

THE WORLD OF LAPP

Products for photovoltaic 2016/17



LAPP GROUP

Legend for icons

INDUSTRIES



Automation



Mechanical and
Plant Engineering



Solar Energy

PRODUCT CHARACTERISTICS



Suitable for outdoor use



Good chemical
resistance



Flame-retardant



Wide clamping range



Halogen-free



Cold-resistant



Corrosion-resistant



Maximum vibration
protection



Mechanical resistance



Assembly time



Low weight



Optimum strain relief



Robust



Voltage



Interference signals



Temperature-resistant



UV-resistant



Waterproof



Variety of approval
certifications

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

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Success through values

Rock solid, high performance. Regional roots, global aspirations. Fast, reliable, high quality – and development that is always one step ahead. For products for the photovoltaic as well. This is Lapp.

The southwest region of Germany is considered one of the most innovative and powerful industrial sectors in the world, and for good reason. Lapp is a part of this region, helping to guide it and its success worldwide.

As a completely family run company, we know: Everything that we have achieved since our founding in 1957 is based on

the daily commitment of our skilled staff and partnerships with our customers based on trust. Each of them has made a decisive contribution to our mutual success. Today, Lapp is one of the world's leading manufacturers of cables, leads, cable accessories and systems of the highest level of quality. We have approximately 3,200 employees worldwide. With 18 production sites on four continents, more than 40 sales companies and hundreds of dedicated consulting experts, we are always close by. And not just physically: customer proximity cannot be meas-

ured in mere kilometres. It is based on listening, making your challenges our own and developing solutions that help to further your business model. Candid closeness and a trusting, partnership-based cooperation are more than just words for Lapp, they are values upon which we have built our family company.

The result? Intelligent and reliable connectivity solutions precisely tailored to the needs of our globally active customers. For you as well.

Customer-oriented
Successful
Family based
Innovative. **Lapp.**

- Founded in 1957
- A leading manufacturer of cables, leads, accessories and complete system solutions for connection technology
- Approximately 3,200 employees worldwide
- 18 production facilities
- More than 40 sales companies
- Hundreds of dedicated consulting experts worldwide
- Years of experience in the rail industry



Andreas Lapp,
Matthias Lapp,
Ursula Ida Lapp,
Alexander Lapp,
Siegbert Lapp.

Eight brands, one promise: uncompromising quality – worldwide



ÖLFLEX®
Power and control cables

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



UNITRONIC®
Data communication systems

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



ETHERLINE®
Data communication systems
for ETHERNET technology

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



HITRONIC®
Optical transmission systems

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



EPIC®
Industrial connectors

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



SKINTOP®
Cable glands

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



SILVYN®
Protective cable conduit systems
and cable carrier systems

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



FLEXIMARK®
Marking systems

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

Reliably connecting the world

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

No matter where you are – we are always by your side. Our plants, sales companies, partners and, above all, our competent

teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 18 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee

that Lapp will provide you with the quality that you require and that you demand.

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

8
Strong
brands

100
Sales partners

18
Production
sites

1
Employees from
152
countries

More than
40,000
Standard products

Innovation
after
another

Over
40
of its own sales
companies

3,200
Employees

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.

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.





Organic photovoltaic objects on German pavilion at the world exhibition in Milan

Connection technology for solar trees from Lapp

At the world exhibition in Milan, Expo Milano 2015, the German pavilion will grab the visitors' attention with its energy-generating solar trees. These solar trees integrate organic photovoltaics (OPV) technology and, unlike conventional solar modules, are made from flexible, film-integrated OPV modules. The revolutionary connection technology needed to produce these comes from the Stuttgart-based Lapp Group.

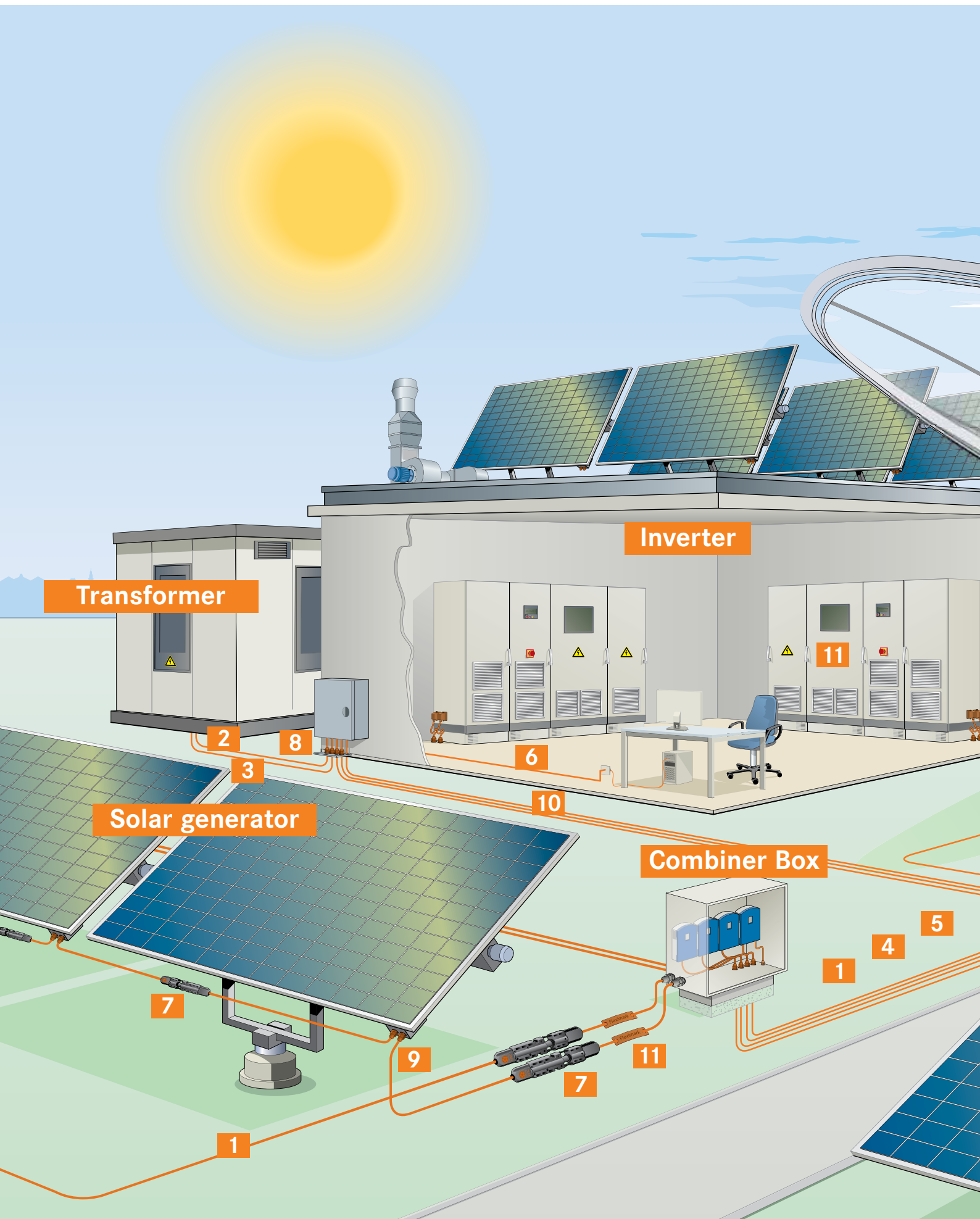
For over ten years, Lapp has been successfully developing connection systems

for photovoltaic modules and has regularly pushed the market forward with its intelligent innovations, for example the well-known connector system EPIC® SOLAR and the cable series ÖLFLEX® SOLAR.

The OPV modules and the innovative connections are made from one cast – unlike with conventional photovoltaic modules, there is no longer a junction box attached; instead, there is a so-called access point that is cast directly onto the flexible OPV film and merges with the film. This method prevents capillary action and therefore al-

so damage due to corrosion. Additionally, the connection components are, at only 30 mm x 20 mm, considerably smaller than those in conventional systems. The cables to be used by the modules were also selected according to customer-specific requirements and are only 2mm wide. They have been produced in grey for use on the German pavilion so that they can be integrated virtually unnoticeably into the grey wire braiding of the design components.

