Ecosystem E-mobility

Product Portfolio

LAPP

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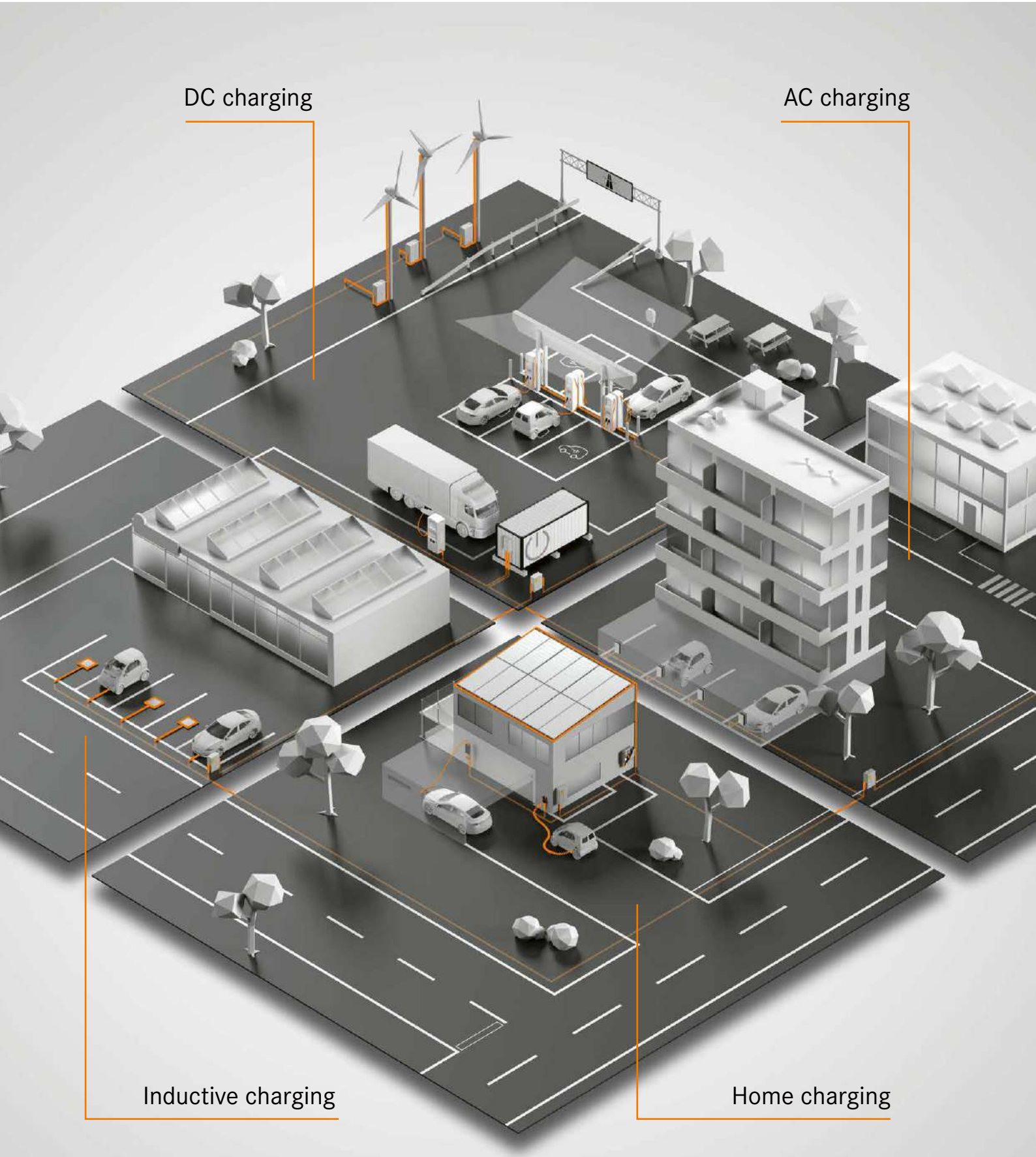
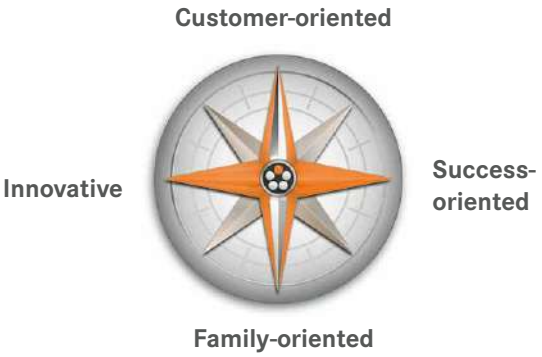
The LAPP ecosystem



On course for success

LAPP ECOSYSTEM EMOBILITY
With our LAPP Ecosystem eMobility we embed charging solutions in the immediate environment at home, in apartment buildings or the public area. In all these areas we apply our strengths – connection technology. So that everything runs, functions, communicates, transmits, controls...

This is why we have significantly expanded our portfolio of solutions – and so you will not only find cables, customized cable assemblies and connectors, but also a whole range of ready to use eMobility charging devices from a single source.



STRONG PARTNER FOR EMOBILITY
Lapp Mobility GmbH is a company of the LAPP Group that develops and produces charging solutions for electric vehicle and charging station manufacturers as well as for infrastructure operators and private e-car drivers.

Our products are produced in Europe and tested in our in-house test lab according to the automotive standard IATF 16949. Each product complies with all current international standards and meets highest safety requirements.

We have a vision! We want to make eMobility accessible to everyone. Not only for technology enthusiasts. Charging an e-car should become natural, easy and uncomplicated – and be fun!

Uncompromising quality – worldwide

ÖLFLEX®
Power and control cables

UNITRONIC®
Data communication systems

ETHERLINE®
Data communication systems for ETHERNET technology

HITRONIC®
Optical transmission systems

EPIC®
Industrial connectors

SKINTOP®
Cable glands

SILVYN®
Protective cable conduit systems and cable carrier systems

FLEXIMARK®
Marking systems

Product portfolio

From standard products to custom-made products
Customized solutions for customer-specific applications

Power- and control cables

Power cables provide the optimum power supply; while control cables, on the other hand, transmit signals for controlling devices and machines. LAPP offers you a variety of cables that can be used to cover all applications: from simple, universally usable single core cables to multi-core cables for specific purposes such as robot or cable chain applications, or even solar and wind power.

Data cables

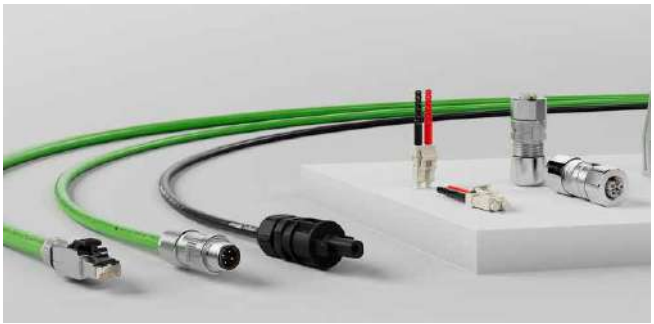
LAPP offers highly reliable data cables for Fieldbus and Ethernet systems so that machines, entire factories and office buildings can communicate with one another. Our industrial communication product range covers all of the most popular protocol standards such as PROFIBUS, CC-Link and CANopen, as well as PROFINET and Ethernet/IP.

Cable assemblies

Cable assemblies are cables that are already fitted with one or two connectors ex works at the open ends. They are ready to connect directly, save time and fulfil the highest quality criteria due to LAPP's expertise. Our portfolio includes various power and control cable assemblies and different data network cable assemblies.

Ready for use immediately!

Cable assemblies are not only produced in the factory by a cable manufacturer, but are also thoroughly checked. Special applications create special requirements and require individual assemblies.



Connectors

EPIC® industrial plug connections are used for power supply as well as signal and data transmission in various industrial environments: they supply another piece of equipment with power, control the signal transmission and guarantee data exchange. We offer a variety of plug connection variants for a wide range of applications and with different ordering options. Receive individual parts, kits or customized assemblies.

The worry-free ÖLFLEX® CONNECT package

If you like keeping things really convenient, effective connection technology also means we can produce plug & play solutions for you. Suitable for immediate use and perfectly assembled. Either with products from the standard range or customised. Get to your desired cable including a moulded plug connector in just a few steps!. Request your desired product now via ÖLFLEX® CONNECT

Product portfolio

Network and distribution components

LAPP offers network and distribution components for Sensor Actuator, Fieldbus and Ethernet applications. From the transmission of simple control signals through to Fieldbus signals, distribution boxes and switches are required. With the robust, industrial Ethernet switches from LAPP, you can easily set up a redundant industrial network from a single source.

Tools and accessories

LAPP's product range of tools and accessories includes tools, end sleeves and cable lugs, products for EMC and earthing, as well as insulation and shrink tube products, cable trolley systems, cable duct and cable wedge clamps and products for cable bundling. As a leading supplier of cabling solutions, we are experts in handling, assembling and installing cables.

Single-cable entry systems

With the SKINTOP® single entries, your cables can be affixed in no time at all: simply insert the cable and twist. The cable is centred, hermetically sealed and has optimum strain relief. We offer you single entries made from plastic, brass and stainless steel.

Multi-cable entry systems

SKINTOP® multi-entry systems are used wherever many cables need to be inserted simultaneously in a confined space. Solutions for assembled and unassembled cables for a wide range of diameters guarante reliable protection even under extreme loads.

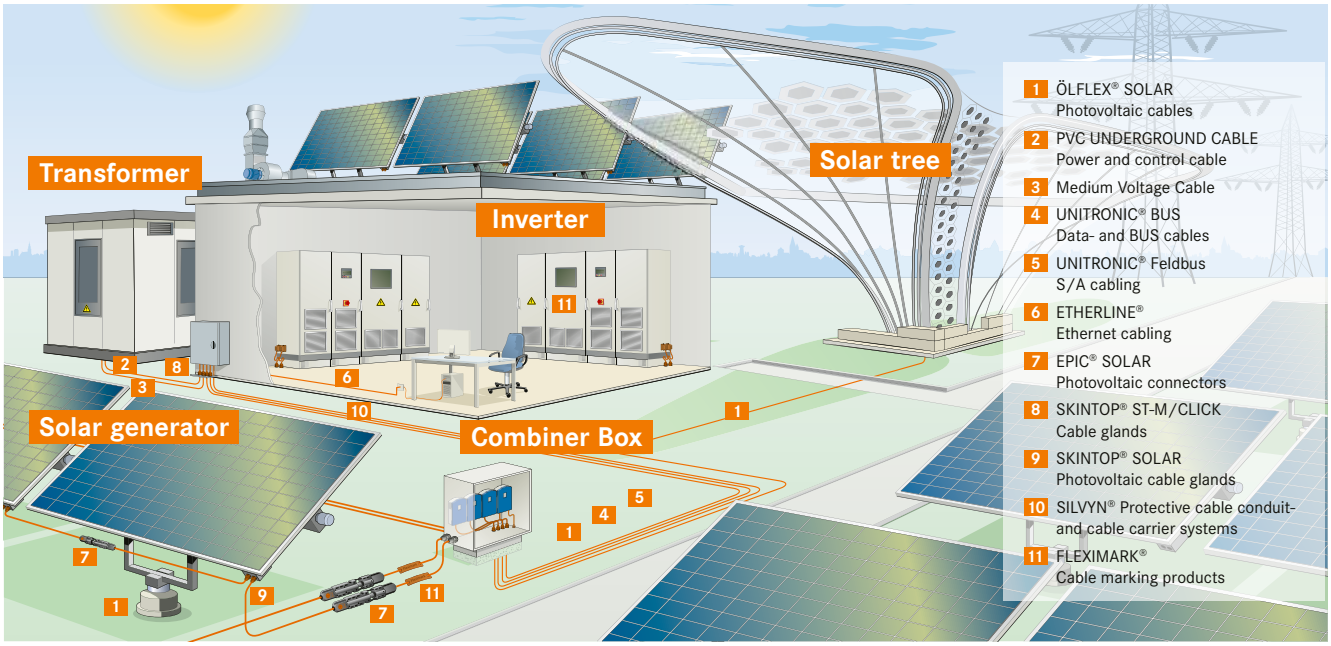
Marking systems

With LAPP marking systems, you can mark virtually everything you need for fast and individual identification in an industrial environment. With us you can find individual numbers, letters, symbols and character holders for individual marking as well as laser or thermal transfer printing labels, printers, label software, safety signage, tools and accessories. Put an end to the chaos – with clear labelling!

Logistics products

Our logistics product portfolio includes various transport, storage and unwinding solutions for efficient handling of cables, wires and single cores. With the unwinding solutions from LAPP, cables, wires and single cores can be removed quickly and easily. The single core solutions simplify the handling of single core rings and coils.

Power and control applications



Cables

ÖLFLEX® SOLAR XLS-R

H1Z2Z2-K

ÖLFLEX® SOLAR XLWP


ÖLFLEX® SOLAR V4A

NYY-J, NYY-O

NAYY-J, NAYY-O

NYCWY

UNITRONIC® Li2YCYv (TP)


