

THE WORLD OF LAPP

Products for photovoltaic 2012



LAPP GROUP



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This catalogue is valid
as from June 2012



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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.

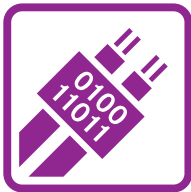


EPIC® Industrial connectors

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.

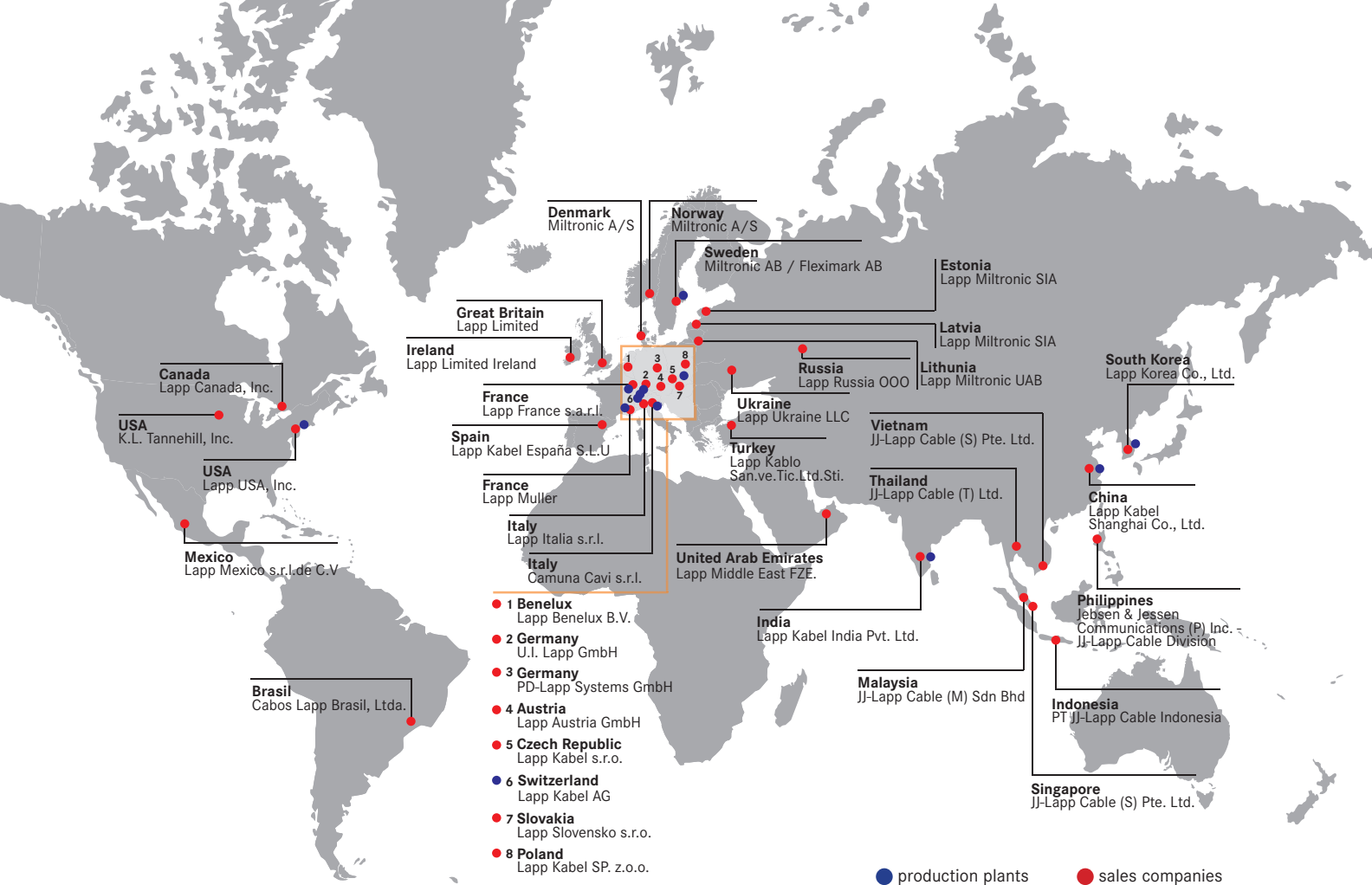


FLEXIMARK® Cable marking systems

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.



At home in Stuttgart, but known all over the world

The World of Lapp is based in Stuttgart. This is where it all started for our company, which was founded in 1959 as U.I. Lapp KG (now U.I. Lapp GmbH). From its headquarters in Stuttgart we have determinedly evolved to become a global player – with currently 15 production plants in Europe, Asia and America, 41 sales companies and more than 100 sales partners, 3,000 employees. The larger Lapp companies such as Russia, India, China, Canada and Mexico have their own warehouses. The others are promptly supplied through our high-performance logistics centres. At our Lapp Centres we are also strongly committed to enhancing the knowledge of our employees and customers. After all, knowledge is the ink with which the future is written down.

One of our most successful “products” is that of proximity to our customers. On the one hand, we practice intensive dialogue with designers and planners, manufacturers and users. This enables us to identify new requirements and trends at a much earlier stage, to quickly provide you with suitable solutions. Innovation leadership put into active practice.

On the other hand, proximity to our customers really means something to us: our presence extends all round the globe. As a reliable partner on a local basis we support our customers in exploiting markets by providing them with short delivery times and low logistics costs.

Our current addresses see www.lappgroup.com/worldwide

Our commitment to solar technology

Complete range for photovoltaics

“Nothing is more environment-friendly than receiving energy directly from the sun. This is our commitment to the solar technology.” says Siegbert Lapp, member of the board of Lapp Holding AG.

As an environmental-orientated company and one of the leading suppliers for the wind and solar industry, the Lapp Group also wants to take part in this trend.

The use of solar energy has been increasing for many years and this trend is continuing. Photovoltaics has a wide range of uses, from major energy plants to small domestic applications.

The fact that we recognised the potential of this market very early on and have built up specialist expertise in this area demonstrates once again the innovative tradition of our company. Our offering ranges from developing tailored products to advising you on planning and conversion matters.

After taking into account the full range of operational requirements, Lapp offers a specifically tailored comprehensive range of cables, connectors and photovoltaic accessories for cabling photovoltaic plants – we are the system of choice!

In collaboration with users, the TÜV (German Association for Technical Inspection) and the North American UL approval organisation, a variety of tests have been carried out on our ÖLFLEX® cables, SOLAR cables, SKINTOP® cable glands and EPIC® SOLAR connectors to guarantee highest quality standards. Our products can be used throughout the world and naturally also comply with the RoHS directive.





One of the world's largest photovoltaic power plants is being installed in the Lop Buri province, Thailand. – The connections are made using ÖLFLEX® SOLAR by Lapp

A place in the sun

It is a massive area, a thin layer of modules stretching out as far as the eye can see. With a total of 540,000 modules, it will be one of the largest photovoltaic power plants in the world, located in the province of Lopburi in Thailand.