The Solar system by Lapp



1 ÖLFLEX® SOLAR
Photovoltaic cables

2 PVC UNDERGROUND CABLE
Power and control cable

3 Medium Voltage Cable

4 UNITRONIC® BUS
Data- and BUS cables

5 UNITRONIC® Feldbus
S/A cabling

6 ETHERLINE®
Ethernet cabling

7 EPIC® SOLAR
Photovoltaic connectors

8 SKINTOP® ST-M/CLICK
Cable glands

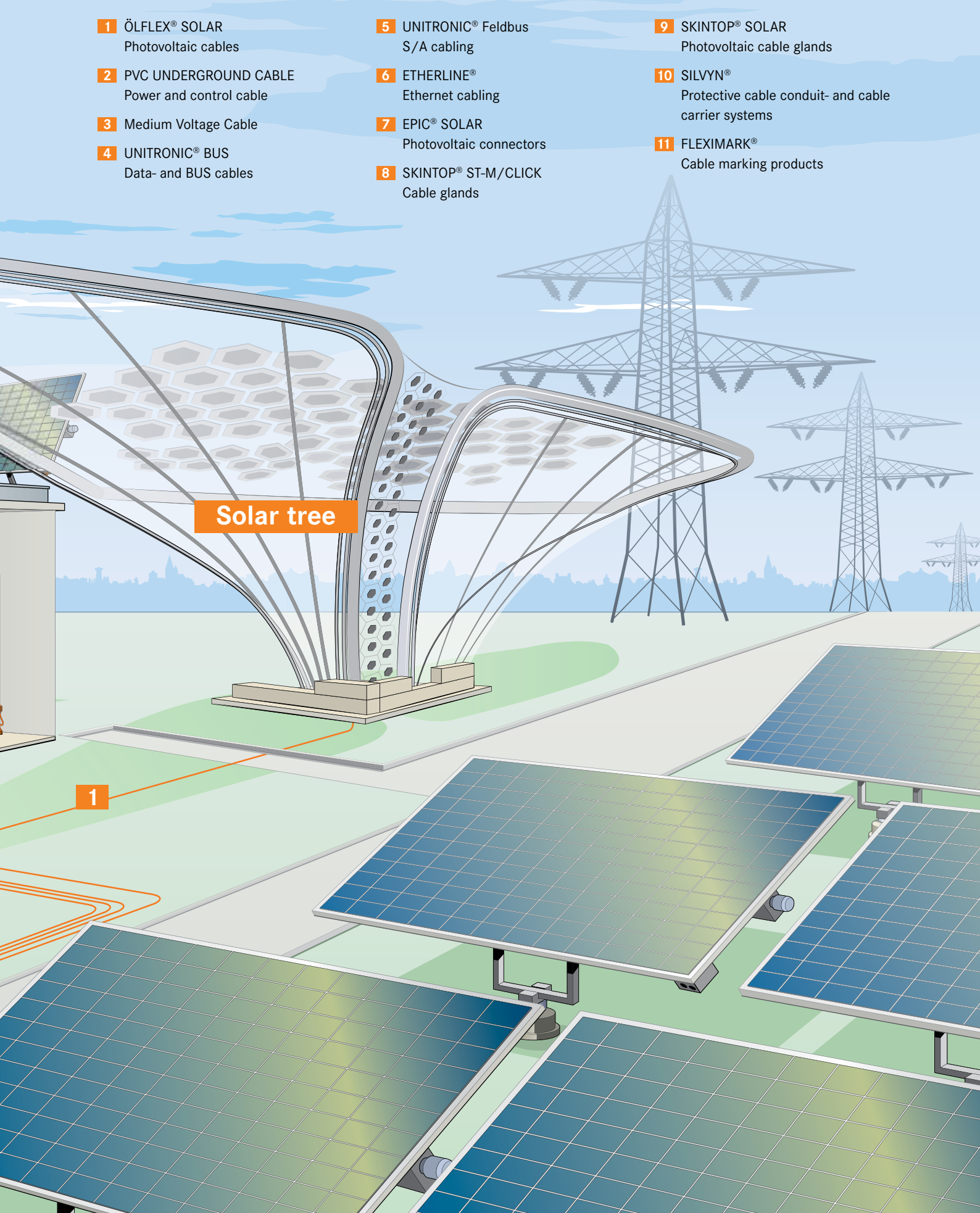
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carrier systems

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Cable marking products

Solar tree

1





ÖLFLEX® SOLAR XLS-R

Electron beam cross-linked solar cables with reduced outer diameters



Info

- Optimised cable design - thin, light and robust

Benefits

- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems
- Not suitable for direct burial, Installation according to IEC 60364-5-52, respectively HD 60364-5-52

Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLS-R = X-Linked Standard - Reduced Proven electron beam cross-linked quality

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black respectively black with red or blue stripe

Technical data

	Classification ETIM 5.0 Class-ID: EC001578 ETIM 5.0 Class-Description: Flexible cable
	Conductor stranding Fine wire according to VDE 0295, class 5/IEC 60228 class 5
	Minimum bending radius Fixed installation: 4 x outer diameter
	Nominal voltage AC U_0/U : 600/1000 V DC U_0/U : 900/1500 V Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)
	Test voltage AC 6500 V
	Temperature range Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Core insulation: white / Outer sheath: black				
0023136	2.5	4.8	24	46
0023137	4.0	5.2	38.4	63
0023138	6.0	5.8	57.6	86
0023104	10.0	7	96	132
0023105	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with red stripe				
0023390	2.5	4.8	24	46
0023391	4.0	5.2	38.4	63
0023392	6.0	5.8	57.6	86
0023393	10.0	7	96	132
0023394	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with blue stripe				
0023395	2.5	4.8	24	46
0023396	4.0	5.2	38.4	63
0023397	6.0	5.8	57.6	86
0023398	10.0	7	96	132
0023399	16.0	8.3	153.6	197

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

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

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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 main catalogue 2016/17

Accessories

- EPIC® SOLAR 4 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- UNIVERSAL STRIP stripping tool refer to page 33
- KS 20 cable shears refer to page 33



H1Z2Z2-K

Cross-linked solar cables - type H1Z2Z2-K certified according to EN 50618



Info

- H1Z2Z2-K (code designation according to EN 50618)
- Substitutes previous ÖLFLEX® SOLAR XLR-R

Benefits

- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- For outdoor applications

Application range

- For use in photovoltaic-systems with rated voltage 1500 V DC
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

Product features

- Flame retardant acc. to IEC 60332-1-2
- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Good notch and abrasion resistance
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

Norm references / Approvals

- H1Z2Z2-K (code designation according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of cross-linked copolymer
- Outer sheath colour: black, red or blue

Technical data



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



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



Minimum bending radius
Fixed installation: 4 x outer diameter



Nominal voltage
AC U_0/U : 1,0/1,0 kV
DC U_0/U : 1,5/1,5 kV
Max. permissible operating voltage:
DC 1,8 kV



Test voltage
AC 6500 V



Current rating
Im compliance with EN 50618, Table A.3



Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
H1Z2Z2-K				
Core insulation: white / Outer sheath: black				
1023552	4.0	5.8	38.4	62
1023553	6.0	6.3	57.6	84
1023554	10.0	7.4	96	126
Core insulation: white / Outer sheath: red				
1023572	4.0	5.8	38.4	62
1023573	6.0	6.3	57.6	84
1023574	10.0	7.4	96	126
Core insulation: white / Outer sheath: blue				
1023582	4.0	5.8	38.4	62
1023583	6.0	6.3	57.6	84
1023584	10.0	7.4	96	126

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: www.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® CRIMPTOOL refer to main catalogue 2016/17
- EPIC® SOLAR 4 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- KS 20 cable shears refer to page 33



ÖLFLEX® SOLAR XLWP

Electron beam cross-linked solar cables with optimized performance in water - EN 50618 type



Info

- Optimised cable design - constant high volume resistance even after long-term period in water
- H1Z2Z2-K (code designation according to EN 50618)
- Substitutes previous ÖLFLEX® SOLAR XLR WP

Benefits

- The alternative for long-term storage in water, e.g. as it can occur in case after flooding or in buried conduits
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For underground installation in conduits, in which water, heat and moisture can accumulate
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Suitable for direct burial: see data sheet

Product features

- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLWP = X-Linked Water-Proof
Proven electron beam cross-linked quality

Norm references / Approvals

- H1Z2Z2-K (code designation according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black respectively black with red stripe

Technical data



Classification

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



Conductor stranding

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



Minimum bending radius

Fixed installation: 4 x outer diameter



Nominal voltage

AC U_0/U : 1,0/1,0 kV

DC U_0/U : 1,5/1,5 kV

Max. permissible operating voltage:
DC 1,8 kV



Test voltage

AC 6500 V



Current rating

Im compliance with EN 50618,
Table A.3



Temperature range

-40°C to +120°C max. conductor
temperature based on EN 60216-1
Ambient temperature range according
to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLWP				
Core insulation: white / Outer sheath: black				
1023601	4.0	5.8	38.4	68.1
1023602	6.0	6.4	57.6	91.6
1023603	10.0	7.6	96	138.6
1023604	16.0	9.1	153.6	209.7
Core insulation: white / Outer sheath: black with red stripe				
1023621	4.0	5.8	38.4	68.1
1023622	6.0	6.4	57.6	91.6
1023623	10.0	7.6	96	138.6
1023624	16.0	9.1	153.6	209.7

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

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

Please find our standard lengths at: www.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 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- UNIVERSAL STRIP stripping tool refer to page 33
- KS 20 cable shears refer to page 33



ÖLFLEX® SOLAR V4A

Extra robust solar cables with high-grade steel protection braiding



Info

- Protected against martens, rodents and termites

Benefits

- High-grade stainless steel wire braiding (class V4A) provides highly effective protection against martens, rodents and even termites
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire

Application range

- For use in PV systems that are installed on the roofs of stables or barns situated in farmsteads or densely-forested areas
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks

Product features

- Weather/UV-resistant acc. to HD 605/A1
- Halogen-free and flame-retardant
- Good mechanical strength

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: Black
- Armouring made of stainless V4A high-grade steel wire braiding

Technical data

	Classification ETIM 5.0 Class-ID: EC001578 ETIM 5.0 Class-Description: Flexible cable
	Core identification code Black
	Conductor stranding Fine wire according to VDE 0295, class 5/IEC 60228 class 5
	Minimum bending radius Fixed installation: 5 x outer diameter
	Nominal voltage AC U_0/U : 600/1000 V DC U_0/U : 900/1500 V Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)
	Test voltage AC 6500 V
	Temperature range Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR V4A stainless steel				
0025960	4.0	7	38.4	98
0025961	6.0	8	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 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

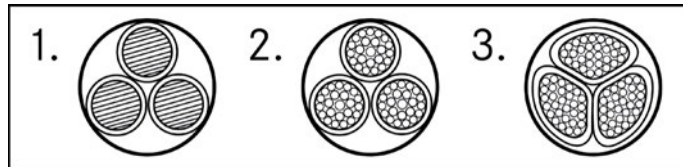
Packaging size: Coil 100 m; Drum (500; 1000) m

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



NY-Y-J, NY-Y-O

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



Info

- Standard cable for direct burial with different application areas
- 0,6/1,0 kV alternative to the PVC installation cable NYM

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 (for 1 to 5 cores)
- HD 627/VDE 0276-627 (as from 7 cores)

Product Make-up

- Bare copper wire conductor
- Abbreviations "re", "rm", "se", "sm":
r = round conductor form;
s = sectorial conductor form;
e = single-wire conductor;
m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data



Classification

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



Core identification code

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



Conductor stranding

Single or multi-wire



Minimum bending radius

Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter



Nominal voltage

U₀/U: 0.6/1.0 kV



Test voltage

4000 V



Protective conductor

J = with GN-YE protective conductor
O = without protective conductor



Temperature range

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

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
NY-Y-J				
1550030	1 x 25rm	13.0	240	380
1550038	1 x 35rm	14.0	336	447
1550032	1 x 50rm	15.0	480	650
1550033	1 x 70rm	17.0	672	864
1550037	1 x 185rm	25.0	1776	2080
15500013	3 x 1,5re	12.0	43	223
15500023	4 x 1,5re	13.0	58	256
15500033	5 x 1,5re	14.0	72	293
1550004	7 x 1,5re	15.0	101	360
1550005	10 x 1,5re	18.0	144	520
1550006	12 x 1,5re	19.0	173	560
1550084	14 x 1,5re	20.0	202	620
1550007	16 x 1,5re	21.0	230	680
1550008	19 x 1,5re	22.0	274	760

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1550009	24 x 1,5re	24.0	346	900
1550086	30 x 1,5re	26.0	432	1100
15500103	3 x 2,5re	13.0	72	272
15500113	4 x 2,5re	14.0	96	316
15500123	5 x 2,5re	15.0	120	323
1550013	7 x 2,5re	16.0	168	450
1550090	10 x 2,5re	20.0	240	630
1550091	12 x 2,5re	20.0	288	680
1550092	14 x 2,5re	21.0	336	790
1550094	19 x 2,5re	23.0	456	990
1550096	24 x 2,5re	26.0	576	1300
1550097	30 x 2,5re	28.0	720	1400
15500583	3 x 4re	15.0	115	373
15500203	4 x 4re	16.0	154	439
15500263	5 x 4re	17.0	192	510
15500593	3 x 6re	16.0	173	466
15500213	4 x 6re	17.0	230	547
15500273	5 x 6re	19.0	288	640
15500603	3 x 10re	18.0	288	629
15500223	4 x 10re	19.0	384	743
15500823	5 x 10re	21.0	480	899
15500613	3 x 16re	20.0	461	850
15500233	4 x 16re	22.0	614	1039
15500833	5 x 16re	23.0	768	1240
15500713	3 x 25rm/16re	25.0	874	1595
15500243	4 x 25rm	27.0	960	1620
15500153	3 x 35sm/16re	27.0	1162	1718
15500753	4 x 35sm	27.0	1344	1916
15500163	3 x 50sm/25rm	31.0	1680	2383
15500253	4 x 50sm	31.0	1920	2639
15500173	3 x 70sm/35sm	33.0	2352	3196
15500763	4 x 70sm	35.0	2688	3576
15500183	3 x 95sm/50sm	38.0	3216	4271
15500773	4 x 95sm	40.0	3648	4746
15500723	3 x 120sm/70sm	41.0	4128	5281
15500783	4 x 120sm	43.0	4608	5813
15500733	3 x 150sm/70sm	46.0	4992	6408
15500793	4 x 150sm	48.0	5760	7263
15500743	3 x 185sm/95sm	50.0	6240	7909
15500803	4 x 185sm	53.0	7104	8905
15500193	3 x 240sm/120sm	57.0	8064	10162
15500813	4 x 240sm	60.0	9216	11430
NY-Y-O				
1550205	1 x 10re	10.0	96	176
1550206	1 x 16re	11.0	154	239
1550207	1 x 25rm	13.0	240	380
1550208	1 x 35rm	14.0	336	447
1550209	1 x 50rm	15.0	480	650
1550210	1 x 70rm	17.0	672	864
1550211	1 x 95rm	19.0	912	1132
1550212	1 x 120rm	21.0	1152	1405
1550213	1 x 150rm	22.0	1440	1710
1550214	1 x 185rm	25.0	1776	2080
1550215	1 x 240rm	27.0	2304	2669
1550216	1 x 300rm	30.0	2880	3305
1550218	1 x 500rm	39.0	4800	5400
15502003	2 x 1,5re	11.0	29	210
15502193	2 x 2,5re	12.0	48	250
15502203	2 x 4re	14.0	77	360
15502213	2 x 6re	15.0	115	400
15502223	2 x 10re	17.0	192	500
15502533	4 x 16re	22.0	614	1039
15502543	4 x 25rm	27.0	960	1620
15502563	4 x 50sm	31.0	1920	2639
15502573	4 x 70sm	35.0	2688	3576
15502583	4 x 95sm	40.0	3648	4746

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

Copper price basis: excluding copper. Refer to catalogue appendix T 17 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 2016/17
- NYCWY refer to page 17
- NAYY-J refer to page 16

Accessories

- V 1311-A pressing pliers, hydraulic refer to main catalogue 2016/17
- STAR STRIP stripping tool refer to main catalogue 2016/17
- KT cable shears refer to main catalogue 2016/17
- PVL 1300 pressing pliers battery-operated refer to main catalogue 2016/17



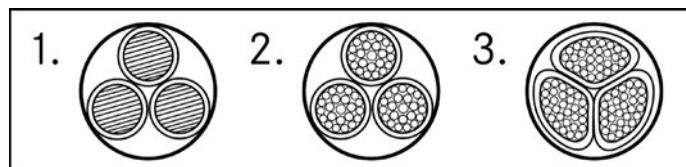
NAYY-J

Fixed installation, direct burial; PVC cable with solid aluminium conductors



Info

- With solid aluminium conductor



Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial
- 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

- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603

Product Make-up

- Aluminium conductor
- Abbreviations "re", "se":
r = round conductor form;
s = sectorial conductor form;
e = single-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data



Classification

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



Core identification code

According to VDE 0293-308 (table T9)



Conductor stranding

Single-wire



Minimum bending radius

Fixed installation: 12 x outer diameter



Nominal voltage

U₀/U: 0.6/1.0 kV



Test voltage

4000 V



Protective conductor

J = with GN-YE protective conductor



Temperature range

During installation: -5 °C to +50 °C
Fixed installation: -30 °C to +70 °C

Product features

- Flame-retardant according IEC 60332-1-2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm² according to HD 603/VDE 0276-603: Part 1 Appendix A.4.12 and Part 3-G point 4

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	29.0	406	1170
1552011	4 x 50se	30.0	580	1305
1552012	4 x 70se	35.0	812	1730
1552013	4 x 95se	39.0	1102	2205
1552014	4 x 120se	42.0	1392	2655
1552015	4 x 150se	46.0	1740	3150
1552016	4 x 185se	51.0	2146	3925
1552017	4 x 240se	60.0	2784	4880

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

Aluminium price basis: excludes aluminium. Refer to catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index".