UNITRONIC® ST

N2XSY

N2XS2Y

N2XS(F)2Y

N2XS(FL)2Y

NA2XSY

NA2XS2Y

NA2XS(F)2Y

A-DQ(ZN)B2Y

A-DQ(ZN)2Y / A-D(ZN)2Y

A-DQ(ZN)(SR)2Y

A-DQ(ZN)B2Y(SR)2Y

Connectors


EPIC® SOLAR 4Plus M


EPIC® SOLAR 4Plus F


EPIC® SOLAR 4 Splitter


EPIC® SOLAR TOOL

Cable glands


SKINTOP® ST-M/
SKINTOP® STR-M


SKINTOP® SOLAR/
SKINTOP® SOLAR plus


SKINTOP® GMP-GL-M


SKINTOP® CLICK/
SKINTOP® CLICK-R

Protective cable conduit - and cable carrier systems


SILVYN® SPLIT


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


SILVYN® RILL PA 6

Marking Systems


FLEXIMARK®
Stainless steel FCC

FLEXIMARK®
Cablelabel PUR

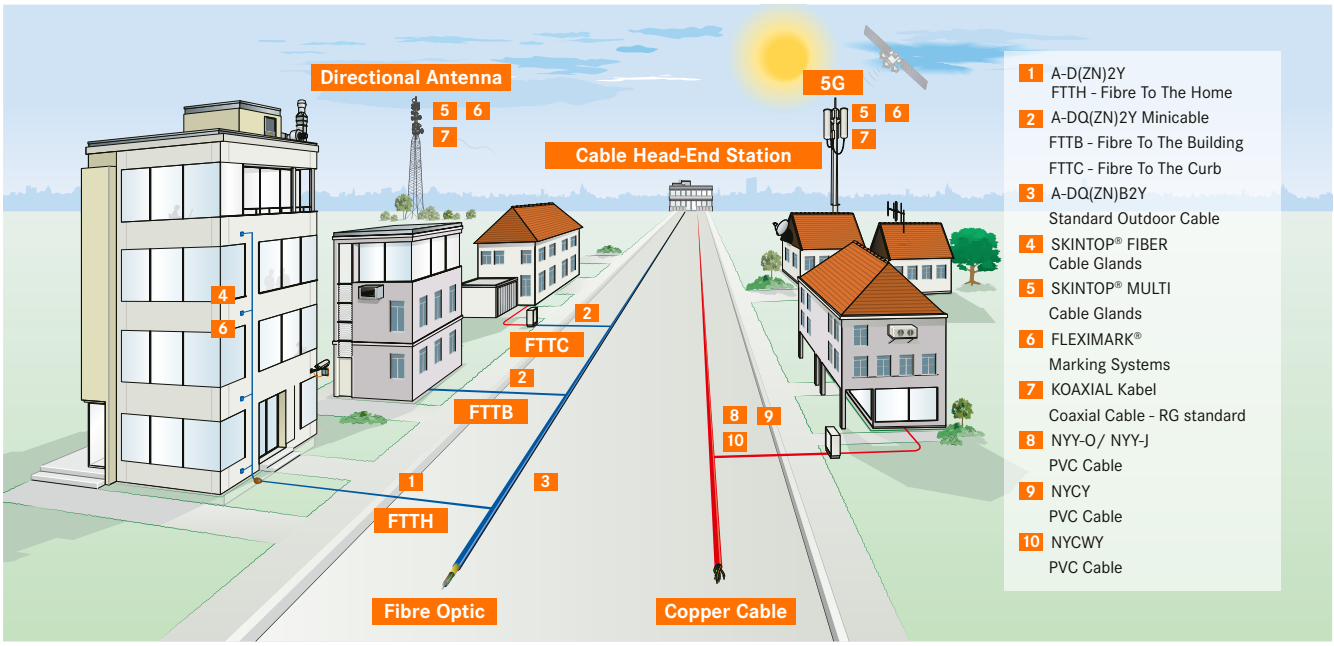
Tools


Ty-Rap® UV-stabilised
cable ties with steel nose


EPIC® CRIMPTOOL


KNIPEX Cable shear

Data communication systems



Cables


A-DQ(ZN)B2Y


A-DQ(ZN)2Y/A-D(ZN)2Y


A-DQ(ZN)(SR)2Y


A-DQ(ZN)B2Y(SR)2Y


Coaxial cable RG


Coaxial cable RG

Coaxial cable RG


Multi coaxial cable RG


Coaxial cable RGB


Coaxial cable RGB


NYY-J/NYY-O


NYCY


NYCWY

Marking Systems


FLEXIMARK® Stainless steel FCC


FLEXIMARK® Cablelabel PUR FCC

FLEXIMARK® Cablemarking FCC


FLEXIMARK® Organized shrink tube FCC


FLEXIMARK® Shrink mark FCC

FLEXIMARK® Software 11.0


FLEXIMARK® thermal printer SQUIX and EOS5

Connectors


GOF Connector


GOF Adapter

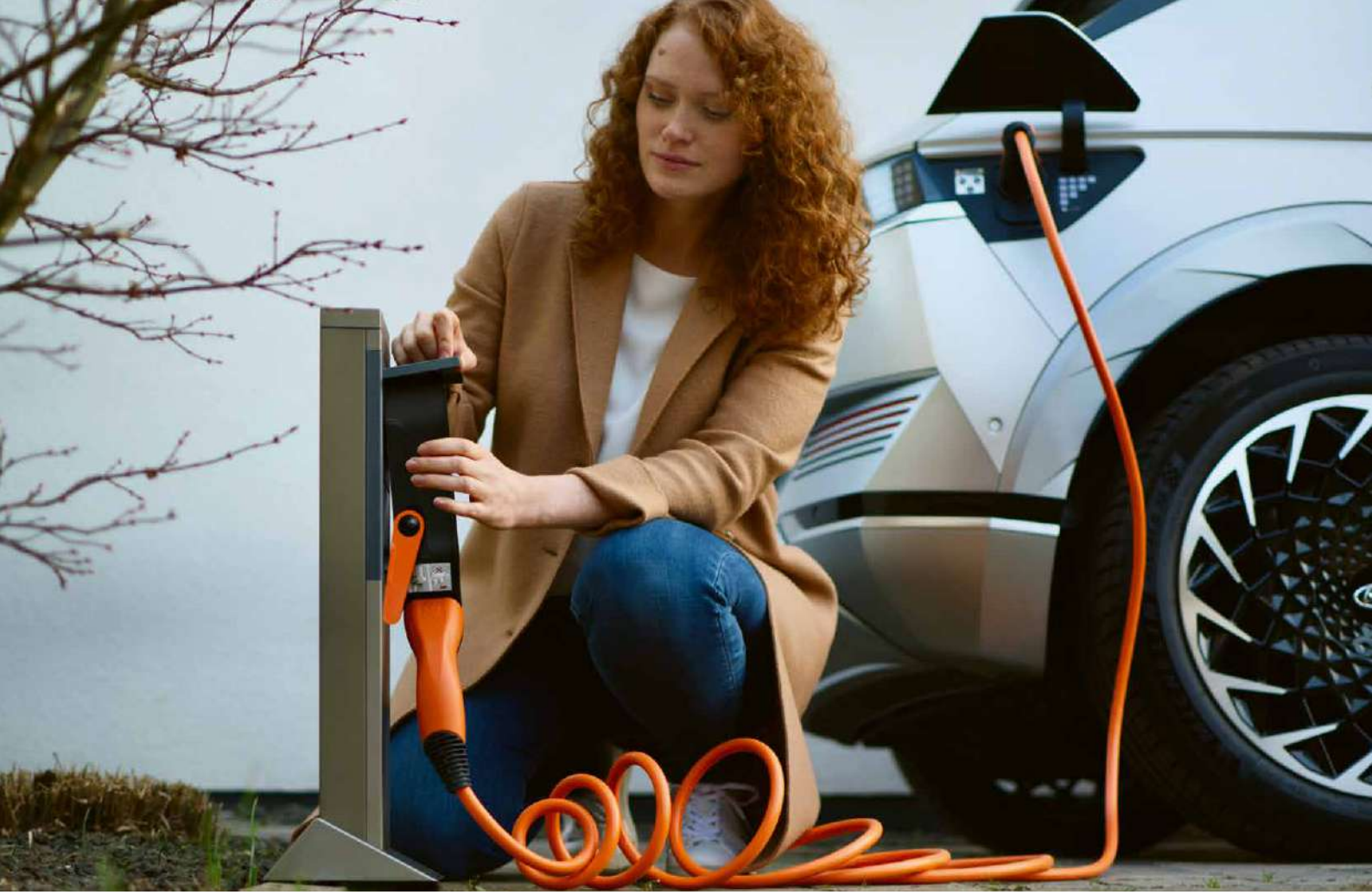

Splice Box for ST and SC

Cable Glands


SKINTOP® FIBER


SKINTOP® MULTI

Charging solutions



Charging at home

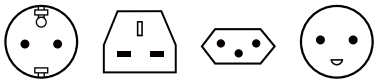
Charge at any household socket

MOBILITY DOCK

THE MOBILITY DOCK is specially designed for use on the road. Connected to a standard household socket, your electric or plug-in hybrid car can be charged easily and safely anywhere. The existing mode 3 charging cable is connected between the car and the charger, which is then connected to the mains power.

Available for following plug types/countries:

E/F G J K



Charging on the road

Charge your electric car
with the right charging cable

HELIX

FOR SIMPLE HANDLING. The patented LAPP HELIX is a quick-charge cable that rolls back up to automatically take its original shape after charging is complete. This means that users don't have to spend time rolling it up by hand – the HELIX is quick and safe to store away.

Click here
for applications
and advantages!

YouTube

GERMAN DESIGN AWARD WINNER 2022

SUSTAINABILITY AWARD IN AUTOMOTIVE
ATZ MTZ ARTHUR LITTLE

eMove 360° AWARD WINNER

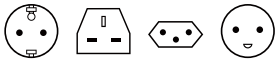
GERMAN INNOVATION AWARD '22 GOLD

For electric and plug-in hybrid vehicles

More Details

Available for following plug types/countries:

E/F G J K



Mobility Dock

Item no.: 5555925000 | Mode 2 charger, 10A, 1-phase, for charging electric and hybrid cars

The MOBILITY DOCK, 10A, 1-phase mode 2 charger from LAPP is a mobile charging device specially designed for charging on the move. Connected to a standard household socket, it enables electric and plug-in hybrid cars to be charged easily and safely anywhere.

The existing mode 3 charging cable is effortlessly connected between the car and the MOBILITY DOCK, which is then connected to the mains power. As well as the actual charging process, the MOBILITY DOCK has a range of protection functions, including essential overcurrent and excess temperature monitoring and protection for the user.

Advantages at a glance

- Mobile charging device for use with a standard domestic power socket
- 100% user friendly and intuitive
- Compact design and ergonomic, easy handling
- Space saving storage in boot
- Charging process starts automatically when requested by the car
- Meets all relevant requirements of the product standard IEC62752
- Protection rating IP44

Included in delivery

- Charger with type 2 coupling and type E/F power connector including cap
- Operating instructions

Click here
for applications
and advantages!

YouTube

Key features

- Support on housing extendable using push button for support on the wall
- Easy disconnection of charging cable after completion of charging using release lever
- Use with the mode 3 charging cable already available in the car
- Gyro sensor in housing for position monitoring
- LED display in housing

Safety functions

- Self-test on start
- Residual current detection (DC) - provides effective protection against DC faults, so that upstream type A RCDs do not become blind
- Residual current detection (AC) - immediately disconnects in the event of potentially fatal AC faults
- Charge monitoring to vehicle
- Continuous protective earth
- Relay monitoring
- Overcurrent detection
- Over and undervoltage detection
- IC-CPD and power connector - Safe charging thanks to disconnection and regulation of charging power in case of overheating.
- Protection rating IP44 (charger), IP44 (connector/coupling)
- Halogen-free
- Flame-retardant
- Oil-resistant

Electrical data

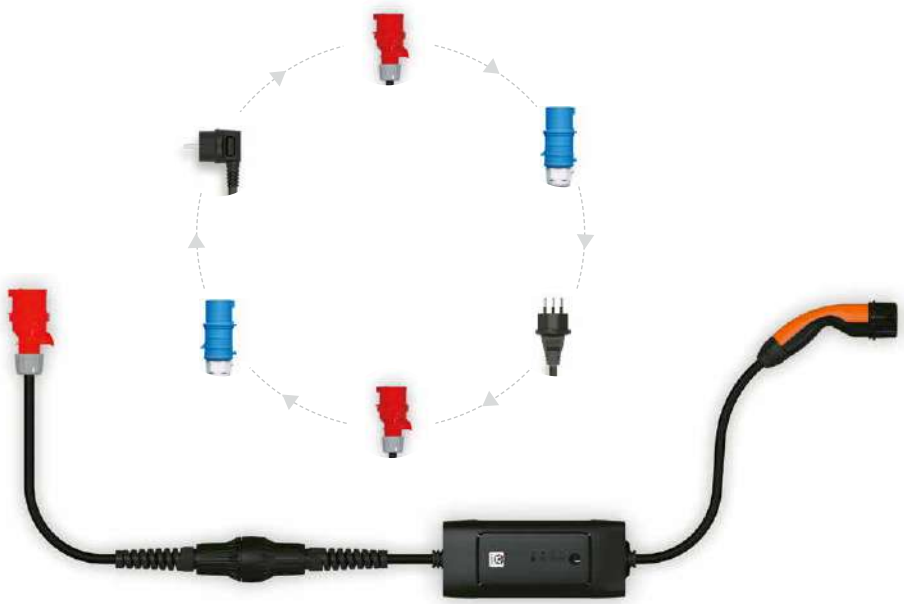
- Charging power up to 2.3kW
- Nominal voltage 230V
- Nominal current 10A, 1-phase
- Frequency 50Hz
- Residual current device (RCD) ≤ 30 mA AC, ≤ 6 mA DC

Technical information

- Mode 2 charging mode in compliance with IEC 61851
- In-cable control and protection device in compliance with IEC 62752
- CE-compliant - meets all stipulations of the applicable standards
- Type E/F power connector (charging current 10A 1-phase)
- Socket for mode 3 charging cable (IEC 62196)
- Protection rating IP44 (connected IP44)
- Charging power up to 2.3kW, automatically adjusting
- Weight 750 g
- Dimensions (H x W x D): 255mm x 135mm x 105mm
- Ambient temperature -25 °C to +45 °C

Universal Mobile Charging Station

Type 2, mode 2 charging cable, CEE max. 32A up to 22kW, 3-phase + shock-proof plug
For charging electric and hybrid cars



THE UNIVERSAL MOBILE CHARGING STATION from LAPP is specially designed for mobile use as a home charging station or on the road. Connected to a normal household socket, it allows electric and plug-in hybrid cars to be charged easily and safely anywhere. The charging cable with control box (IC-CPD) is connected directly to the mains power and the integrated control and protection unit controls the charging process via the cable to the vehicle. The interchangeable power adapter allows different national connectors to be used, including up to 32A 3-phase CEE connectors.

Advantages at a glance

- Home charging station and mobile charging cable for use with standard household sockets and industrial sockets
- 100 % user-friendly. Simply plug in. No current adjustment or other complicated configuration necessary
- The charging process is automatic and ends as soon as the battery is fully charged.
- Ergonomic, solid connector/coupling design with interchangeable mains adapters
- Certifies: Complies with all VDE and IEC requirements (VDE certified to DIN EN 62752:2017)
- Robust design
- Control box protection type IP67
- Robust and fall protected housing design with additional bonding
- Rollover safe
- Eyelet on housing for hanging up
- Pressure compensating element

Safety functions

- Self-test on start
- Leakage current detection
- CP communication with vehicle in compliance with IEC 61851
- Protective earth monitoring (not on IT version for Norway)
- Relay monitoring
- Overcurrent detection
- Over and undervoltage detection
- IC-CPD temperature monitoring
- Household connector temperature monitoring (country-specific)
- Derating function
- Control box protection type IP67
- Rollover safe
- Fall protection
- Halogen-free
- Flame-retardant
- Ambient temperature -25 °C to +50 °C

Electrical data

- Charging power 1-/3-phase 1.2–22 kW
- Nominal voltage range 110–400 V
- Nominal current 6–32 A
- Frequency 50–60 Hz
- Fault current circuit breaker (RCD) ≤ 30 mA AC, ≤ 6 mA DC
- Max. power connector charging current 6 A/8 A/10 A (country-specific)
- Max. industrial connector charging current 16 A/32 A

Included in delivery

- 1x Mode 2 charging cable with type 2 coupling (ICCB control box),
- 1x Household plug (shock proof type EF 10 A)
- 1x Industrial connector (CEE red 16 A 3-phase) IEC 62752 certified by VDE
- Operating instructions

Technical information

- Electrical equipment for electric vehicles designed in compliance with IEC standards, charging system for electric vehicles (IEC 61851-1)
- In-cable control and protection device (IEC 62752)
- Household plug (charging current 6 A/8 A/10 A)
- Industrial connector (charging current 16 A 1-/3-phase/ charging current 32 A 1-/3-phase)
- Vehicle connector (charging current 32 A 1-/3-phase)
- Charging mode 2
- Protection type IP55 (connected)/ IP24 (not connected)
- Transmission of charging currents up to 32 A per phase
- Total charging cable length 5.5-6.0 m (varies depending on power connection)
- Weight 3.65-5.5 kg (depending on design)
- Function box (ICCB) dimensions: 320 x 124 x 84 mm

HELIX Charging Cables

Type 2, mode 3, various types and lengths, for charging electric and hybrid cars

THE HELIX CHARGING CABLE from LAPP allows easy and fast charging at public charging stations and wallboxes. The HELIX makes it easier for users to handle the cable when charging their vehicle. Thanks to its shape memory, the cable automatically reverts to its original shape after charging.

The high protection rating of IP55, together with the additional longitudinal waterproofing, ensures excellent moisture protection. The charging cable, which is designed in accordance to the applicable IEC and EN standards, is both robust and durable, but also easy to handle thanks to its low weight.

Included in delivery

- Charging cable for public charging stations and wall boxes
- Manual

Applicable standards

- EC 61851-1
- IEC 62893-1
- EN 61851-1
- EN 50620
- EN 17186
- 2014/35/EU (Low Voltage Directive)
- 2011/65/EU (RoHS), 215/863/EU

Technical data

- Connections: Type 2 on both sides
- Charging mode: Mode 3 according to IEC 62196
- Rated current: up to 32 A
- Rated voltage: 440 V AC 3-phase and 230V 1-phase versions
- Charging power: 7,4kW, 11kW and 22kW versions
- Permissible temperature range: -40°C - +50°C
- Protection class IP55 with additional longitudinal watertightness
- Halogen free
- Flame retardant
- Oil resistant

Standard Charging Cables

Type 2, mode 3, various types and lengths, for charging electric and hybrid cars

THE STANDARD CHARGING CABLE from LAPP enables easy and fast charging at public and private charging stations and wallboxes.

The high protection rating of IP55, together with the additional longitudinal waterproofing, ensures excellent moisture protection. The charging cable, which is designed in accordance to the applicable IEC and EN standards, is both robust and durable, but also easy to handle thanks to its low weight.

Included in delivery

- Charging cable for public charging stations and wall boxes
- Manual

Applicable standards

- IEC 61851-1
- IEC 62893-1
- EN 61851-1
- EN 50620
- EN 17186
- 2014/35/EU (Low Voltage Directive),
- 2011/65/EU (RoHS), 215/863/EU

Technical data

- Connections:
  Type 2 on both sides
- Charging mode:
  Mode 3 according to IEC 62196
- Rated current: up to 32 A
- Rated voltage:
  440 V AC 3-phase and
  230V 1-phase versions
- Charging power:
  7,4kW, 11kW and 22kW versions
- Permissible temperature range:
  -40°C - +50°C
- Protection class IP55 with
  additional longitudinal watertightness
- Halogen free
- Flame retardant
- Oil resistant

On Request

Spiral Charging Cables

Type 2, mode 3, various types and lengths, for charging electric and hybrid cars

THE SPIRALIZED CHARGING CABLE from LAPP enables easy and fast charging at public and private charging stations and wallboxes.

The high protection rating of IP55, together with the additional longitudinal waterproofing, ensures excellent moisture protection.

The charging cable, which is designed in accordance to the applicable IEC and EN standards, is both robust and durable, but also easy to handle thanks to its low weight.

Included in delivery

- Charging cable for public charging stations and wall boxes
- Manual

Applicable standards

- IEC 61851-1
- IEC 62893-1
- EN 61851-1
- EN 50620
- EN 17186
- 2014/35/EU (Low Voltage Directive)
- 2011/65/EU (RoHS), 215/863/EU

Technical data

- Connections: Type 2 on both sides
- Charging mode: Mode 3 according to IEC 62196
- Rated current: up to 32A
- Rated voltage: 440 V AC 3-phase and 230V 1-phase versions
- Charging power: 7,4kW, 11kW and 22kW versions
- Permissible temperature range: -40°C - +50°C
- Protection class IP55 with additional longitudinal watertightness
- Halogen free
- Flame retardant
- Oil resistant

On Request

Heavy Duty Charging Cable

Type 2, mode 3, up to 22kW, up to 7m for charging electric and hybrid cars

THE HEAVY DUTY CHARGING CABLE from LAPP enables reliable charging at public charging stations and outdoor wallboxes.

Robust design, massively rubberized connector and the silver plated corrosion-resistant contacts ensure long service life and the optimum power transmission of the charging cable.

- For public charging stations and outdoor wall chargers
- For all type 2 electric cars
- Plug and coupler both ergonomic and elegant
- Robust design, massively rubberized connector/ coupling version
- Silver-plated contacts for optimal power transmission and longevity
- Fulfills all relevant VDE and IEC product requirements

Cable properties

Cable finish:
Smooth

Cable structure:
ÖLFLEX® CHARGE 5G 2.5 mm2+0.5

Cable marking:
LAPP Kabel Stuttgart ÖLFLEX® CHARGE EVC750/450VAC EN 50620

Cable color:
Orange RAL 2003

Cable structure:
PP extruded D 12.8 +/- 0.2 mm

Variant:
3-phase plus signal line

Connector/coupling

Type 2 coupling Heavy Duty line:
Power contacts (L1/L2/L3,N, PE) 240V-415V

Type 2 connector Heavy Duty line:
Power contacts (L1/L2/L3,N, PE) 240V-415V

Connector/coupling signal contacts:
2A (CP, PP) 30V DC

Contact surface: 5-6µm Ag coated
Isolation voltage: 500V

Coding resistor between PP and PE:
680 Ohm +/- 1%;1W

Contact resistors:
Improved electrical design due to additional soldering

Connector/coupling design:
2K moulding (hard/soft)

Connector/coupling materials:
Hard component PA 30%;
Soft component TPE

Connector/coupling logo:
LAPP e-Mobility

Type 2 coupling cap:
Protective cap with Velcro

Maximum charging current:
20A 3ph AC

Connector/coupling color:
Orange/black

Technical data

Connections:
Type 2 on both sides
Charging mode:
Mode 3

Protection type:
IP44
Halogen-free
Flame-retardant
Oil-resistant

Temperature resistant:
-30°C to +50°C

Max. charging power:
22kW

Applicable standards

IEC 61851-1
IEC 62893-1
EN 61851-1
EN 50620
EN 17186
2014/35/EU (Low Voltage Directive)
2011/65/EU (RoHS), 215/863/EU

General properties

Protection type:
IP44 plugged in or with protective cap
IP20 unplugged and without protection cap
IP67 within potting compound

Standard:
IEC 62196-1; IEC 62196-2;
IEC 61851-1

Approvals:
VDE certified and CE compliant

Directives:
2014/35/EU (Low Voltage Directive),

Open End Standard Charging Cable

Type 2, mode 3, up to 22kW for charging electric and hybrid cars

THE OPEN END CHARGING CABLE from LAPP with open end is intended for electric vehicle, charging station and wallbox manufacturers. With this charging cable made in Germany vehicles can be charged with up to 32A 3-phase safely.

The charging cable, designed according to valid IEC and EN standards, is both robust and durable, but also easy to handle due to its low weight.