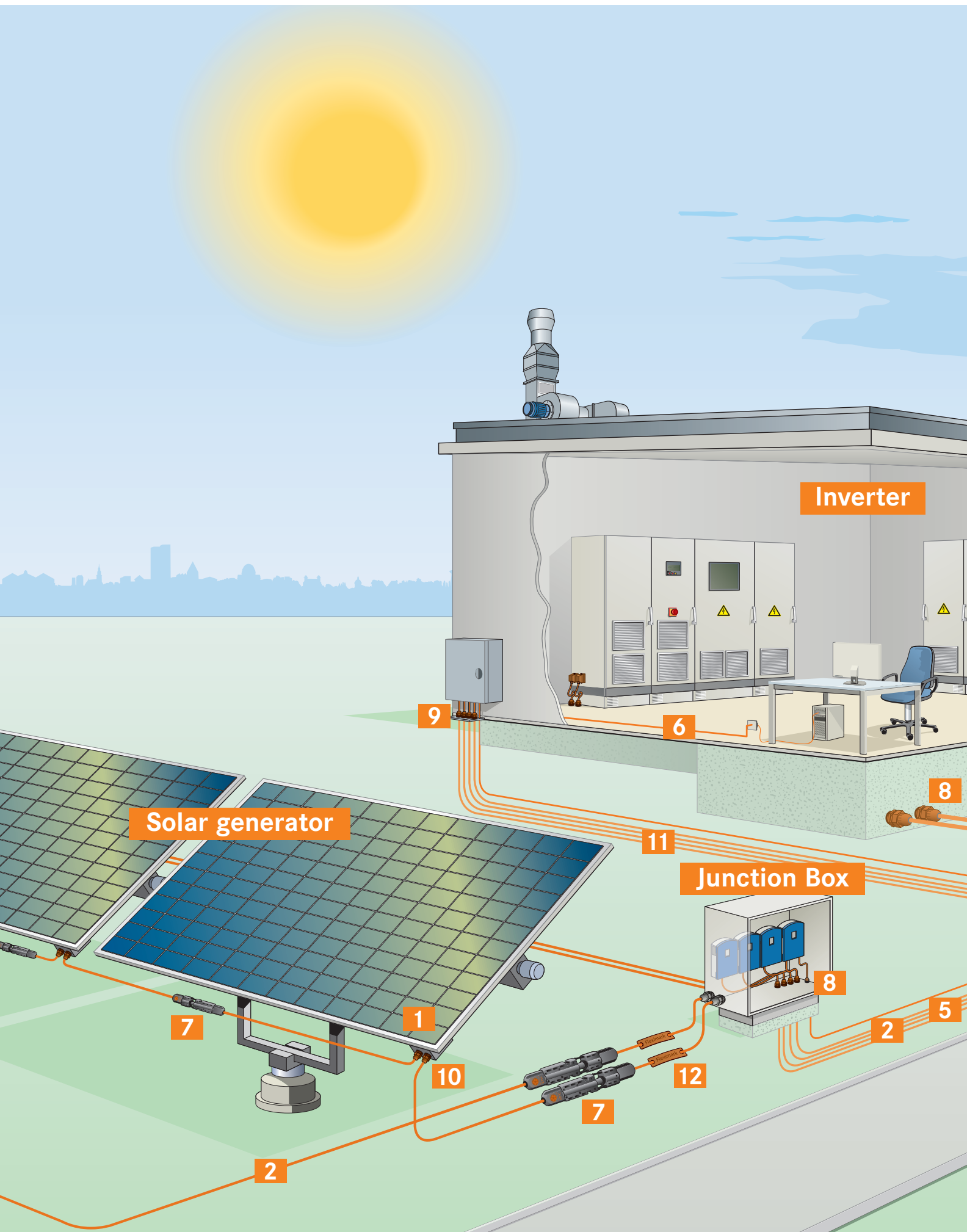
Neutral Energy Development Co. Ltd. (NEC) ordered 1,200 kilometres of cross-linked ÖLFLEX® SOLAR XLR cables for this installation from JJ-Lapp Cable in Singapore, a joint venture company of the Lapp Group.

The ÖLFLEX® SOLAR XLR is one of the highlights of the extensive Lapp Group photovoltaic programme. It has been approved according to the TÜV design standard (Technical Inspection Association) and boasts a particularly high thermal resistance (-40 to +120°C).

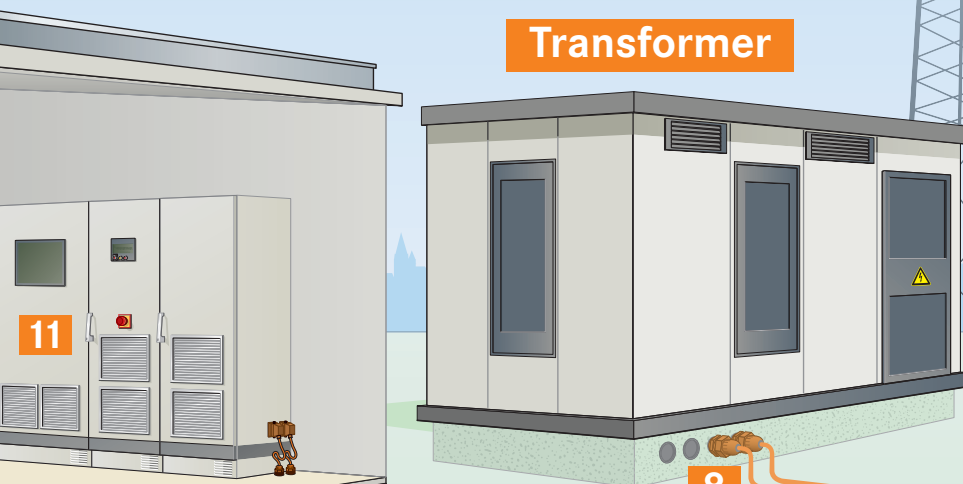
This guarantees a long life, even under the most extreme climate conditions. The cables are used in the Lopburi installation for the cabling of the thin-layer modules, as well as for connecting the individual rows of modules and linking up to the inverter.

When it is finished, the installation is set to generate 55 megawatts of power, enough to supply 70,000 households with electricity.

