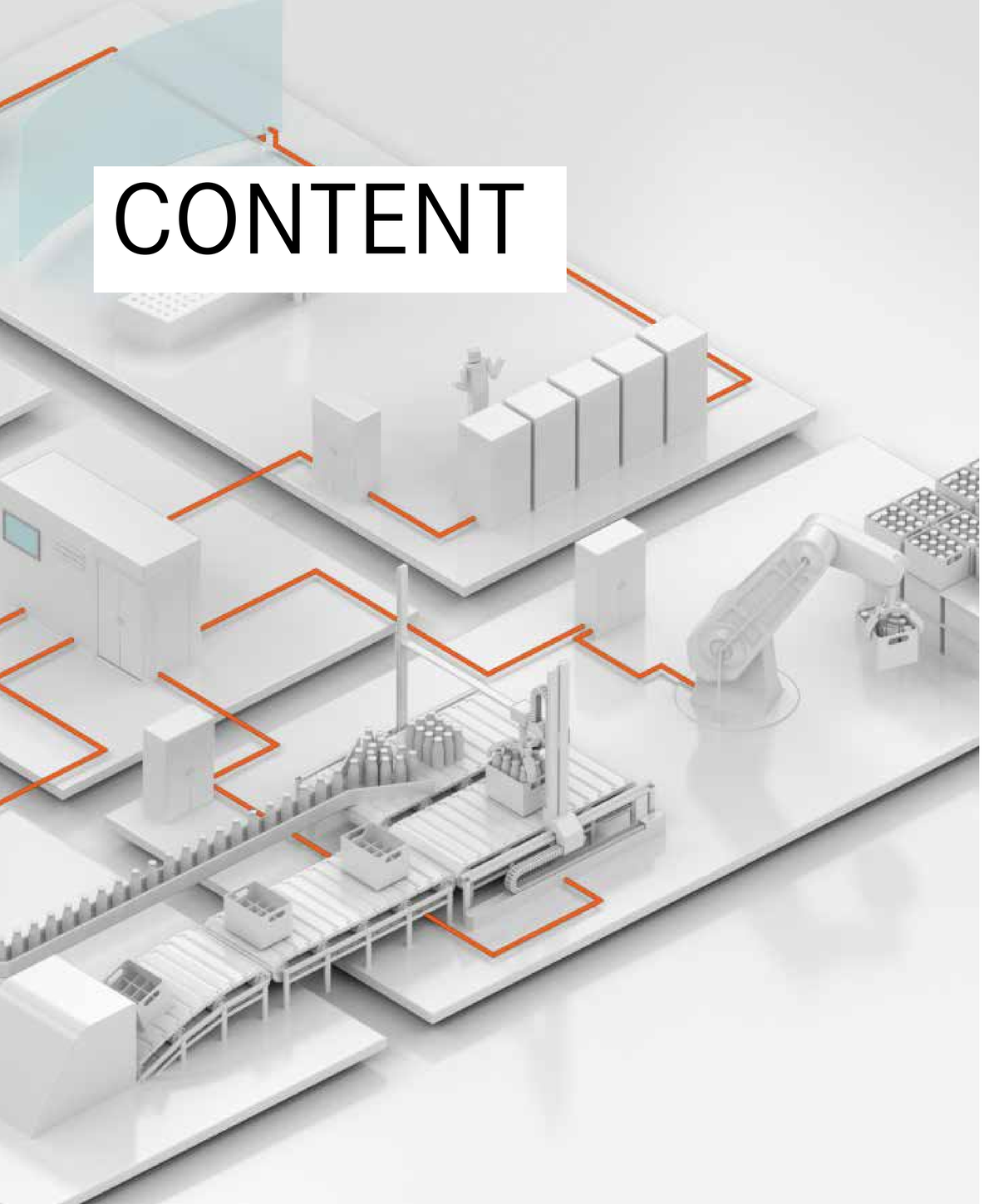
Webguide

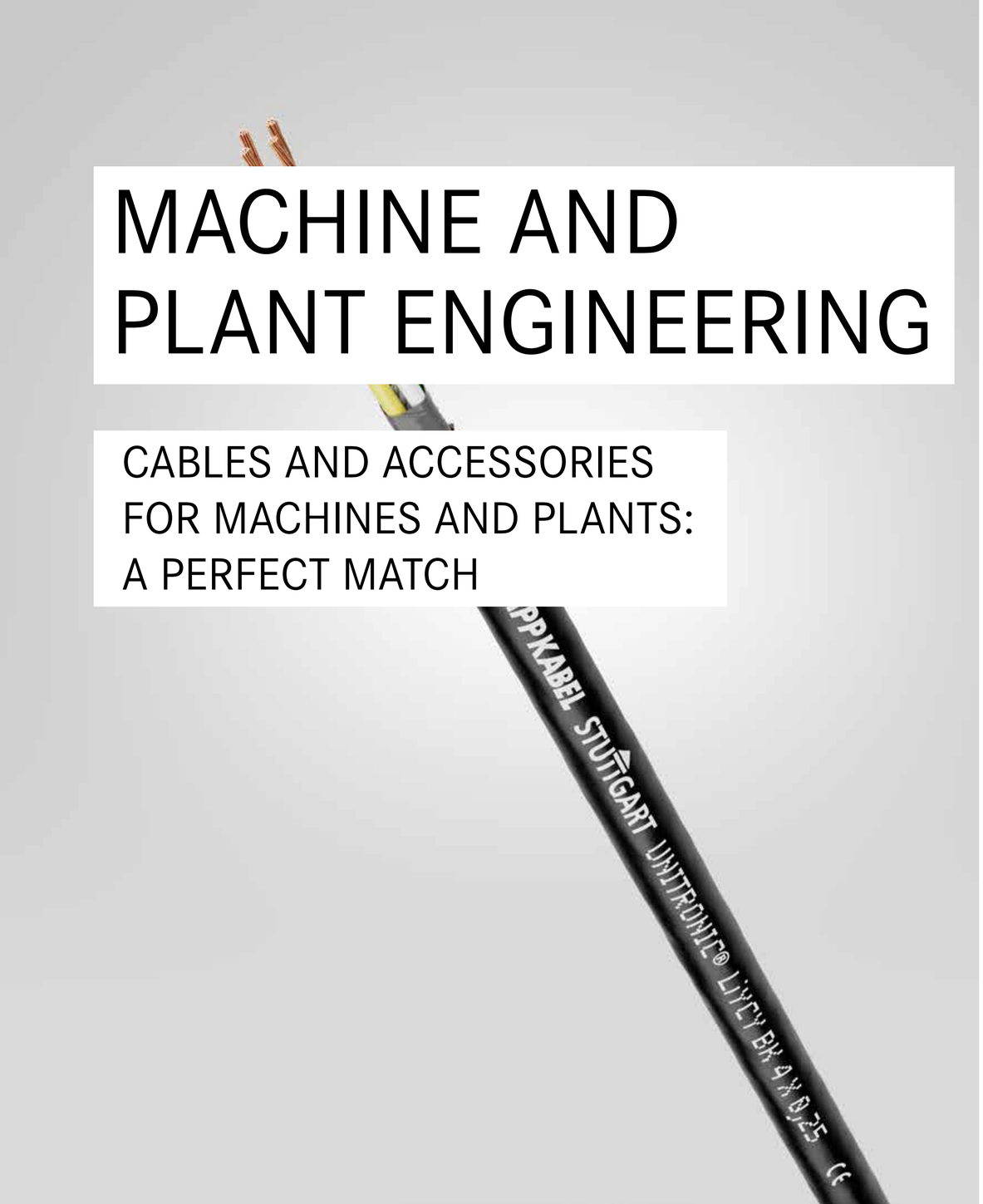
New Products Spring 2021



CONTENT

MACHINE AND PLANT ENGINEERING

CABLES AND ACCESSORIES FOR MACHINES AND PLANTS: A PERFECT MATCH



NEW: Spring 2021

ÖLFLEX® PLUG 540 P
Flexible power assembly with third-party certification.

H07V-U
Single core with <HAR> type certification according to EN 50525-2-31 now also available as 100 m ring in various colors.

SILVYN® FPAD-M
Metric, liquid-tight conduit fitting with cable strain relief.

UNITRONIC® LiYCY (TP) BK / LiYY (TP) BK
Our popular low-frequency data cables now also UV-resistant.

SKINTOP® MS-M 40x1,5 PLUS
Gland with extended M50 clamping range for our EPIC® connectors.

Further Highlights

- ÖLFLEX® SERVO FD 798 CP
- EPIC® H-BE crimp inserts
- Shield clamp EMC-Guard
- ÖLFLEX® CLASSIC 100 CY 300/500 V

CABLES AND ACCESSORIES FOR MACHINES AND ENCLOSURES: A PERFECT MATCH

ÖLFLEX® PLUG 540 P single-phase hookup assembly

An ideal candidate for use on appliances and for control cabinet construction! The flexible hookup assembly impresses with its multi-resistant cable, compatibility with various plug-fit systems and third-party certification. Depending on the number of cores, conductor cross section and connector type, there are different areas of application.

SILVYN® FPAD-M

Our metric, liquid-tight conduit fitting with additional cable strain relief stay securely closed thanks to a locking device. Due to the robust polyamide, it is highly oil-resistant and mechanically resilient. It can be optimally supplemented with the established protective conduits SILVYN® FPAS and SILVYN® HCC.

SKINTOP® MS-M 40X1,5 PLUS

Everything from one source: This cable gland was specially developed for our EPIC® connectors. It can be screwed onto proven M40 standard grommet housings thanks to the M40 external thread. However, thanks to the extended M50 clamping range, cables with larger diameters can now also be fed through. Expensive special housings from the competition with long delivery times are thus no longer necessary.

H07V-U

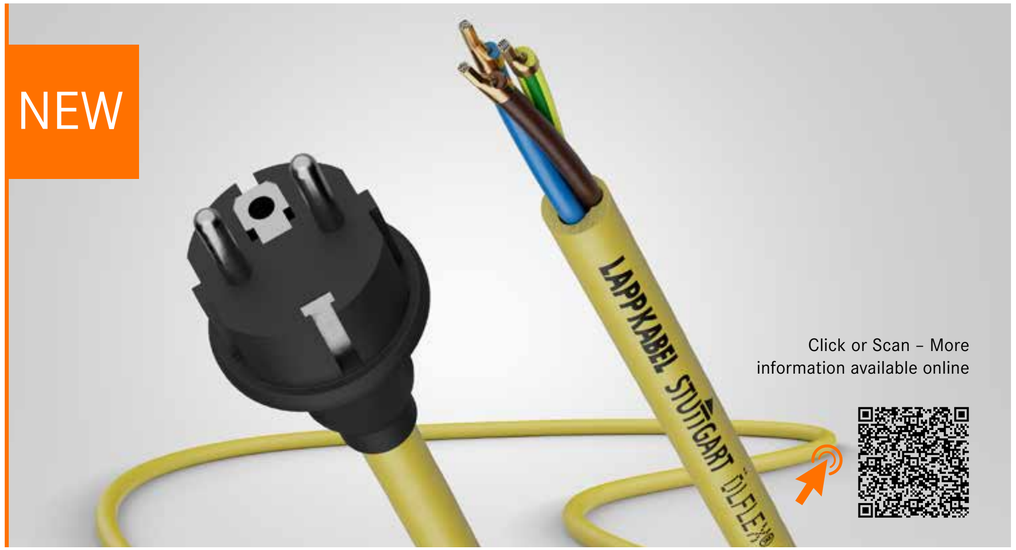
The compact single core with solid conductor can be used in a variety of ways in building technology and control cabinet construction and is almost indispensable for electrical installers. Safety and quality are sealed by the <HAR> type certification according to EN 50525-2-31. It is now also available as a practical 100 m ring in various colors.