- For public charging station and wall charger manufacturers
- For all type 2 electric cars
- Excellent moisture protection
- Made in Germany

Design

Design:
acc. to EN 50620 and acc. to IEC 62893-3

Certification:
H07BZ5-F acc. to EN 50620 and 62893 IEC 123 acc. to IEC 62893-3

Conductor:
ine wire strands of bare copper, acc. to IEC 60228 resp. EN 60228, class 5

Insulation:
halogen free compound EVI-2 acc. To EN 50620 and EVI-2 acc. to IEC 62893-1

Core identification code:
Power cores:
Coloured acc. To VDE 0293-308 resp. HD 308 S2

Control cores:
Red cores with black or white numbers acc. to EN 50334, acc. to VDE 0293-1, with or without GN/YE ground conductor

Stranding:
cores are stranded in layers

Outer sheath:
Polyurethane-compound TMPU, EVM-1 acc. to EN 50620 and EVM-1 acc. to IEC 62893-1

Electrical properties at 20°C

Specific volume resistivity
> 20 G Ω x cm

Nominal voltage
U_0/U: 450/750 V

Test voltage
core/core: 2500 V AC

Technical data connector

Connector type
Type 2

Charging mode
Mode 3 according to IEC 62196

Rated current
up to 32 A

Rated voltage
440 V AC 3-phase

Max. charging power
22 kW

Temperature range
-40°C - +50°C

Cable type
ÖLFLEX® CHARGE 5G6+1x0.5

Protection class
IP55 with additional longitudinal waterproofing
Halogen free
Flame retardant
Oil resistant

Charging accessories

Hardcase bag for the MOBILITY DOCK

Order number: 5555940007

- With the precisely cut foam inlay, the absolutely shock-proof transport of the MOBILITY DOCK is guaranteed.

Charging cable case

Order number: 5555911001

- With this case you can store the charging cable of your electric vehicle neatly and transport it comfortably. The sturdy bag is suitable for Mode 3 charging cables 5 m and 7 m in length.

Wall mount for the mobile charging station

Order number: 5555000146

Ease of use

- Quick and easy to mount
- No electrical installation necessary
- Intuitive insertion of the mobile charging station
- Easy to remove again
- Dowels and screws included
- With assembly and operating instructions

Quality

- High quality powder coating
- Made in Europe

Universal power adapters for the mobile charging station

CEE 32A 3-phase

- Connection system: CEE
- Charging current: 32 A, 3-phase
- Charging power: 22 kW
- Charging voltage: 400 V
- For Mobile Charging Station Universal

CEE 16A 3-phase

- Connection system: CEE
- Charging current: 16A, 3-phase
- Charging power: 11 kW
- Charging voltage: 400 V
- For the Mobile Charging Station Universal

CEE 32A 1-phase

- Connection system: CEE
- Charging current: 32 A, 1-phase
- Charging power: 7.4 kW
- Charging voltage: 230 V

CEE 16A 1-phase

- Connection system: CEE
- Charging current: 16 A, 1-phase
- Charging power: 3.7 kW
- Charging voltage: 230 V
- For the Mobile Charging Station Universal

E/F 10A 1-phase

- Connection system: EF
- Charging current: 10 A, 1-phase
- For the Mobile Charging Station Universal

ÖLFLEX® CHARGE Cable

The cable has proven itself as original equipment for automobile manufacturers in Mode 3 and Mode 2 harnessing. Now also available for harnessers!

The charging cable, designed according to valid IEC and EN standards, is both robust and durable, but also easy to handle due to its low weight.

Application range

- For public charging station and wall charger manufacturers
- For all type 2 electric cars
- Excellent moisture protection
- Made in Europe

Design

- Design
  acc. to EN 50620 and acc. to IEC 62893-3
- Certification
  H07BZ5-F acc. to EN 50620 and 62893 IEC 123 acc. to IEC 62893-3
- Conductor
  fine wire strands of bare copper, acc. to IEC 60228 resp. EN 60228, class 5
- Insulation
  halogen free compound EVI-2 acc. To EN 50620 and EVI-2 acc. to IEC 62893-1
- Core identification code
  Power cores:
  Coloured acc. To VDE 0293-308 resp. HD 308 S2
- Control cores
  Red cores with black or white numbers acc. to EN 50334, acc. to VDE 0293-1, with or without GN/YE ground conductor
- Stranding
  cores are stranded in layers
- Outer sheath
  Polyurethane-compound TMPU, EVM-1 acc. to EN 50620 and EVM-1 acc. to IEC 62893-1

Benefits

- Quality product
- Availability
- IEC- and EN-certified
- Wide range of colours
- Easy machinability

Variants	Outer diameter
3G2.5+1x0.5	10.2 +/- 0.4
3G6+1x0.5	12.8 +/- 0.4
5G2.5+1x0.5	12.8 +/- 0.4
5G6+1x0.5	16.1 +/- 0.4

- Pilot-core with 0.75 mm² cross-section also available
- Further variants upon request

Mechanical and thermal properties

- Minimum bending radius
  flexing: 10 x outer diameter
- Temperature range
  flexing: -40°C bis +80°C
  (max. temperature at the cable surface)
  max. conductor temperature: 90°C
- Flammability flame retardant
  acc. to IEC 60332-1-2 resp. EN 60332-1-2
- Halogen free
  acc. to EN 50620
  acc. to IEC 62893-1, clause 8.8.5
- UV resistance
  acc. to EN 50620
  acc. to IEC 62893-2, clause 5.2
  acc. to EN ISO 4892-2-2013, method A
- Ozone resistance
  acc. to EN 50396, clause 8.1.3, method B
  acc. to IEC 62893-1
- Chemical resistance
  acc. to EN 50620, appendix D
  acc. to IEC 62893-3, Annex A
- N-oxalic acid resistance
  acc. to EN 50620,
  acc. to IEC 62893-3, Annex A
- N-sodium hydroxide resistance
  acc. to EN 50620,
  acc. to IEC 62893-3, Annex A
- Tests
  acc. to IEC 60811 resp. EN 60811 and IEC 62893-3
- General requirements
  These cables are conform to the EU-Directive 2014/35/EU (Low Voltage Directive)
- Environmental information
  These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS)

ÖLFLEX® CHARGE EV-(R)EYU

EVC cable for electrically powered vehicles, Rated voltage 450/750 V

Application Range

- For conductive AC charging system of electric vehicles
- Charging station electric and plug-in hybrid vehicles
- Suitable for indoor and outdoor use

Norm references

- Dekra K175-1:2015, Dekra K175-1:2015/A1:2016 Dekra K175-1:2015/A2:2020 Type Evc07b1q0-H
- EN 50620:2017 + A1:2019 Type H07BZ5-F

Design

- DEKRA K175-1 Type EVC07B1Q0
- EN 50620, Type H07BZ5-F
- GB/T 33594 Type EV-(R)EYU
- IEC 62893-3 Type 62893 IEC 123

Approvals

- EVC07B1Q0/H07BZ5-F acc.to DEKRA K175-1, EN 50620, IEC 62893
- EV-(R)EYU acc. to GB/T 22594-2017

Product Make-up

- Strands of extra-fine bare copper wires acc. to VDE 0295 Class 6/IEC 60228 Class 6
- Core insulation of power cores made of special halogen-free cross-linked elastomer, according to EVI-2 of IEC 62893, EN 50620, DEKRA K175-1, and EY of GB/T 33594
- Core insulation of control cores made of special halogen-free cross-linked elastomer, according to EVI-2 of IEC 62893,
  EN 50620, DEKRA K175-1, and EY of GB/T 33594
- Core identification code
- Power cores: colored acc. to VDE 0293-308 resp. HD 308 S2, with GN/YE ground conductor
- Control cores: white core(s) with black number(s), acc. to VDE 0293-1
- Stranding: cores are stranded in layers
- Taping: non-woven wrapping
- Outer sheath: Polyurethane compound EVM-1 acc. to IEC 62893, clause 5.2, EN 50620, DEKRA K 175-1, and EY acc. to GB/T 33594, Color: black (RAL 9005), other colors can be provided on request.

Product Features

- Flammability acc. to IEC 60332-1, DEKRA K175-1, clause 3.13
- Halogen free acc. to EN 50525-1, DEKRA K175-1, clause 3.14.1, 3.14.2, 3.14.1.3
- UV resistance acc. to EN ISO 4892-2, method A, IEC 62893-2, clause 5.2, DEKRA K175-1, clause 3.6, GB/T 33594, clause 11.5.3
- Ozone resistance acc. to EN 50396, clause 8.1.3, method B, DEKRA K175-1, clause 3.11
- Chemicals resistance acc. to EN 50620, annex D, GB/T 33594, clause 11.5.2
- N-oxalic acid resistance acc. to EN 50620, DEKRA K 175-1, clause 3.2
- N-sodium hydroxide resistance acc. to EN 50620, DEKRA K 175-1, clause 3.2
- Scratch resistance acc. to DEKRA K 175-1, clause 3.9, GB/T 33594, clause 11.5.7.4
- Squeeze resistance acc. to DEKRA K 175-1, clause 3.10, GB/T 33594, clause 11.5.7.2
- Tear resistance acc. to DEKRA K 175-1, clause 6.8, GB/T 33594, annex B
- Scraping and grinding resistance acc. to DEKRA K 175-1, clause 3.9, GB/T 33594, clause 11.5.7.4
- Hydrolysis resistance acc. to DEKRA K 175-1, clause 6.3, EN 50396, clause 10.3, IEC 62893-2, clause 5.4

Technical data

Approvals
Approval from CQC,
certificate number CQC21011287164
Approval from DEKRA
(will be issued by 15th/Mar.)

Minimum bending radius
Flexing 10 x outer diameter

Nominal voltage
U0/U 450/750 V

Test voltage
AC 3500 V (for power cores)
AC 1500 V (for control cores)

Temperature range
Flexing: -35°C to + 90°C
(Max. conductor temperature for normal operation is 90°C)

Insulation resistance
20 GΩ × cm

Product Advantages

- Robust and abrasion, increased durability under harsh condition
- Resistant to oil, acid and alkaline substances
- Flexible at low temperature
- Water resistant
- PWIS: All materials used for the cable during manufacturing must be free of Paint-Wetting Impairment Substances, e.g. silicone.
- Conform to the EU-Directive 2014/35/EU (Low voltage directive)

Specification

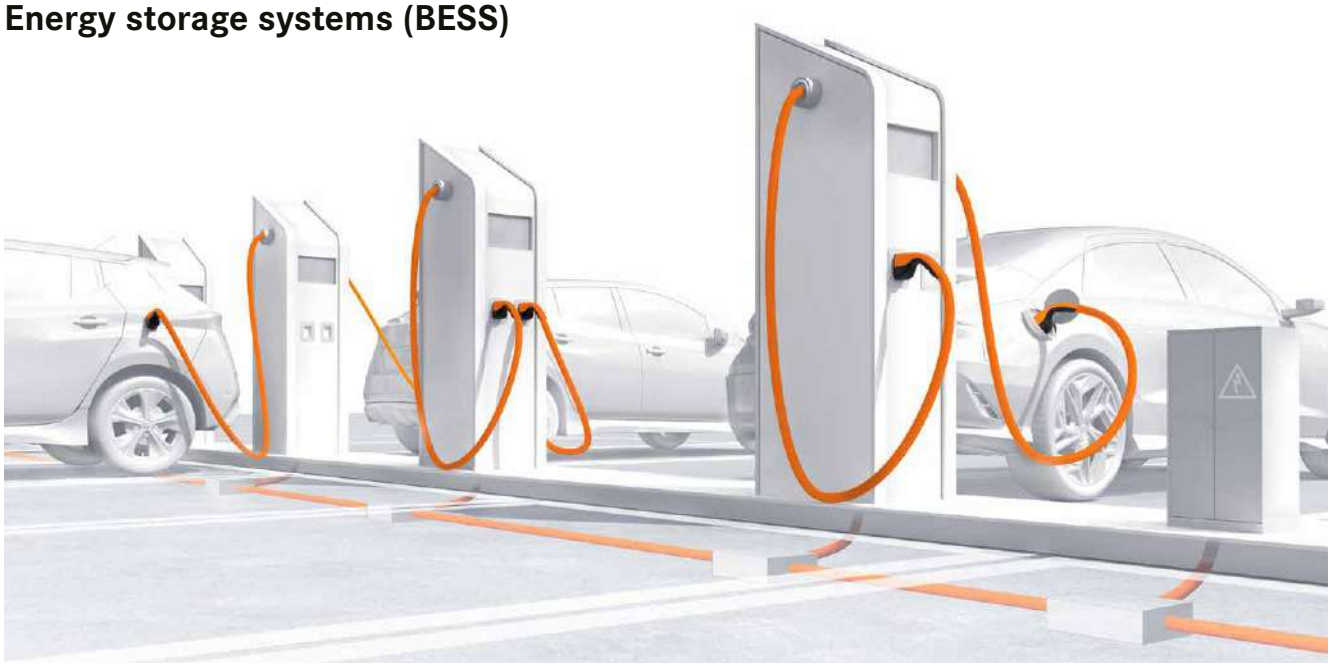
Article number	Number of cores and mm² per conductor	Outer diameter mm	Copper index kg/km	Weight kg/km
8301880101	3G2.5+1X0.5	10.3	76.8	170
8301880102	3G6+1X0.5	13.2	177.6	305
8301880103	3G6+1X0.75	13.2	180.0	310
8301880104	5G2.5+1X0.5	12.7	124.8	250
8301880105	5G2.5+4X0.75	14.4	148.8	295
8301880106	5G6+1X0.5	15.7	292.8	470

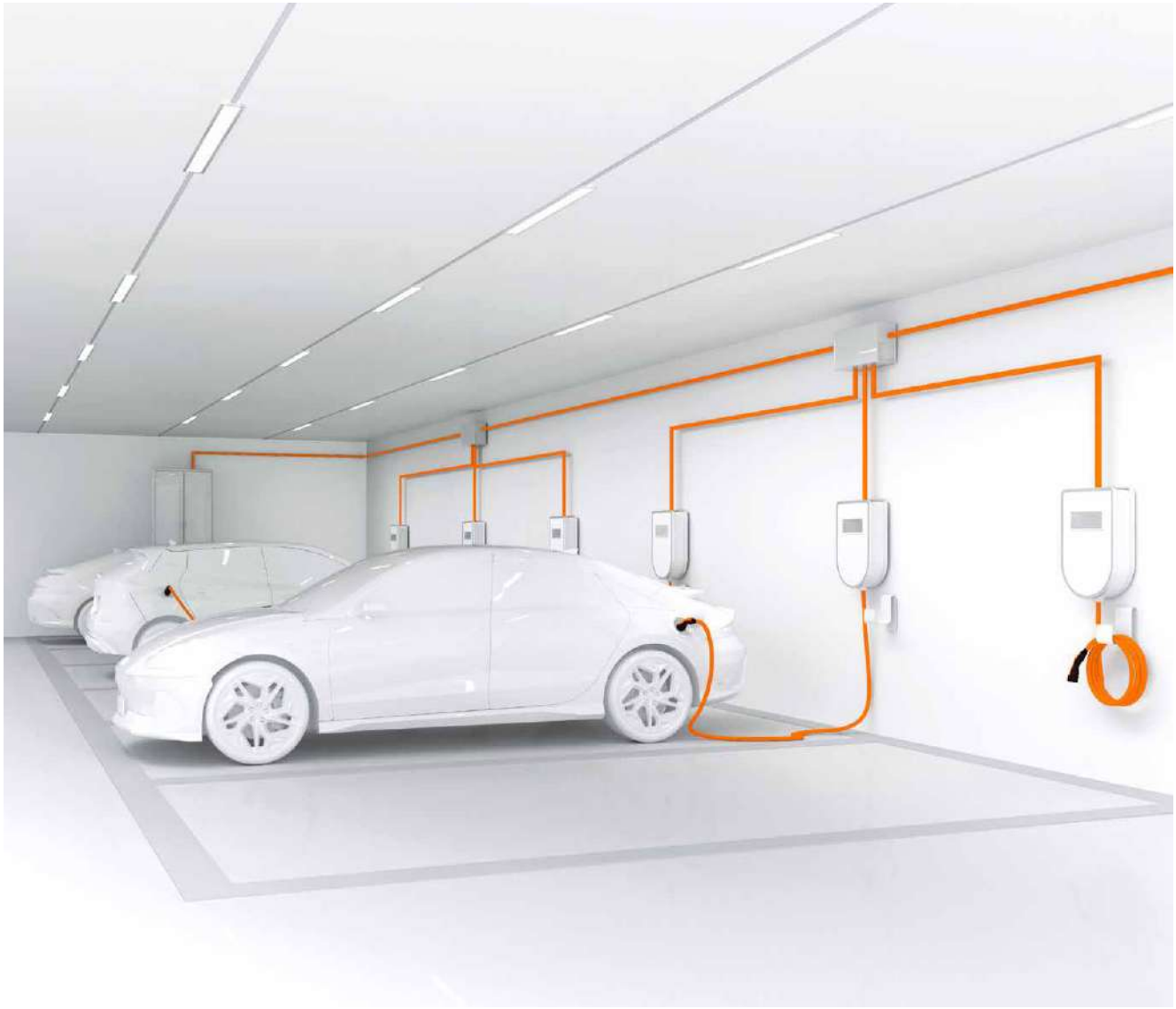
Infrastructure supply lines

Charging parks AC/DC

Parking garages AC/DC

Energy storage systems (BESS)





On Request

N2XSY

Medium-voltage cable; U0/U: 6/10 kV; Bare Copper; PVC; Shielded; VDE certified; Fixed Installation

Benefits

- VDE-certified cable with VDE testing mark for proven reliability and quality according to VDE 0276-620
- Good installation properties enable easy installation, even in the event of difficult cable routing
- Cross-linked conductive layers above and below the core insulation prevent partial discharges and enable constant operational safety
- Available in conductor cross-sections up to 800 mm²
- Available in voltage classes 6/10 (12) kV, 12/20 (24) kV and 18/30 (36) kV

Application range

- Suitable for energy distribution in medium-voltage networks
- For fixed installation in water, air and earth. In the ground, the minimum installation depth without additional, suitable underground protection is 0.6 m, and at least 0.8 m under roads (according to HD 620/VDE 0276-620 Part 10-C (point 4)
- Also suitable for indoor installation and closed installation ducts for energy supply company, industrial and distribution networks
- Suitable for medium mechanical stress due to the PVC outer sheath
- Suitable for outdoor use, subject to the temperature range and only if protected against direct sunlight
- Use at temperatures up to -40 °C possible

Electrical properties at 20 °C

- Nominal voltage
  N2XSY 6/10kV: 6/10 kV
  N2XSY 12/20kV: 12/20 kV
  N2XSY 18/30kV: 18/30 kV
- Operating voltage
  N2XSY 6/10kV: max. 12 kV
  N2XSY 12/20kV: max. 24 kV
  N2XSY 18/30kV: max. 36 kV
- Test voltage
  N2XSY 6/10kV: 21 kV
  N2XSY 12/20kV: 42 kV
  N2XSY 18/30kV: 63 kV

Technical data

Design
acc. to DIN VDE 0276-620

Certifications
The cable is marked with the VDE-sign or VDE-identification thread

Insulation
Inner layer: cross-linked, conductive inner layer
Core insulation: cross-linked polyethylene compound
DIX 8 acc. to HD 620 S2
Outer layer: conductive layer extruded and welded with core insulation

Screen
Wrapping: conductive wrapping
Screen: braiding of copper wires with one or two cross conductive spiral
Wrapping: conductive wrapping

Temperature range
during installation: -5 °C up to +50 °C max. conductor temperature
fixed installation: -40 °C up to +90 °C max. conductor temperature

Minimum bending radius
15 x outer diameter

Conductor
multi-wire, bare copper conductor acc. IEC 60228 resp. EN 60228 class 2

Outer sheath
PVC compound type DMV 6 acc. to HD 620 S2
Sheath colour: red

NA2XS(F)2Y

Medium voltage cable; 1x50 RM; U0/U: 18 / 30 kV; Aluminium; PE; Shielded

Benefits

- VDE-certified cable with VDE testing mark for proven reliability and quality according to VDE 0276-620.
- Robust during installation and operation thanks to robust PE outer sheath.
- Available in voltage classes 6/10 (12) kV, 12/20 (24) kV and 18/30 (36) kV.