The Solar system by Lapp



Transformer



- 1** EPIC® SOLAR
Junction box
- 2** ÖLFLEX® SOLAR
Photovoltaic cables
- 3** ÖLFLEX® TRAFO
Flexible power cables
- 4** UNITRONIC® BUS
Data- and BUS cables
- 5** UNITRONIC® Feldbus
S/A cabling
- 6** ETHERLINE®
Ethernet cabling
- 7** EPIC® SOLAR
Photovoltaic connectors
- 8** EPIC® POWERLOCK
1 pole high current connectors
- 9** SKINTOP® ST-M/CLICK
Cable glands
- 10** SKINTOP® SOLAR
Photovoltaic cable glands
- 11** SILVYN®
Protective cable conduit- and cable
carrier systems
- 12** FLEXIMARK®
Cable marking products



New

ÖLFLEX® SOLAR XLR-R

The new generation of 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 PV 1-F
- Substitutes version XLR und XLR TF

Benefits

- Reduced outer diameters enable space and weight saving installation
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Colour-coding of the core insulation simplifies the differentiation of the polarity 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 an extension cable between the individual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated photovoltaic systems

Product features

- Excellent weather, temperature and UV-resistance
- Good notch and abrasion resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLR-R = X-Linked Radiated-Reduced Proven electron beam cross-linked quality

Approvals

CE, TÜV, RoHS

- TÜV Type approved (2PFG 1169/08.07)
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: white, red or blue
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

Approvals
DIN VDE PV 1-F (TÜV type approved according to 2 PFG 1169/08.2007)

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 1169/08.2007: -40°C to +90°C

Article number	Conductor cross-section (mm ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR-R				
Core insulation: white / Outer sheath: black				
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
Core insulation: red / Outer sheath: black				
0023186	1.5	4.4	14.4	34
0023187	2.5	4.8	24.0	46
0023188	4.0	5.2	38.4	63
0023189	6.0	5.8	57.6	86
0023190	10.0	7.0	96.0	132
0023191	16.0	8.3	153.6	197
Core insulation: blue / Outer sheath: black				
0023192	1.5	4.4	14.4	34
0023193	2.5	4.8	24.0	46
0023194	4.0	5.2	38.4	63
0023195	6.0	5.8	57.6	86
0023196	10.0	7.0	96.0	132
0023197	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 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: 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 24
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 24
- Universal strip stripping and cutting tool refer to page 36
- KS 20 cable shears refer to page 36



New

ÖLFLEX® SOLAR XLS-R

Electron beam cross-linked solar cables with reduced outer diameters



Info

- Optimised cable design - thin, light and robust
- Substitutes version XLS

Benefits

- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Colour-coding of the core insulation simplifies the differentiation of the polarity 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 an extension cable between the individual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated photovoltaic systems

Product features

- Good weather and UV-resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLS-R = X-Linked Standard - Reduced Proven electron beam cross-linked quality
- Red and blue outer sheaths are also available upon request

Approvals



- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: white, red or blue
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

- 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 ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLS-R				
Core insulation: white / Outer sheath: black				
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
Core insulation: red / Outer sheath: black				
0023139	1.5	4.4	14.4	34
0023141	2.5	4.8	24.0	46
0023142	4.0	5.2	38.4	63
0023114	6.0	5.8	57.6	86
0023115	10.0	7.0	96.0	132
0023116	16.0	8.3	153.6	197
Core insulation: blue / Outer sheath: black				
0023117	1.5	4.4	14.4	34
0023118	2.5	4.8	24.0	46
0023119	4.0	5.2	38.4	63
0023120	6.0	5.8	57.6	86
0023143	10.0	7.0	96.0	132
0023144	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 Appendix T17 for the definition and calculation of copper-related surcharges.
 Please find our standard lengths at: 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 8

Accessories

- EPIC® SOLAR 4 Thin M pre-assembled refer to page 24
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 24
- Universal strip stripping and cutting tool refer to page 36
- KS 20 cable shears refer to page 36

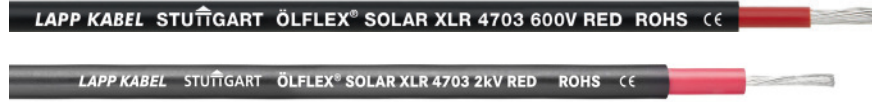
ÖLFLEX®
 UNITRONIC®
 ETHERLINE®
 HITRONIC®
 EPIC®
 SKINTOP®
 SILVYN®
 FLEXIMARK®
 ACCESSORIES
 APPENDIX



New

ÖLFLEX® SOLAR XLR 4703

UL-listed solar cables according to NEC for use in North America



Info

- Acc. to UL Subject 4703 Type PV Wire
- Available as 600V and 2kV version

Benefits

- Standard-compliant application for exposed wiring of PV systems in North America in compliance with US NFPA 70 NEC article 690.31 (National Electrical Code)
- High thermal capacity for long-lasting operation of the PV system in all seasons
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For the cabling between the solar modules and as an extension cable between the individual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated photovoltaic systems

Product features

- Good weather and UV-resistance
- Good notch and abrasion resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLR = X-Linked Radiated
Proven electron beam cross-linked quality

Approvals



- According to UL Subject 4703 Type PV Wire
- Halogen-free according to EN 50267-2-1/-2
- Flame-retardant according to IEC 60332-1-2, UL VW-1, Vertical Flame Test FV-1, CSA FT 2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: red
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

Approvals
UL PV-Wire listed (Photovoltaic Wire) according to UL Subject 4703

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)
According to UL: 600 V or 2 kV

Test voltage
AC 6500 V

Temperature range
Fixed installation: -40 °C to +120 °C
According to UL: -40 °C to +90 °C

Article number	Conductor cross-section (mm ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR 4703 600V				
Core insulation: red / Outer sheath: black				
0027130	2.5	5.9	24.0	55
0027133	4.0	6.3	38.4	69
0027136	6.0	6.9	57.6	92
0027139	10.0	8.9	96.0	158
0027142	16.0	10.2	153.6	228
ÖLFLEX® SOLAR XLR 4703 2kV				
Core insulation: red / Outer sheath: black				
0023900	2.5	6.7	24.0	69
0023903	4.0	7.2	38.4	87
0023906	6.0	7.7	57.6	111
0023909	10.0	9.4	96.0	172
0023912	16.0	10.7	153.6	246

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: 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 24
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 24
- Universal strip stripping and cutting tool refer to page 36
- KS 20 cable shears refer to page 36

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SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX



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 as well as 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 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

- Good weather, abrasion, temperature and UV-resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLS - X-Linked Standard
Proven electron beam cross-linked quality

Approvals



- Weather/UV-resistant acc. to HD 605/A1
- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to IEC 60754-1
- Ozone-resistant according to EN 50396
- Acid and alkali-resistant acc. EN 60811-2-1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

- Core identification code**
Black
- 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 U₀/U : 600/1000 V
DC U₀/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 ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLSv				
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	13.2	240.0	386
0027115	35.0	14.5	336.0	502
0027116	50.0	17.7	480.0	698
0027117	70.0	19.7	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 Appendix T17 for the definition and calculation of copper-related surcharges.
 Please find our standard lengths at: 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.
 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 12

Accessories

- Tube cable lugs KR/ KRT/ KRF refer to main catalogue 2012 page 927
- WT 3195 G pressing pliers, hydraulic refer to main catalogue 2012 page 929
- V 1311 pressing pliers, hydraulic refer to main catalogue 2012 page 930
- Cable shears KT 4 and KT 5 refer to main catalogue 2012 page 904





New

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 as well as 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

- Applications with voltage rating 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

- Good weather, abrasion, temperature and UV-resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- Torsion-tested for wind turbines