UNITRONIC® LIYCY (TP) BK / LIYY (TP) BK

Now also UV-resistant: Four PVC cables for data and signal transmission in the low-frequency range are now also available with a black outer jacket (BK) for outdoor use (according to DIN EN ISO 4892-2). In addition to the classic UNITRONIC® LiYY BK, you can also purchase the pair stranded UNITRONIC® LiYY (TP) BK as well as shielded versions of these products (UNITRONIC® LiYCY (TP) BK and UNITRONIC® LiYCY BK). Take it outside!

Power and control cables

ÖLFLEX® CONNECT Systems Solutions • Connection and extension cables



ÖLFLEX® PLUG 540 P single-phase hookup assembly

Hookup power assembly from the metre goods cable ÖLFLEX® 540 P

Benefit

- 3-core variants with IP44, conductor cross section 1.5 mm² and earth contact plug in line with German BG, resp. DGUV, regarding heavy-duty conditions, category K2, increased electrical hazard, construction/assembly sites.
- 3-core variants with 2-pin central CEE 7/7 earth contact plug offer IP 44.
- Compatible with plug-fit systems type E and type F as well as with pin assignment according to the Czech CSN standard for extensive use in Europe.
- Durable product thanks to chemical and mechanical resistances of the integrated metre ware as well as UV/ozone resistance of the entire assembly.

Application

- In equipment and control cabinet construction, plugged into TN infrastructure with U_0/U = 230/400 V AC.
- 3-core variants with IP44 and conductor cross section 1.5 mm² for category K2 per German BGI/GUV-I 600, for increased electrical hazard per German BGI 594 and under heavy-duty conditions per VDE 0620-2-1 incl. construction/assembly sites per German DGUV 203-006 (BGI/GUV-I 608) (yet excl. extraordinary operating circumstances).
- 2-core variants with IP20 must not get in contact with water and are not intended for industrial applications or construction/assembly sites. The integrated robust cable ÖLFLEX® 540 P is limitedly resistant to acids, alkalis and oils.
- 3-core variants with IP44 for outdoor use in Europe (no immersion).

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC001576
ETIM 5.0 Class-Description: Power cord

Classification ETIM 6
ETIM 6.0 Class-ID: EC001576
ETIM 6.0 Class-Description: Power cord

Core identification code
According to VDE 0293-308 (table T9)

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

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

Nominal voltage
Plugs' Rated Voltage 250 V as per VDE 0620-2-1 **solely** relevant and **permissible regarding** continuous **operation of the entire, finished, harnessed assembly IEC nominal AC voltage classes of the integrated metre ware cable** ÖLFLEX® 540 P by LAPP, depending on the nominal conductor cross section of the cable:
U_0/U = 300/500 V for cable conductors of 1 mm² and smaller,
U_0/U = 450/750 V for cable conductors not smaller than 1.5 mm²
(unpermissible as reference for the maximum, permanent operating voltage of the entire harnessed assembly, but instead solely the rated voltage of the plug of 250 V acc. to VDE 0620-2-1 is permissible for the assembly)

Test voltage
Assembly: 2000 V

Protective conductor
G = with GN-YE protective conductor

Power and control cables

Control Cabinet Single Cores • Various applications

H07V-U

WHAT IS NEW? The single core with <HAR> type certification is now also available as a 100m ring.

Benefit

- Manufactured according to harmonized European type H07V-U, with test mark <HAR> for tested safety and quality (does not apply to green (single colour), yellow (single colour).
- <HAR>-cables widely accepted and applicable in Europe.
- Classified fire behavior according to EU Directive 305/2011 (BauPVO/CPR) with article number selection at www.lappkabel.com/cpr.html.
- Compact design for easy processing.
- Versatile use in diverse applications and environments.
- Various core insulation Colors available.
- Different ring lengths available.
- Longer ring lengths save walking distances. The extra lengths are ideal for use with the TRONIC module. The module is used in combination with the TRONIC single core trolley for controlled and guided cutting to length as well as for orderly and compact storage of single cores.

Application

- For wiring internal machine circuits.
- Suitable for wiring inside control cabinets.
- For wiring luminaires.
- Can also be used for in-house electrical installation.
- Maxi rings (item numbers ending in „X“) are suitable for use with the TRONIC module.
- For fixed and protected installation in closed installation ducts, on or under plaster.
- Can be used on cable trays for open laying for equipotential bonding.
- Can be used at temperatures as low as -40 °C.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000993
ETIM 6.0 Class-Description: Single core cable

Conductor stranding
Massive conductor according to
VDE 0295 Class 1/ IEC 60228 Class 1

Minimum bending radius
According to EN 50565-1
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

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

Protective cable conduit systems and cable carrier systems

Parallel corrugated protective cable conduit systems • High mechanical resistance •

SILVYN® FPAD-M

Conduit fitting with Integrated cable strain relief for use with protective conduits SILVYN® FPAS and SILVYN® HCC

Benefit

- Provides additional strain relief for cable(s) through integrated SKINTOP® cable gland with flexible lamellas.
- Quick-release fastener with locking device protects against unintentional opening of the conduit system.
- Simple disassembly of the conduit fitting by help of a screwdriver.
- Liquid-tight in accordance with protection class IP 66 / IP 68 (on the hose side, in conjunction with SILVYN® FPAS and SILVYN® HCC protective conduits).
- Large, variable clamping ranges allow for different cable outer diameters.
- Product is available in three different metric sizes.

Application

- For universal use at machine interfaces to connect a protective conduit system.
- For protective conduit systems that require additional strain relief while maintaining a high level of sealing.
- For use with SILVYN® FPAS and SILVYN® HCC protective conduits.
- Can be used in dry, wet and especially in rough and oily environments.
- Withstands chemical and mechanical stress
- Suitable for outdoor use.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC001176
ETIM 5.0 Class-Description: Screw connection for corrugated plastic hose

Classification ETIM 6
ETIM 6.0 Class-ID: EC001176
ETIM 6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

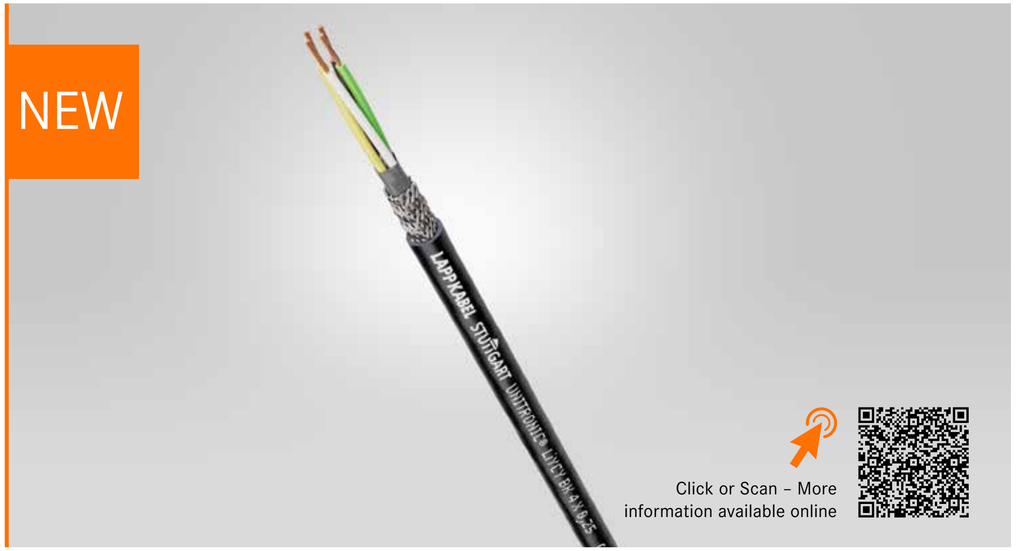
Material
PA66
Halogen-free

Protection rating
IP66 or IP68 depending on the fitting

Temperature range
-30°C to +100°C

Data communication systems

Low frequency data transmission cables • DIN colour code



UNITRONIC® LiYCY BK

Variant with black outer jacket (BK) for outdoor use

Benefit

- Variety of dimensions available for a wide range of applications.
- Compact design allows small outer diameters despite high number of cores.
- Insensitive to electromagnetic interference thanks to copper braided shield with high degree of coverage.
- Classified fire behavior according to EU Directive 305/2011 (BauPVO/CPR) with article number selection at https://www.lappkabel.com/cpr.html.

Application

- Universally applicable at machine interfaces for many applications for data and signal transmission in the low frequency range.
- Suitable for computer systems, electronic control and regulating devices, office machines, scales, etc.
- For permanent installation.
- Can be used in dry and damp environments.
- Suitable for light mechanical stress.
- PVC outer sheath is conditionally oil-resistant.
- Suitable for outdoor use, considering the temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000104
ETIM 6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

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

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

Data communication systems

Low frequency data transmission cables • DIN colour code

UNITRONIC® LiYCY (TP) BK

Variant with black outer jacket (BK) for outdoor use

Benefit

- Due to the pair stranding (TP, twisted pair) with short lay lengths, the conductor circuits are well decoupled.
- Insensitive to electromagnetic interference thanks to copper braided shield with high degree of coverage.
- Compact design allows small outer diameters despite high number of cores.
- Classified fire behavior according to EU Directive 305/2011 (BauPVO/CPR) with article number selection at https://www.lappkabel.com/cpr.html.