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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

Similar products

- NYY-J, NYY-O refer to page 14

Accessories

- V 1311-A pressing pliers, hydraulic refer to main catalogue 2016/17
- STAR STRIP stripping tool refer to main catalogue 2016/17
- PVL 1300 pressing pliers battery-operated refer to main catalogue 2016/17
- Cable lugs and other connectors made of aluminium or bi-metal Al-Cu are available upon request



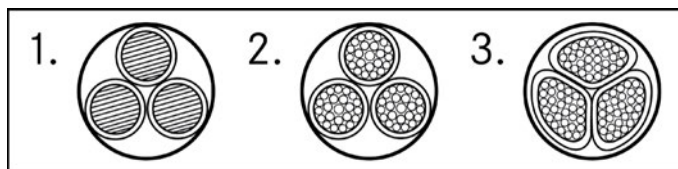
NYCWX

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral



Info

- With concentric, wave-like copper conductor



Benefits

- Concentric conductor above all as PE
- Easier connection due to the waveform of the concentric copper conductor

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

Product features

- Flame-retardant according IEC 60332-1-2

- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

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

Product Make-up

- Bare copper wire conductor
- Abbreviations "re", "rm", "se", "sm":
r = round conductor form;
s = sectorial conductor form;
e = single-wire conductor;
m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly

Technical data



Classification

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



Core identification code

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



Conductor stranding

Single or multi-wire



Minimum bending radius

Fixed installation: 12 x outer diameter



Nominal voltage

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

- Concentric, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
NYCWX				
15505003	2 x 10re/10	19.0	312	610
15505263	3 x 10re/10	20.0	408	775
15505403	4 x 10re/10	21.0	504	897
15505273	3 x 16re/16	22.0	643	1066
15505413	4 x 16re/16	24.0	796	1250
15505283	3 x 25rm/25	26.0	1003	1584
15505423	4 x 25rm/16	28.0	1142	1822
15505303	3 x 35sm/35	26.0	1402	1710
15505433	4 x 35sm/16	29.0	1526	2146
15505163	3 x 50sm/50	30.0	2000	2368
15505443	4 x 50sm/25	33.0	2203	3031
15505453	4 x 70sm/35	38.0	3082	4056
15505143	3 x 95sm/50	38.0	3296	4256
15505323	3 x 95sm/95	39.0	3791	4600
15505463	4 x 95sm/50	43.0	4208	5364
15505153	3 x 120sm/70	41.0	4236	5314
15505473	4 x 120sm/70	46.0	5388	6748
15505353	3 x 150sm/70	45.0	5100	6344
15505483	4 x 150sm/70	51.0	6540	8159
15505173	3 x 185sm/95	50.0	6383	8054

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

Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: www.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 14

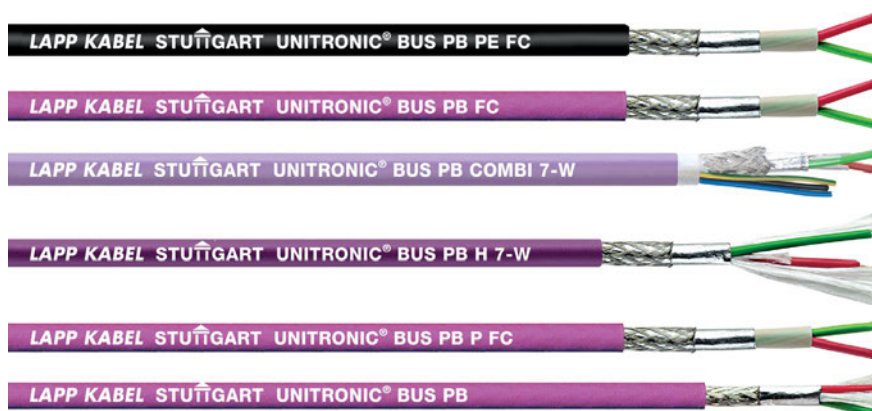
Accessories

- V 1311-A pressing pliers, hydraulic refer to main catalogue 2016/17
- KT cable shears refer to main catalogue 2016/17
- PVL 1300 pressing pliers battery-operated refer to main catalogue 2016/17



UNITRONIC® BUS PB

Fixed installation



Info

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA certifications

Application range

- For fixed installation
- Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

Product Make-up

- FC: "Fast Connect" cable design
- P: Polyurethane
- H: Halogen-free
- PE: polyethylene, black Outer sheath, e.g. for the food and beverage industry
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data



Classification

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable



Mutual capacitance

(800 Hz): max. 30 nF/km



Peak operating voltage

(not for power applications) 250 V



Conductor resistance

(loop): max. 186 Ohm/km.
see also datasheet



Minimum bending radius

Fixed installation: see data sheet



Test voltage

Core/core: 1500 V rms



Characteristic impedance

150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation - conventional cable assembly					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0,64 Ø + 3 x 1,0 mm²	9.8	59	92
For fixed installation - UL/CSA CMX certification					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8	30.1	57
For fixed installation - UL/CSA CMG certification					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8	30.1	55
For fixed installation - "Fast Connect" cable assembly					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8	26	67
For fixed installation - UL/CSA CMX certification					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8	26	71
For fixed installation - "Fast Connect" cable assembly - UL/CSA CMG certification					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8	26	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8	26	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8	26	72

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

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

Please find our standard lengths at: www.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).

SIMATIC NET® is a registered trademark of Siemens AG

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

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

Similar products

- UNITRONIC® BUS PB ROBUST refer to main catalogue 2016/17
- UNITRONIC® BUS PB 105 refer to main catalogue 2016/17

Accessories

- Sub-D Bus-Connectors refer to main catalogue 2016/17
- FC STRIP stripping tool refer to main catalogue 2016/17
- SENSOR STRIP stripping tool refer to main catalogue 2016/17



UNITRONIC® Li2YCYv (TP)

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



Info

- Cables for RS485/RS422

LAPP KABEL STUTTGART UNITRONIC® Li2YCYv (TP)



Benefits

- 7-wire stranded conductor (UNITRONIC® Li2YCY (TP) and UNITRONIC® Li2YCYv (TP) can be used for Maxi TERMI-POINT® wiring)
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable, for transmission of low, sensitive signals and high bit rates
- **UNITRONIC® Li2YCYv (TP)** with reinforced black outer sheath (Yv) is suitable for indoors and outdoors and provides enhanced appropriateness for direct burial in the ground

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)
- Wall thickness of the outer sheath is increased ("Yv")
- Outer sheath colour: black (RAL 9005)

Technical data

	Classification ETIM 5.0 Class-ID: EC000104 ETIM 5.0 Class-Description: Control cable
	Core identification code DIN 47100, refer to Appendix T9
	Mutual capacitance At 800 Hz: max. 60 nF/km
	Peak operating voltage (not for power applications) 250 V
	Inductivity approx. 0.65 mH/km
	Conductor stranding Stranded conductor, based on VDE 0881, 7-wire
	Minimum bending radius Occasional flexing: 15 x outer diameter Fixed installation: 6 x outer diameter
	Short-range crosstalk attenuation Up to 1 MHz min. 50 dB Up to 10 MHz min. 40 dB
	Test voltage Core/core: 2000 V Core/screen: 1000 V
	Characteristic impedance 100 ± 15 Ohm (> 1 MHz)
	Temperature range Occasional flexing: -5°C to +70°C Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial, 7-wire				
0031350	2 x 2 x 0,22	8.1	24.2	79
0031351	3 x 2 x 0,22	8.7	28.6	93
0031352	4 x 2 x 0,22	8.9	34.2	100
0031355	2 x 2 x 0,34	9.3	34.1	102
0031356	3 x 2 x 0,34	10	43	117
0031357	4 x 2 x 0,34	10.3	52.8	130
0031358	8 x 2 x 0,34	12.6	85.8	206
0031366	1 x 2 x 0,5	7.9	29	79
0031360	2 x 2 x 0,5	10.1	37	120
0031361	3 x 2 x 0,5	10.9	55	142
0031362	4 x 2 x 0,5	11.2	60	160
0031363	8 x 2 x 0,5	13.9	113.3	251
0031364	10 x 2 x 0,5	16	148	303

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

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

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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

Similar products

- UNITRONIC® BUS LD refer to main catalogue 2016/17

Accessories

- SKINTOP® MS-SC-M refer to main catalogue 2016/17
- SKINTOP® MS-HF-M SC refer to main catalogue 2016/17
- Multipurpose shears A and B refer to main catalogue 2016/17
- STAR STRIP stripping tool refer to main catalogue 2016/17
- STEEL GUN HT-338 cable tie pliers refer to main catalogue 2016/17
- LS steel cable ties refer to main catalogue 2016/17



UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092



Benefits

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

Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey / RAL 7001

Technical data



Classification

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



Core identification code

2 cores: black, transparent
3 cores: black, red, transparent



Mutual capacitance

C/C approx. 90 nF/km
C/S approx. 160 nF/km



Peak operating voltage

(not for power applications)
500 V



Inductivity

approx. 0.65 mH/km



Minimum bending radius

Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter



Test voltage

1500 V



Characteristic impedance

Approx. 95 Ohm



Temperature range

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

Article number	Number of conductors and AWG size	Conductor cross-section (mm²)	Core insulation material	Outer sheath material	Outer diameter (mm)	Copper index (kg/km)
UNITRONIC® ST						
0033000	2 x AWG 20/7	0.52	PE	PVC	5.2	17.2
0033001	3 x AWG 20/7	0.52	PE	PVC	5.3	23

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

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

Please find our standard lengths at: www.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 tool refer to page 33
- DATA STRIP stripping tool refer to main catalogue 2016/17