Approvals



- Weather/UV-resistant acc. to HD 605/A1
- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to IEC 60754-1
- Ozone-resistant according to EN 50396
- Direct burial according to UL 1277

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: cross-linked polyolefin
- Outer sheath: cross-linked copolymer
- Core insulation and outer sheath are extruded together
- Outer sheath colour: black

Technical data

- Core identification code**
Black
- Fire test**
Flame-retardant according to 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_n/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 ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® TRAF0 XLv 1,8/3 kV				
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 Appendix T17 for the definition and calculation of copper-related surcharges.
 Please find our standard lengths at: 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 11

Accessories

- Tube cable lugs KR/ KRT/ KRF refer to main catalogue 2012 page 927
- WT 3195 G pressing pliers, hydraulic refer to main catalogue 2012 page 929
- V 1311 pressing pliers, hydraulic refer to main catalogue 2012 page 930
- Cable shears KT 4 and KT 5 refer to main catalogue 2012 page 904

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New

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 as well as 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 photovoltaic systems

Product features

- Good weather and UV-resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLS-R T = X-Linked Standard-Reduced Twin Proven electron beam cross-linked quality
- Also available as TÜV PV1-F approved version upon request

Approvals



- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

- 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 ² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLS-R T				
Core insulation: red/black				
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
Core insulation: blue/red				
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 Appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: 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 9

Accessories

- EPIC® SOLAR 4 Thin M pre-assembled refer to page 24
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 24
- Universal strip stripping and cutting tool refer to page 36
- KS 20 cable shears refer to page 36



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 as well as 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, abrasion and UV-resistant
- Halogen-free and flame-retardant
- Good heat pressure resistance

Approvals



- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to EN 50267-2-1/-2
- Weather/UV-resistant acc. to HD 605/A1

Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: Cross-linked polymer
- Outer sheath: special polymer
- Outer sheath colour: black
- Armouring: high-grade stainless steel wire braiding (V4A)

Technical data



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 ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR V4A stainless steel				
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 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: 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.

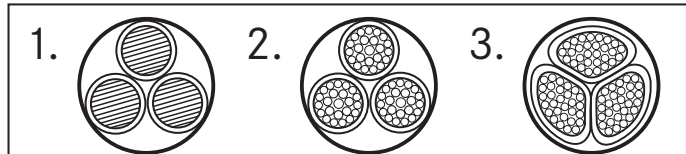




Info

- 1. re = round conductor, single-wire;
- 2. rm = round conductor, multi-wire;
- 3. sm = sector-shaped conductor

Fixed installation, direct burial; PVC cable with different application areas



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 to 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

Approvals



Design

- 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

- 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
- Approvals**
HD 603/VDE 0276-603 (for 1 to 5 cores)
HD 627/VDE 0276-627 (as from 7 cores)
- Conductor stranding**
Single or multi-wire
- Minimum bending radius**
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter
- Nominal voltage**
U₀/U: 0.6/1.0 kV
- Test voltage**
4000 V
- Temperature range**
During installation: -5 °C to +50 °C
Fixed installation: -40 °C to +70 °C

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
NYY-J				
15500013	3 x 1,5re	12.0	43.0	223
15500023	4 x 1,5re	13.0	58.0	256
15500103	3 x 2,5re	13.0	72.0	272
15500113	4 x 2,5re	14.0	96.0	316
15500203	4 x 4re	16.0	154.0	439
15500213	4 x 6re	17.0	230.0	547
15500223	4 x 10re	19.0	384.0	743
15500233	4 x 16re	22.0	614.0	1039
15500243	4 x 25rm	27.0	960.0	1620
15500253	4 x 50sm	31.0	1,920.0	2639
15500753	4 x 35sm	27.0	1,344.0	1916
15500763	4 x 70sm	35.0	2,688.0	3576
15500773	4 x 95sm	40.0	3,648.0	4746
15500783	4 x 120sm	43.0	4,608.0	5813
NYY-O				
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

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 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: 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 main catalogue 2012 page 219
- NYCWY refer to page 16
- NAYY-J refer to page 17

Accessories

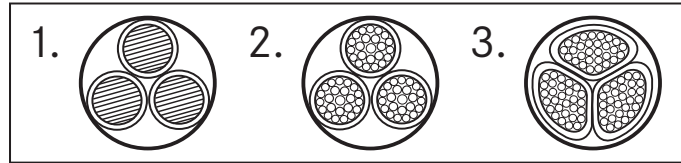
- V 1311 pressing pliers, hydraulic refer to main catalogue 2012 page 930
- STAR STRIP stripping tool refer to main catalogue 2012 page 906
- Cable shears KT 4 and KT 5 refer to main catalogue 2012 page 904

Building Installation

Cables for direct burial

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 to 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

Approvals



Design

- 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, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- PVC-based outer sheath

Technical data

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9

Approvals
HD 603/VDE 0276-603 for NYCWY with 3 or 4 cores and the relevant concentric protective conductor

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U₀/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5 °C to +50 °C
Fixed installation: -40 °C to +70 °C

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: 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 15

Accessories

- V 1311 pressing pliers, hydraulic refer to main catalogue 2012 page 930
- Cable shears KT 4 and KT 5 refer to main catalogue 2012 page 904

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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 to IEC 60332.1.2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm² according to HD 603/VDE 0276-603: Part 1 Appendix A.4.12 and Part 3-G point 4
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Approvals



Design

- 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

- Core identification code**
According to VDE 0293-308 (table T9)
- Approvals**
HD 603/VDE 0276-603
- Conductor stranding**
Single-wire
- Minimum bending radius**
Fixed installation: 12 x outer diameter
- Nominal voltage**
U₀/U: 0.6/1.0 kV
- Test voltage**
4000 V
- Temperature range**
During installation: -5 °C to +50 °C
Fixed installation: -30 °C to +70 °C

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Alu index (kg/km)	Weight (kg/km)
NAYY-J				
1552010	4 x 35re	28.2	406.0	1170
1552011	4 x 50se	29.8	580.0	1305
1552012	4 x 70se	34.2	812.0	1730
1552013	4 x 95se	38.6	1,102.0	2205
1552014	4 x 120se	41.9	1,392.0	2655
1552015	4 x 150se	45.6	1,740.0	3150
1552016	4 x 185se	50.8	2,146.0	3925
1552017	4 x 240se	59.6	2,784.0	4880
NAYY-O				
3036549	1 x 120 RM	21,0	348,0	620
3036550	1 x 150 RM	23,0	435,0	735
3036551	1 x 185 RM	25,0	536,5	845
3036552	1 x 240 RM	28,0	696,0	1100
1552022	1 x 300 RM	30,0	870,0	1296

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

Similar products

- NYY-J, NYY-O refer to page 15

Accessories

- V 1311 pressing pliers, hydraulic refer to main catalogue 2012 page 930
- STAR STRIP stripping tool refer to main catalogue 2012 page 906
- Cable lugs and other connectors made of aluminium or bi-metal Al-Cu are available upon request



