28	0021938	67
00009470	626	00104043	26	0012345	76	0012803	72	0014152	55	0016072	28	0021940	67
00009894	626	00104053	26	0012346	76	0012804	72	0014153	55	0016075	28	0021941	67
00100004	24	0011000	44	00123473	76	0012805	72	0014156	55	0016077	28	0021942	67
00100014	24	0011001	44	00123483	76	0012806	72	0014157	55	0016078	28	0021943	67
00100024	24	0011002	44	0012351	76	0012807	72	0014158	55	0016087	28	0021945	67
00100034	24	0011003	44	0012352	76	0012813	72	0014159	55	0016088	28	0021946	67
0010004	24	0011004	44	00123533	76	0012814	72	0014162	55	00160893	28	0021947	67
0010005	24	0011005	44	00123543	76	0012815	72	0014163	55	00160903	28	0021949	67
0010006	24	0011006	44	00123553	76	0012816	72	0014164	55	0016092	28	0021951	67
0010007	24	0011009	44	0012365	76	0012817	72	0014166	55	0016101	28	0021953	67
0010008	24	0011010	44	00123663	76	0012818	72	0014167	55	00161023	28	0021954	67
0010009	24	0011011	44	0012401	42	0012819	72	0014168	55	00161033	28	0021963	67
0010010	24	0011012	44	0012402	42	0012820	72	0014170	55	0016106	28	0021964	67
0010011	24	0011013	44	0012403	42	0012825	72	0014171	55	00161073	28	0021965	67
0010012	24	0011014	44	0012404	42	0012826	72	0014173	55	00161083	28	0021966	67
0010016	24	0011015	44	0012420	42	0012827	72	0014174	55	00161103	28	0021967	67
00100214	24	0011018	44	0012421	42	0012828	72	0014176	55	00161113	28	0021968	67
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70002666	222	70096200	588	7027022	136	7038884	361	71222231	232	73002725	621	73220235	227
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70002672	223	70104400	578	7027034	135	70392839	218	71222242	232	73002731	621	73220243	230
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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. A 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 is only to 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 for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables will 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. ©Copyright by U.I. Lapp GmbH. Reprinting or reproduction of the text or the illustrations may

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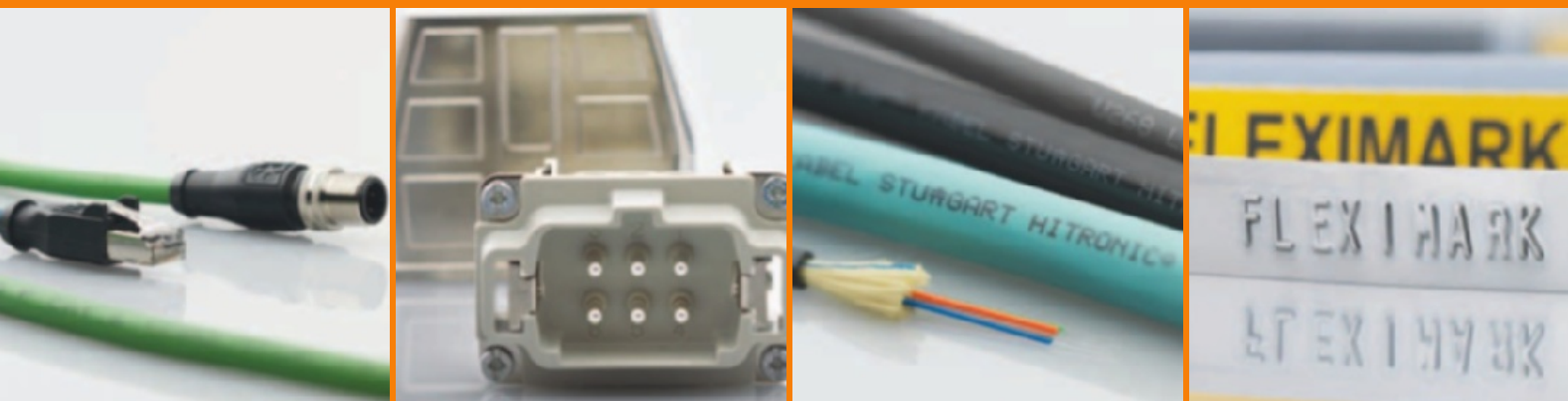
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