Application range

- Suitable for energy distribution in medium-voltage networks.
- For fixed installation in water, air and earth. In the ground, the minimum installation depth without additional, suitable underground protection is 0.6 m, and at least 0.8 m under roads (according to HD 620/VDE 0276-620 Part 10-C (point 4).
- Also suitable for indoor installation and closed installation ducts for energy supply company, industrial and distribution networks, but not flame-retardant according to IEC 60332-1-2.
- Suitable for high mechanical stress due to the PE outer sheath.
- Suitable for outdoor use.
- Use at temperatures up to -40°C possible.

Electrical properties at 20 °C

- Nominal voltage
  NA2XS(F)2Y 6/10kV: 6/10 kV
  NA2XS(F)2Y 12/20kV: 12/20 kV
  NA2XS(F)2Y 18/30kV: 18/30 kV
- Operating voltage
  NA2XS(F)2Y 6/10kV: max. 12 kV
  NA2XS(F)2Y 12/20kV: max. 24 kV
  NA2XS(F)2Y 18/30kV: max. 36 kV
- Test voltage
  NA2XS(F)2Y 6/10kV: 21 kV
  NA2XS(F)2Y 12/20kV: 42 kV
  NA2XS(F)2Y 18/30kV: 63 kV

Technical data

Design
acc. to DIN VDE 0276-620

Certifications
The cable is marked with the VDE-sign or VDE-identification thread

Insulation
Inner layer: cross-linked, conductive inner layer
Core insulation: cross-linked polyethylene compound
DIX 8 acc. to HD 620 S2
Outer layer: conductive layer extruded and welded with core insulation

Screen
Wrapping: longitudinally water-tight, conductive wrapping
Screen: braiding of copper wires with one or two cross
conductive spiral
Wrapping: longitudinally water-tight, conductive wrapping

Temperature range
during installation: -20°C up to +50°C
max. conductor temperature
fixed installation: -40°C up to +90°C
max. conductor temperature

Minimum bending radius
5 x outer diameter

Halogen free
acc. to IEC 60754-1 resp. EN 60754-1

Conductor
multi-wire aluminium conductor acc. IEC 60228 resp. EN 60228 class 2

Outer sheath
PE compound type DMP 2 acc. to HD 620 S2
Sheath colour: black

Halogen free
acc. to IEC 60754-1 resp. EN 60754-1

More Details

NSGAFÖU 1,8/3 kV

Flexible single-conductor rubber cable with 1.8/3 kV rated voltage

Info

- Public transport
- Control panel internal wiring

Benefits

- Arrangements made of single-conductor cables NSGAFÖU in accordance with VDE 0250 Part 602 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Normative rated voltage classes U0/U 0.6/1 kVac and 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- <VDE> NSGAFÖU 1,8/3 kV cable type approval according to VDE 0250-602

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Outer coating: rubber compound, type 5GM3

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 1.8/3 kV

Test voltage
6000 V

Current rating
According to VDE 0298 Part 4, Table 15

Temperature range
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NSGAFÖU 1,8/3 kV				
1600300	1.5	7.0	14.4	60
1600301	2.5	7.5	24	70
1600302	4	9.0	38.4	90
1600303	6	9.5	57.6	120
1600304	10	11.0	96	180
1600305	16	13.0	153.6	250
1600306	25	15.0	240	390
1600307	35	16.5	336	470
1600308	50	18.0	480	625
1600309	70	20.5	672	880
1600310	95	24.0	912	1190
1600311	120	26.0	1152	1430
1600312	150	28.0	1440	1750
1600313	185	31.0	1776	2160
1600314	240	34.5	2304	2640
3026826	300	38.0	2880	3545

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

Accessories

- KNIPEX Cable shear refer to page 952
- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

NSHXAFÖ 1,8/3 kV

Halogen-free, flexible single-core rubber cable for public transport and wiring

Info

- Public transport
- Control panel internal wiring
- Halogen-free

Benefits

- Arrangements made of single-conductor cables NSHXAFö in accordance with VDE 0250 Part 606 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

Product features

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Flame-retardant according IEC 60332-1-2
- Normative rated voltage class 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- <VDE> NSHXAFÖ 1,8/3 kV cable type approval according to VDE 0250-606

Product Make-up

- Fine copper wire strands
- Core insulation: halogen-free rubber compound, type 3GI3
- Outer coating: halogen-free polymer compound, type HM3

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 1.8/3 kV

Test voltage
6000 V

Temperature range
Flexing: -5°C to +90°C
Fixed installation: -25°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NSHXAFÖ 1,8/3 kV				
3022673	1.5	7.0	14.4	60
3022674	2.5	7.5	24	70
3022675	4	9.0	38.4	90
3022676	6	9.5	57.6	120
3022677	10	11.0	96	180
3022678	16	13.0	153.6	250
3022679	25	15.0	240	390
3022680	35	16.5	336	470
3022681	50	18.0	480	625
3022682	70	20.5	672	880
3022683	95	24.0	912	1190
3022684	120	26.0	1152	1430
3022685	150	28.0	1440	1750
3022686	185	31.0	1776	2160
3022687	240	34.5	2304	2718
3022688	300	38.0	2880	3470

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

Accessories

- KNIPEX Cable shear refer to page 952
- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

ÖLFLEX® DC GRID 100

DC power cable; 3G150; U0/U: 0,75 / 1,5 kV; PVC; Core identification: Colours; Fixed Installation

Benefits

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

Application range

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

Electrical properties at 20 °C

- Specific volume resistivity > 20 G Ω x cm
  Nominal voltage
  conductor – earth: 750 V DC
  conductor – conductor: 1500 V DC
- Operating voltage
  conductor – earth:
  max. 900 V DC
  conductor – conductor:
  max. 1800 V DC
- Test voltage
  core/core: 4000 V AC

Mechanical and thermal properties

Minimum bending radius
fixed installation: 12 x outer diameter

Temperature range
fixed installation: - 40 °C up to + 70°C max. conductor temp.
Flammability
flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2

UV resistance
acc. to EN 50618
acc. to EN 50620
acc. To EN ISO 4892-2, method A (change of colour allowed)

Ozone resistance
acc. to EN 50396, method B

Tests

- acc. to EN 60811 resp. IEC 60811, VDE 0472, EN 50395 and EN 50396
- General requirements
  These cables are conform to the EU-Directive 2014/35/EU (Low Voltage Directive).
- Environmental information
  These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).

Technical data

Design
based on VDE 0276-603 and IEC TS 61200-1021

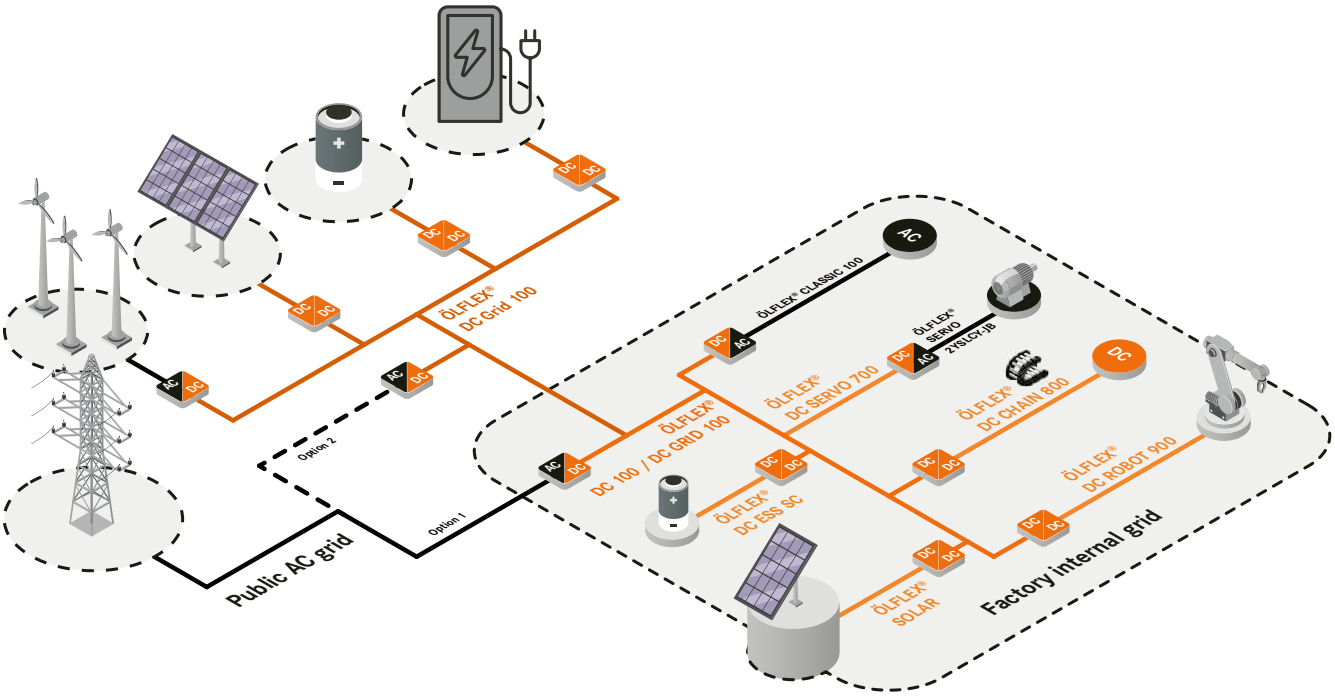
Conductor
bare copper, fine wire strand acc. to IEC 60228 resp.
EN 60228, class 5, circular

Insulation
PVC compound DI4 acc. to VDE 0276-603

Core identification code
coloured cores,
3 cores: red; white; GNYE
4 cores: red; white; blue; GN/YE

Outer sheath
PVC compound DMV5 acc. to VDE

DC application for the industry



Direct current (DC) serves as a future key technology for the integration of renewable energy sources and helps to avoid energy conversions within the production process. A simplified energy exchange between energy source and production plant/ machine parts, as well as a process-optimized storage connection are important advantages of this technology in order to be able to implement an intelligent energy supply in the industry. Lapp is working intensively on solutions and can actively contribute to the implementation and application of direct current in the production process with the following portfolio.

ÖLFLEX® DC – Product range

Product	Application range	Nominal voltage (power cores)	Cross section (mm²) (power cores)	Temperature
ÖLFLEX® DC 100 	Power cable for fixed installation and occasional flexible use	0.75/1.5 kV DC	1.5 - 185	Flexible: -5°C to +70°C Fixed installation: -40°C to +80°C
ÖLFLEX® DC SERVO 700 	Power cable for DC drives & daisy chain applications	0.75/1.5 kV DC	2.5	Flexible: -5°C to +70°C Fixed installation: -40°C to +80°C
ÖLFLEX® DC CHAIN 800 	Power cable for highly flexible use in constant motion within drag chains	0.75/1.5 kV DC	0.5 - 35	Flexible: -40°C to +105°C Fixed installation: -50°C to +105°C
ÖLFLEX® DC ROBOT 900 	Power cable for highly flexible use with continuously alternating bending and torsional motion	0.75/1.5 kV DC	0.5 - 35	Flexible: -35°C to +90°C Fixed installation: -50°C to +90°C

Direct current improves energy and resource efficiency

Increase of availability
- Stability of energy networks due to reduced harmonics

Energy efficiency
- Cross-machine recuperation
- Reduction of conversion losses from AC to DC
- Easier integration of renewable, decentralized energy sources

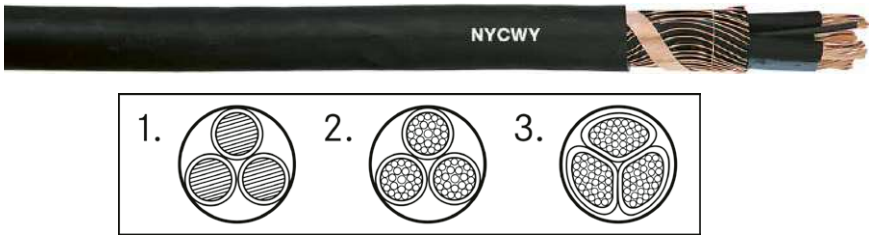
Resource efficiency
- Less components and less space required
- Less wiring efforts

NYCWY

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

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- 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

Norm references / Approvals

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

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

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

Technical data

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

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

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

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYCWY				
15505003	2 x 10re/10	19.0	312	610
15505263	3 x 10re/10	20.0	408	775
15505403	4 x 10re/10	21.0	504	897
15505273	3 x 16re/16	22.0	643	1066
15505413	4 x 16re/16	24.0	796	1250
15505283	3 x 25rm/25	26.0	1003	1584
15505423	4 x 25rm/16	28.0	1142	1822
15505303	3 x 35sm/35	26.0	1402	1710
15505433	4 x 35sm/16	29.0	1526	2146
15505163	3 x 50sm/50	30.0	2000	2368
15505443	4 x 50sm/25	33.0	2203	3031
15505453	4 x 70sm/35	38.0	3082	4056
15505143	3 x 95sm/50	38.0	3296	4256
15505323	3 x 95sm/95	39.0	3791	4600
15505463	4 x 95sm/50	43.0	4208	5364
15505153	3 x 120sm/70	41.0	4236	5314
15505473	4 x 120sm/70	46.0	5388	6748
15505353	3 x 150sm/70	45.0	5100	6344
15505483	4 x 150sm/70	51.0	6540	8159
15505173	3 x 185sm/95	50.0	6383	8054

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: www.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 and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 239

Accessories

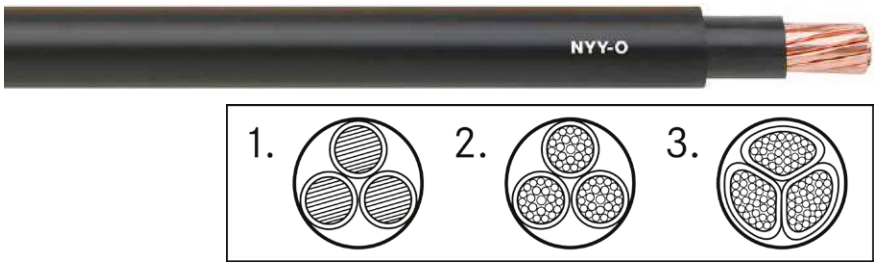
- KNIPEX Cable shear refer to page 952
- KNIPEX Ratchet cutter refer to page 952
- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

NYY-J, NYY-O

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

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Standard cable for direct burial with different application areas
- 0,6/1,0 kV alternative to the PVC installation cable NYM



Application range

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

Product features

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

Norm references / Approvals

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

Product Make-up

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

Technical data

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

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

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

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

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYY-J				
1550030	1 x 25rm	13.0	240	380
1550038	1 x 35rm	14.0	336	447
1550032	1 x 50rm	15.0	480	650
1550033	1 x 70rm	17.0	672	864
1550035	1 x 120rm	21.0	1152	1400
1550037	1 x 185rm	25.0	1776	2080
15500013	3 x 1,5re	12.0	43	223
15500023	4 x 1,5re	13.0	58	256
15500033	5 x 1,5re	14.0	72	293
1550004	7 x 1,5re	15.0	101	360
1550005	10 x 1,5re	18.0	144	520
1550006	12 x 1,5re	19.0	173	560
1550084	14 x 1,5re	20.0	202	620
1550007	16 x 1,5re	21.0	230	680
1550008	19 x 1,5re	22.0	274	760
1550009	24 x 1,5re	24.0	346	900
1550086	30 x 1,5re	26.0	432	1100
15500103	3 x 2,5re	13.0	72	272
15500113	4 x 2,5re	14.0	96	316
15500123	5 x 2,5re	15.0	120	323
1550013	7 x 2,5re	16.0	168	450
1550090	10 x 2,5re	20.0	240	630
1550091	12 x 2,5re	20.0	288	680
1550092	14 x 2,5re	21.0	336	790
1550094	19 x 2,5re	23.0	456	990

ÖLFLEX® CLASSIC 100 BK 0,6/1 kV

Info

- Good outdoor performance
- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- High electrical performance due to 4 kV test voltage

Application range

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

Product features

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

Product Make-up

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

Technical data

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

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

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

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

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

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

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

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

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

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

Similar products

- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 76
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 44

Accessories

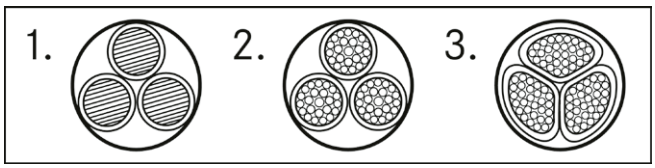
- FLEXIMARK® Stainless steel kit refer to page 942
- SKINTOP® MS-M refer to page 690
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 692