Application

- Universally applicable at machine interfaces for many applications for data and signal transmission in the low frequency range.
- Suitable for computer systems, electronic control and regulating devices, office machines, scales, etc.
- For permanent installation.
- Can be used in dry and damp environments.
- Suitable for light mechanical stress.
- PVC outer sheath is conditionally oil-resistant.
- Suitable for outdoor use, considering the temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000104
ETIM 6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

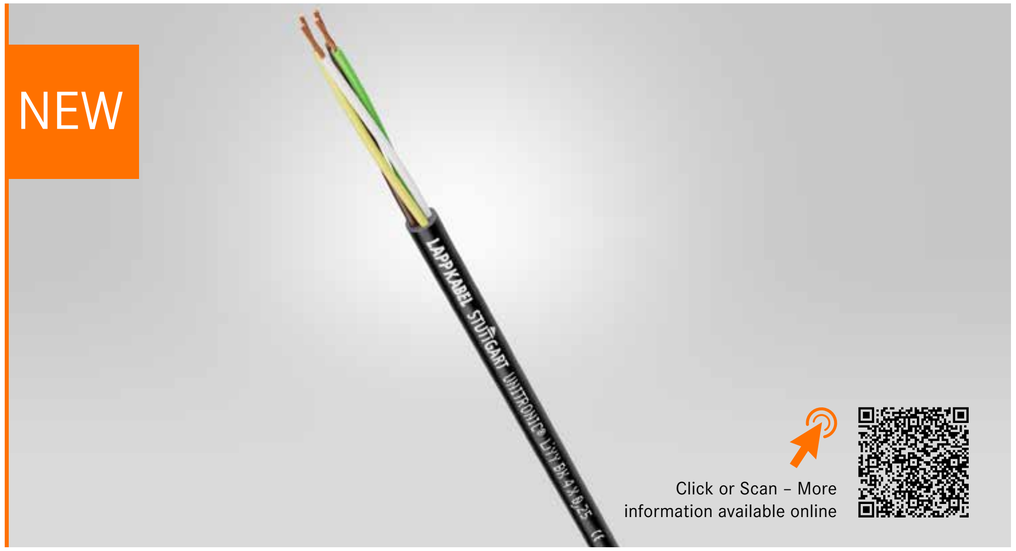
Conductor stranding
Fine copper wire strands

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

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

Data communication systems

Low frequency data transmission cables • DIN colour code



UNITRONIC® LiYY BK

Variant with black outer jacket (BK) for outdoor use

Benefit

- Variety of dimensions available for a wide range of applications.
- Compact design allows small outer diameters despite high number of cores.
- Classified fire behavior according to EU Directive 305/2011 (BauPVO/CPR) with article number selection at https://www.lappkabel.com/cpr.html.

Application

- Universally applicable at machine interfaces for many applications for data and signal transmission in the low frequency range.
- Suitable for computer systems, electronic control and regulating devices, office machines, scales, etc.
- For permanent installation.
- Can be used in dry and damp environments.
- Suitable for light mechanical stress.
- PVC outer sheath is conditionally oil-resistant.
- Suitable for outdoor use, considering the temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000104
ETIM 6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

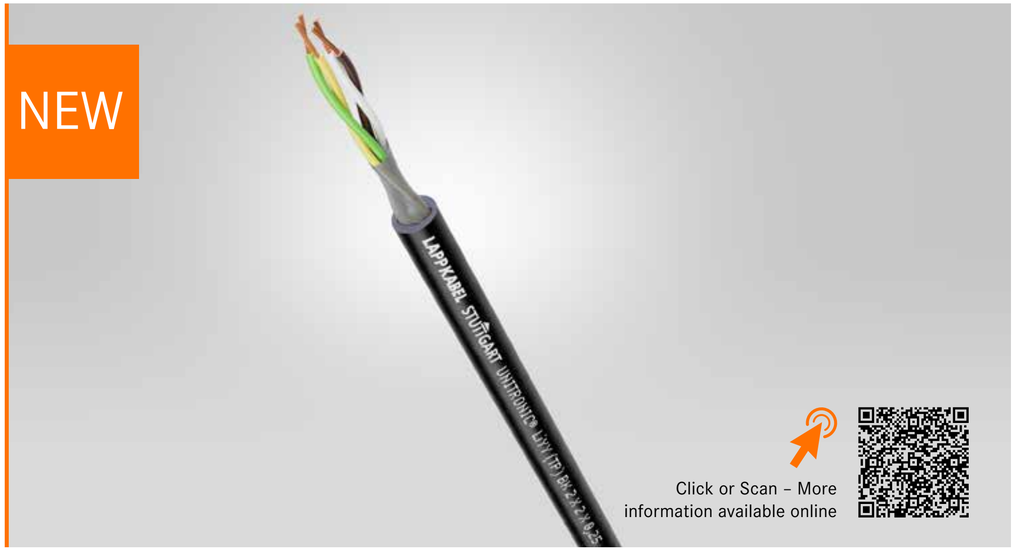
Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

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

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

Data communication systems

Low frequency data transmission cables • DIN colour code



UNITRONIC® LiYY (TP) BK

Variant with black outer jacket (BK) for outdoor use

Benefit

- Due to the pair stranding (TP, twisted pair) with short lay lengths, the conductor circuits are well decoupled.
- Compact design enables small outer diameters despite high numbers of cores.
- Classified fire behavior according to EU Directive 305/2011 (BauPVO/CPR) with article number selection at https://www.lappkabel.com/cpr.html.

Application

- Universally applicable at machine interfaces for many applications for data and signal transmission in the low frequency range.
- Suitable for computer systems, electronic control and regulating devices, office machines, scales, etc.
- For permanent installation.
- Can be used in dry and damp environments.
- Suitable for light mechanical stress.
- PVC outer sheath is conditionally oil-resistant.
- Suitable for outdoor use, considering the temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000104
ETIM 6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

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

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

Cable glands

SKINTOP® cable glands nickel-plated brass metric • Standard

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Classification ETIM 6
ETIM 6.0 Class-ID: EC000441
ETIM 6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

Temperature range
Dynamic: -25°C up to +100°C
Fixed: -40°C to +100°C

SKINTOP® MS-M 40x1,5 PLUS

WHAT IS NEW? For M40 boreholes but with extended clamping range M50: competitor housings with size M50 can be replaced by EPIC® M40 housings + SKINTOP® MS-M 40x1,5 PLUS.

Benefit

- With extended clamping range (just under M50 bore) for inserting thicker cables with a diameter > 28 mm (compared to SKINTOP® MS-M 40 x 1.5).
- With M40 male thread for precise connection to standard grommet housings with M40 threaded hole.
- No expensive special grommet housing required to connect cables with larger diameter.
- No adapter or extension necessary to screw a cable gland with a larger connection thread onto a grommet housing with a smaller thread.
- Matching standard grommet housings are significantly more space-saving than custom-made grommets with larger overall dimensions or cable glands in conjunction with an adapter or extension.
- Best possible sealing enables protection class IP 68 (10 bar) and IP 69.
- Suitable standard grommet housings are available from stock.

Application

- For assembling a cable with a rectangular connector housing.
- Especially for sealing and strain-relieving insertion of cables > 28 mm into a grommet housing with M40 thread.
- For applications where limited space makes it difficult to use larger connectors.
- Withstands high mechanical and chemical stress.
- Suitable for outdoor use, considering the temperature range.

Power and control cables

Power chain applications • Servo applications • power drive systems, certified

ÖLFLEX® SERVO FD 798 CP

Screened encoder cable with PUR outer sheath for highly dynamic power chain application – certified

Benefits

- Compatible to encoder systems of major manufacturers.
- Durable for long travels or high accelerations (LAPP performance class „Extended Line“).
- Extremely weather-resistant, to be applied in a wide temperature range.
- Particularly resistant to oil and drilling fluids and therefore ideal for harsh environments.
- Low-capacity core insulation for long transmission paths.
- Halogen-free core insulation and sheathing compound to meet special fire protection requirements.
- UL/CSA certification enables use of the product in North America.
- Available in various cable construction variants.
- Available in various shielding variants for ideal protection against electromagnetic interference.

Application

- For connection of feedback system in servo motor with frequency converter.
- Cable design allows highly flexible, permanently moving use in moving machine parts and in the drag chain.
- PUR outer jacket withstands high mechanical loads, is insensitive to mineral oil-based lubricants and is often chemically resistant.
- Can be used in dry, humid and especially in rough and oily environments.
- PUR outer jacket suitable for outdoor use.
- Flexible use in a wide temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000104
ETIM 6.0 Class-Description: Control cable

Core identification code
Details see datasheet ÖLFLEX® SERVO FD 798 CP

Conductor stranding
Fine wire or extra-fine wire

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: 30 V
UL & CSA: 30 V

Test voltage
Core/core: 1500 V rms
Core/screen: 750 V rms

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

EPIC® H-BE crimp inserts

The multi-functional insert for versatile application has crimp termination and can be used for higher voltages and currents.

Benefits

- Inserts of the EPIC® H-BE series are regarded as classics in the industry and are ideal for use at higher voltages and currents.
- In the EPIC® H-BE series, inserts of different connection types within the same size can be combined as desired (screw, crimp, cage clamp or push-in).
- Crimp termination creates a vibration-proof connection, ensures maximum contact reliability between contact and wire and is suitable for automated assembly.
- Suitable for conductor cross sections from 0.14 – 4.00 mm².
- Made of robust polycarbonate (flammability class V-0 according to UL94 test method for flammability of plastics).
- Can be used in rail vehicles in conformity with standards (test of fire behavior according to DIN EN 45545-2:2016-02, requirement set R22 and R23, hazard levels HL1, HL2 and HL3).
- UL certification according to Technical Data enables use of the product in North America.
- Large variety of suitable housing variations.

Application

- For power supply connection of devices and machines in various applications.
- Suitable for wiring inside switch cabinets.
- For transmission of control signals to actuators and servo drives.
- Typical applications are stage, lighting and lifting technology.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Classification ETIM 6
ETIM 6.0 Class-ID: EC000438
ETIM 6.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
6 + PE

Termination methods
Crimp termination: 0.14 - 4.0 mm²

Material
PC, polycarbonate

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +125°C

Cable glands

SKINTOP® cable glands nickel-plated brass metric • Standard

SKINTOP® Lead-free cable glands

SKINTOP® MS-M, SKINTOP® MS-SC-M and SKINDICHT® SM-M available from stock. Further versions on request.

Benefits

- Convincing product for a wide range of applications due to versatile properties.
- Best possible sealing enables protection class IP 68 (10 bar) and IP 69.
- Optimal strain relief through flexible lamellas.
- Extensive range of accessories available.
- No MOQ or long delivery times for SKINTOP® MS-M, MS-SC-M and SKINDICHT® SM-M as they are kept on stock in both materials (M12x1,5 – M63x1,5)
- Other versions will be available on request
- Article numbers ending with „LF“ are lead-free product alternatives with otherwise the same product properties. „Lead-free“ articles will continue to comply with the RoHS Directive, which is reviewing the current exemption for a lead content of up to four per cent for copper alloys and is likely to tighten it in the near future. Lead is also on the SHVC substances list.