UNITRONIC® Li2YCYv (TP)

Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs

LAPP KABEL STUTTGART UNITRONIC® Li2YCYv (TP)



Benefits

- 7-wire stranded conductor UNITRONIC® Li2YCYv (TP) can be used for Maxi TERMI-POINT® wiring
- Overall braid minimises electrical interference
- TP structure minimises crosstalk

Application range

- The UNITRONIC® Li2YCYv (TP) model with reinforced black outer sheath (Yv) is suitable for indoors and outdoors, as well as direct burial in the ground.
- Cables of this type are intended for limited flexible use, and for fixed installation in dry or damp interiors

Product features

- Flame-retardant according to IEC 60332.1.2

Approvals



Design

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Reinforced PVC outer sheath
outer sheath colour: black (RAL 9005)

Technical data



Core identification code
DIN 47100, refer to Appendix T9



Peak operating voltage
(not for power applications) 250 V



Specific insulation resistance
> 5 GOhm x km



Conductor stranding
Stranded conductor, based on VDE 0881, 7-wire



Minimum bending radius
For flexible use:
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



Temperature range
Fixed installation: -30 °C to +80 °C
Flexing: -5 °C to +70 °C



Characteristic impedance
100 Ohm +/- 15

Article number	Number of pairs and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial				
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	8.8	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 Appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: 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.

Accessories

- SKINTOP® MS-SC-M refer to main catalogue 2012 page 668
- Multipurpose shears A and B refer to main catalogue 2012 page 902
- STAR STRIP stripping tool refer to main catalogue 2012 page 906
- STEEL GUN HT-338 cable tie pliers refer to main catalogue 2012 page 963
- LS steel cable ties refer to main catalogue 2012 page 961



Info

- CAN = Controller Area Network

LAPP KABEL STUTTGART UNITRONIC® BUS CAN



UNITRONIC® BUS CAN

UNITRONIC® BUS CAN FD P

LAPP KABEL STUTTGART 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 to 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 to IEC 60332.1.2

Approvals



- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

Design

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 braiding
- PVC outer 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)

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

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

Article number	Article designation	Number of pairs/conductor cross section (mm ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation					
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	16.7	42.0
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	34.8	68.0
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	25.0	55.0
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	46.4	88.0
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	41.6	90.0
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.7	59.4	106.0
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52.7	108.0
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	80.6	142.0
For highly flexible applications (power chains, moving machine parts)					
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	24.0	40.0
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	33.0	65.0
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	32.8	60.0
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	52.4	88.0
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8.0	41.9	74.0
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.8	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 Appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: 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 main catalogue 2012 page 902
- SMARTSTRIP stripping tool refer to main catalogue 2012 page 907

UNITRONIC® BUS CAN FD P

- SILVYN® CHAIN refer to main catalogue 2012
- Multipurpose shears A and B refer to main catalogue 2012 page 902
- SMARTSTRIP stripping tool refer to main catalogue 2012 page 907



UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092



Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic field

Application range

- UNITRONIC® ST data transmission cables are especially designed for the transmission of the smallest measurement and control signals at minimal space requirements.
- 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 foil, combination of flexibility and good screening (normal requirements).
- Flame-retardant according to IEC 60332.1.2

Approvals



Design

- 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**
1: transparent 2: black (3: red)
- Mutual capacitance**
C/C approx. 90 nF/km
C/S approx. 160 nF/km
- Peak operating voltage**
(not for power applications):
500 V
- Based on**
UL 2092 / 2093
- Specific insulation resistance**
> 5 GOhm x km
- Inductivity**
approx. 0.65 mH/km
- Minimum bending radius**
10 x outer diameter
- Test voltage**
1500 V
- Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -5°C to +70°C
- Characteristic impedance**
Approx. 95 Ohm

Article number	Number of conductors and AWG size	Conductor cross-section (mm²)	Core insulation material	Outer sheath material	Outer diameter (mm)	Copper index (kg/km)	Type no.
UNITRONIC® ST							
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 Appendix T17 for the definition and calculation of copper-related surcharges.
 Please find our standard lengths at: 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 36
- DATA STRIP stripping tool refer to main catalogue 2012 page 907



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



ETHERLINE® PN Cat.5

Fixed installation



Info

- Conductor: AWG22 = PROFINET-compliant
- CAT.5/5e

Benefits

- For Profinet applications
- Screened against interference

Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- Fixed installation
- FC: "Fast Connect" cable design

- Flame-retardant according to IEC 60332-1-2
- ETHERLINE® Y FC version: flame-retardant according to IEC 60332-3

Design

- 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

Technical data

- 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
FC: "Fast Connect" cable design					
2170893	ETHERLINE® Y FC UL/CSA (CMG) CAT.5	2 x 2 x AWG22/1	6.5	30.4	70
Suitable for outdoor use and direct burial					
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. Photographs are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN FLEX



Info

- for Profinet applications
- CAT.5-Performance
- Flexible use

Benefits

- Screened against interference
- Conductor: AWG22 = PROFINET-compliant

Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

Design

- Stranded 7-wire bare conductor
- Core insulation: PE
- Inner sheath made of PVC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC-based outer sheath
- Colour: green

Technical data

- Minimum bending radius**
Fixed installation: 7 x outer diameter
Fixed installation: 3 x outer diameter
- Test voltage**
Core/core: 2000 V
Core/screen: 2000 V
- Temperature range**
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)
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	6.5	31.3	67

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.

ETHERLINE® PN Cat.5 FD



Info

- Highly flexible application
- for Profinet applications

Benefits

- Screened against interference
- Conductor: AWG22 = PROFINET-compliant

Application range

- Power chain applications
- Dry or damp rooms
- Industrial use

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion

- Flame-retardant according to IEC 60332.1.2

Design

- Stranded 7-wire bare conductor
- Inner sheath: thermoplastic copolymer (FRNC)
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR outer sheath
- Colour: green (based on RAL 6018)

Technical data

- Minimum bending radius**
Flexing: 7.5 x outer diameter
Fixed installation: 5 x cable diameter, once
- Test voltage**
Core/core: 700 V
Core/screen: 700 V
- Temperature range**
Operation: -20°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)
For highly flexible applications (7-wire stranded conductor) = type C					
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.