N2XH

Halogen-free power cable with rated voltage 0,6/1 kV for fixed installation

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYY-J, NYY-O



Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- HD 604/VDE 0276-604

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

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

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

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

Temperature range
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

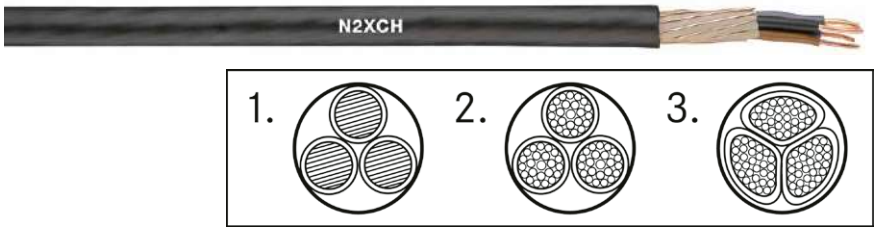
Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
N2XH-O				
1550556	1x1,5 RE	5.5	14	53
1550557	1x2,5 RE	5.8	24	58
3017600	1x4 RE	6.2	38	69
30017645	1x6 RE	6.5	58	90
30017646	1x10 RE	7.3	96	131
1550561	1x16 RE	8.6	154	197
30017648	1x25 RM	10.2	240	293
30017649	1x35 RM	11.3	336	389
30017650	1x50 RM	12.7	480	517
30017651	1x70 RM	14.6	672	717
30017652	1x95 RM	16.3	912	972
30017653	1x120 RM	18.3	1152	1215
3017601	1x150 RM	20.0	1440	1494
3017602	1x185 RM	22.6	1776	1855
3017603	1x240 RM	25.2	2304	2387
1112935	1x300 RM	27.9	2880	2971
30017654	2x1,5 RE	12.0	29	185
30017655	2x2,5 RE	13.0	48	220
30017656	2x4 RE	14.0	77	275
30017657	2x6 RE	15.0	115	335
30017658	2x10 RE	16.0	192	450
1550578	2x16 RE	18.0	307	625
3017605	2x25 RM	21.0	480	950
35002466	3x1,5 RE	8.9	43	125
1550581	3x2,5 RE	9.8	72	163
N2XH-J				
1112940	1x25 RM	10.2	240	293
1112941	1x35 RM	11.3	336	389

N2XCH

Halogen-free power cable with concentric copper conductor

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYCY
- With concentric copper conductor



Benefits

- Concentric conductor above all as PE

Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- HD 604/VDE 0276-604

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Concentric conductor: bare copper wires
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

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

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
N2XCH				
30017695	2x1,5 RE/1,5	11.1	53	172
30017696	2x2,5 RE/2,5	11.9	80	213
30017697	2x4 RE/4	14.0	122	322
30017698	2x6 RE/6	15.0	183	410
30017699	2x10 RE/10	17.0	311	550
1550661	2x16 RE/16	19.0	490	790
30017701	3x1,5 RE/1,5	11.5	67	190
30017702	3x2,5 RE/2,5	12.3	103	239
30017703	3x4 RE/4	13.5	160	314
30017704	3x6 RE/6	14.9	242	410
30017705	3x10 RE/10	16.8	406	600
1550667	3x16 RE/16	19.9	643	896
30017707	3x25 RM/16	25.3	1001	1360
30017708	3x35 RM/16	29.2	1400	1795
1550670	3x50 SM/25	32.0	2003	2460
1550671	3x70 SM/35	36.0	2794	3080
1550672	3x95 SM/50	39.0	3296	4310
1550673	3x120 SM/70	42.0	4785	5233
1550674	3x150 SM/70	48.0	5100	5788
1550675	3x185 SM/95	49.5	6381	7150
1550676	3x240 SM/120	54.0	8240	9273
30017716	4x1,5 RE/1,5	12.2	80	217
30017717	4x2,5 RE/2,5	13.2	129	275
30017718	4x4 RE/4	14.5	202	365
30017719	4x6 RE/6	15.9	296	479

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
30017720	4x10 RE/10	18.0	504	709
1550682	4x16 RE/16	21.5	796	1068
30017722	4x25 RM/16	25.6	1142	1526
30017723	4x35 RM/16	26.9	1526	1814
1550685	4x50 SM/25	29.6	2203	2405
1550686	4x70 SM/35	34.0	3082	3378
1550687	4x95 SM/50	38.5	4208	4568
1550688	4x120 SM/70	44.7	5388	5773
1550689	4x150 SM/70	46.6	6540	6921
1550690	4x185 SM/95	53.8	8195	8866
1550691	4x240 SM/120	57.6	10546	11167
30017730	7x1,5 RE/2,5	15.0	133	360
30017731	7x2,5 RE/2,5	16.0	200	378
30017733	7x4 RE/4	18.0	315	599
30017734	7x6 RE/6	19.0	470	850
1550696	10x1,5 RE/2,5	17.2	177	420
1550697	10x2,5 RE/4	18.9	287	550
30017735	12x1,5 RE/2,5	18.0	205	437
30017736	12x2,5 RE/4	19.5	334	589
30017737	12x4 RE/6	23.0	528	920
1550701	16x1,5 RE/4	20.0	275	686
1550702	16x2,5 RE/6	20.9	450	805
30017738	24x1,5 RE/6	22.7	413	764
30017739	24x2,5 RE/10	26.0	695	1189
30017740	30x1,5 RE/6	23.9	499	880
3017741	30x2,5 RE/10	26.6	840	1238

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.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 and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- NYCY refer to page 244
- NYCWY refer to page 245

Accessories

- KNIPEX Cable shear refer to page 952
- KNIPEX Ratchet cutter refer to page 952
- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

ESUY Copper Earthing Cable

Flexible single conductor for grounding and shorting as well as for grounding installation and potential equalisation

Info

- Grounding, Shorting prior to field maintenance
- Mechanically highly flexible

Benefits

- Very flexible despite a large cross-section

Application range

- Provides protection during repairs
- For earthing in high-voltage power installations of power companies and railway systems
- For earthing devices and potential equalisation on machine parts and EDP systems

Product features

- Flame-retardant according IEC 60332-1-2

Product Make-up

- Conductor made of bare copper wires
- Braiding made of bare copper wires
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
according to DIN 46440

Minimum bending radius
Flexible use: 12 x outer diameter

Test voltage
2000 V

Temperature range
Flexible use: -5°C to +70°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ESUY Copper Earthing Cable				
4571101	16	8.8	177	230
4571102	25	10.4	275	316
4571103	35	12.4	387	475
4571104	50	14.6	560	670
4571105	70	17.0	791	905
4571106	95	19.8	1069	1220

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

Similar products

- X00V3-D Copper Earthing Cable refer to page 162

Accessories

- KNIPEX Cable shear refer to page 952
- KNIPEX Ratchet cutter refer to page 952

ÖLFLEX® WIRE MS 1

UL-recognised (AWM) + CSA AWM I A/B + <HAR> H05V-K, tinned-copper strands

Info

- Formerly: Multi-Standard single core UL-CSA-HAR 1007/1569
- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easy storage
- Increases the cost-effectiveness of the production process

Application range

- Factory wiring
- Internal wiring of devices
- Control cabinet wiring

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H05V-K acc. EN 50525-2-31, UL AWM styles 1007 & 1569 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), CSA AWM I A/B (by CSA acc. CSA standard CSA C22.2 No. 210-05, CSA class 5851-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
4 x outer diameter (OD) for normal use; 2 x OD for cautions bending

Nominal voltage
HAR / IEC: U0/U: 300/500 V;
UL (AWM): U: 300 V;
CSA (AWM I A/B): U: 300 V

Test voltage
2000 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): up to +105°C;
CSA (AWM I A/B): up to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	grey	white	orange
0.5	2.5	100	4.8	9	4180406	4180405	4180409
0.75	2.6	100	7.2	12	4180506	4180505	
1	2.8	100	9.6	15	4180606	4180605	4180609

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	red	violet	blue
0.5	2.5	100	4.8	9	4180404	4180407	4180402
0.75	2.6	100	7.2	12	4180504	4180507	4180502
1	2.8	100	9.6	15	4180604	4180607	4180602

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	green/yellow
0.5	2.5	100		4.8	9	4180403	4180401	4180400
0.75	2.6	100		7.2	12	4180503	4180501	4180500
1	2.8	100		9.6	15	4180603	4180601	4180600
1	2.8		2000	9.6	15			4180600K

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	dark blue
0.5	2.5	100		4.8	9	4180414
0.5	2.5		3000	4.8	9	4180414K
0.75	2.6	100		7.2	12	4180514
0.75	2.6		2500	7.2	12	4180514K
1	2.8	100		9.6	15	4180614

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
The outer diameters stated in the part number table are maximum values.

Similar products

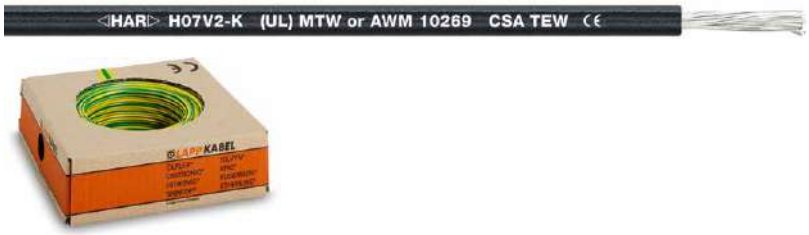
- H05V-K <HAR> refer to page 217
- MULTI-STANDARD SC 2.1 refer to page 225

Accessories

- DIN assorted boxes conductor end sleeves refer to page 967
- EASY STRIP stripping and cutting tool refer to page 962
- PEW 8.87 crimping pliers
- FLEXIMARK® Collar Snap-on refer to page 938

ÖLFLEX® WIRE MS 2.2

UL-listed (MTW), CSA (TEW), <HAR> H07V2-K: max. +90°C, UL (AWM): Umax = 1 kV, tinned-copper strands



Info

- Higher maximum conductor temperature - H07V2-K: +90 °C according to EN 50525-2-31
- Higher voltage range according to UL
- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easier storage; increases the cost-effectiveness of the production process
- Works with „Conductor end sleeves XL, insulated“

Application range

- Factory wiring
- Field wiring
- Frequency converter power supply
- Internal wiring of devices and in control cabinets
- Protected installation in and on lighting equipments

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/ kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H07V2-K acc. EN 50525-2-31, UL AWM style 10269 (by UL acc. UL standard UL 758, U.I. Lapp GmbH‘s UL AWM file number: E63634), (UL) MTW (by UL acc. UL standard UL 1063, U.I. Lapp GmbH‘s (UL) MTW file number: E198296), CSA TEW (by CSA acc. CSA standard CSA C22.2 No. 127, CSA class 5835-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
HAR / IEC: U0/U: 450/750 V;
UL (AWM): U: 1000 V;
UL (MTW): U: 600 V;
CSA (TEW): U: 600 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +90°C;
UL (AWM): up to +105°C;
UL (MTW): up to +90°C;
CSA (TEW): up to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	grey	white	yellow
0.5	2.7	100	4.8	10		4150105	
0.75	2.9	100	7.2	13	4150206	4150205	
1	3.1	100	9.6	16		4150305	
1.5	3.4	100	14.4	22	4150406	4150405	4150410
2.5	4	100	24	37	4150506	4150505	
4	4.6	100	38.4	49	4150606	4150605	4150610
6	5.1	100	57.6	71	4150706	4150705	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	orange	red	blue
0.5	2.7	100	4.8	10		4150104	4150102
0.75	2.9	100	7.2	13		4150204	4150202
1	3.1	100	9.6	16	4150309	4150304	4150302
1.5	3.4	100	14.4	22	4150409	4150404	4150402
2.5	4	100	24	37	4150509	4150504	4150502
4	4.6	100	38.4	49		4150604	4150602
6	5.1	100	57.6	71		4150704	4150702
10	6.8	100	96	120		4150804	4150802
16	9	100	153.6	185		4150904	4150902

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	green/ yellow
0.5	2.7	100		4.8	10	4150103	4150101	
0.75	2.9	100		7.2	13	4150203	4150201	
1	3.1	100		9.6	16	4150303	4150301	4150300
1	3.1		2000	9.6	16		4150301K	
1.5	3.4	100		14.4	22	4150403	4150401	4150400
1.5	3.4		1500	14.4	22		4150401K	
2.5	4	100		24	37	4150503	4150501	4150500
2.5	4		900	24	37		4150501K	
4	4.6	100		38.4	49	4150603	4150601	4150600
4	4.6		600	38.4	49	4150603K	4150601K	
6	5.1	100		57.6	71		4150701	4150700
10	6.8	100		96	120		4150801	4150800
16	9	100		153.6	185		4150901	4150900
25	10.2	100		240	260		4151001	4151000

ÖLFLEX® CLASSIC 100 450/750 V

Colour-coded PVC power and control cable

Info

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

Technical data

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

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

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

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

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

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

Test voltage
4000 V

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

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

Benefits

- High electrical performance due to 4 kV test voltage
- HIgh flexibility due to short-twisted conductor layers
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- Dry or damp rooms that are subject to medium mechanical loads
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load

Product features

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

Norm references / Approvals

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

Product Make-up

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

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

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

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

Similar products

- ÖLFLEX® CLASSIC 100 300/500 V refer to page 27
- ÖLFLEX® CLASSIC 100 H refer to page 65
- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 34

Accessories

- SKINTOP® CLICK refer to page 682
- Detectable Cable ties refer to page 1003
- Ty-Fast® Cable ties refer to page 1002
- STAR STRIP stripping tool refer to page 957

More Details

H07RN-F

Heavy standard construction

Benefits

- For mechanically more demanding applications
- 1000 V AC at protected + static laying
- Arrangements made of single-core, rubber-sheathed cables H07RN-F can be used for short circuit-proof and short-to-ground-proof installations in accordance with IEC 60364-5-52/ HD 60364-5-52/ VDE 0100 Part 520

Application range

- Handheld and power supply devices according to EN 50565-2
- Medium, mechanical stress
- Industrial, agricultural use
- According to EN 50565-2: In dry, damp and wet rooms as well as for fixed installation e.g. on the plaster

Product features

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

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

Info

- Medium mechanical stress
- Oil-resistant

Technical data

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

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

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

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

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

Current rating
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
-25°C to +60°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H07RN-F				
1600096	1 X 1.5	5.7 - 6.5	14.4	59
1600099	1 X 2.5	6.3 - 7.2	24	72
1600097	1 X 4.0	7.2 - 8.1	38.4	99
1600098	1 X 6.0	7.9 - 8.8	57.6	130
1600194	1 X 10.0	9.5 - 10.7	96	230
1600195	1 X 16.0	10.8 - 12.0	153.6	320
1600196	1 X 25.0	12.7 - 14.0	240	450
1600193	1 X 35.0	14.3 - 15.9	336	605
1600197	1 X 50.0	16.5 - 18.2	480	825
1600189	1 X 70.0	18.6 - 20.5	672	1090
1600190	1 X 95.0	20.8 - 22.9	912	1405
1600198	1 X 120.0	22.8 - 25.1	1152	1745
1600191	1 X 150.0	25.2 - 27.6	1440	1887
1600175	1 X 185.0	27.6 - 30.2	1776	2274
1600177	1 X 240.0	30.6 - 33.5	2304	2955
30015435	1 X 300.0	33.5 - 36.7	2880	3479
1600117	3 G 1.0	8.3 - 9.6	28.8	130
1600199	2 X 1.5	8.5 - 9.9	28.8	135
1600103	3 G 1.5	9.2 - 10.7	43.2	165
16001233	4 G 1.5	10.2 - 11.7	57.6	200
16001043	5 G 1.5	11.2 - 12.8	72	240
1600151	7 G 1.5	14.7 - 16.5	100.8	385
1600148	12 G 1.5	17.6 - 19.8	172.8	516
1600259	19 G 1.5	20.7 - 26.3	273.6	800
1600166	24 G 1.5	24.3 - 27.0	345.6	882
1600263	25 G 1.5	25.1 - 25.9	360	920
1600187	2 X 2.5	10.2 - 11.7	48	195
1600118	3 G 2.5	10.9 - 12.5	72	235
16001053	4 G 2.5	12.1 - 13.8	96	290
16001293	5 G 2.5	13.3 - 15.1	120	294

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1600152	7 G 2.5	17.1 - 19.3	168	520
1600154	12 G 2.5	20.6 - 23.1	288	810
1600156	19 G 2.5	25.5 - 31.0	456	1200
1600157	24 G 2.5	28.8 - 31.9	576	1298
1600186	2 X 4.0	11.8 - 13.4	76.8	270
1600119	3 G 4.0	12.7 - 14.4	115.2	320
16001063	4 G 4.0	14.0 - 15.9	153.6	395
16001303	5 G 4.0	15.6 - 17.6	192	485
1600161	7 G 4.0	20.1 - 22.4	268.8	681
1600120	3 G 6.0	14.1 - 15.9	172.8	360
16001073	4 G 6.0	15.7 - 17.7	230.4	475
16001313	5 G 6.0	17.5 - 19.6	288	760
1600121	3 G 10.0	19.1 - 21.3	288	880
16001083	4 G 10.0	20.9 - 23.3	384	1060
16001093	5 G 10.0	22.9 - 25.6	480	1300
1600122	3 G 16.0	21.8 - 24.3	460.8	1090
16001103	4 G 16.0	23.8 - 26.4	614.4	1345
16001113	5 G 16.0	26.4 - 29.2	768	1680
16001123	4 G 25.0	28.9 - 32.1	960	1995
16001133	5 G 25.0	32.0 - 35.4	1200	2470
1600124	3 G 35.0	29.3 - 32.5	1008	1910
16001143	4 G 35.0	32.5 - 36.0	1344	2645
16001363	5 G 35.0	35.7 - 39.5	1680	2810
16001153	4 G 50.0	37.7 - 41.5	1920	3635
1600126	5 G 50.0	41.8 - 46.6	2400	4050
16001163	4 G 70.0	42.7 - 47.1	2688	4830
16001283	4 G 95.0	48.4 - 53.2	3648	6320
16001323	4 G 120.0	53.0 - 57.5	4608	6830
16000883	4 G 150.0	58.0 - 63.6	5760	8320
1600141	4 G 185.0	64.0 - 69.7	7104	9800
1600183	4 G 240.0	72.0 - 79.2	9216	12800

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

H07Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC

Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC

Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-41
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U0/U: 450/ 750 V

Test voltage
2500 V

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

Temperature range
During installation: -5°C to +90°C
Fixed installation: -40°C to +90°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	grey	white	yellow	orange
1.5	2.8 - 3.5	100		14.4	20	4726061	4726051	4726111	4726091
1.5	2.8 - 3.5		1500	14.4	20	4726061K	4726051K	4726111K	4726091K
2.5	3.4 - 4.3	100		24	32	4726062	4726052	4726112	4726092
2.5	3.4 - 4.3		900	24	32	4726062K	4726052K	4726112K	4726092K
4	3.9 - 4.9	100		38.4	45	4726063	4726053	4726113	4726093
4	3.9 - 4.9		600	38.4	45	4726063K	4726053K	4726113K	4726093K
6	4.4 - 5.5	100		57.6	65	4726064	4726054	4726114	4726094
6	4.4 - 5.5		400	57.6	65	4726064K	4726054K	4726114K	4726094K
10	5.7 - 7.1	100		96	110	4726065	4726055	4726115	4726095
16	6.7 - 8.4	100		153.6	170	4726066	4726056	4726116	4726096
25	8.4 - 10.6	100		240	290	4726067	4726057	4726117	4726097
35	9.7 - 12.1			336	380	4726068	4726058	4726118	4726098
50	11.5 - 14.4			480	530	4726069	4726059	4726119	4726099
70	13.2 - 16.6			672	750	4727061	4727051	4727111	4727091
95	15.1 - 18.8			912	1000	4727062	4727052	4727112	4727092