Application

- For sealing and strain-relieving cable entry through a housing.
- Withstands high mechanical and chemical loads.
- Suitable for outdoor use, taking into account the temperature range.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

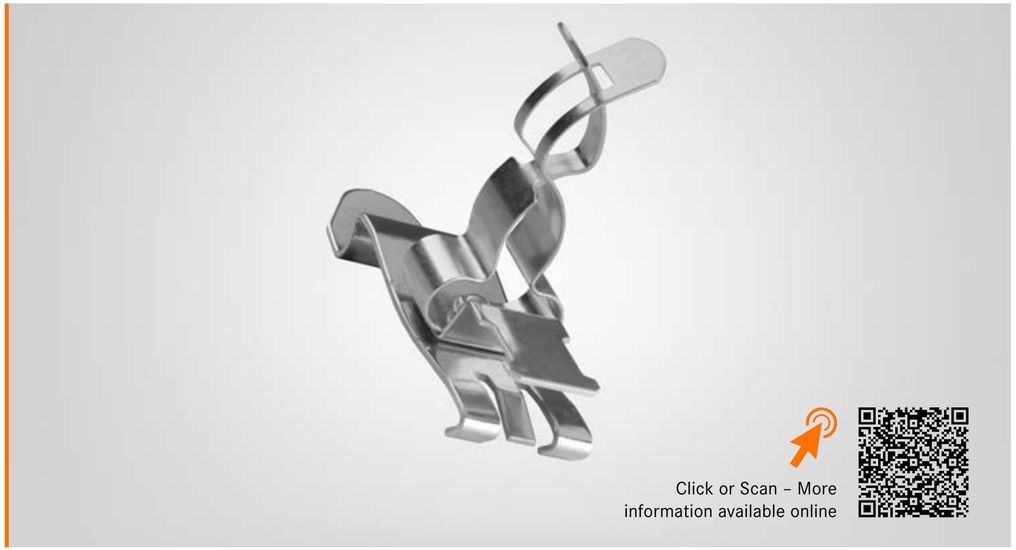
Classification ETIM 6
ETIM 6.0 Class-ID: EC000441
ETIM 6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

Temperature range
Dynamic: -25°C up to + 100°C
Fixed: -40°C to +100°C



Shield clamp EMC-Guard

EMV shield clamps for earthing cable shields. For direct and top hat rail mounting.

Benefits

- Enables quick and tool-free pressing in of the stripped, shielded cable.
- The strong spring effect ensures constant shield contact and constant conductivity.
- The electrically conductive coating of the galvanized surface and the large-area shield contact create a low-impedance transition between the braided shield of the cable and the shield clamp and thus reliably derive high-frequency interference (EMC).
- Optimum strain relief via strain relief clamp, which is attached to the outer jacket of the cable by cable ties.
- Rounded material without sharp edges for best possible protection of the cable.
- Easy integration into the machine concept due to compact dimensions.
- Available with different clamping ranges for individual, space-saving installation.
- Version „DINrail“ with attachable mounting bracket for 35mm top-hat rails can be mounted without tools.
- Variant “MOUNT” for direct mounting on e.g. mounting plates / sheet metal constructions by M4 screw.

Application

- Can be used in control cabinets as well as on motor controls, housings or machine systems.
- For contacting shielded cables with ground potential.
- For protection against electromagnetic interference and for potential equalization.
- Suitable for outdoor use.

Technical Data

Note
Mounting method:
“DINrail”: snap
“MOUNT”: screw

Material
Material: hardened spring steel
Surface: galvanized

Power and control cables

Various applications • PVC outer sheath and coloured cores

ÖLFLEX® CLASSIC 100 CY 300/500 V

Colour-coded and screened PVC control cable – range extension of 1,5mm² up to 16mm²

Benefits

- Space-saving due to reduced wall thickness.
- Additional robustness due to extruded inner sheath.
- Ideal protection against electromagnetic interference due to copper braided shielding with high degree of coverage.
- High electrical safety through 4000V test voltage

Application range

- Universally applicable for wiring of machine-internal and plant-spanning control circuits.
- For fixed installation and occasional movement without tensile stress.
- Suitable for medium mechanical stress.
- Can be used in dry and damp rooms.
- PVC outer sheath is resistant to acids and alkalis and conditionally resistant to oil.

Technical data

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

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

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

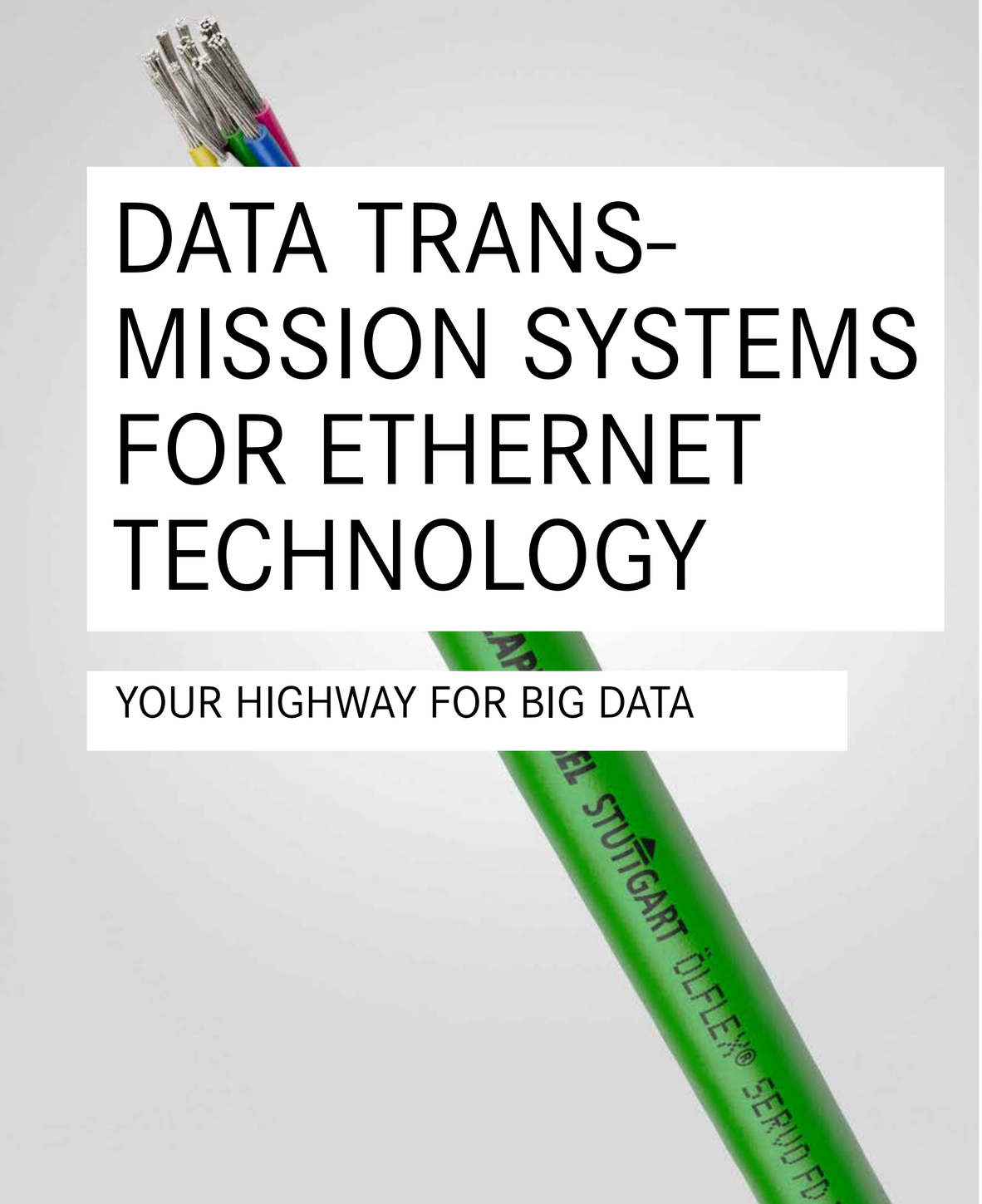
Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

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

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



DATA TRANS-MISSION SYSTEMS FOR ETHERNET TECHNOLOGY

YOUR HIGHWAY FOR BIG DATA

NEW: SPRING 2021

ETHERLINE® FD Cat.6 Patchcords
Highly flexible Cat.6 patchcords with M12X connector.

ETHERLINE® T1 Y FLEX
The UL-certified, two-core data cable (Single-Pair-Ethernet).

ETHERLINE® CABINET Cat.6_A Patchcords
Cat.6_A patchcords for cabinets in PROFINET® networks.

Further Highlights

- ETHERLINE® ROBOT PN CAT.5E
- ETHERLINE® LAN CAT.6_A PATCHCORDS
- ETHERLINE® ACCESS NF
- EPIC® SIGNAL D-SUB CRIMP CONTACT 1 MM
- SKINTOP® DIX-M AUTOMATION
- SKINTOP® FIBER
- ETHERLINE® LAN 1000 CAT.7A
- ETHERLINE® TRAY CAT.7 PLTC
- ETHERLINE® PN CAT.6A FC
- ETHERLINE® PN CAT.6A FLEX FC
- ETHERLINE® PN CAT.6A FD FC

DATA TRANSMISSION SYSTEMS FOR ETHERNET TECHNOLOGY: YOUR HIGHWAY FOR BIG DATA

ETHERLINE® FD CAT.6 PATCHCORDS

Our highly flexible Cat.6 patchcords are guaranteed reliable in data transmission. The cables assembled with M12X connectors are especially suitable for continuous flexing in drag chains. Benefit from our expertise, avoid errors during assembly and use the time gained more sensibly!

ETHERLINE® PN CABINET CAT.6_A PATCHCORDS

Designed for the cabinet in PROFINET® networks: The flexible Cat.6_A patchcords prove to be particularly helpful in tight spaces due to their small bending radii. With LAPP patchcords, you avoid errors during assembly and can use the time gained more sensibly. You will also benefit from our expertise!

ETHERLINE® T1 Y FLEX

Single-Pair-Ethernet (SPE): The UL-certified, two-core data cable enables consistently high data rates with a significantly reduced structure. Thanks to small bending radii and a small outer diameter, it is easy to install and offers versatile, future-proof application possibilities in automation technology.

Data communication systems for ETHERNET technology

Industrial Ethernet, Cat.6 • Patch cables for continuous flexing applications

Technische Daten

Classification ETIM 5
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x cable diameter

Protection rating
IP 67

Coding
M12: X-Standard

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

ETHERLINE® FD Cat.6 Patchcords

Patchcord for continuous flexing in drag chains

Benefit

- Fast information exchange with up to 10 Gbit/s over 60 m thanks to Ethernet according to Cat.6.
- Patchcords assembled on one or both sides save time during installation and reduces or eliminates the potential for errors during assembly on site.
- Highly flexible cable construction with separating cross to protect the wire pairs for maximum mechanical stress.
- Integrated vibration protection of the connector makes it insensitive to shock and vibration.
- Ideal protection against electromagnetic interference due to double shielding made of aluminium-laminated foil and copper braid shielding with high degree of coverage (SF/UTP).
- Durable, insensitive product thanks to abrasion-, notch- and cut-resistant PUR outer jacket material.
- Successfully tested for over 4 million bending cycles in the drag chain.