**EPIC® SOLAR 4L M**

Connector system for weatherproof cabling of photovoltaic systems

**Info**

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

EPIC® SOLAR 4L F

Connector system for weatherproof cabling of photovoltaic systems

**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
- Inclusive contacts
- Tested according EN 50521: 2008+A1
- TÜV Rheinland certified

Suitable cables

- H1Z2Z2-K Page 11
- ÖLFLEX® SOLAR XLWP Page 12
- ÖLFLEX® SOLAR XLS-R Page 10
- ÖLFLEX® SOLAR XLR-E refer to main catalogue 2016/17

Suitable tools

- EPIC® SOLAR TOOL Page 25

Technical data

	Classification ETIM 5.0 Class-ID: EC002635 ETIM 5.0 Class-Description: Circular connector (industrial connector)	Contact resistance < 0.5 mOhm
	Rated voltage (V) 1000 V DC	Protection rating IP 67
	Rated impulse voltage 8 kV	Cycle of mechanical operation 100
	Degree of soiling 3	Protection class II
		Temperature range -40°C ... +85°C

Suitable connectors**EPIC® SOLAR 4L M**

- EPIC® SOLAR 4Plus F Page 22
- EPIC® SOLAR 4L F Page 21
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- EPIC® SOLAR 4 Splitter Page 23
- EPIC® SOLAR 4 Built in socket Page 24
- EPIC® SOLAR 4 THIN F pre-assembled refer to main catalogue 2016/17

EPIC® SOLAR 4L F

- EPIC® SOLAR 4 Thin M pre-assembled refer to main catalogue 2016/17
- EPIC® SOLAR 4L M Page 21
- EPIC® SOLAR 4Plus M Page 22
- EPIC® SOLAR 4 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 Splitter Page 23
- EPIC® SOLAR 4 Built in socket Page 24

Article number	Article designation	Cross-section (mm²)	Clamping range in mm	Rated current (A)	PU
EPIC® SOLAR 4L male field-mountable, inclusive contacts					
44428251	EPIC® SOLAR 4L M 4mm² ... 6mm²	4.0 - 6.0	5.2 - 7.1	30	100
EPIC® SOLAR 4 male contacts as spare part					
44428219	EPIC® SOLAR 4 PIN M 4mm² ... 6mm²	4.0 - 6.0			100
EPIC® SOLAR 4L female field-mountable, inclusive contacts					
44428252	EPIC® SOLAR 4L F 4mm² ... 6mm²	4.0 - 6.0	5.2 - 7.1	30	100
EPIC® SOLAR 4 female contacts as spare part					
44428220	EPIC® SOLAR 4 PIN F 4mm² ... 6mm²	4.0 - 6.0			100

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



EPIC® SOLAR 4Plus M

Connector system for weatherproof cabling of photovoltaic systems



Info

- 4 mm connector system with double hook
- For photovoltaic plants up to 1.5kV system voltage
- Available 2017

EPIC® SOLAR 4Plus F

Connector system for weatherproof cabling of photovoltaic systems



Info

- 4 mm connector system with double hook
- For photovoltaic plants up to 1.5kV system voltage
- Available 2017

Benefits

- Low contact-resistance for efficient power transmission
- Crimp connection for field mounting
- Suitable for various ÖLFLEX® SOLAR cables
- Reliable connection, only possible to unlock with a tool, according to NEC standard

Application range

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

Product features

- 4 mm connector system with double hook
- 10mm² maximum crimp connection for high currents and long cables
- TÜV Rheinland: in preparation

Technical data

	Classification ETIM 5.0 Class-ID: EC002635 ETIM 5.0 Class-Description: Circular connector (industrial connector)
	Rated voltage (V) 1.5 kV
	Rated impulse voltage 16 kV
	Degree of soiling 3

	Contact resistance < 0.5 mOhm
	Protection rating IP68 (10h/1m)
	Cycle of mechanical operation 100
	Protection class II
	Temperature range -40°C ... +105°C

Suitable cables

- H1Z2Z2-K Page 11
- ÖLFLEX® SOLAR XLWP Page 12
- ÖLFLEX® SOLAR XLS-R Page 10
- ÖLFLEX® SOLAR XLR-E refer to main catalogue 2016/17

Suitable tools

- EPIC® SOLAR TOOL refer to main catalogue 2016/17

Suitable connectors

- EPIC® SOLAR 4 THIN
- EPIC® SOLAR 4L
- EPIC® SOLAR 4 Splitter
- EPIC® SOLAR 4 Built in socket

Article number	Article designation	Cross-section (mm²)	Clamping range in mm	Rated current (A)	PU
EPIC® SOLAR 4Plus male field-mountable, inclusive contacts					
44428233	EPIC® SOLAR 4Plus M 2.5mm²	2.5	4.8 - 6.0	22	100
44428235	EPIC® SOLAR 4Plus M 4mm² ... 6mm²	4 - 6	5.2 - 7.1	30	100
44428237	EPIC® SOLAR 4Plus M 10mm²	10	7.0 - 10.0	35	100
EPIC® SOLAR 4Plus male contacts as spare part					
44428217	EPIC® SOLAR 4Plus PIN M 2.5mm²	2.5			100
44428219	EPIC® SOLAR 4Plus PIN M 4mm² ... 6mm²	4.0 - 6.0			100
44428239	EPIC® SOLAR 4Plus PIN M 10mm²	10			100
EPIC® SOLAR 4Plus female field-mountable, inclusive contacts					
44428234	EPIC® SOLAR 4Plus F 2.5mm²	2.5	4.8 - 6.0	22	100
44428236	EPIC® SOLAR 4Plus F 4mm² ... 6mm²	4 - 6	5.2 - 7.1	30	100
44428238	EPIC® SOLAR 4Plus F 10mm²	10	7.0 - 10.0	35	100
EPIC® SOLAR 4Plus female contacts as spare part					
44428218	EPIC® SOLAR 4Plus PIN F 2.5mm²	2.5			100
44428220	EPIC® SOLAR 4Plus PIN F 4mm² ... 6mm²	4.0 - 6.0			100
44428240	EPIC® SOLAR 4Plus PIN F 10mm²	10			100

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



EPIC® SOLAR 4 Splitter

Connector system for weatherproof cabling of photovoltaic systems



Info

- 4 mm connector system with double hook
- Splitter for parallel connection of photovoltaic modules

Benefits

- Splitter for parallel connection of PV-modules and strings
- Easy plug and play
- Fixing option for a clear installation with a Ø 5mm mounting hole

Application range

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

Product features

- Mateable with EPIC® SOLAR 4 THIN, EPIC® SOLAR 4PLUS,
- EPIC® SOLAR 4L
- Splitter MFF 1x connection male, 2x connection female
- Splitter MFF 1x connection female, 2x connection male

Suitable connectors

- EPIC® SOLAR 4L
- EPIC® SOLAR 4 THIN
- EPIC® SOLAR 4Plus
- EPIC® SOLAR 4 Built in socket



Technical data



Classification

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)



Rated voltage (V)

1000 V AC/DC

Rated impulse voltage

8 kV



Rated current (A)

30 A



Degree of soiling

3



Protection rating

IP65/IP67



Cycle of mechanical operation

100

Protection class

II



Temperature range

-40 °C ... +85 °C

Article number	Article designation	PU
EPIC® SOLAR 4 Splitter		
44428226	EPIC® SOLAR 4 Splitter MFF	25
44428227	EPIC® SOLAR 4 Splitter FMM	25

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

EPIC® Industrial connectors

Solar connectors • EPIC® SOLAR 4



EPIC® SOLAR 4 Built in socket

Connector system for weatherproof cabling of photovoltaic systems



Benefits

- Built in fitting for inverters, PV string circuit breakers and fuse boxes

Application range

- Photovoltaic plants
- Inverters
- PV string circuit breakers

Product features

- PV panel connector to be screwed in directly or fastening with the included plastic locknut
- Internal plug connector diameter 2.5mm, flush connector pin
- Installation hole: drilling diameter 12mm
- Other types of connection on request

Suitable connectors

- EPIC® SOLAR 4L
- EPIC® SOLAR 4 THIN
- EPIC® SOLAR 4Plus
- EPIC® SOLAR 4 Splitter



Info

- 4 mm connector system with double hook
- Built in socket for use in inverters

Technical data



Classification

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)



Rated voltage (V)

1000 V AC/DC

Rated impulse voltage

8 kV



Rated current (A)

30 A



Degree of soiling

3

Contact resistance

< 0.5 mOhm



Protection rating

IP 67



Cycle of mechanical operation

100

Protection class

II



Temperature range

-40°C ... +105°C

Article number	Article designation	PU
EPIC® SOLAR 4 built in socket with counter nut		
44428222	EPIC® SOLAR 4 AD M Pin 2.5	100
44428223	EPIC® SOLAR 4 AD F Pin 2.5	100