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	red	violet	blue	green
1.5	2.8 - 3.5	100		14.4	20	4726041	4726071	4726021	4726121
1.5	2.8 - 3.5		1500	14.4	20	4726041K	4726071K	4726021K	4726121K
2.5	3.4 - 4.3	100		24	32	4726042	4726072	4726022	4726122
2.5	3.4 - 4.3		900	24	32	4726042K	4726072K	4726022K	4726122K
4	3.9 - 4.9	100		38.4	45	4726043	4726073	4726023	4726123
4	3.9 - 4.9		600	38.4	45	4726043K	4726073K	4726023K	4726123K
6	4.4 - 5.5	100		57.6	65	4726044	4726074	4726024	4726124
6	4.4 - 5.5		400	57.6	65	4726044K	4726074K	4726024K	4726124K
10	5.7 - 7.1	100		96	110	4726045	4726075	4726025	4726125
16	6.7 - 8.4	100		153.6	170	4726046	4726076	4726026	4726126
25	8.4 - 10.6	100		240	290	4726047	4726077	4726027	4726127
35	9.7 - 12.1			336	380	4726048	4726078	4726028	4726128
50	11.5 - 14.4			480	530	4726049	4726079	4726029	4726129
70	13.2 - 16.6			672	750	4727041	4727071	4727021	4727121
95	15.1 - 18.8			912	1000	4727042	4727072	4727022	4727122

H07V-K <HAR>

European <HAR> cable type certification

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- <HAR>

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

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

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

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	grey	white	yellow	orange	red
1.5	2.8 - 3.4		150	14.4	22	4520061S	4520051S			4520041S
2.5	3.4 - 4.1		100	24	37	4520062S	4520052S	4520112S		4520042S
1.5	2.8 - 3.4	100		14.4	22	4520061	4520051	4520111	4520091	4520041
2.5	3.4 - 4.1	100		24	37	4520062	4520052	4520112	4520092	4520042
4	3.9 - 4.8	100		38.4	45	4520063	4520053	4520113	4520093	4520043
6	4.4 - 5.3	100		57.6	71	4520064	4520054	4520114	4520094	4520044
10	5.7 - 6.8	100		96	120	4520065	4520055		4520095	4520045
16	6.7 - 8.1			153.6	187	4520066	4520056		4520096	4520046
25	8.4 - 10.2			240	290	4521061	4521051		4521091	4521041
35	9.7 - 11.7			336	399	4521062			4521092	4521042
50	11.5 - 13.9			480	559					4521043
70	13.2 - 16			672	776					4521044

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	blue	green	brown	black
1.5	2.8 - 3.4		150	14.4	22	4520071S	4520021S	4520121S	4520031S	4520011S
2.5	3.4 - 4.1		100	24	37		4520022S	4520122S	4520032S	4520012S
1.5	2.8 - 3.4	100		14.4	22	4520071	4520021	4520121	4520031	4520011
2.5	3.4 - 4.1	100		24	37	4520072	4520022	4520122	4520032	4520012
4	3.9 - 4.8	100		38.4	45	4520073	4520023	4520123	4520033	4520013
6	4.4 - 5.3	100		57.6	71	4520074	4520024	4520124	4520034	4520014
10	5.7 - 6.8	100		96	120	4520075	4520025	4520125	4520035	4520015
16	6.7 - 8.1			153.6	187		4520026	4520126	4520036	4520016
25	8.4 - 10.2			240	290		4521021		4521031	4521011
35	9.7 - 11.7			336	399		4521022		4521032	4521012
50	11.5 - 13.9			480	559		4521023		4521033	4521013
70	13.2 - 16			672	776		4521024		4521034	4521014
95	15.1 - 18.2			912	1031		4521025			4521015
120	16.7 - 20.2			1152	1285					4521016
150	18.6 - 22.5			1440	1563					4521017
185	20.6 - 24.9			1776	1915					4521018
240	23.5 - 28.4			2304	2550					4521019

H05V-K <HAR>

European <HAR> cable type certification

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- <HAR>

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

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

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

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	grey	white	yellow	orange	red
0.5	2.1 - 2.5	100		4.8	9	4510061	4510051	4510111	4510091	4510041
0.75	2.2 - 2.7	100		7.2	12	4510062	4510052	4510112	4510092	4510042
1	2.4 - 2.8	100		9.6	15	4510063	4510053	4510113	4510093	4510043
0.5	2.1 - 2.5		250	4.8	9	4510061S	4510051S	4510111S	4510091S	4510041S
0.75	2.2 - 2.7		250	7.2	12	4510062S	4510052S	4510112S	4510092S	4510042S
1	2.4 - 2.8		250	9.6	15	4510063S	4510053S	4510113S	4510093S	4510043S

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	blue	green	brown	black
0.5	2.1 - 2.5	100		4.8	9	4510071	4510021	4510121	4510031	4510011
0.75	2.2 - 2.7	100		7.2	12	4510072	4510022	4510122	4510032	4510012
1	2.4 - 2.8	100		9.6	15	4510073	4510023	4510123	4510033	4510013
0.5	2.1 - 2.5		250	4.8	9	4510071S	4510021S	4510121S	4510031S	4510011S
0.75	2.2 - 2.7		250	7.2	12	4510072S	4510022S	4510122S	4510032S	4510012S
1	2.4 - 2.8		250	9.6	15	4510073S	4510023S	4510123S	4510033S	4510013S

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	green/ yellow	dark blue	ultra-marine blue	Dark blue/ white	transparent
0.5	2.1 - 2.5	100		4.8	9	4510001	4510141	4510161	4510921	
0.75	2.2 - 2.7	100		7.2	12	4510002	4510142		4510922	
1	2.4 - 2.8	100		9.6	15	4510003	4510143	4510163	4510923	
0.5	2.1 - 2.5		250	4.8	9	4510001S	4510141S			4510101S
0.75	2.2 - 2.7		250	7.2	12	4510002S	4510142S	4510162S		4510102S
1	2.4 - 2.8		250	9.6	15	4510003S	4510143S	4510163S		4510103S

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	pink
0.5	2.1 - 2.5	100		4.8	9	4510081
0.75	2.2 - 2.7	100		7.2	12	4510082
1	2.4 - 2.8	100		9.6	15	4510083
0.75	2.2 - 2.7		250	7.2	12	4510082S

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

ÖLFLEX® CLASSIC 100 300/500 V

Colour-coded PVC control cable

Info

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

Benefits

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

Application range

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

Product features

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

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

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

Technical data

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

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

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

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

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

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

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

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

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

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

NYM-J

Standard cable for plaster, brickwork and immovable concrete

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Standard cable for plaster and brickwork

Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- Also suitable for outdoor use if protected against direct sunlight

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- VDE 0250 Part 204

Product Make-up

- Bare copper wire conductor
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

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

Conductor stranding
Single or multi-wire
≥ 16 mm²: multi-wire

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

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

Temperature range
During installation: +5°C to +60°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYM-J				
1600008	1 G 2,5	6.0	24	60
1600009	1 G 4	6.7	38	85
1600010	1 G 6	7.2	58	105
1600011	1 G 10	8.6	96	160
1600012	1 G 16	9.6	154	220
16000003	3 G 1,5	8.4	43	120
16000013	4 G 1,5	9.2	58	150
16000023	5 G 1,5	9.9	72	175
1600003	7 G 1,5	11.6	101	235
16000213	3 G 2,5	9.6	72	170
16000053	4 G 2,5	10.6	96	210
16000063	5 G 2,5	11.5	120	290
1600071	7 G 2,5	13.7	168	380
16010223	3 G 4	11.3	115	250
16000313	4 G 4	12.7	154	315
16000513	5 G 4	14.0	192	370
16010233	3 G 6	12.8	173	335
16000323	4 G 6	13.8	230	410
16000523	5 G 6	15.5	288	500
16000333	4 G 10	18.0	384	680
16000533	5 G 10	19.5	480	810
16000543	5 G 16	23.0	768	1200
16000353	4 G 25	26.0	960	1500
16000553	5 G 25	28.0	1200	1800

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

Similar products

- NYY-J, NYY-O refer to page 239
- NHXMH refer to page 238

Accessories

- KNIPEX Cable shear refer to page 952
- STAR STRIP stripping tool refer to page 957

NHXMH

Halogen-free; for plaster, bricks, concrete; at high density of people and valuable assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYM

Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- For buildings or industrial plants with a high density of people or valuable assets

Product features

- Due to the use of halogen-free materials, the formation of toxic dioxins and furanes is considerably reduced in the event of a fire
- Minimizes damages to buildings and equipments that are caused by acidic fumes produced during combustion
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24

Norm references / Approvals

- VDE 0250 part 214

Product Make-up

- Bare copper wire conductor
- Core insulation: PE
- Filling compound over the core assembly
- Outer sheath: halogen-free polymer

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

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

Temperature range
Maximum conductor temperature: +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NHXMH				
16020003	3 G 1,5	8.5	43	120
16020013	4 G 1,5	9.3	58	145
16020023	5 G 1,5	10.0	72	170
1602003	7 G 1,5	10.8	101	210
16020103	3 G 2,5	9.4	72	160
16020123	5 G 2,5	11.0	120	230

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

Similar products

- NYM-J refer to page 237

Accessories

- STAR STRIP stripping tool refer to page 957

ETHERLINE® LAN 1000 Cat. 7_A

Ethernetkabel der Kategorie 7_A, Klasse F_A - geprüft bis 1000 MHz

Info

- BauPVO: Artikelnummer-Auswahl unter www.lappkabel.de/cpr

ETHERLINE® LAN 1200 Cat.7_A

Ethernetkabel der Kategorie 7_A, Klasse F_A - geprüft bis 1200 MHz

Nutzen

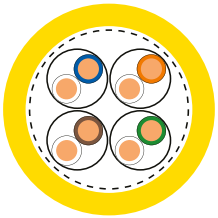
- LAN-Kabel für die strukturierte Gebäudeverkabelung gemäß EN50173 und ISO/IEC 11801

Anwendungsgebiete

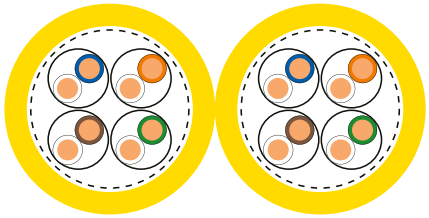
- In Bereichen mit sehr hoher Endgerätedichte
- Für die Verkabelung von Büro-, Verwaltungs- und Entwicklungsgebäuden im Tertiärbereich (Etagenverkabelung).
- Leitungslänge im Tertiärbereich (Horizontalbereich, Stockwerk) soll entsprechend Normen ISO/IEC 11801 bzw. EN 50173 eine Länge von 100 m nicht überschreiten (90 m Kabelkanal + 10 m Arbeitsplatz)

Produkteigenschaften

- Übertragung von digitalen und analogen Datensignalen
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: PoE, VoIP geeignet
- Flammwidrig nach IEC 60332-1-2
- Keine Brandfortleitung nach IEC 60332-3-25 (Flammausbreitung an senkrechtem Kabel- oder Aderbündel)



2170971/2170974



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Norm-Referenzen / Zulassungen

- LAN Cat.7_A -Kabel von Lapp Kabel für „Strukturierte Verkabelungssysteme“ erfüllen die Anforderungen nach EIA/TIA-568 und TSB36 sowie ISO/IEC 11801 bzw. EN 50173 (Klasse F_A - permanent link).

Aufbau

- Massivleiter 4x2xAWG23/1, duplex 2x(4x2xAWG23/1)
- Aderisolation: PE
- S/FTP: Kupfergeflecht als Gesamtschirmung und Paarschirmung mit Aluverbundfolie
- Außenmantel: halogenfreies, flammwidriges Compound
- Farbe: gelb (RAL 1021)

Technische Daten

Klassifikation ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Datenkabel

Mindestbiegeradius
Bei Verlegung: 8 x Außendurchmesser
Fest verlegt: 4 x Außendurchmesser

Wellenwiderstand
100 Ω ± 15%

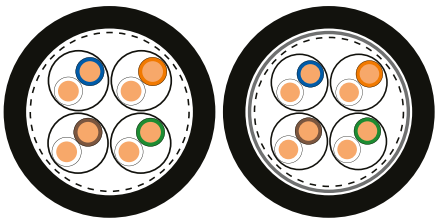
Temperaturbereich
Bei Verlegung: 0°C bis +50°C
Fest verlegt: -20°C bis +60°C

Artikelnummer	Artikelbezeichnung	Paarzahl und AWG je Leiter	Aderdurchmesser in mm	Außendurchmesser mm	Farbe	Kupferzahl kg/km	Gewicht kg/km
ETHERLINE® LAN 1000 S/FTP Cat.7_A							
2170971	ETHERLINE® LAN 1000 Cat.7A 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.3	7,5	gelb	24	56
2170972	ETHERLINE® LAN 1000 Cat.7A 2x(4x2xAWG23) LSZH duplex	2x (4x2xAWG23/1)	1.3	15,2	gelb	48	113
ETHERLINE® LAN 1200 S/FTP Cat.7_A							
2170974	ETHERLINE® LAN 1200 Cat.7A 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.33	7,5	gelb	26	58
2170975	ETHERLINE® LAN 1200 Cat.7A 2x(4x2xAWG23) LSZH duplex	2x (4x2xAWG23/1)	1.33	15,2	gelb	52	114

Kupferpreisbasis: EUR 100 / 100 kg; Zur Anwendung und Definition von ‚Metallpreisbasis‘ und ‚Metallzahl‘ siehe Kataloganhang T17
Unsere Standardlängen finden Sie unter: www.lappkabel.de/kabel-standardlaengen
Aufmachung: Trommel
Die Fotografien und Grafiken sind nicht maßstäblich und keine detailgetreuen Abbildungen der jeweiligen Produkte.

UNITRONIC® LAN OUTDOOR

Ethernet cable for Category 7/ class F - verified up to 1000 MHz, for outdoor applications



2170978 2170977

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801
- Suitable for outdoor use
- UV-resistant

Application range

- For outdoor use
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Backward compatible

Norm references / Approvals

- LAN Cat.7 cables from Lapp Kabel for „Structured Cabling Systems“ meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PE, black
  (L)PE additional with aluminum tape

Technical data

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

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

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: -10°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
For outdoor applications							
2170978	ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 PE	4 x 2 x AWG23/1	1.3	7.7	black	24	48
Suitable for direct routing underground, transversely waterproof							
2170977	ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 (L)PE	4 x 2 x AWG23/1	1.3	9.6	black	24	77

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

J-Y(ST)Y...LG Indoor Cable

Installation cable in accordance with DIN VDE 0815

Benefits

- Indoor telephone cables transmit analogue or digital signals
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- In news and communication applications, the following connections can be installed: telephone, telefax, telex, standard modems for postal services; burglar and fire alarm systems (cf. fire alarm cables); communication and paging systems; access control, time and data control systems
- Can be used in dry and wet interiors for fixed installation on and under plaster

Product features

- The 2-paired versions = star quad cable design
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In accordance with DIN VDE 0815 type J-Y(ST)Y...LG

Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Coupling
(800 Hz): K1: 80% ≤ 300 pF/100m

Conductor cross-section in
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
0.6 mm: 1.7 dB/km
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.6 mm: max. 130 ohm/km
0.8 mm: max. 73.2 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.6 mm				
1591301	2	5.5	13	40
1591302	3	6.3	18	50
1591303	4	6.7	24	60
1591304	5	7.2	30	70
1591305	6	7.5	35	80
1591306	8	8	46	90
1591307	10	9	58	110
1591308	12	9.5	71	130
1591310	16	10.5	93	160
1591311	20	11	116	190
1591312	24	11.5	139	220
1591313	30	13	172	280
1591315	50	17	286	430
1591318	100	23	568	850

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.8 mm				
1591500	1	6	11	40
1591501	2	7	21	60
1591502	3	8.5	31	80
1591503	4	9	41	100
1591505	6	10.5	62	140
1591506	8	11.5	82	170
1591507	10	13	102	220
1591508	12	14	123	250
1591511	20	16.5	204	380

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

Similar products

- J-2Y(ST)Y...ST III BD

Accessories

- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957

UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100

Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

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

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

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

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

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

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

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHCH				
0037302	2 x 0.14	4.1	12	22
0037304	4 x 0.14	4.5	15.9	29
0037308	8 x 0.14	6	26	41
0037312	12 x 0.14	6.5	30.4	78
0037325	25 x 0.14	8.7	63	149
0037402	2 x 0.25	4.7	15	25
0037403	3 x 0.25	4.9	18	30
0037404	4 x 0.25	5.2	22	35
0037406	6 x 0.25	6.2	30	49
0037407	7 x 0.25	6.2	32	52
0037408	8 x 0.25	7.3	35	58
0037410	10 x 0.25	7.7	42	81
0037425	25 x 0.25	10.9	114	172
0037502	2 x 0.34	5.1	17	30
0037503	3 x 0.34	5.3	21	35
0037504	4 x 0.34	5.9	25	42
0037507	7 x 0.34	7	42	73
0037508	8 x 0.34	8	45	84
0037510	10 x 0.34	8.5	63	101
0037516	16 x 0.34	9.6	94	160

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0037525	25 x 0.34	12.1	144	259
0037602	2 x 0.5	5.8	29	38
0037603	3 x 0.5	6.1	35	47
0037604	4 x 0.5	6.5	45	67
0037605	5 x 0.5	7.2	50	76
0037606	6 x 0.5	7.8	59	84
0037607	7 x 0.5	7.8	68	91
0037608	8 x 0.5	8.9	75	135
0037610	10 x 0.5	9.5	93	160
0037612	12 x 0.5	9.8	99	177
0037618	18 x 0.5	11.7	134	239
0037702	2 x 0.75	6.2	35	45
0037703	3 x 0.75	6.5	46	69
0037704	4 x 0.75	7.2	56	80
0037802	2 x 1.0	6.5	43	72
0037803	3 x 1.0	7	56	90
0037804	4 x 1.0	7.5	68	109
0037807	7 x 1.0	8.8	118	171
0037902	2 x 1.5	7.3	58	90
0037903	3 x 1.5	7.7	74	115

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

Similar products

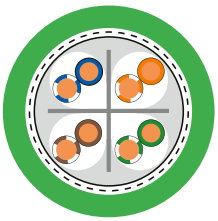
- UNITRONIC® LiHCH (TP) refer to page 302

Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B

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



2170583/2170584/2170585

Info

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications with 4 pairs
- CAT.6Aqualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- PVC version with PLTC approval and UL CMG listing
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Solid bare copper wire AWG23
- Core insulation made of polyethylene (PE)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
see data sheet