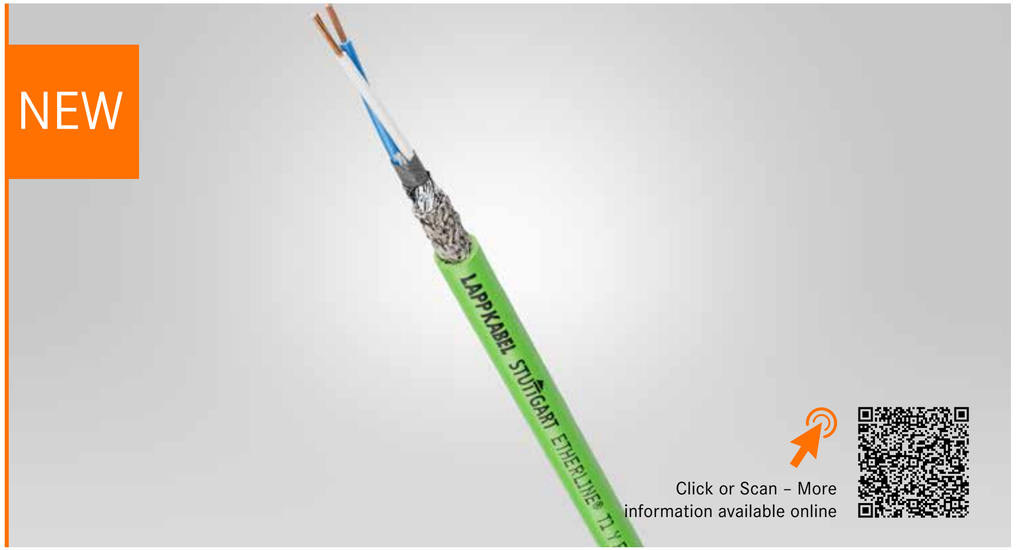
Application

- Cable design for continuous flexing in moving machine parts and in draig chains.
- Also suitable for EtherCAT and EtherNET/IP applications.
- Can be used in dry, damp and especially in rough and oily environments.
- PUR outer sheath and connectors withstand high mechanical stress.
- PUR outer sheath is insensitive to mineral oil-based lubricants and chemically resistant in many cases.

EtherNet/IP

Data communication systems for ETHERNET technology

Industrial Ethernet • Industrial Ethernet for special applications



ETHERLINE® T1 Y FLEX 1x2x22/7AWG

Single-Pair-Ethernet (SPE) is a new Ethernet technology that requires only one pair of wires (instead of two or four pairs) to transmit data.

Benefit

- Fast information exchange through future-proof Single-Pair-Ethernet technology.
- For transmission of analogue and digital signals in the frequency range up to 600 MHz and up to 40 m distance.
- A single-pair cable design saves weight and space. Small bending radii and outer diameters are essential for the connection to the field level.
- Power-over-Data-Line-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminals with low energy requirements (up to 50 W).
- Ideal protection against electromagnetic interference due to double shielding of aluminum-clad foil and copper braided shield with high coverage (SF/UTP).
- UL-/CSA-certification according to technical data allows use of the product in the North American area.

Application

- For structured cabling according to DIN EN 50173 and ISO/IEC 11801.
- For Single-Pair-Ethernet applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp.
- For flexible use.
- Listed as Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays.
- Can be used in dry and damp rooms.
- Suitable for medium mechanical stress.
- PVC outer sheath is resistant to acids and alkalis and conditionally oil resistant.

Technische Daten

Classification ETIM 5
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000830
ETIM 6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Test voltage
C/C: 2000 V
C/S: 2000 V

Characteristic impedance
nom. 100 Ω

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Data communication systems for ETHERNET technology

Industrial Ethernet

ETHERLINE® PN CABINET Cat.6$_A$ Patchcords

PROFINET® Cat.6$_A$ – Cabinet Cords

Benefit

- Fast information exchange with up to 10 Gbit/s over 60 m thanks to Ethernet according to Cat.6$_A$.
- Patchcord assembled on both sides saves time and eliminates the potential for errors when assembling on site.
- Compact RJ45 connector allows use in devices with very high port density.
- Cable design allows small bending radii and is optimal for space-saving installation in confined spaces.
- Ideal protection against electromagnetic interference due to pair shielding with aluminum composite foil and copper braiding as overall shielding (S/FTP).
- UL/CSA certification according to technical data allows the product to be used in North America.
- Durable, insensitive product thanks to abrasion-, notch- and cut-resistant PUR outer sheath material.

Application

- For cabinet wiring in the PROFINET® network.
- Also suitable for EtherCAT and EtherNET/IP applications.
- Can be used in dry rooms.
- PUR outer sheath and connectors withstand high mechanical stress.
- PUR outer sheath is insensitive to mineral oil-based lubricants and chemically resistant in many cases.
- Flexible use possible at up to -40 °C.

Technical Data

Klassifikation ETIM 5
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patchcords Copper Industry

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing:: 10 x outer diameter

Temperature range
-40°C to +70°C

Data communication systems for ETHERNET technology

PROFINET, Cat.5e Type R • Cables for robot application

Click or Scan – More information available online

ETHERLINE® ROBOT PN Cat. 5e

Industrial Ethernet cable Cat.5e for highly flexible robot applications acc. to PROFINET Type R

Benefits

- Cable design according to PROFINET® standard „Type R“ for robot applications.
- Bundles essential drag chain, torsion and alternating bending properties in one cable.
- Compatible with PROFINET® compliant components.
- Special core stranding allows simultaneous bending and torsion (torsion angle up to ± 180°/m).
- Successfully tested for 5 million bending cycles in the drag chain, 5 million torsion cycles and 1 million alternating bending cycles in the TicToc bending test.
- Increased resistance to electromagnetic interference thanks to stranding as a star quad as well as double shielding made of aluminum-laminated foil and copper braided shield with high coverage (SF/UTP).
- Low-capacity core insulation for long transmission paths.
- Fast information exchange through Ethernet technology.
- Cat.5 performance up to 100 Mbit/s.
- UL/CSA certification according to technical data enables use of the product in North America.

Application

- Specially designed for highly flexible, permanently moving a pplications with torsional stress in industrial robots and handling devices in the PROFINET® network (Type R).
- Also suitable for EtherCAT and EtherNET/IP applications.
- Applicable in dry, humid and especially in rough and oily environments.
- PUR outer sheath withstands high mechanical stress.
- PUR outer sheath is insensitive to mineral oil-based lubricants and often chemically resistant.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000830
ETIM 6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications)
125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexible use: 12 x outer diameter

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

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexible use: -20°C to +60°C

Data communication systems for ETHERNET technology

Industrial Ethernet, Cat.6_A • Patch cables for flexible applications

Click or Scan – More information available online

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Protection rating
IP20

Temperature range
Installation: 0°C bis +50°C
Operating temperature: -20°C to +60°C

ETHERLINE® LAN Cat.6_A Patchcords

Halogen-free, Cat.6_A patchcord for Gigabit Ethernet, with UL approval.
Available in different colours and lengths

Benefits

- Fast information exchange through Ethernet technology.
- Connection cable assembled on both sides for time savings during installation and less errors due to plug&play solution.
- Narrow RJ45 connector allows use in devices with very high port density.
- Ideal protection against electromagnetic interference by pair shielding with aluminum composite foil and copper braiding as overall shielding (S/FTP).
- UL/CSA certification according to technical data allows use of the product in North America.
- With halogen-free LSZH outer sheath to meet special fire protection requirements.
- Versatile properties enable more universal use, reduce the variety of parts and thus ensure savings in logistics.
- Available in various colors.

Application

- For structured cabling according to DIN EN 50173 and ISO/IEC 11801.
- Suitable for workplace cabling.
- Can also be used in industrial control cabinets, taking into account the electromagnetic load.
- Suitable for Ethernet applications up to 10GBase-T.

EtherNet/IP

Data communication systems for ETHERNET technology

Industrial Ethernet • Active network components

ETHERLINE® ACCESS NF

Industrial NAT router with firewall function. Industrial network switches for ethernet based solutions in Smart Factories.

Benefits

- Reduced installation effort in existing production networks.
- Space-saving, compact design for direct mounting on 35mm top-hat rails.
- Very easy configuration via web interface.
- Integrated firewall protects against unauthorized access to the production network.
- Allows communication between machine network and production network with the same IP address range.

Application

- For use in Ethernet-based networks in automation technology.
- For use in switch cabinets (protection class IP 20).
- Extended temperature range (-40 °C to +75 °C).

Technical Data

Power supply
DC 24 V (18-30 V DC)

Protection rating
IP20

Temperature range
-40°C up to +75°C

EPIC® Industrial connectors

Rectangular connectors • EPIC® Contacts + tools

EPIC® SIGNAL D-SUB Crimp contact 1mm

EPIC® SIGNAL DSUB contacts for M23 DSUB inserts,
MC 20 module, MH Gigabit module

Benefits

- Compatible with standard D-Sub connectors.
- Crimp contact ensures maximum contact reliability between contact and wire and creates a vibration-proof connection.
- Suitable for wire cross sections from 0.25 to 1.00 mm² thanks to a large connection range.
- This allows more universal use, reduces the variety of parts and thus ensures savings in logistics.
- With corrosion-resistant gold coating for low contact resistance and long product life.

Application

- Universally applicable at machine interfaces for many applications for signal and data transmission.

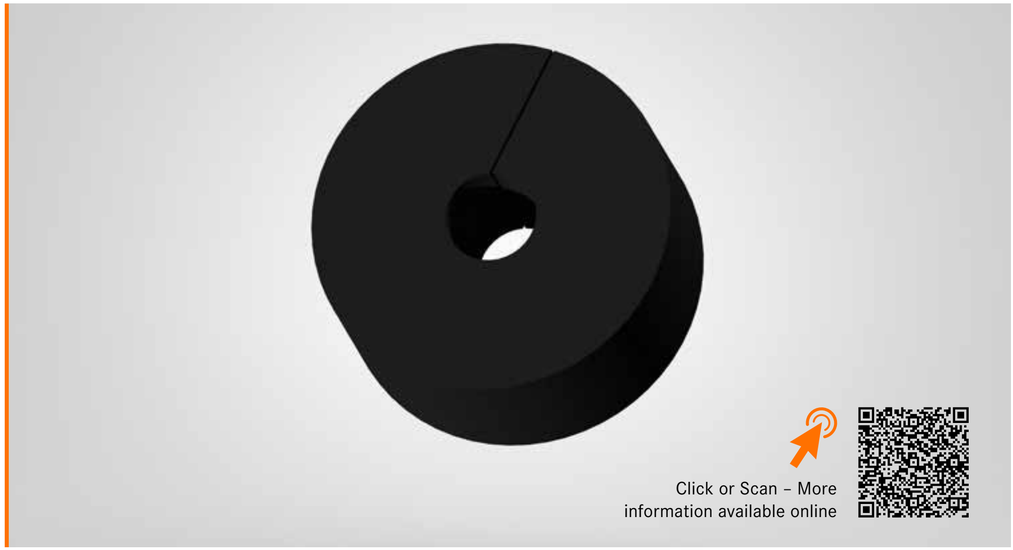
Technical Data

Termination methods
Crimp termination: 0,25mm² ... 1,0mm²

Material
brass gold plated CuZn / Au

Cable glands

SKINTOP® cable gland accessories metric • Multiple sealing inserts/dust protection



SKINTOP® DIX-M AUTOMATION

New range: complete coverage of 3–10 mm clamping range

Benefits

- Special design with slotted holes for easy insertion of one or more pre-assembled data cables.
- Protection class IP 68 can be achieved if the hole is optimally occupied.
- High functional safety thanks to optimum strain relief.