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 unshielded 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

Approvals



Article number	Article designation	PU
21700540	Field-Terminable Connector RJ45 CAT.5e FM45	1 piece

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

New

Connector RJ45 Cat.6_A fieldmountable



Product features

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey

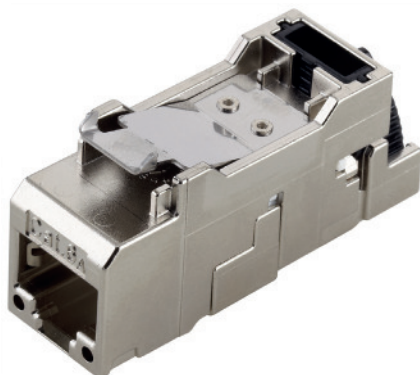
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Article number	Article designation	PU
21700600	EPIC® DATA ED-IE-AX-6,-A-20-FC	10 pieces
21700601	EPIC® DATA ED-IE-AX-6,-B-20-FC	10 pieces

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

New

Easy Connect RJ45 Modul Cat.6_A 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

Easy Connect RJ45 Modul Cat.6A 10G

Article number	Article designation	PU
RJ45 Modul acc. to T568A		
21700611	ED-IE-AX-RJ45F-6A-A-FC	24 pieces
RJ45 Modul acc. to T568B		
21700612	ED-IE-AX-RJ45F-6A-B-FC	24 pieces

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



New

Connector industry RJ45 Cat.6_A 10 IP68

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
- IP68

Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51



Article number	Article designation
Inclusive RJ45 connector	
21700630	ED-IE-AX-RJ45-6A-B-68-FC
Dust cap for RJ45 connector	
21700631	ED-IE-AX-RJ45-AC-DC
Inclusive RJ45 Modul acc. to T568A	
21700632	ED-IE-RJ45F-6A-B-68-FC
Dust cap for RJ45 Modul	
21700633	ED-IE-RJ45F-AC-DC

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

New

Easy connect rail mount adapter Cat.6_A

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)

Approvals

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51



Article number	Article designation
Inclusive RJ45 Modul acc. to T568A	
21700613	EPIC DATA HS RJ45 F 10G A
Inclusive RJ45 Modul acc. to T568B	
21700614	EPIC DATA HS RJ45 F 10G B

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

New

Data Binder LSA+ Cat.7_A

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

Approvals

- Complies with the EN 50173 and ISO/IEC 11801 standards



Article number	Article designation
21700629	EPIC DATA DV LSA+ Cat.7A

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

For current information see: www.lappgroup.com



New

EPIC® SOLAR 4 Thin M pre-assembled



Info

- 4 mm connector system with double hook
- Non-resistant cable connection

New

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

Product features

- 4 mm connector system with double hook
- Pre-assembled with 100 % automatic control
- Wide range of conductor cross-sections from 1.5 mm² to 6 mm²
- UL pending

Application range

- Pre-assembled connection cables for weatherproof cabling of photovoltaic systems

Technical data

Rated voltage (V)	1000 V AC/DC
Rated impulse voltage	8 kV
Degree of soiling	3
Contact resistance	< 0.2 mOhm
IP	Protection rating IP68 (10h / 1m)
	Protection class II
	Cycle of mechanical operation 100
Temperature range	-40 °C to +105 °C

Article number	Article designation	Cross-section (mm ²)	Rated current (A)	Length (m)	Copper index (kg/km)	Pieces / PU
EPIC® SOLAR 4 THIN male with cable ÖLFLEX® SOLAR XLR						
44428100	EPIC® SOLAR 4 THIN M XLR TF 1,5mm ² 1m	1,5	17,0	1,0	14,4	100
44428101	EPIC® SOLAR 4 THIN M XLR TF 2,5 mm ² 1 m	2,5	21,0	1,0	24,0	100
44428102	EPIC® SOLAR 4 THIN M XLR TF 4mm ² 1m	4	25,0	1,0	38,4	100
44428103	EPIC® SOLAR 4 THIN M XLR 6mm ² 1m	6	30,0	1,0	57,6	100
EPIC® SOLAR 4 THIN male with cable ÖLFLEX® SOLAR XL multi						
44428108	EPIC® SOLAR 4 THIN M XL multi 2,5 mm ² 1 m	2,5	21,0	1,0	24,0	100
44428109	EPIC® SOLAR 4 THIN M XL multi 4mm ² 1m	4	25,0	1,0	38,4	100
44428110	EPIC® SOLAR 4 THIN M XL multi 6mm ² 1m	6	30,0	1,0	57,6	100
EPIC® SOLAR 4 THIN female with cable ÖLFLEX® SOLAR XLR						
44428104	EPIC® SOLAR 4 THIN F XLR TF 1,5 mm ² 1 m	1,5	17,0	1,0	14,4	100
44428105	EPIC® SOLAR 4 THIN F XLR TF 2,5 mm ² 1 m	2,5	21,0	1,0	24,0	100
44428106	EPIC® SOLAR 4 THIN F XLR TF 4mm ² 1m	4	25,0	1,0	38,4	100
44428107	EPIC® SOLAR 4 THIN F XLR 6mm ² 1m	6	30,0	1,0	57,6	100
EPIC® SOLAR 4 THIN female with cable ÖLFLEX® SOLAR XL multi						
44428111	EPIC® SOLAR 4 THIN F XL multi 2,5 mm ² 1 m	2,5	21,0	1,0	24,0	100
44428112	EPIC® SOLAR 4 THIN F XL multi 4mm ² 1m	4	25,0	1,0	38,4	100
44428113	EPIC® SOLAR 4 THIN F XL multi 6mm ² 1m	6	30,0	1,0	57,6	100

Copper price basis: EUR 150/100kg. Refer to 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.



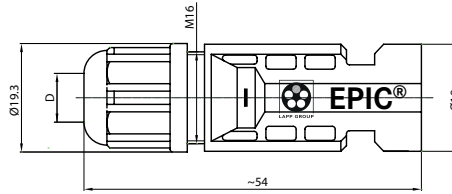
New

EPIC® SOLAR 4 M



Info

- 4 mm connector system with double hook
- Field-mountable solar connector



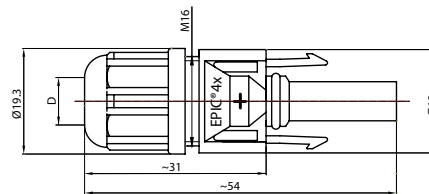
New

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
- UL pending

Suitable cables

- ÖLFLEX® SOLAR XLR-R Page 8
- ÖLFLEX® SOLAR XLS-R Page 9
- ÖLFLEX® SOLAR XLR 4703 Page 10

Suitable tools

- EPIC® SOLAR TOOL Page 26

Technical data

- Rated voltage (V)**
1000 V AC/DC
- Rated impulse voltage**
6 kV
- Degree of soiling**
3
- Contact resistance**
< 5 mOhm
- Protection rating**
IP 67
- Protection class**
II
- Temperature range**
-40 °C ... +85 °C

Article number	Article designation	Cross-section (mm²)	Cable clamping range (mm)	Rated current (A)	PU
EPIC® SOLAR 4 male field-mountable					
44428200	EPIC® SOLAR 4 M 2.5 mm²	2.5	4.5 - 6.5	22.0	100
44428201	EPIC® SOLAR 4 M 4mm²	4 - 6	5.0 - 7.2	30.0	100
EPIC® SOLAR 4 female field-mountable					
44428203	EPIC® SOLAR 4 F 2.5 mm²	2.5	4.5 - 6.5	22.0	100
44428204	EPIC® SOLAR 4 F 4mm²	4 - 6	5.0 - 7.2	30.0	100