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

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170583	ETHERLINE® PN CAT.6$_A$ Y FC	4x2xAWG23/1	1.5	8.7	53	98
Halogen-free jacket						
2170584	ETHERLINE® PN CAT.6$_A$ FRNC FC	4x2xAWG23/1	1.5	8.7	53	91
PUR outer sheath, halogen-free						
2170585	ETHERLINE® PN CAT.6$_A$ P FC	4x2xAWG23/1	1.5	8.7	53	99

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

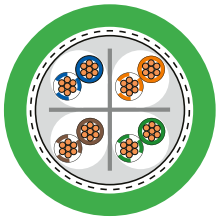
- EPIC® DATA RJ45 refer to page 447
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 449
- EPIC® DATA M12X refer to page 450
- EPIC® DATA CCR FA refer to page 451
- FC STRIP stripping tool refer to page 960

ETHERLINE® PN Cat.6$_A$ FLEX FC

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use with FC inner sheath - verified up to 500 MHz

Info

- For PROFINET applications with 4 pairs
- CAT.6Aqualified for 10Gbit/s
- Fast and easy cable preparation by FC inner sheath



2170586/2170587

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

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

Product features

- CAT.6A for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6A, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath

Norm references / Approvals

- PVC version with PLTC approval and UL CMG listing
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

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

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

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

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

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)
PVC jacket					
2170586	ETHERLINE® PN CAT.6$_A$ Y FLEX FC	4x2xAWG23/7	1.5	8.9	57
Halogen-free jacket					
2170587	ETHERLINE® PN CAT.6$_A$ FRNC FLEX FC	4x2xAWG23/7	1.5	8.9	57

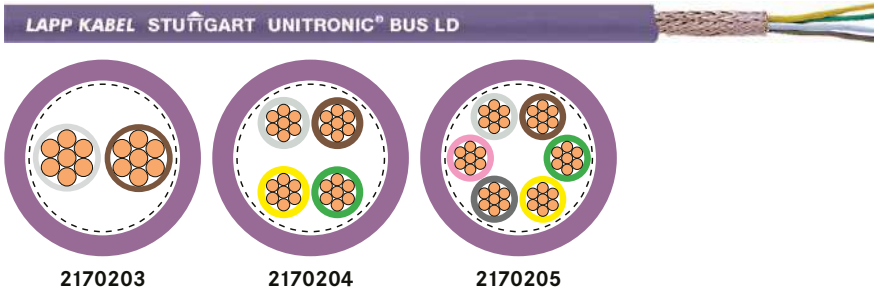
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA RJ45 refer to page 447
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 449
- EPIC® DATA M12X refer to page 450
- EPIC® DATA CCR FA refer to page 451
- DATA STRIP stripping tool refer to page 959

UNITRONIC® BUS LD

Flexible buscable with PVC outer sheath, for use in different bussystems



2170203 2170204 2170205

Info

- LD is a LAPP abbreviation for long distance

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

Application range

- For fixed installation
  Maximum electromagnetic screening
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m

Norm references / Approvals

- UNITRONIC® BUS LD A:
  UL versions with certification:
  UL/CSA type CMX acc. to UL 444
  and CSA C22.2 no. 214-02
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation: PE
- Colour code DIN 47100
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, violet (RAL 4001)

Technical data

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

Mutual capacitance
Flexible use: 10 x outer diameter

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ohm

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

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170203	UNITRONIC® BUS LD	1 x 2 x 0,22	5.7	18	37
2170204	UNITRONIC® BUS LD	2 x 2 x 0,22	7.1	28	45
2170205	UNITRONIC® BUS LD	3 x 2 x 0,22	7.2	37	72
For fixed installation - UL/CSA CMX certification					
2170803	UNITRONIC® BUS LD A	1 x 2 x 0,22	5.7	18	39

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.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).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Internal wiring

Charging stations (AC/DC)

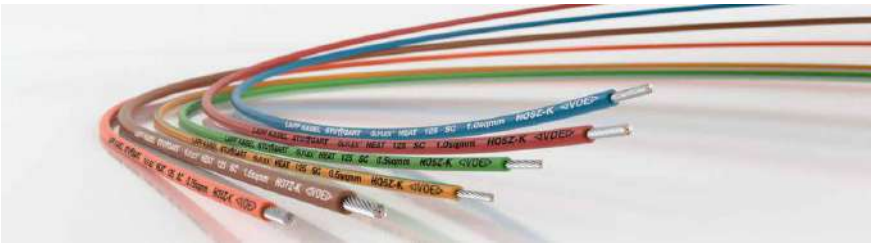
Wallboxes

ÖLFLEX® HEAT 125 SC

VDE tested single cores according to EN 50525-3-41 (H05Z-K & H07Z-K) for more demanding requirements

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE-tested and -marked
- Improved characteristics in the event of a fire



Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

Product features

- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- Extended fire behaviour:
  H05Z-K (0,5mm² up to 1,0mm²):
  see data sheet
  H07Z-K (≥ 1,5mm²):
  no fire propagation according to IEC 60332-3-24 respectively IEC 60332-3-25
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2, method A, and ozone resistant acc. to EN 50396 resp. VDE 0473-396, method B

Norm references / Approvals

- Type H05Z-K and H07Z-K according to EN 50525-3-41 with advanced features
- Germanischer Lloyd (GL) certificate no. 11118-14HH

Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

Test voltage
4000 V

Temperature range
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	grey	white	yellow	orange	red	violet
ÖLFLEX® HEAT 125 SC - H05Z-K - U_0/U: 300/500 V											
0.5	2.2	100		4.8	8	1232106	1232105	1232005	1232009	1232104	1232007
0.75	2.4	100		7.2	11	1233106	1233105	1233005	1233009	1233104	1233007
0.75	2.4		2500	7.2	11	1233106K	1233105K		1233009K	1233104K	
1.0	2.5	100		9.6	14	1234106	1234105	1234005	1234009	1234104	1234007
1.0	2.5		2500	9.6	14	1234106K	1234105K		1234009K	1234104K	
ÖLFLEX® HEAT 125 SC - H07Z-K - U_0/U: 450/750 V											
1.5	3.0	100		14.4	21	1235106	1235105	1235005	1235009	1235104	1235007
1.5	3.0		2000	14.4	21	1235106K	1235105K		1235009K	1235104K	
2.5	3.6	100		24	33	1236106	1236105	1236005	1236009	1236104	1236007
4.0	4.3	100		38.4	49	1237106	1237105		1237009	1237104	
6.0	4.8	100		57.6	67	1238106				1238104	
10.0	6.2	100		96	112					1239104	
16.0	7.2	100		153.6	172					1240104	

ÖLFLEX® WIRE MS 1

UL-recognised (AWM) + CSA AWM I A/B + <HAR> H05V-K, tinned-copper strands

Info

- Formerly: Multi-Standard single core UL-CSA-HAR 1007/1569
- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easy storage
- Increases the cost-effectiveness of the production process

Application range

- Factory wiring
- Internal wiring of devices
- Control cabinet wiring

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H05V-K acc. EN 50525-2-31, UL AWM styles 1007 & 1569 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), CSA AWM I A/B (by CSA acc. CSA standard CSA C22.2 No. 210-05, CSA class 5851-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

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

Minimum bending radius
4 x outer diameter (OD) for normal use; 2 x OD for cautions bending

Nominal voltage
HAR / IEC: U0/U: 300/500 V;
UL (AWM): U: 300 V;
CSA (AWM I A/B): U: 300 V

Test voltage
2000 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): up to +105°C;
CSA (AWM I A/B): up to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	grey	white	orange
0.5	2.5	100	4.8	9	4180406	4180405	4180409
0.75	2.6	100	7.2	12	4180506	4180505	
1	2.8	100	9.6	15	4180606	4180605	4180609

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	red	violet	blue
0.5	2.5	100	4.8	9	4180404	4180407	4180402
0.75	2.6	100	7.2	12	4180504	4180507	4180502
1	2.8	100	9.6	15	4180604	4180607	4180602

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	green/yellow
0.5	2.5	100		4.8	9	4180403	4180401	4180400
0.75	2.6	100		7.2	12	4180503	4180501	4180500
1	2.8	100		9.6	15	4180603	4180601	4180600
1	2.8		2000	9.6	15			4180600K

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	dark blue
0.5	2.5	100		4.8	9	4180414
0.5	2.5		3000	4.8	9	4180414K
0.75	2.6	100		7.2	12	4180514
0.75	2.6		2500	7.2	12	4180514K
1	2.8	100		9.6	15	4180614

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
The outer diameters stated in the part number table are maximum values.

ÖLFLEX® CLASSIC 110 BK

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

Info

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

Benefits

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

Application range

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

Product features

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

Norm references / Approvals

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

Product Make-up

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

Technical data

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

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

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

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

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

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

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

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

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

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

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

More Details

ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 kV

Info

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

Application range

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

Product features

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

Norm references / Approvals

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

Product Make-up

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

Technical data

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

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

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

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

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

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

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

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

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

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

Similar products

- ÖLFLEX® CLASSIC 128 CH BK 0,6/1 kV refer to page 75
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 77

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 694
- SKINTOP® MS-HF-M BRUSH refer to page 702
- SKINTOP® MS-M BRUSH refer to page 696

ÖLFLEX® FD 90

Highly flexible, single core cable with PVC insulation and PVC sheath - certified for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Well-proven and reliable
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Also suitable for fixed installation where space is limited
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Low-adhesive surface

Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm²
- CSA AWM IA/B IIA/B FT 1 ≤ 120 mm²
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Non-woven wrapping
- Core insulation: PVC
- PVC outer sheath, black (similar RAL 9005)

Technical data

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

Core identification code
Black or green-yellow, other colours available on request

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

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

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

Test voltage
4000 V

Temperature range
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Core colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 90					
0026600	10	9	green-yellow	96	176
0026601	10	9	black	96	176
0026603	16	10.5	green-yellow	153.6	240
0026604	16	10.5	black	153.6	240
0026607	25	11.8	green-yellow	240	361
0026608	25	11.8	black	240	361
0026610	35	14.2	green-yellow	336	482
0026611	35	14.2	black	336	482
0026613	50	16.2	green-yellow	480	660
0026614	50	16.2	black	480	660
0026616	70	18.3	green-yellow	672	898
0026617	70	18.3	black	672	898
0026619	95	19.8	green-yellow	912	1179
0026620	95	19.8	black	912	1179
0026622	120	23.4	green-yellow	1152	1521
0026623	120	23.4	black	1152	1521
0026625	150	25.1	green-yellow	1440	1739
0026626	150	25.1	black	1440	1739
0026628	185	28.1	green-yellow	1776	2305
0026629	185	28.1	black	1776	2305
0026634	240	31.6	green-yellow	2304	2944
0026635	240	31.6	black	2304	2944
0026640	300	33.5	green-yellow	2880	3545
0026641	300	33.5	black	2880	3545

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

Accessories

- SILVYN® CHAIN cable protection and guiding systems

LiYCY

Screened, PVC-based wiring single core

More Details

Benefits

- Prevention of electromagnetic interference to other components

Application range

- Wiring of measuring instruments, switch cabinets, electrical components, transmitters and receivers
- In EMC-sensitive environments

Product features

- Flame-retardant according IEC 60332-1-2
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Strands of tinned-copper wires
- Core insulation: Based on PVC
- Tinned-copper braiding
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
350 V (not for power transmission)

Test voltage
800 V

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

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
LiYCY				
4530101	0.14	2.8	7	13
4530102	0.25	3.3	9	18
4530103	0.5	3.6	15	20
4530104	0.75	3.9	18	31
4530105	1	4.7	25	35.9
4530106	1.5	5.1	30	39
4530107	2.5	6	35	55.3

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

Accessories

- SENSOR STRIP stripping tool refer to page 961

Li2YCY

Low-capacitance, screened wiring single-core with PVC-based outer sheath

More Details

Benefits

- Prevention of electromagnetic interference to other components

Application range

- Wiring of measuring instruments, switch cabinets, electrical components, transmitters and receivers
- In EMC-sensitive environments

Product features

- Flame-retardant according IEC 60332-1-2
- Low cable capacitance, short signal transmission time
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Strands of tinned-copper wires
- Core insulation: PE
- Wrapped screening made from tinned copper wire
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
350 V (not for power transmission)

Test voltage
1200 V

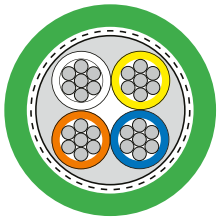
Temperature range
Occasional flexing: -5 °C to +70 °C
Fixed installation: -30 °C to +80 °C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Li2YCY				
4550115	0.14	2.4	7	10
4550116	0.25	2.6	9	15
4550117	0.5	3.2	15	19.5
4550118	0.75	3.4	18	28
4550119	1	3.8	25	30

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

ETHERLINE® PN Cat.5 FLEX

Flexible use



2170886/2170890

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For Profinet applications
- Flexible use

Benefits

- For PROFINET applications type B
- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

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

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- CAT.5-Performance
- FRNC Version: Halogene free and flame retardant
- Fast Connect (FC) cable design

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- ETHERLINE® PN Cat.5 Y FLEX FC: ECOLAB® Industry standard for innovation and efficiency in the field of professionllen cleaning and disinfection

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE or PP
- Star quad
- Inner sheath made of PVC or FRNC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

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

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
FRNC cable:
fixed: 4 x outer diameter
during installation: 8 x outer diameter
PVC cable:
Fixed installation: 3 x outer diameter
Flexing: 7 x outer diameter

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

Characteristic impedance
100 w ± 15%

Temperature range
cable halogenfree compound
Fixed installation: -25°C to +80°C
Moved: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
Moved: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.3	67
FRNC outer sheath						
2170890	ETHERLINE® PN Cat.5e FRNC FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.2	65

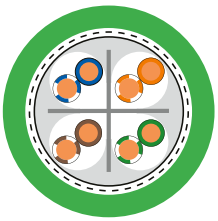
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA RJ45 refer to page 447
- EPIC® DATA RJ45F Cat.6_A refer to page 449
- EPIC® DATA M12D refer to page 450
- KNIPEX Electronics Super Knips® refer to page 955
- FC STRIP stripping tool refer to page 960

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



2170583/2170584/2170585

Info

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications with 4 pairs
- CAT.6Aqualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- PVC version with PLTC approval and UL CMG listing
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Solid bare copper wire AWG23
- Core insulation made of polyethylene (PE)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
see data sheet

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

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170583	ETHERLINE® PN CAT.6$_A$ Y FC	4x2xAWG23/1	1.5	8.7	53	98
Halogen-free jacket						
2170584	ETHERLINE® PN CAT.6$_A$ FRNC FC	4x2xAWG23/1	1.5	8.7	53	91
PUR outer sheath, halogen-free						
2170585	ETHERLINE® PN CAT.6$_A$ P FC	4x2xAWG23/1	1.5	8.7	53	99

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

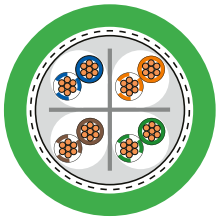
- EPIC® DATA RJ45 refer to page 447
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 449
- EPIC® DATA M12X refer to page 450
- EPIC® DATA CCR FA refer to page 451
- FC STRIP stripping tool refer to page 960

ETHERLINE® PN Cat.6$_A$ FLEX FC

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use with FC inner sheath - verified up to 500 MHz

Info

- For PROFINET applications with 4 pairs
- CAT.6Aqualified for 10Gbit/s
- Fast and easy cable preparation by FC inner sheath



2170586/2170587

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

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

Product features

- CAT.6A for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6A, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath

Norm references / Approvals

- PVC version with PLTC approval and UL CMG listing
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

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

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

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

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

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)
PVC jacket					
2170586	ETHERLINE® PN CAT.6$_A$ Y FLEX FC	4x2xAWG23/7	1.5	8.9	57
Halogen-free jacket					
2170587	ETHERLINE® PN CAT.6$_A$ FRNC FLEX FC	4x2xAWG23/7	1.5	8.9	57

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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SKINTOP® cable glands

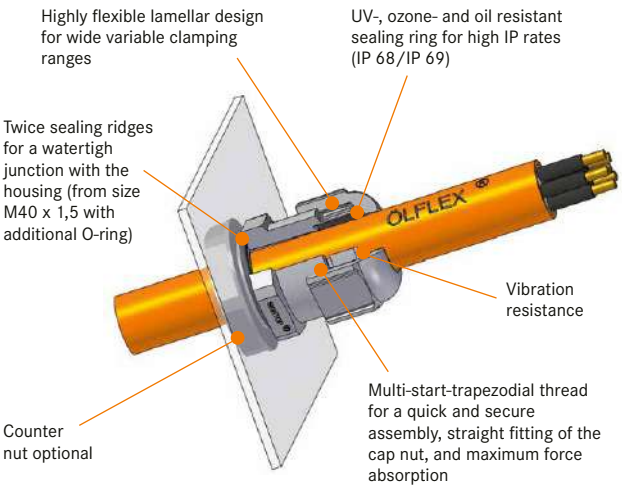
Single entries

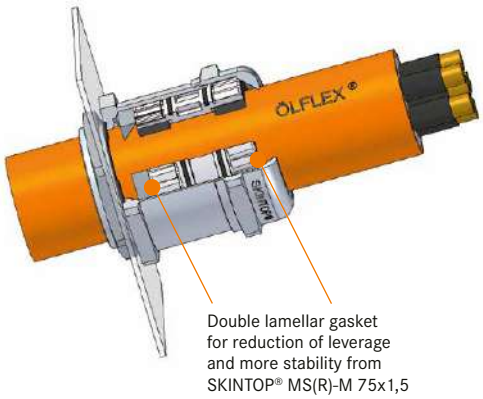
Multi-entry systems

SKINTOP® Single entry systems

Secured in less than no time

With SKINTOP® you can fix the cable in an instant. Just feed it in, turn till tight – ready. Your cable is fixed, centered, hermetically sealed and completely strainrelieved with a turn of the hand. Either way, with SKINTOP® you can achieve maximum reliablity. To ensure a steady quality, SKINTOP® products are continously monitored. A quality which has brought us numerous international approvals.