Application

- For use with metric SKINTOP® and SKINTOP® CLICK cable glands.
- To be used instead of the standard sealing insert in the SKINTOP® cable gland.
- UV and oil resistant material.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description: Plug for cable screw gland

Classification ETIM 6
ETIM 6.0 Class-ID: EC000032
ETIM 6.0 Class-Description: Plug for cable screw gland

On request
Special shapes

Colour delivered
Black, RAL 9005

Material
NBR

Protection rating
IP 54
IP 66 and IP 68 - 5 bar, 30 min (only applies to slotted DIX inserts if the specified clamping range is observed)

Temperature range
-40°C to +100°C

Cable glands

SKINTOP® cable glands plastic metric • Fibre optic cables

SKINTOP® FIBER

Cable gland for fiber optic cables, strain relief and sealing.

Benefits

- For maximum simplification and time saving when inserting fiber optic cables into a housing.
- Insertion aid simplifies installation, especially where space is limited. Improper kinking or clamping of the optical fibers is thus prevented.
- Innovative sealing insert made of soft EPDM material is used to gently clamp up to 12 optical fibers.
- Gentle clamping enables good fixing and sealing of the optical fibers without impairing their transmission performance.
- Variable clamping ranges in the sealing insert (0 - 3 mm) allow different cable diameters.
- Thanks to slotted holes in the sealing insert, pre-assembled fiber optic cables can also be fed through.
- Protection class IP 66 can be achieved, provided that all holes are occupied by optical fibers with nominal diameter and unused openings are closed with SKINTOP® DIX-DV sealing plugs.
- Permanent vibration protection prevents the cap nut of the cable gland from opening in case of vibrations.

Application

- For the insertion of optical fibers into a housing.
- Can also be used with pre-assembled fiber optic cables.
- Can be used in Industry 4.0 applications.
- Can be used in FTTx network architectures for broadband expansion.
- Suitable for outdoor applications.

Technical Data

Caution
Tightening torques see installation instructions

Colour delivered
RAL 7035 light grey

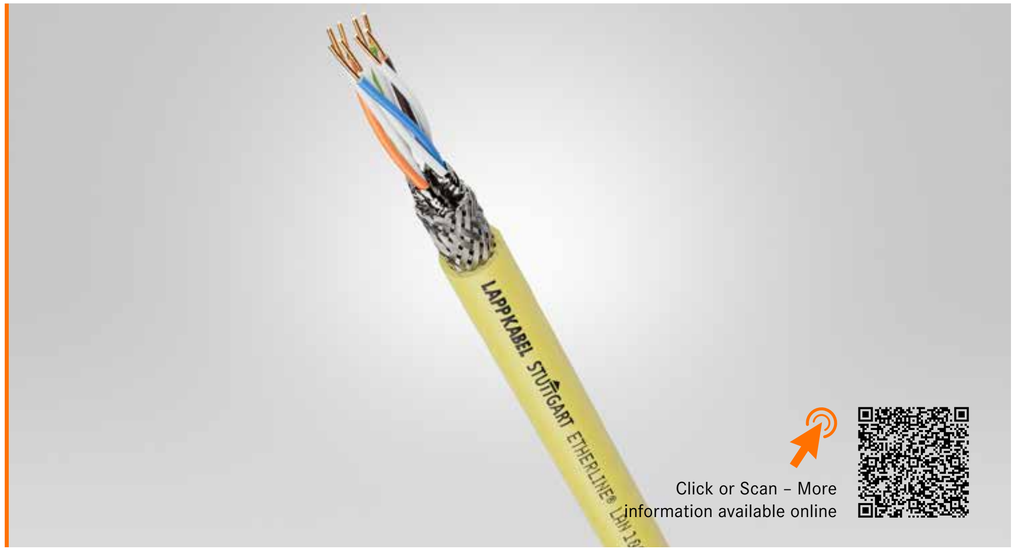
Material
Body: Polyamide
Seal: EPDM

Protection rating
IP 66 (when all boreholes are optimally occupied)

Temperature range
-20°C to +120°C

Data transmission systems for ETHERNET technology

structured building cabling Cat.7_A • cables for fixed installation



Click or Scan – More information available online

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 4 x outer diameter
during installation: 8 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
ETHERLINE® LAN 1000 Cat. 7_A
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

ETHERLINE® LAN 1000 Cat.7_A

Ethernet cable category 7_A, class F_A – tested up to 1000 MHz

Benefits

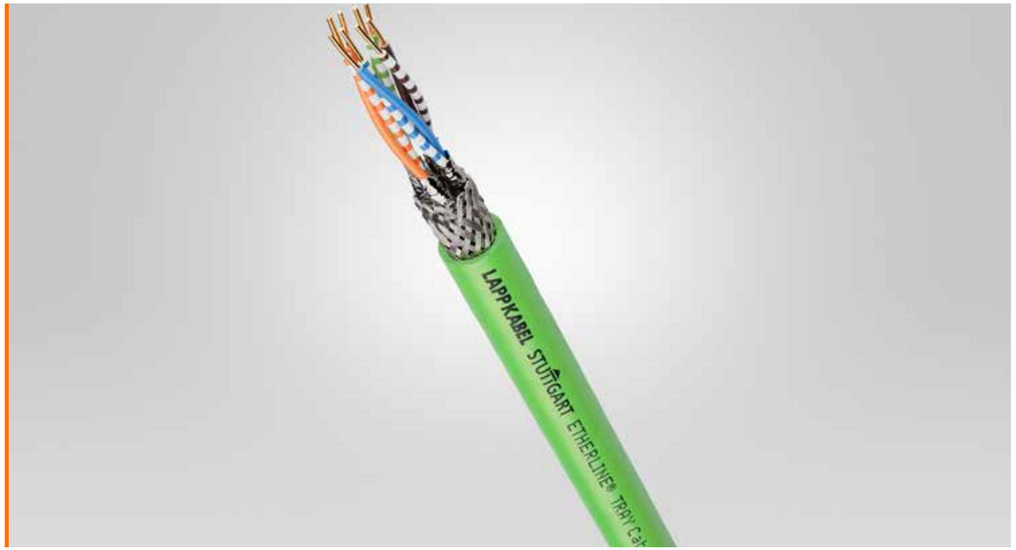
- Fast information exchange through Ethernet- Technology.
- Cat.7_A performance up to 10 Gbps.
- For transmission of analog and digital signals in the frequency range up to 1000 MHz.
- Fulfils requirements for transmission behavior according to EIA/TIA-568 and TSB36 and ISO/IEC 11801/EN 50173 (link class FA).
- Ideal protection against electromagnetic interference by Pair shielding with aluminium composite foil and copper braiding as Overall shielding (S/FTP).
- No fire propagation on halogen-free cable according to IEC 60332-3-25 (Flame propagation on vertical cable or wire bundle).
- Classified fire behaviour according to EU directive 305/2011 (CPR).
- As 4-pair standard cable or also as duplex cable Cable outlet for reduced cabling effort available.

Application range

- For fixed installation and structured building cabling according to EN 50173 and ISO/IEC 11801.
- For horizontal floor cabling at max. 100 m Cable length (of which 90 m for installation and 10 m at workplace).
- For all LAN networks and Ethernet applications up to 10GBase-T suitable.

ETHERLINE® TRAY Cat.7 PLTC

First IE data line with tray classification (UL PLTC) on the market



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications)
125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Occasional flexing: -25°C to +80°C
Fixed installation: -40°C to +80°C

Benefits

- Cable specially developed for use in the US.
- Certification for the North American market.
- Listed as Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays.
- versatile use in various applications and environments.
- Power-over-Ethernet capable line for simultaneous power and data supply of smaller network components with low energy consumption (e.g. IP cameras, Wireless Access Points).
- Ideal protection against electromagnetic interference through Pair shielding with aluminium composite foil and copper braiding as Overall shielding (S/FTP).
- Fast information exchange through Ethernet- Technology.
- Cat.7 performance up to 10 Gbps.
- For transmission of analog and digital signals in the frequency range up to 600 MHz.

Application range

- For open installation on cable trays, together with other line types.
- Permanently installed Universally applicable at machine interfaces for many applications for data and signal transmission.
- Also for EtherCAT, EtherNET/IP and 4-pair PROFINET®-applications.
- Can be used in dry, humid and especially in rough and oily environments.
- Suitable for medium mechanical stress.
- Special PVC outer sheath is resistant to acids and alkalis.
- Suitable for outdoor use, under consideration of temperature range.

For further questions please contact the product management.

Germany/Christian Illenseer,
International LAPP USA/Sagar Patel

Data communication systems for ETHERNET technology

PROFINET®, Cat.6_A • Type A - Cables for fixed installation

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
see data sheet

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
See data sheet

ETHERLINE® PN Cat.6_A FC

Ethernet cable Category 6_A, Class E_A for fixed installation with FC inner sheath – verified up to 500 MHz

Benefits

- The „Fast Connect“ construction with inner jacket and a Separation cross between the wire pairs instead of pair shielding considerably shortens the cable assembly time, because the complex fourfold removal of the pair shielding not applicable. It also offers undiminished shielding of the Pairs of wires among each other.
- Additional protection against electromagnetic interference by double overall shielding made of aluminium laminated foil and copper braided shield with high coverage (SF/ UTP).
- Pover-over-Ethernet capable line for simultaneous power and data supply of smaller network components with low energy consumption (e.g. IP cameras, wireless Access Points).
- Certification for the North American market.
- Fast information exchange through Ethernet technology.
- Cat.6_A performance up to 10 Gbit/s.
- For transmission of analog and digital signals in the frequency range up to 600 MHz.
- With robust PVC outer sheath, abrasion-resistant PUR outer sheath or halogen-free FRNC outer sheath available.

Application range

- For fixed installation in the PROFINET® network (type A), conditionally through solid conductor construction.
- Also suitable for EtherCAT and EtherNET/IP applications.
- Can be used in dry, moist and wet environments.
- Can be used in many different ways, depending on the sheath material.

Data communication systems for ETHERNET technology

PROFINET®, Cat.6_A • Type B - Cables for flexible applications

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/Core: 1500 V AC
Core/Screen: 1000 V AC

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
PVC: Fixed: -30 °C up to +80 °C
Moving: -25 °C up to +70 °C
FRNC: Fixed: -25 °C up to +80 °C
Moved: -25 up to +80 °C

ETHERLINE® PN Cat.6_A FLEX FC

Ethernet cable Category 6_A, Class E_A for flexible use with FC inner sheath – verified up to 500 MHz

Benefits

- The „Fast Connect“ construction with inner jacket and a Separation cross between the wire pairs instead of pair shielding considerably shortens the cable assembly time, because the complex fourfold removal of the pair shielding not applicable. It also offers undiminished shielding of the Pairs of wires among each other.
- Additional protection against electromagnetic interference by double overall shielding made of aluminium laminated foil and copper braided shield with high coverage (SF/ UTP).
- Pover-over-Ethernet capable line for simultaneous power and data supply of smaller network components with low energy consumption (e.g. IP cameras, wireless Access Points).
- Certification for the North American market.
- Fast information exchange through Ethernet technology.
- Cat.6_A performance up to 10 Gbit/s.
- For transmission of analog and digital signals in the frequency range up to 600 MHz.
- With robust PVC outer sheath or halogen-free FRNC outer sheath available.