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

EPIC® CRIMPTOOL

For inserts and modules of the EPIC® rectangular connectors

**EPIC® SOLAR TOOL CSC**

Cutting, stripping and crimping with just one tool

**EPIC® SOLAR TOOL**

3 cross section in one tool

**Info**

- Cutting, stripping and crimping with just one tool

**Info**

- 3 cross section in one tool

Application range**EPIC® SOLAR TOOL CSC**

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

EPIC® SOLAR TOOL

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

Product features**EPIC® SOLAR TOOL CSC**

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

EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2.5mm², 4mm² and 6mm²
- Locator for the safe and accurate positioning of the crimping contacts

Suitable cables**EPIC® SOLAR TOOL CSC**

- H1Z2Z2-K Page 11
- ÖLFLEX® SOLAR XLWP Page 12
- ÖLFLEX® SOLAR XLS-R Page 10
- ÖLFLEX® SOLAR XLR-E refer to main catalogue 2016/17

EPIC® SOLAR TOOL

- H1Z2Z2-K Page 11
- ÖLFLEX® SOLAR XLWP Page 12
- ÖLFLEX® SOLAR XLS-R Page 10
- ÖLFLEX® SOLAR XLR-E refer to main catalogue 2016/17

Suitable connectors**EPIC® SOLAR TOOL CSC**

- EPIC® SOLAR 4

EPIC® SOLAR TOOL

- EPIC® SOLAR 4

Technical data**Classification**

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Cross-section (min) in mm²	Cross-section (max) in mm²	Version	Note	PU
Tools						
11147000	Crimping tool			In tool case	without crimping dies, without locator	1
Multi-functional die CSC						
44428992	EPIC® SOLAR TOOL CSC DIE 4mm²		4			1
44428993	EPIC® SOLAR Tool CSC DIE 6mm²		6			1
44428994	EPIC® SOLAR TOOL LOC 4, 6mm²	4	6			1
Crimping die						
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6mm²	2.5	6			1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6mm²	2.5	6			1

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



SKINTOP® ST-M / SKINTOP® STR-M



SKINTOP® ST-M



SKINTOP® STR-M

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)

Application range

SKINTOP® ST-M

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and shipyards

SKINTOP® STR-M

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

Norm references / Approvals

- UL File Nr. E79903
- GGVS: TÜ.EGG.020-95

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Note

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® ST(R) M ISO types have an extra-long connection thread
- SKINTOP® ST(R) M ISO versions with extra-long connection thread, see table, no DNV approval

Suitable cables

SKINTOP® STR-M

- The following cables are recommended for IP 69 applications:
ÖLFLEX® ROBUST 200
H07RN8-F
H07RN-F

Suitable tools

SKINTOP® ST-M

- SKINTOP® LOCATOR refer to main catalogue 2016/17
- SKINMATIC® QUICK Set 1 refer to main catalogue 2016/17
- SKINMATIC® RZ refer to main catalogue 2016/17
- SKINMATIC® MH Set refer to main catalogue 2016/17

Info

- Now with IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Technical data



Classification

ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland



Caution

SKINTOP® ST-M

Refer to Appendix T21 for the installation dimensions and torques
Size M 40 x 1,5 up to M 63 x 1,5 with O-ring

SKINTOP® STR-M

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



Temperature range

Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size 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	100
53111010	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111020	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111030	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111040	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111050	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111060	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111070	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M black						
53111200	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111210	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111220	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111230	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111240	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111250	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111260	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111270	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M light grey						
53111400	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111410	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111420	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111430	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111440	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111450	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111460	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111470	ST-M 63 x 1,5	34-45	66	71.0	12	5

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
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	100
53017030	ST M 20 x 1,5	5-12	24	45.0	13	100
53017040	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53010000	ST-M 12 x 1,5	3,5-7	15	36.7	15	100
53017210	ST M 16 x 1,5	3,5-8	19	40.0	12	100
53017230	ST M 20 x 1,5	5-12	24	45.0	13	100
53017240	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® STR-M silver grey						
53111100	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111110	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111120	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111130	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111140	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111150	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111160	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111170	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M black						
53111300	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111310	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111320	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111330	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111340	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111350	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111360	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111370	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M light grey						
53111500	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111510	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111520	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111530	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111540	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111550	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111560	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111570	STR-M 63 x 1,5	28-39	66	71.0	12	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	100
53017130	STR M 20 x 1,5	4-9	24	45.0	13	100
53017140	STR M 25 x 1,5	6-12	27	47.0	13	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	STR M 16 x 1,5	2-6	19	40.0	12	100
53017330	STR M 20 x 1,5	4-9	24	45.0	13	100
53017340	STR M 25 x 1,5	6-12	27	47.0	13	50

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

Accessories

SKINTOP® ST-M

- SKINTOP® DIX-M refer to main catalogue 2016/17
- SKINTOP® GMP-GL-M refer to main catalogue 2016/17
- SKINTOP® DIX-M AUTOMATION refer to main catalogue 2016/17
- SKINTOP® SDV-M ATEX refer to main catalogue 2016/17
- SKINTOP® SD-M refer to main catalogue 2016/17
- SKINTOP® DV-M refer to main catalogue 2016/17

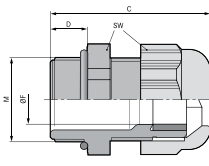
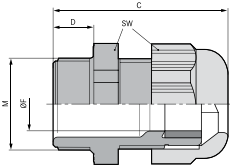
SKINTOP® STR-M

- SKINTOP® GMP-GL-M refer to main catalogue 2016/17
- SKINTOP® SDVR-M ATEX refer to main catalogue 2016/17
- SKINTOP® SD-M refer to main catalogue 2016/17

SKINTOP® metric plastic cable glands • SKINTOP® for photovoltaics

**SKINTOP® SOLAR / SKINTOP® SOLAR plus**

SKINTOP® for photovoltaics

**SKINTOP® SOLAR****SKINTOP® SOLAR plus****Benefits**

- UV and ozone-resistant
- UL 746 C - UL F1 outdoor use
- High strain relief
- Permanent vibration protection
- Extremely flame-retardant according to UL 94V-0 / 94-5VA

Application range

- Photovoltaic plants and solar parks

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Note**SKINTOP® SOLAR plus**

- Counter nut to be used: SKINDICHT® SM-M
- Counter nut to be used: SKINTOP® GMP-GL-M

Suitable cables

- ÖLFLEX® SOLAR

Suitable tools

- SKINMATIC® RZ
- SKINMATIC® QUICK SET 1

**Info**

- Cable gland for photovoltaic applications, based on EN 50262, EN 50548 and UL 1703.
- Extended temperature range

Technical data**Classification**

ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

**Caution**

Refer to Appendix T21 for the installation dimensions and torques

**Colour delivered**

RAL 9005 black/UV-resistant

**Material****SKINTOP® SOLAR**

Body: Polycarbonate

Seal: CR

SKINTOP® SOLAR plus

Body: Polycarbonate

Seal: Silicone

O-Ring: Silicone

Tests

Cold impact test according to UL 1703/UL 746 C

**Protection rating**

IP 68 - 5 bar

**Temperature range****SKINTOP® SOLAR**

-40°C to +100°C

SKINTOP® SOLAR plus

-40°C to +125°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® SOLAR						
53113300	SOLAR M12x1,5	3,5-7	15	36.0	15	100
53113310	SOLAR M16x1,5	7-9	19	34.0	8	100
SKINTOP® SOLAR plus						
53113321	SOLAR plus M12x1,5	3,5-7	15	36.0	15	100
53113331	SOLAR plus M16x1,5	7-9	19	34.0	8	100

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

Accessories**SKINTOP® SOLAR**

- SKINTOP® GMP-GL-M refer to main catalogue 2016/17



SILVYN® SPLIT



Info

- New sizes are available



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-free (PA6)
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Very good UV- and Weathering performance (SILVYN® SPLIT PP UV)

Product Make-up

- Divisible corrugated conduit

Technical data



Classification

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description:
Corrugated plastic hose



Colour delivered

Black (RAL 9005), UV-resistant



Material

Polyamide 6 (PA6)
Polypropylene (PP)



Protection rating

IP 43 with SILVYN® SPLIT COV



Temperature range

PA6 : -40°C to +120°C
PP : -40°C to +135°C
PP UV: -40°C to +105°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® COV	PU (m)
SILVYN® SPLIT PA6					
61806621	6	6.3 x 10.0	15		50
61806620	10	8.4 x 13.4	15	M 16/PG9	50
61806631	11	11.0 x 16.1	15		50
61806630	14	12.5 x 18.5	15	M 20/PG13,5	50
61806641	16	16.0 x 21.5	20		50
61806640	20	19.2 x 25.3	25	M 25/PG21	50
61806650	23	23.4 x 30.8	35	M 32/PG29	50
61806651	29	27.3 x 35.5	35		50
61806660	37	31.0 x 41.4	40	M 40/PG29	25
61806670	45	42.7 x 54.0	70	M 50	25
61806671	70	67.5 x 79.8	95		10
61806672	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP					
61806615	6	6.3 x 10.0	15		50
61806625	10	8.4 x 13.4	15	M 16/PG9	50
61806616	11	11.0 x 16.1	15		50
61806635	14	12.5 x 18.5	15	M 20/PG13,5	50
61806617	16	16.0 x 21.5	20		50
61806645	20	19.2 x 25.3	20	M 25/PG21	50
61806655	23	23.4 x 30.8	45	M 32/PG29	50
61806618	29	27.3 x 35.5	50		50
61806665	37	31.0 x 41.4	60	M 40/PG29	25
61806675	45	42.7 x 54.0	75	M 50	25
61806619	70	67.5 x 79.8	95		10
61806622	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP UV					
61806100	6	6.3 x 10.0	15		50
61806110	10	8.4 x 13.4	15	M 16/PG9	50
61806120	11	11.0 x 16.1	15		50
61806130	14	12.5 x 18.5	15	M 20/PG13,5	50
61806140	16	16.0 x 21.5	20		50
61806150	20	19.2 x 25.3	20	M 25/PG21	50
61806160	23	23.4 x 30.8	45	M 32/PG29	50
61806170	29	27.3 x 35.5	50		50
61806180	37	31.0 x 41.4	60	M 40/PG29	25
61806190	45	42.7 x 54.0	75	M 50	25
61806200	70	67.5 x 79.8	95		10
61806210	100	87.5 x 102.5	100		10