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



New

EPIC® CRIMPTOOL



New

EPIC® SOLAR TOOL CSC



Info

- Cutting, stripping and crimping with just one tool

New

EPIC® SOLAR TOOL



Info

- 3 cross section in one tool

Application range

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2,5mm², 4mm² and 6mm²
- Locator for the safe and accurate positioning of the crimping contacts

Suitable connectors

- EPIC® SOLAR 4 Page 25

Product features

EPIC® SOLAR TOOL CSC

- Multi-functional die for cutting, stripping and crimping with just one tool
- Locator for the safe and accurate positioning of the crimping contacts

Suitable cables

- ÖLFLEX® SOLAR XLR-R Page 8
- ÖLFLEX® SOLAR XLS-R Page 9
- ÖLFLEX® SOLAR XLR 4703 Page 10

Article number	Article	Cross-section (min) in mm²	Cross-section (max) in mm²	PU
Crimptool				
11147000	Crimptool			1
Multi-functional die CSC				
44428992	EPIC® SOLAR TOOL CSC Die 4mm²		4.00	1
44428993	EPIC® SOLAR Tool CSC Die 6mm²		6.00	1
44428994	EPIC® SOLAR TOOL LOC 4, 6mm²	4.00	6.00	1
Crimping die				
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6mm²	2.50	6.00	1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6mm²	2.50	6.00	1

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

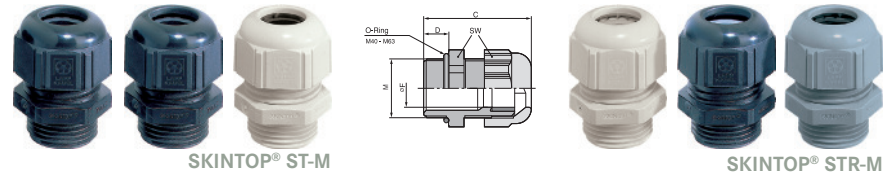


New

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 shipyards

SKINTOP® STR-M

- With reducing seal insert, to seal cables with smaller outer diameters.

Approvals



- UL File Nr. E79903

Design

- 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

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

Suitable tools

SKINTOP® ST-M

- SKINMATIC® QUICK Set 1 refer to main catalogue 2012 page 710
- SKINMATIC® RZ refer to main catalogue 2012 page 711
- SKINMATIC® TORQUE WRENCH refer to main catalogue 2012 page 710

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-M silver grey						
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
SKINTOP® ST-M black						
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
SKINTOP® ST-M light grey						
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
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
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
SKINTOP® ST M ISO black (with long metric connecting thread)						
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

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SKINTOP® metric plastic cable glands

SKINTOP® Standard



Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® STR-M silver grey						
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
SKINTOP® STR-M black						
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
SKINTOP® STR-M light grey						
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
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
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
SKINTOP® STR M ISO black (with long metric connecting thread)						
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 main catalogue 2012 page 672
- SKINTOP® GMP-GL-M refer to main catalogue 2012 page 670
- SKINTOP® DIX-M AUTOMATION refer to main catalogue 2012 page 673
- SKINTOP® SDV-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675
- SKINTOP® DV-M refer to main catalogue 2012 page 675

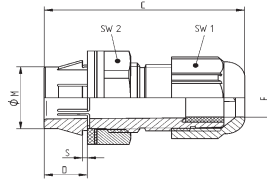
SKINTOP® STR-M

- SKINTOP® GMP-GL-M refer to main catalogue 2012 page 670
- SKINTOP® SDVR-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675



New

SKINTOP® CLICK / SKINTOP® CLICK-R



SKINTOP® CLICK

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.

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
 -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
SKINTOP® CLICK light grey								
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
SKINTOP® CLICK silver grey								
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
SKINTOP® CLICK black								
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
SKINTOP® CLICK-R light grey								
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
SKINTOP® CLICK-R silver grey								
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
SKINTOP® CLICK-R black								
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 main catalogue 2012 page 672
- SKINTOP® DIX-M AUTOMATION refer to main catalogue 2012 page 673
- SKINTOP® SDV-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675
- SKINTOP® DV-M refer to main catalogue 2012 page 675

SKINTOP® CLICK-R

- SKINTOP® SDVR-M ATEX refer to main catalogue 2012 page 674

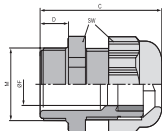
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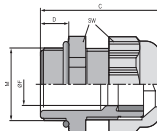
New

SKINTOP® SOLAR / SKINTOP® SOLAR plus

SKINTOP® for photovoltaics



SKINTOP® SOLAR



SKINTOP® SOLAR plus



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

Approvals



- UL File Nr. E79903

Design

- 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
- SKINTOP® SOLAR (plus) 16x1.5 UL pending

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

SKINTOP® SOLAR
Black (RAL 9005)
SKINTOP® SOLAR plus
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
SKINTOP® SOLAR						
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
SKINTOP® SOLAR plus						
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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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

Approvals



Design

- Divisible corrugated polyamide 6 conduit



Info

- **New sizes are available**

Technical data



Upon request
 SILVYN® SPLIT PP
 (polypropylene)
 SILVYN® SPLIT NW 54/70



Colour delivered
 Black (RAL 9005), UV-resistant



Material
 Halogen-free PA



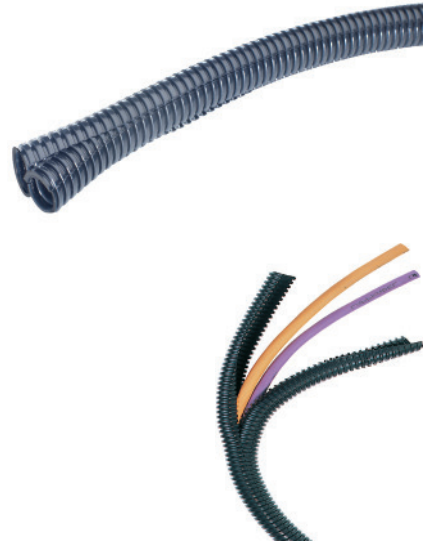
Protection rating
 IP 43 with SILVYN® SPLIT COV



Temperature range
 -40 °C to +120 °C
 short-term 150 °C

Note

- UV-resistant and weather-resistant
- Upon request
- SILVYN® SPLIT PP (polypropylene)
- SILVYN® SPLIT NW 54/70



Article number	Article designation	Bending radius (mm)	Conduit size (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® COV	PU (m)
SILVYN® SPLIT						
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 33

Accessories

- SILVYN® SPLIT COV refer to page 32
- SILVYN® SPLIT COS refer to page 32





SILVYN® SPLIT COS / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COV



SILVYN® SPLIT COS

SILVYN® SPLIT COV

Benefits

SILVYN® SPLIT COV

- Fast and easy assembly
- Subsequent mountable conduit insertion

SILVYN® SPLIT COS

- Fast mounting
- Easy to disassemble
- Tear-proof connection
- No slack in the conduit
- 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