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, devices and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible application (7-wire stranded conductor)

Data communication systems for ETHERNET technology

PROFINET®, Cat.6_A • Type C - Cables for continuous flexing applications

Click or Scan – More information available online

ETHERLINE® PN Cat.6_A FD FC

Ethernet cable Category 6_A, Class E_A for highly flexible use with FC inner sheath – verified up to 500 MHz

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x cable diameter

Test voltage
Core/Core: 1500 V AC
Core/Screen: 1000 V AC

Characteristic impedance
100 Ω

Temperature range
Fixed installation
PVC: -40°C bis +80°C
PUR: -40°C bis +80°C
Flexing
PVC: -10°C to +70°C
PUR: -30°C to +70°C°C

Benefits

- The „Fast Connect“ construction with inner jacket and a Separation cross between the wire pairs instead of pair shielding considerably shortens the cable assembly time, because the complex fourfold removal of the pair shielding not applicable. It also offers undiminished shielding of the Pairs of wires among each other.
- Additional protection against electromagnetic interference by double overall shielding made of aluminium laminated foil and copper braided shield with high coverage (SF/UTP).
- Pover-over-Ethernet capable cable for simultaneous power and data supply of smaller network components with low energy consumption (e.g. IP cameras, wireless Access Points).
- Certification for the North American market.
- Fast information exchange through Ethernet technology.
- Cat.6_A performance up to 10 Gbit/s.
- For transmission of analog and digital signals in the frequency range up to 600 MHz.
- With robust PVC outer sheath or abrasion-resistant PUR outer sheath available.
- Successfully tested on over 1 million alternating bending cycles in the drag chain.

Application range

- For the highly flexible, permanently moving use in moving machine parts and in the drag chain in PROFINET®- Network (Type C), due to the finest stranded conductor construction.
- Also suitable for EtherCAT and EtherNET/IP applications.
- Can be used in dry, humid and wet environments.
- Versatile use, depending on the sheath material.

TRAIN

CONNECTION SOLUTIONS FOR RAILWAY TECHNOLOGY

NEW: SPRING 2021

ÖLFLEX® TRAIN 331 600V
Single core for rolling stock now available in even more dimensions and colors.

TRAIN:
CONNECTION SOLUTIONS FOR RAILWAY TECHNOLOGY

ÖLFLEX® TRAIN 331 600V

Your wish was our command: Our single-core cable for rolling stock is now also available in the dimensions 0.5 and 0.75 mm² as well as additional colors (BN, GN, YE, WH, GY, OG, VT). All articles are classified according to DIN EN 45545-2 and are also perfectly suitable for your application due to the high-quality electron beam cross-linked insulating materials.

Power and control cables

Special applications • Rolling stock

ÖLFLEX® TRAIN 331 600V

Our single-core cable for rolling stock is now also available in other dimensions (0.5 + 0.75 mm²) as well as additional colors (BN, GN, YE, WH, GY, OG, VT).

Benefits

- For the protection of persons and property.
- Can be used in rail vehicles in compliance with typical standards: Requirements for fire safety and cable construction according to DIN EN 50264-3-1, type M; testing of fire behavior according to DIN EN 45545-2, hazard levels HL1, HL2 and HL3.
- Fire behavior also certified according to AFNOR NF test standards (depending on article, see Technical Data).
- Electron beam cross-linked insulating material enables use at low and high temperatures (-50 °C to 120 °C or 145 °C (3,000 h)).
- Halogen-free and highly flame-retardant materials reduce the risk of fire propagation, high smoke density and toxic fumes in case of fire.

Application

- Can be used in a variety of applications in rail vehicles.
- Typical applications are driver‘s desks, converters, control cabinets and panels, lighting, etc.
- For fixed, protected installation and for applications where limited movement may occur.
- Can be used in dry, damp and especially in rough and oily environments.
- Electron beam cross-linked polymer compound is highly resistant to oils, fuel, alkalis and acids.
- Black versions are suitable for outdoor use.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC000993
ETIM 6.0 Class-Description: Single core cable

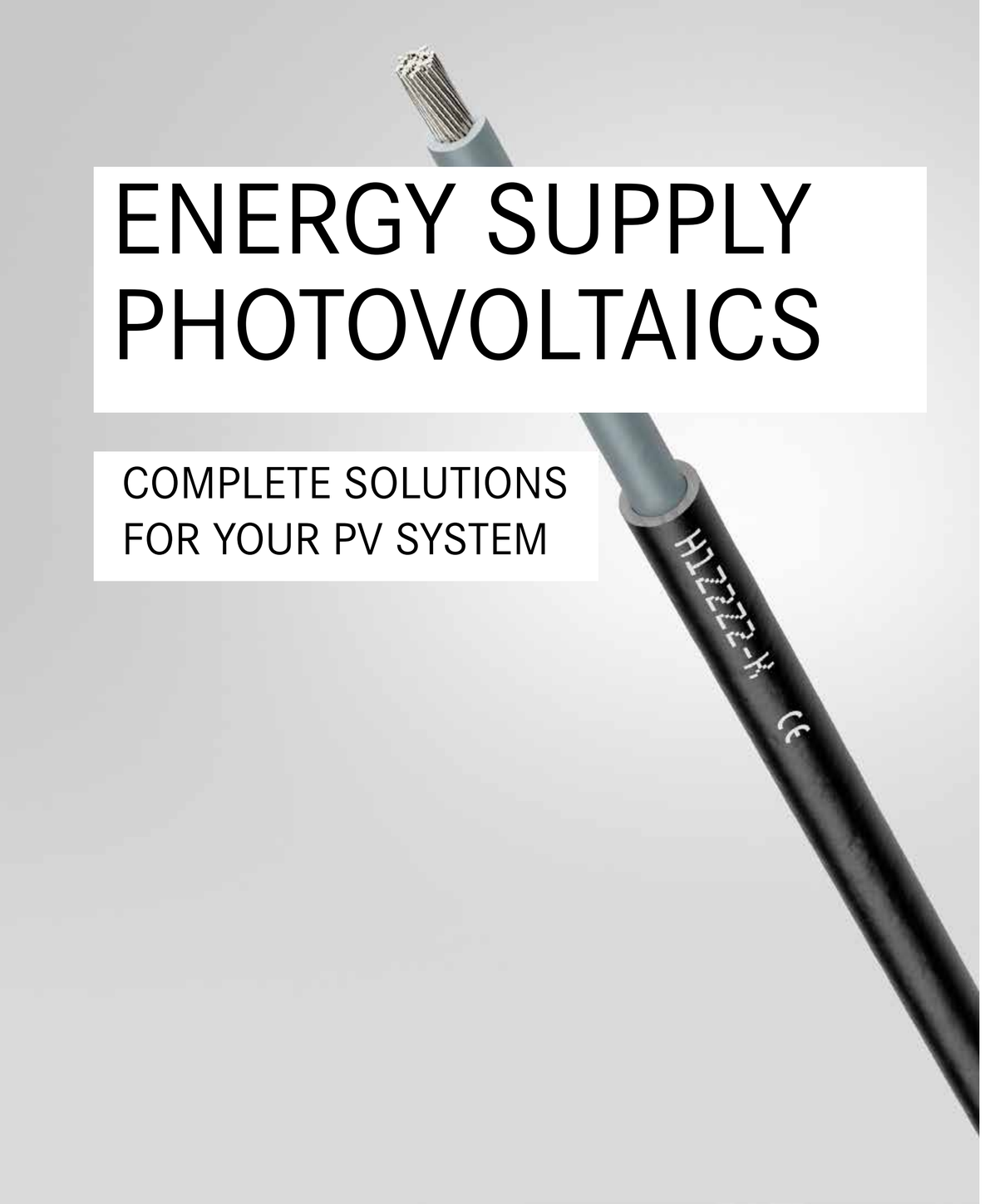
Conductor stranding
Fine-wired/ Finely stranded according to IEC 60228, conductor class 5

Minimum bending radius
Fixed installation:
≤ 12 mm: 3 x OD
> 12 mm: 4 x OD
Occasional flexing:
≤ 12 mm: 4 x OD
> 12 mm ≤ 20 mm: 5 x OD
> 20 mm: 6 x OD
(OD = outer diameter)

Nominal voltage
U_0/U AC 0.6/1 kV
U_m AC 1.2 kV
V_0 DC 0.9 kV

Test voltage
3,5 kV AC; 8,4 kV DC

Temperature range
Fixed installation:
-45°C to +120°C (20.000 h)
-50°C acc. to GOST 20.57.406-81
Occasional flexing:
-35°C to +90°C
Short circuit: +200°C (5s)



ENERGY SUPPLY PHOTOVOLTAICS

COMPLETE SOLUTIONS FOR YOUR PV SYSTEM

Further Highlights

- H1Z2Z2-K

Power and control cables

Special applications • Photovoltaic

H1Z2Z2-K, optimized version

Cross-linked H1Z2Z2-K/EN 50618 certified solar cable, UL Impact-Resistance tested

Benefits

- Optimized price compared to the LAPP predecessor product „H1Z2Z2-K“ despite feature upgrade.
- Third-party certification according to harmonized European design H1Z2Z2-K (in accordance with EN 50618) for tested safety and quality.
- Halogen-free core insulation and sheath mixture as well as confirmed low smoke emission in case of fire favour the use of the cable in public areas.
- Adapted to the increased fire protection requirements through improved fire properties. Classified fire behavior (Dca) according to EU Directive 305/2011 (BauPVO/CPR).
- Better mechanical load-bearing capacity compared to LAPP predecessor product „H1Z2Z2-K“, tested by means of underground installation-related „Impact-Resistance Test“ according to UL 854.

Application

- For unprotected connection of photovoltaic module and inverter in grounded and ungrounded photovoltaic systems according to EN 50618.
- For connecting photovoltaic modules to each other.
- For fixed installation and occasional movement, freely suspended if necessary.
- Can be installed in closed installation ducts, under plaster and in devices.
- Underground installation in protective pipes only in case of waterlogged drainage.
- In and on insulated devices of protection class II according to EN 50618.
- For short-circuit and earth-fault proof applications according to EN 50618 and HD 60364-5-52.
- Suitable for medium mechanical stress.