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

Similar products

- SILVYN® SINUS refer to main catalogue 2016/17

Accessories

- SILVYN® SPLIT COV refer to page 30
- SILVYN® SPLIT GMP-M refer to page 30
- SILVYN® SPLIT COS refer to page 30
- Spare tool Cable - Eater refer to main catalogue 2016/17



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



SILVYN® SPLIT COV



SILVYN® SPLIT GMP-M



SILVYN® SPLIT COS

Benefits

SILVYN® SPLIT COV

- Fast and easy assembly
- Subsequent mountable conduit insertion

SILVYN® SPLIT GMP-M

- Fast assembly
- Easy to disassemble

SILVYN® SPLIT COS

- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

Application range

SILVYN® SPLIT COV

- In combination with protective conduit:
- SILVYN® SPLIT
- Mechanical engineering

- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

SILVYN® SPLIT COS

- In combination with protective conduit:
- SILVYN® SPLIT
- Fastening of conduits on machine walls for all applications

Product features

SILVYN® SPLIT COV

- Included: divisible counter nut

SILVYN® SPLIT COS

- One-piece conduit holder

Note

- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® SPLIT Page 29

Technical data



Classification

SILVYN® SPLIT COV

ETIM 5.0 Class-ID: EC001176
ETIM 5.0 Class-Description: Screw connection for corrugated plastic hose

SILVYN® SPLIT GMP-M

ETIM 5.0 Class-ID: EC001176
ETIM 5.0 Class-Description: Screw connection for corrugated plastic hose

SILVYN® SPLIT COS

ETIM 5.0 Class-ID: EC001171
ETIM 5.0 Class-Description: Holder for protective hose



Colour delivered

Black (RAL 9005), UV-resistant



Material

Halogen-free PA



Temperature range

-40 °C to +120 °C

Article number	Nominal size	Metric size	PG size	Hole Ø (mm)	Suitable for SILVYN® SPLIT	Pieces / PU
SILVYN® SPLIT COV (counter nut included)						
61806760			9		10	100
61806770			13.5		14	100
61806780			21		20	50
61806790			29		23	50
61806800			29		37	25
SILVYN® SPLIT COV-M (counter nut not included)						
61806680		16 x 1.5			10	100
61806681		20 x 1.5			14	100
61806682		25 x 1.5			20	50
61806683		32 x 1.5			23	50
61806684		40 x 1.5			37	25
61806685		50 x 1.5			45	25
SILVYN® SPLIT GMP-M (metric counter nut)						
61806686		16 x 1.5				100
61806687		20 x 1.5				100
61806688		25 x 1.5				50
61806689		32 x 1.5				50
61806691		40 x 1.5				25
61806692		50 x 1.5				25
SILVYN® SPLIT COS						
61806693	6			M3	6	100
61806690	10			M3	10	100
61806676	10			M5	10	100
61806694	11			M3	11	100
61806700	14			M3	14	100
61806677	14			M5	14	50
61806695	16			M5	16	50
61806696	16			M6	16	50
61806710	20			M5	20	50
61806678	20			M6	20	50
61806720	23			M5	23	50
61806679	23			M6	23	50
61806697	29			M5	29	50
61806698	29			M6	29	50
61806730	37			M6	37	20
61806740	45			M6	45	20
61806699	70			M6	70	10

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



SILVYN® RILL PA 6



Info

- Maximum safety in the event of a fire

Benefits

- Dimensionally stable
- Flexible
- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Crush-resistant
- Lightweight

Application range

- Mechanical engineering
- Public utilities
- Railway applications / vehicle construction
- Moving applications
- Outdoor application (in black)

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- UV and weather-resistant in black

Technical data



Classification

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description:
Corrugated plastic hose



Certifications

IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
Rail:
DB DIN 5510 Part 2 (S4/SR2/ST2)
EN 45545-2 (HL-3)
SNCF NFF 16 101 / 102 (I2/F2)
UNDERGROUND BS 6853



Colour delivered

Grey (RAL 7031)
Black (RAL 9011), UV-resistant



Material

PA 6
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0



Temperature range

-40°C to +115°C
short-term +150°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® KCLICK-M/90°M	Suitable for SILVYN® KCLICK PG/90°PG	Suitable for SILVYN® KCLICK-GPZ-M/GPZ	PU (m)
SILVYN® RILL PA 6 grey							
61746939	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746940	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61746950	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61747010	18	14.3 x 18.5	40		13,5	-/13,5	50
61746960	21	16.5 x 21.2	45	20 x 1,5	16	25x1,5/16	50
61746970	28	23.0 x 28.5	55	25 x 1,5	21	32x1,5/21	50
61746980	34	29.0 x 34.5	65	32 x 1,5	29	40x1,5/29	25
61746990	42	36.0 x 42.5	90	40 x 1,5	36	50x1,5/36	25
61747000	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25
SILVYN® RILL PA 6 black							
61746935	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746945	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61746955	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61747015	18	14.3 x 18.5	40		13,5	-/13,5	50
61746965	21	16.5 x 21.2	45	20 x 1,5	16	25x1,5/16	50
61746975	28	23.0 x 28.5	55	25 x 1,5	21	32x1,5/21	50
61746985	34	29.0 x 34.5	65	32 x 1,5	29	40x1,5/29	25
61746995	42	36.0 x 42.5	90	40 x 1,5	36	50x1,5/36	25
61747005	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25

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

Similar products

- SILVYN® FPAS refer to main catalogue 2016/17
- SILVYN® RILL PA 12 refer to main catalogue 2016/17

Accessories

- SILVYN® KCLICK-M refer to main catalogue 2016/17
- SILVYN® KCLICK 90° M refer to main catalogue 2016/17
- SILVYN® KCLICK GPZ-M refer to main catalogue 2016/17
- SILVYN® KSE refer to main catalogue 2016/17
- SILVYN® KCLICK PG refer to main catalogue 2016/17
- SILVYN® KCLICK 90° PG refer to main catalogue 2016/17
- SILVYN® KCLICK-GPZ refer to main catalogue 2016/17
- SILVYN® KCLICK-Y refer to main catalogue 2016/17
- SILVYN® KCLICK-RH refer to main catalogue 2016/17
- SILVYN® K-EM refer to main catalogue 2016/17



UV-stabilised cable ties with steel nose



Benefits

- Weather-resistant for harsh environmental conditions
- Contain 2 % Carbon to meet military specifications
- Steel nose ensures secure and durable binding
- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations

Application range

- Used for outdoor installation and maintenance of power plants

Product features

- Strong Tie with higher pull-out forces

Norm references / Approvals

- File Number TY-RAP®: E49405
- Fire behaviour according to UL94 V-2

Included

- Strong Tie and TY-X: Packed in a recyclable plastic bag



Info

- Convince yourself of the good price/performance ratio of the new Strong Tie series.