Approvals



Design

SILVYN® SPLIT COS

- One-piece conduit holder with M4/M5/M6 borehole for fixation

Note

- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® SPLIT Page 31

Technical data

RAL Colour delivered
Black (RAL 9005), UV-resistant

Material
Halogen-free PA

Temperature range
-40°C to +120°C

Article number	Article designation	Thread size	Conduit size (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® SPLIT	Pieces / PU
SILVYN® SPLIT COV						
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
SILVYN® SPLIT COV-M						
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
SILVYN® SPLIT COS						
61806690	10		8.9/13.6	13.6	10	100
61806700	14		12.9/18.7	18.7	14	100
61806710	20		19.8/25.9	25.9	20	50
61806720	23		23.7/31.3	31.3	23	50
61806730	37		31.7/41.9	41.9	37	20
61806740	45		43.1/54.2	54.2	45	20

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



Info

- Sinusoidal slit for subsequent assembly
- Made of special heat-resistant polyamide up to +140°C

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

Approvals



- NFR-13-903 from 8.4 x 11.4

Design

- Fine-profile corrugated polyamide 6 conduit with sinusoidal slit

Note

- Upon request
- SILVYN® RILL PA6 SINUS PP (polypropylene)

Technical data



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



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)
SILVYN® RILL PA6 SINUS				
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

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Similar products

- SILVYN® SPLIT refer to page 31

Accessories

- SILVYN® SPLIT COS refer to page 32
- SILVYN® FCL refer to main catalogue 2012 page 804
- STKP tool of the cable eater serves as an insertion tool



FLEXIMARK® Marking Kit MINI



Application range

- Cable and component marking system
- Automotive industry
- Plant engineering

Approvals



Included

- Two character strips (alphabets, numbers, symbols, blank) with 10 markers for each character
- 40 locking-buttons, 20 end-pieces, 1 pair of special pliers (two alternatives), and one bag of cable ties
- Two 285 mm MINI PGS holders
- Seven (for PTE) or two (for SK) 285-mm pieces of the standard character holder

FLEXIMARK® Marking Kit MINI

Article number	Article designation	Contents (unit)
83252001	FLEXIMARK Marking Kit Mini FL5203 YE	1
83251996	FLEXIMARK Mini Box FL52A	1
83252002	FLEXIMARK case empty Mini FL5214GS	1

Photographs are not to scale and do not represent detailed images of the respective products.
 Contents: roll, metre, unit, marker, label





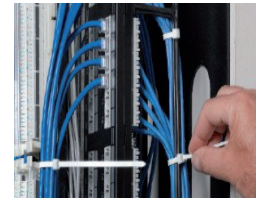
Info

- No special tool needed
- Worked instantly

Twist Tail™ cable tie



Twist Tail™ Kabelbinder



Benefits

- The round, flat, edge-free tie-heads allow assembly without getting caught and protect against injury and damage at adjacent cables and components.
- The cable tie can be gripped securely for easy tightening.
- In addition, the safety-grip tab prevents the tie from slipping out during assembly, and secures it before tightening by hand.

Application range

- Industrial cable ties for quick and secure assembly
- General purpose applications, indoors and outdoors

Approvals



Design

- Wrap the cable tie around a bundle of cables, bend the excess tail in two directions and twist. The tail breaks right off, leaving no sharp edges to scratch your hands or your cables.
- Available in 3 different lengths and 2 colours (white and UV-resistant black)

Technical data

General
Tensile strength: 133 N

Approvals
Flammability class: UL 94 V-2/polyamide 6.6

Note
Halogen-free
silicone-free

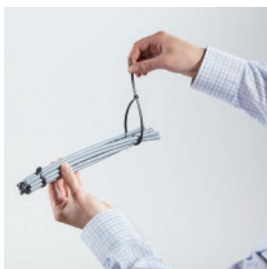
Colour delivered
Black (RAL 9005), UV-resistant
white

Material
Polyamide 6.6

Temperature range
-40 °C to +85 °C

Article number	Article description	UL approval	Length (mm)	Max. bundle Ø (mm)	Pieces / PU
white					
61832007	TWIST TAIL TT-7-30-9-L	yes	181	45.0	50
61832009	TWIST TAIL TT-11-30-9-L	yes	282	76.0	50
61832011	TWIST TAIL TT-14-30-9-L	yes	358	102.0	50
Black (RAL 9005), UV-resistant					
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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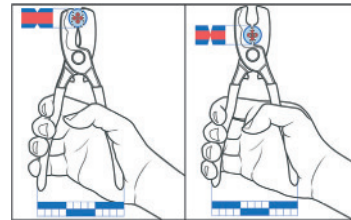


Cutting, Stripping, Skinning

Cutting tools for large diameters



KS 20 cable shears



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.

Tools and cable accessories

Cutting, Stripping, Skinning

Stripping tools

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 mm²
- For use with a great variety of insulation with differing hardness and dimension
- Interchangeable blades for different cable cross sections

Product features

- Design: chrome-plated with plastic handle cover
- Interchangeable blades for different cable cross sections

Application range

- Universal stripping pliers with interchangeable stripping blades for cross-sections of 0.03 to 16 mm²
- Suitable for fluoropolymer & PVC cores, AS-I, Solar, POF cables

Design

- Additional blades are available upon request
- No crushing/deformation of cable ends

Included

- Tool and length stop

Article number	Article designation	For mm ²	Stripping of	Length (mm)	Weight (kg)	Pieces / PU
Interchangeable blade						
21920005	Universal Strip without stripping knife			194	0.41	1
21920122	Solar stripping knife	1.5 - 6				1
Complete tool (incl. assembled blade)						
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





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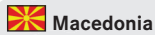
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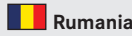
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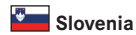
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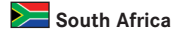
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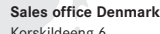
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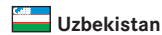
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The conformity of our products with the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

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There are particular risks if installed improperly. This applies to all our products/items:

Processing is only to be done by an authorized 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 laid down 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, consi-

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and application tables, design and installation guidelines, are contained in the tables in the appendix to our Main Catalogue 2010/11. 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 specialized personnel and for the purpose for

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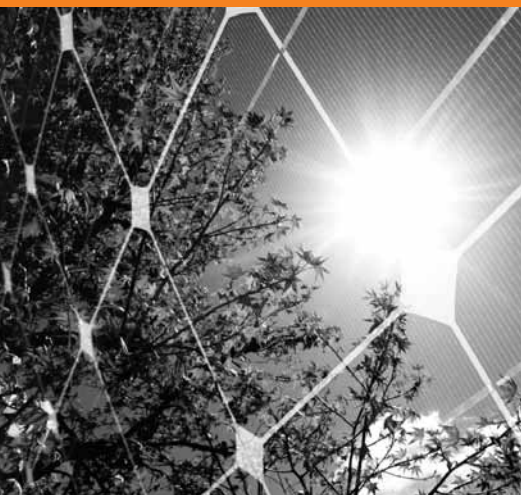
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