Technical Data

Classification ETIM 5
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 Class-Description: Flexible cable

Classification ETIM 6
ETIM 6.0 Class-ID: EC001578
ETIM 6.0 Class-Description: Flexible cable

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

Minimum bending radius
4 x OD

Nominal voltage
AC U0/U: 1.0/1.0 kV
DC U0/U: 1.5/1.5 kV
Max. permissible DC operating voltage: 1.8 kV

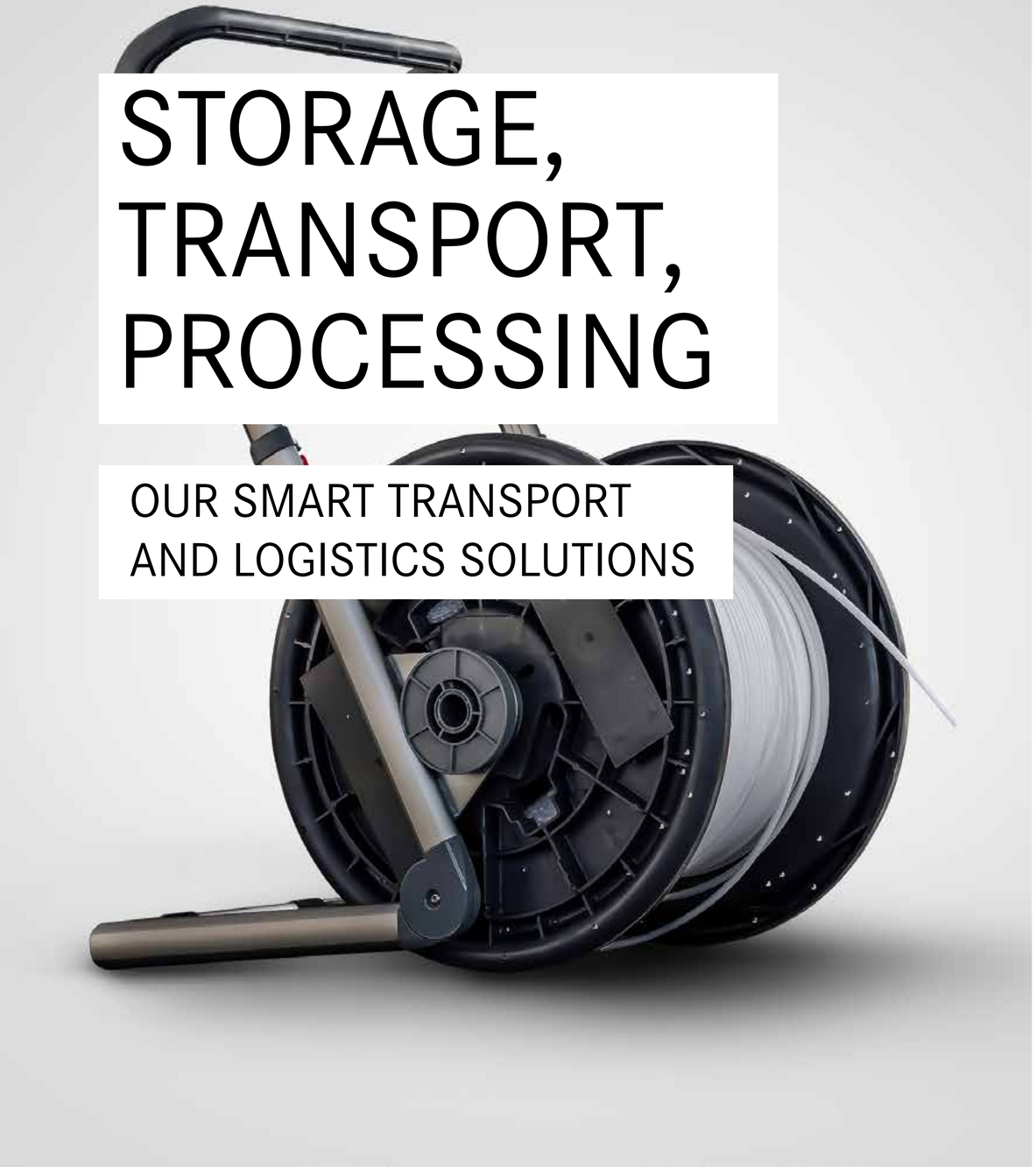
Test voltage
AC 6500 V
DC 15000 V

Current rating
Im compliance with EN 50618, Table A.3
Acc. to EN 50618, reduction factors for clustered wiring per... HD 60364-5-52

Temperature range
>Conductor..., max., per EN 60216-1: 120°C;
>Conductor..., max., short-circuit/ earth fault (period of max. 5 s): 250°C;
>Ambient..., min., stationary use: -40°C;
>Ambient..., min., flexible use or during installation: -25°C;
>Ambient..., max., in conjunction with EN 60216-1: 90°C;
>Ambient..., constant, in conjunction with HD 60364-7-712: 70°C to 90°C;
>Ambient..., ambient temp. related reduction factor 1.00: 60°C;
>Ambient..., max., storage: 40°C

STORAGE, TRANSPORT, PROCESSING

OUR SMART TRANSPORT AND LOGISTICS SOLUTIONS



Further Highlights

- TRONIC SINGLE CORE-CART S 12
- SPINOFF
- DRUM CART

TRONIC Single core-cart S 12

TRONIC Single core-cart S 12 is optimized for LAPP single core spools.

Benefits

- Mobile means of transport for single core spools ensures high flexibility at the place of use and reduced walking distances.
- Serves as a practical and safe storage option of several single core spools at the same time and thus enables a tidy and clear workplace. This provides increased occupational safety.
- Safe unwinding of the single wires, due to horizontal pulling without twist.
- Simultaneous unwinding and winding of several single core spools possible.
- Direct material removal at the place of use enables easier and faster processing of the single wires.
- Quick and easy reloading for a user-friendly handling.
- With useful shelf for tools and smaller work equipment.
- Easy to dismantle for transport with the vehicle.

Application range

- For transporting, storing and unwinding single core spools.
- Can be equipped with 12 to 18 single core spools, depending on the spool width.

Technical data

Dimensions
Cart details:
L = 620, W = 590mm, H = 1160mm
Empty Weight:
20 kg

General data
Max. loading TRONIC Single core-cart S12:
1. Level: 60 kg
2. Level: 40 kg
3. Level: 30 kg

Material
Painted steel

Tools and cable accessories

Transporting, storing, unwinding • Unwinding devices

Technical data

Dimensions
W=585 mm, H= up to 1100 mm

General data
Weight (without drums): 7 kg
Max. load: 140 kg

SpinOff

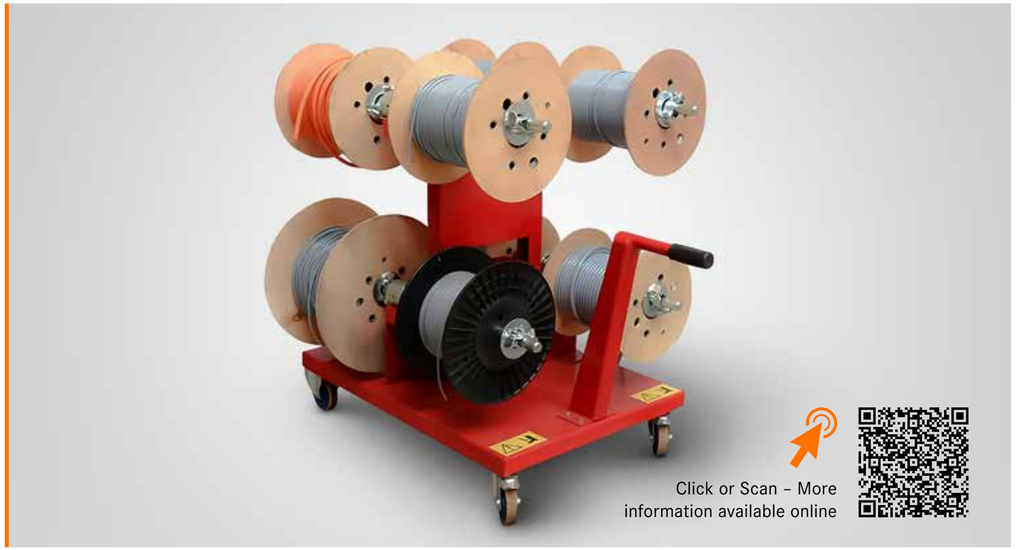
Transport and cutting to length solution for cable drums

Benefits

- Mobile means of transport for the cable drum ensures high flexibility on site.
- By flipping the SpinOff, the cable can be removed from the cable drum. Therefore the cable can be directly unwound and simply cut to length.
- With height-adjustable handle in favour of an ergonomically optimal posture of the user.
- Safe unwinding of the cable, due to horizontal pulling without twist.
- Simple exchange of cable drums for a user-friendly handling. The short cylinder for large cable drums can be easily replaced by the enclosed long cylinder for small cables drums.
- Practical folding mechanism and low weight enable the simple and space-saving transport of the device with the vehicle.
- The SpinOff uses the drum flanges as rollers for the transport. This means that separate transport rollers are superfluous.
- Also available in a version with measuring device.

Application range

- For the transport of a cable drum to the place of use.
- For unwinding and cutting a cable to length.
- For wooden and plastic cable drums of the following dimensions suitable: drum width 34 - 47 cm, flange diameter 40 - 80 cm, flange drilling 7.5 - 8.0 cm.



Drum cart

Mobile cart for transporting, storing and unwinding cable drums.

Benefits

- Mobile transport means for up to 8 cable drums grant high flexibility at the place of use and reduces the walking distances.
- Serves as a practical and safe storage option of cable drums at the same time of cable drums and thus enables a tidy and clearly arranged workplace. This ensures increased occupational health and safety.
- Handy transport by pulling and steering with the help of a tie rod.
- Safe unwinding of the cables, due to horizontal pulling without twist.
- Brakeable spool axes (Ø 25 mm) with centering crowns enable the direct unwinding of the cable drums and thus makes it easier to cut the cables to length.
- Simultaneous unwinding and winding of several cable drums possible.
- Holder for 4 additional cable drums optionally available.

Application range

- For transporting and storing cable drums.
- Can be equipped with 8 cable drums of sizes L040-L050.

Technical data

Dimensions
Cart:
L=1250mm, W=1100mm, H=1150mm
Drum:
Flange diameters: 400 and 500 mm
Drum width: up to 420mm
Flange drilling: 80mm

General data
Weight (without drums): 90 kg
Max. load: 400 kg (50 kg per drum)

LEGEND

NEW PRODUCT

ARTICLE EXTENSION

PRODUCT CHARACTERISTICS


Suitable for outdoor use


Maximum vibration protection


Clean room

Temperature-resistant


Good chemical resistance


Mechanical resistance


Robust


Torsion-resistant


Flame-retardant


Assembly time


Acid-resistant


Torsion load

Wide clamping range


Low weight


Reliability

UV-resistant


Halogen-free


Oil-resistant


Integrated SKINTOP® cable gland


Waterproof


Heat-resistant


Optimum strain relief


Voltage


Variety of approval certifications


Cold-resistant


Space requirement


Connector with standard housing unit


Submersible use


Corrosion-resistant


Power Chain


Interference signals

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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