Technical data



Classification

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie



Colour delivered

RAL 9005 black/UV-resistant



Material

Polyamide 6.6
Halogen-free and silicone-free



Temperature range

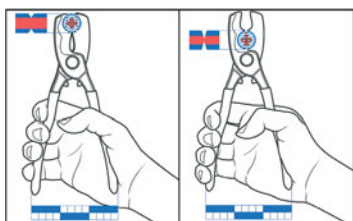
-40°C to +85°C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Cable ties with steel nose- type Strong Tie						
61723001	Strong Tie UV 100x2,5 BK	no	100.0 x 2.5	2.0 - 24.0	180	1000
61723007	Strong Tie UV 200 x 2,5 BK	no	200.0 x 2.5	3.0 - 55.0	180	1000
61723002	Strong Tie UV 140 x 3,5 BK	no	140.0 x 3.5	3.0 - 36.0	280	1000
61723008	Strong Tie UV 200 x 3,5 BK	no	200.0 x 3.5	3.0 - 55.0	280	1000
61723004	Strong Tie UV 280 x 3,5 BK	no	280.0 x 3.5	3.0 - 80.0	280	1000
61723009	Strong Tie UV 360 x 3,5 BK	no	360.0 x 3.5	3.0 - 101.0	280	1000
61723003	Strong Tie UV 186 x 4,5 BK	no	186.0 x 4.5	3.0 - 51.0	400	1000
61723011	Strong Tie UV 290 x 4,5 BK	no	290.0 x 4.5	3.0 - 80.0	400	1000
61723006	Strong Tie UV 360 x 4,5 BK	no	360.0 x 4.5	3.0 - 103.0	400	1000
61723005	Strong Tie UV 340 x 7,0 BK	no	340.0 x 7.0	6.0 - 90.0	700	500
61723012	Strong Tie UV 220 x 7,5 BK	no	220.0 x 7.5	6.0 - 57.0	800	500
Cable ties with steel nose- type TY-RAP®						
61723010	TYB* 23 MX	no	92.0 x 2.3	2.0 - 16.0	80	1000
61723110	TY 232 MX	no	203.0 x 2.3	2.0 - 50.0	80	1000
61723120	TY 234 MX	no	356.0 x 2.3	2.0 - 102.0	80	1000
61723020	TYB* 24 MX	no	140.0 x 3.6	2.0 - 29.0	180	1000
61723130	TY 242 MX	yes	208.0 x 3.6	2.0 - 50.0	180	1000
61723040	TY 26 MX	yes	284.0 x 3.6	2.0 - 76.0	180	1000
61723140	TY 244 MX	no	368.0 x 3.6	2.0 - 103.0	180	1000
61723030	TYB* 25 MX	no	186.0 x 4.8	3.5 - 45.0	220	1000
61723150	TY 253 MX	no	290.0 x 4.8	3.5 - 78.0	220	1000
61723060	TY 28 MX	yes	361.0 x 4.8	3.5 - 102.0	220	1000
61723160	TY 272 MX	no	223.0 x 6.9	6.0 - 50.0	540	500
61723050	TY 27 MX	yes	340.0 x 7.0	6.0 - 90.0	540	500
61723070	TY 29 MX	no	771.0 x 6.9	6.0 - 229.0	540	500

TY-RAP® is a registered trademark of ABB.

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

KS 20 cable shears

**Benefits**

- Less force required due to favourable transmission ratio and new blade geometry
- High ergonomics thanks to multi-component-handles
- Particular two-blades-system (see drawings)
- Cutting with precision grinding
- Easy and clean cut by using only one hand

Application range

- Cuts copper and aluminium cables with up to 20 mm outer diameter
- Not suitable for steel wire and hard-drawn copper conductors

Product features

- Material: special tool steel, forged, burnished head
- Made in Germany

Technical data**Classification**

ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
KS 20 cable shears					
62120045	KS 20	20	0.3	200	1

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

UNIVERSAL STRIP stripping tool

Benefits

- No pinching or deforming of cable ends thanks to a special cutting mode
- Interchangeable blades for different cable cross sections
- For use with a great variety of insulation with differing hardness and dimension
- Automatic release after operation

Technical data**Classification**

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 Class-Description: Cable stripping tool

**Colour delivered**

Orange

**Application range**

- Universal stripping pliers with interchangeable stripping blades for special applications
- Suitable for fluoropolymer & PVC cores, AS-I, Solar, POF cables
- For stripping of sheath and insulation from all single wires and multi-wire cables from 0.03 to 16 mm² (Please check the application range of each blade)

Product features

- Design: chrome-plated with plastic handle cover

Included

- Tool and blades could be ordered separately or in a set, where the tool and one blade is included (but please note that the blade is not already assembled in the tool)
- Tool is always delivered with a length stop

Article number	Article designation	For mm ²	For insulation	Length (mm)	Weight (kg)	Pieces / PU
Tool without blades						
21920005	Universal Strip without stripping knife			194	0.41	1
Interchangeable blade						
21920009	Blade DIN single cores	0.14 - 6	PVC			1
21920122	Solar stripping knife	1.5 - 6				1
21920126	POF 1, 2, 4-wire stripping knife		PVC/PUR			1
21920006	Fluoropolymer stripping knife	0.03 - 2	Fluoropolymer			1
21920004	Fluoropolymer stripping knife	2.5 - 10	Fluoropolymer			1
21920008	Fluoropolymer stripping knife	16	Fluoropolymer			1
21920135	AS I stripping knife		rubber/TPE/PVC			1
Complete tool (incl. assembled blade)						
21920141	Universal Strip DIN single wires	0.14 - 6	PVC			1
21920125	Universal Strip POF 1, 2, 4-wire		PVC/PUR			1
21920129	Universal Strip Fluoropolymer 0,03-2,08	0.03 - 2.08	Fluoropolymer			1
21920130	Universal Strip Fluoropolymer 2,5-10 mm ²	2.5 - 10	Fluoropolymer			1
21920131	Universal Strip Fluoropolymer 16	16	Fluoropolymer			1
21920140	Universal Strip AS-I		rubber/TPE/PVC			1
21920120	Universal Strip Solar	1.5 - 6				1

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

Short manual is included- manuals could be also downloaded here: <http://www.lappkabel.com/instructions.html>

Accessories

- Additional blades are available upon request

Not afraid of the water

ÖLFLEX® SOLAR XLR WP – the first permanently waterproof solar cable from Lapp

It is increasingly the case that users want to make use of areas in damp as well as dry surroundings for the installation of photovoltaic systems. Until now, it was not possible to achieve this without special protective measures when using regular photovoltaic cables. This is because when these cables are exposed to the wet for extended periods, there may be an ingress of moisture into the cable. This leads to a reduction in the insulation resistance, which may in turn cause malfunctions and damage to the solar units. The Stuttgart-based Lapp Group has developed the

ÖLFLEX® SOLAR XLR WP, the first permanently waterproof solar cable. The cable in question is an electron beam cross-linked solar cable of type PV1-F in accordance with TÜV 2PFG 1169/08.07 for durable, weather-resistant use in photovoltaic systems. Its optimised cable design and the constantly high contact resistance mean that it will still function reliably even after years in the water. The ÖLFLEX® SOLAR XLR WP guarantees continuous system performance – particularly in areas which are prone to flooding, or where cables are installed underground in protective conduits where water, heat and moisture can accumulate.

JJ-Lapp Cable, a joint venture company from Lapp Group and Jepsen & Jessen,

initially put the new waterproof cable ÖLFLEX® SOLAR XLR WP through its paces in a testing facility in Thailand. In order to ensure the performance of the cable, Lapp experts performed on-site insulation resistance measurements every three months over the course of a year. The measured values remained constant at 11 gigaohm on each occasion. „The new waterproof cable is the perfect solution for solar units in areas at high risk of flooding“, explains Vorada Serios, Sales Engineer at JJ-Lapp.

The new waterproof solar cable saw its first major use in Kanchanaburi Province in Thailand, where 192,000 metres of ÖLFLEX® SOLAR XLR WP were installed by Ensys Co. Ltd. The operator and principal of the 18 MWp solar unit is Conservation



Bernd Leushake and Vorada Serios show the waterproof solar cable, which is aimed above all at areas at risk of flooding.



An employee installs the waterproof solar cable.



The 18 MWp solar unit in Kanchanaburi Province.

of Energy Co. Ltd. A total of 500 kilometres of these waterproof solar cables have already been sold in Thailand. The cable is also currently in the process of certification according to the new DIN standard EN 50618, which describes cables for increased requirements relating to the operating voltage of 1.5 kV.

The ÖLFLEX® SOLAR XLR WP was produced in the Lapp Korea factory, where the first in-house electron beam cross-linking unit was commissioned two years ago. In the electron beam cross-linking process,

the energy of the radiation used is absorbed in the plastic and forms so-called 'radicals'. These react chemically with one another and create a connection between the chains of molecules, which leads to improvements in the mechanical and chemical properties. Using this technology, normal plastics such as polyethylene or polyamide are converted into high-performance polymers in the blink of an eye. These materials feature far superior dimensional stability under heat at higher usage temperatures, improved wear and abrasion resistance, better recovery properties, and

greater resistance to solvents and cleaning agents or other operating media. Electron beam cross-linked cables are ideal for use in photovoltaics, rail transport, shipping and exceptionally hot environments.

Nice to know:

The design of the „WP“-version is also used for our new product ÖLFLEX® SOLAR XLWP which is certified according to the new standard EN 50618 (type H1Z2Z2-K).

Notes

Reach us around the world

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

please visit

www.lappgroup.com/worldwide

Enter the world
of Lapp:



Our apps are available from
the following stores:



The following applies for the use of our products

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

The safety of our products is closely associated with how they are used. A knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are

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

Processing is only to be done by an authorised electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!

Safety

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and

the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables will apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation

guidelines, are contained in the tables in the appendix to this catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

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ÖLFLEX®
Power and control cables



UNITRONIC®
Data communication systems



ETHERLINE®
Data communication systems
for ETHERNET technology



HITRONIC®
Optical transmission systems



EPIC®
Industrial connectors



SKINTOP®
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Protective cable conduit systems
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