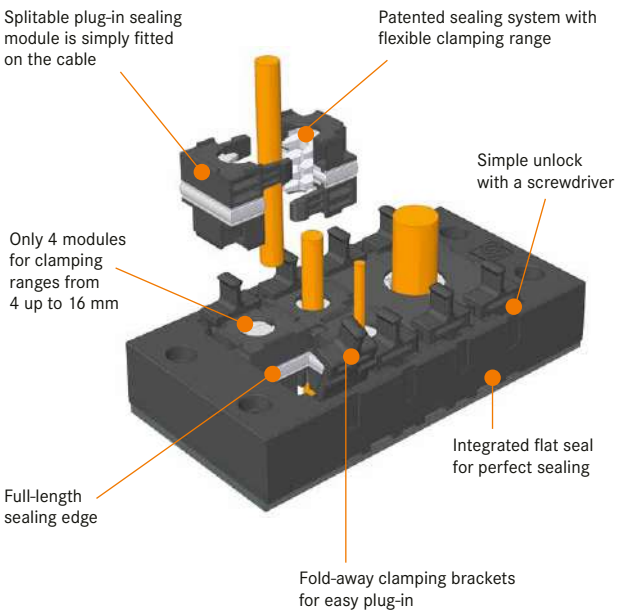




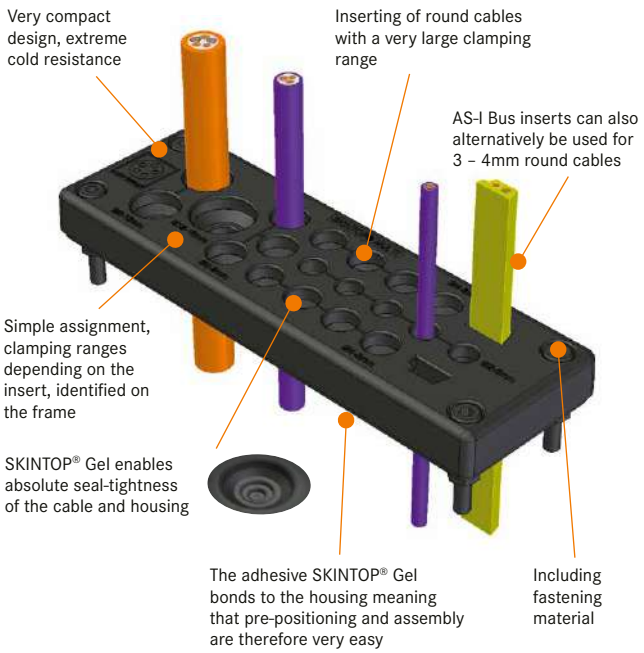
SKINTOP® Multi-cable entry systems

The SKINTOP® multi-cable entry system is used for assembled and non-assembled cables and wires. It stands out with large clamping ranges, high packing density and good tensile strength since the sealing technology adjusts itself perfectly onto the surface and shape of the cables.

SKINTOP® CUBE



SKINTOP® MULTI



SKINTOP® ST-M / SKINTOP® STR-M

Info

- In practical box available in the web catalogue
- With IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Benefits

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

Application range

SKINTOP® ST-M

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

SKINTOP® STR-M

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

Norm references / Approvals

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

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINTOP® ST(R) M ISO types have an extra-long connection thread
- SKINTOP® ST(R) M ISO versions with extra-long connection thread, see table, no DNV approval

Suitable cables

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

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 809
- SKINMATIC® RZ refer to page 810

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

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

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

Protection rating
IP 68 - 5 bar
IP 69
NEMA Type 1, 12

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

Article number	Article designation / size	Ø F mm	SW wrench size mm	Overall length C mm	Thread length D mm	Pieces / PU
SKINTOP® ST-M silver grey						
53111000	M 12 x 1,5	3,5-7	15	30.0	8	100
53111010	M 16 x 1,5	4-10	19	34.0	8	100
53111020	M 20 x 1,5	6-13	25	37.0	9	100
53111030	M 25 x 1,5	8-17	30	40.0	10	50
53111040	M 32 x 1,5	9-21	36	47.0	10	25
53111050	M 40 x 1,5	16-28	46	52.0	10	10
53111060	M 50 x 1,5	27-34	55	62.0	12	5
53111070	M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M black						
53111200	M 12 x 1,5	3,5-7	15	30.0	8	100
53111210	M 16 x 1,5	4-10	19	34.0	8	100
53111220	M 20 x 1,5	6-13	25	37.0	9	100
53111230	M 25 x 1,5	8-17	30	40.0	10	50
53111240	M 32 x 1,5	9-21	36	47.0	10	25
53111250	M 40 x 1,5	16-28	46	52.0	10	10
53111260	M 50 x 1,5	27-34	55	62.0	12	5
53111270	M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M light grey						
53111400	M 12 x 1,5	3,5-7	15	30.0	8	100
53111410	M 16 x 1,5	4-10	19	34.0	8	100
53111420	M 20 x 1,5	6-13	25	37.0	9	100
53111430	M 25 x 1,5	8-17	30	40.0	10	50
53111440	M 32 x 1,5	9-21	36	47.0	10	25
53111450	M 40 x 1,5	16-28	46	52.0	10	10
53111460	M 50 x 1,5	27-34	55	62.0	12	5
53111470	M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
53017010	M 16 x 1,5 ISO	3,5-8	19	40.0	12	100
53017030	M 20 x 1,5 ISO	5-12	24	45.0	13	100
53017040	M 25 x 1,5 ISO	9-14	27	47.0	13	50

SKINTOP® CLICK / SKINTOP® CLICK-R

Info

- In practical box available in the web catalogue
- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.

Benefits

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

Application range

SKINTOP® CLICK

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Air-conditioning technology

SKINTOP® CLICK-R

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

Norm references / Approvals

- UL File Nr. E79903

Included

- Included: disassembly tool

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 809
- SKINMATIC® RZ refer to page 810

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

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

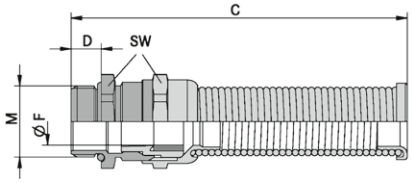
Article number	Article designation / size	Ø F mm	M (hole in mm)	SW1/SW2 mm	Overall length C mm	Thread length D mm	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK light grey								
53112692	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112686	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112687	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112688	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112694	CLICK 32	11.0 - 20.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112876	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112877	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112878	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112922	CLICK 32	11.0 - 20.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25
SKINTOP® CLICK black								
53112923	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112882	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112883	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112884	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112924	CLICK 32	11.0 - 20.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112689	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112690	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112691	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112926	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112879	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112880	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112881	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112928	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112885	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112886	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.0	8	1.0 - 4.0	25
53112887	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 32.0	48.0	8	1.0 - 4.0	25
53112931	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	56.0	8	1.0 - 4.0	25

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

Accessories

- SKINTOP® DIX-M refer to page 713
- SKINTOP® DIX-M AUTOMATION refer to page 714
- SKINTOP® SD-M refer to page 715
- SKINTOP® DV-M refer to page 715

SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL



Info

- Permanent bending protection under high mechanical stress

Benefits

- High mechanical stability
- Long service life
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range

- In areas where mechanical stability are critical
- Portable equipment
- Building sites
- Machine and equipment manufacturing
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

Norm references / Approvals

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- M32 x 1,5 on request

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 809
- SKINMATIC® MH Set refer to page 809
- SKINMATIC® RZ refer to page 810

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR
Spiral - springs made of stainless steel

Protection rating
IP 68 - 10 bar
IP 69

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

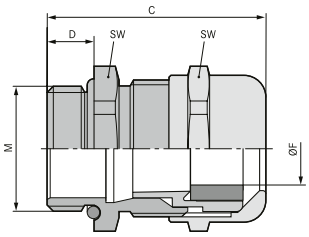
Article number	Article designation / size	Ø F mm	Thread length D mm	SW wrench size mm	Overall length C mm	Pieces / PU
SKINTOP® BS-M METAL						
53806759	M 12 x 1,5	3.5 - 7.0	6.5	16	65.0	25
53806760	M 16 x 1,5	4.5 - 10.0	7	20	79.0	25
53806761	M 20 x 1,5	7 - 13.0	8.5	24	95.0	25
53806762	M 25 x 1,5	9 - 17.0	8	29	109.0	25
SKINTOP® BSR-M METAL						
53806769	M 12 x 1,5	1 - 5.0	6.5	16	65.0	25
53806770	M 16 x 1,5	2 - 7.0	7	20	79.0	25
53806771	M 20 x 1,5	5 - 10.0	8.5	24	95.0	25
53806772	M 25 x 1,5	6 - 13.0	8	29	109.0	25

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

Accessories

- SKINDICHT® SM-M refer to page 742

SKINTOP® MS-M BRUSH



Benefits

- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

Application range

- For EMC-compliant earthing of the copper braiding
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 809
- SKINMATIC® MH Set refer to page 809
- SKINMATIC® RZ refer to page 810

Info

- NEW: Now also available in size M20x1.5
- SKINTOP® MS-M sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide
EMC brush: brass wire
Sealing ring: elastomer
O-ring: elastomer

Protection rating
IP 68 - 10 bar (M12 - M110)
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

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

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length D mm	Pieces / PU
SKINTOP® MS-M BRUSH						
53112507	M 20 x 1,5	7.0 - 13.0	3	24	8	25
53112676	M 25 x 1,5	9.0 - 17.0	6	29	8	10
53112677	M 32 x 1,5	11.0 - 21.0	8	36	9	5
53112678	M 40 x 1,5	19.0 - 28.0	10	45	9	5
53112679	M 50 x 1,5	27.0 - 35.0	14	54	10	5
53112680	M 63 x 1,5	34.0 - 45.0	20	67	15	1
53112681	M 63 x 1,5 plus	44.0 - 55.0	25	75	15	1
53112501	M 75 x 1,5	53.0 - 63.0	25	95	15	1
53112500	M 75 x 1,5 plus	58.0 - 68.0	25	95	15	1
53112503	M 90 x 2	66.0 - 78.0	40	115	20	1
53112505	M 110 x 2	76.0 - 88.0	50	135	25	1
53112504	M 110 x 2 plus	86.0 - 98.0	50	135	25	1

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

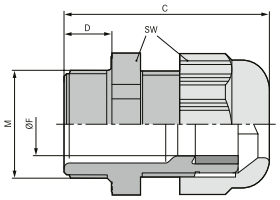
Similar products

- SKINTOP® BRUSH ADD-ON refer to page 694
- SKINTOP® MS-SC-M refer to page 695

Accessories

- SKINTOP® DIX-M refer to page 713
- SKINDICHT® SM-PE-M refer to page 742
- SKINTOP® DIX-AUTOMATION refer to page 779
- SKINTOP® SD-M refer to page 715
- SKINTOP® DV-M refer to page 715

SKINTOP® SOLAR / SKINTOP® SOLAR plus



Info

- Cable gland for photovoltaik applications, based on EN 62444, EN 50548 and UL 1703
- Extended temperature range

Benefits

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

Application range

- Photovoltaic plants

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Suitable cables

- ÖLFLEX® SOLAR

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 809
- SKINMATIC® RZ refer to page 810

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Black (RAL 9005), UV-resistant

Material
SKINTOP® SOLAR
Body: Polycarbonate
Seal: CR
SKINTOP® SOLAR plus
Body: Polycarbonate
Seal: Silicone
O-Ring: Silicone

Tests
Cold impact test according to UL 1703/UL 746 C

Protection rating
IP 68 - 5 bar

Temperature range
SKINTOP® SOLAR
-40°C to +100°C
SKINTOP® SOLAR plus
-40°C to +125°C

Article number	Article designation / size	Ø F mm	SW wrench size mm	Overall length C mm	Thread length D mm	Pieces / PU
SKINTOP® SOLAR						
53113300	M 12 x 1,5	3,5-7	15	37.5	15	100
53113310	M 16 x 1,5	7-9	19	34.0	8	100
SKINTOP® SOLAR plus						
53113321	M 12 x 1,5	3,5-7	15	37.5	15	100
53113331	M 16 x 1,5	7-9	19	34.0	8	100

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Accessories

- SKINTOP® GMP-GL-M refer to page 711

Tools and cable accessories

SILVYN® E-KIT

Info

- Orange coloured conduit kit with short lengths

Benefits

- Protection and bundling of cables, lines and wires
- Maintenance and retrofit
- Additional abrasion protection for critical areas

Application range

- E-Mobility

Product features

- Divisible and closed protection conduits
- High mechanical and chemical resistance

Norm references / Approvals

- Use acc. to the european regulation ECE/TRANS/WM.29/GRSP/2009/16 to mark high voltage systems and components (> 25V AC / > 60V DC) with the signal colour orange

Included

- Corrugated conduit, slit and closable (3m)
- Corrugated conduit, two-part and closable (3m)
- Knit woven fabric, closed and puncture-resistant (3m)
- Braided sleeve, slit and self-wrapping (3m)
- Cable ties (100 pieces, 200mm x 2.5mm) and installation tool (1x)

Technical data

Colour delivered
Orange

Material
Polyamide 6 (PA6)
Polypropylene (PP)
Polyester (PET)
Fire behaviour according to UL94 V-2

Temperature range
PP: -30 to +105°C
PA6: -55 to +125°C
PET: -40 to +160°C

Article number	Corrugated conduit (m)	Knit woven/Braided sleeve (m)	Cable ties (pcs)	Contents (m)	Contents (unit)	PU
SILVYN® E-KIT						
61737407	Polypropylene (PP)	Polyester (PET)	Polyamide 6 (PA6)	3	100	1

Other colours and sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® SPLIT

Info

- Subsequent cable protection

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

On request
Polyamide 12 version (highly flexible)
ETFE version (high-temperature resistant up to +200°C)

Colour delivered
Black (RAL 9005), UV-resistant

Material
Polyamide 6 (PA6)
Polypropylene (PP)

Protection rating
IP 43 with SILVYN® SPLIT COV

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

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Low rodent-protection
- Fast and easy assembly

Application range

- Vehicle construction
- Shipbuilding
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

Product features

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

Product Make-up

- Divisable corrugated conduit

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® COV	PU (m)
SILVYN® SPLIT PA6					
61806621	6	6.3 x 10.0	15		50
61806620	10	8.8 x 13.5	15	M16/PG9	50
61806631	11	11.0 x 16.1	15		50
61806630	14	13.2 x 18.7	15	M20/PG13,5	50
61806641	16	16.0 x 21.5	20		50
61806640	20	20.2 x 25.7	25	M25/PG21	50
61806650	23	23.9 x 31.3	35	M32/PG29	50
61806651	29	27.3 x 35.5	35		25
61806660	37	32.5 x 43.2	40	M40/PG29	25
61806670	45	43.1 x 54.2	70	M50	25
61806671	70	67.0 x 79.8	95		10
61806672	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP					
61806615	6	6.3 x 10.0	15		50
61806625	10	8.4 x 13.4	15	M16/PG9	50
61806616	11	11.0 x 16.1	15		50
61806635	14	12.5 x 18.5	15	M20/PG13,5	50
61806617	16	16.0 x 21.5	20		50
61806645	20	19.2 x 25.3	20	M25/PG21	50
61806655	23	23.4 x 30.8	45	M32/PG29	50
61806618	29	27.3 x 35.5	50		25
61806665	37	31.0 x 41.4	60	M40/PG29	25
61806675	45	42.7 x 54.0	75	M50	25
61806619	70	67.5 x 79.8	95		10
61806622	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP UV					
61806100	6	6.3 x 10.0	15		50
61806110	10	8.4 x 13.4	15	M16/PG9	50
61806120	11	11.0 x 16.1	15		50
61806130	14	12.5 x 18.5	15	M20/PG13,5	50
61806140	16	16.0 x 21.5	20		50
61806150	20	19.2 x 25.3	20	M25/PG21	50
61806160	23	23.4 x 30.8	45	M32/PG29	50
61806170	29	27.3 x 35.5	50		25
61806180	37	31.0 x 41.4	60	M40/PG29	25
61806190	45	42.7 x 54.0	75	M50	25
61806200	70	67.5 x 79.8	95		10
61806210	100	87.5 x 102.5	100		10

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

Similar products

- Sinus-shaped slit

Accessories

- SILVYN® SPLIT COV-M refer to page 862
- SILVYN® SPLIT GMP-M refer to page 862
- SILVYN® SPLIT COS refer to page 862
- Spare tool Cable - Eater refer to page 1000

SILVYN® RILL PA 6

Info

- Maximum safety in the event of a fire

Benefits

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

Application range

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

Product features

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

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- UV and weather-resistant in black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

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

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

Temperature range
-40°C to +115°C
short-term +150°C

Article number	Nominal size	ID × OD (mm)	Bending radius (mm)	Suitable for SILVYN® KLICK-M/90°M	Suitable for SILVYN® KLICK PG/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU (m)
SILVYN® RILL PA 6 grey							
61746939	10	6.5 × 10	13	10 × 1	7/-	12 × 1.5/7	50
61746940	13	10 × 13	20	12 × 1.5/16 × 1.5	9	16 × 1.5/9	50
61746950	16	12 × 15.8	35	16 × 1.5/20 × 1.5	11	20 × 1.5/11	50
61747010	18	14.3 × 18.5	40	–	13,5	-/13.5	50
61746960	21	16.5 × 21.2	45	20 × 1.5	16	25 × 1.5/16	50
61746970	28	23 × 28.5	55	25 × 1.5	21	32 × 1.5/21	50
61746980	34	29 × 34.5	65	32 × 1.5	29	40 × 1.5/29	25
61746990	42	36 × 42.5	90	40 × 1.5	36	50 × 1.5/36	25
61747000	54	48 × 54.5	100	50 × 1.5	48	63 × 1.5/48	25
SILVYN® RILL PA 6 black							
61746935	10	6.5 × 10	13	10 × 1	7/-	12 × 1.5/7	50
61746945	13	10 × 13	20	12 × 1.5/16 × 1.5	9	16 × 1.5/9	50
61746955	16	12.0 × 15.8	35	16 × 1.5/20 × 1.5	11	20 × 1.5/11	50
61747015	18	14.3 × 18.5	40	–	13,5	-/13,5	50
61746965	21	16.5 × 21.2	45	20 × 1.5	16	25 × 1.5/16	50
61746975	28	23 × 28.5	55	25 × 1.5	21	32 × 1.5/21	50
61746985	34	29 × 34.5	65	32 × 1.5	29	40 × 1.5/29	25
61746995	42	36 × 42.5	90	40 × 1.5	36	50 × 1.5/36	25
61747005	54	48 × 54.5	100	50 × 1.5	48	63 × 1.5/48	25

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

Similar products

- SILVYN® FPAS refer to page [P1177]
- SILVYN® RILL PA 12 refer to page [P1155]

Accessories

- SILVYN® KLICK-M refer to page [P1156]
- SILVYN® KLICK 90° M refer to page [P1157]
- SILVYN® KLICK GPZ-M refer to page [P1158]
- SILVYN® KSE refer to page [P1160]
- SILVYN® KLICK PG refer to page [P1161]
- SILVYN® KLICK 90° PG refer to page [P1163]
- SILVYN® KLICK-GPZ refer to page [P1162]
- SILVYN® KLICK NPT refer to page [P364769]
- SILVYN® KLICK-Y refer to page [P1164]
- SILVYN® KLICK-RH refer to page [P1169]
- SILVYN® K-EM refer to page [P1170]

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

SILVYN® SPLIT COV-M

SILVYN® SPLIT GMP-M

SILVYN® SPLIT COS

Benefits

SILVYN® SPLIT COV-M
- Fast and easy assembly
- Subsequent mountable conduit insertion

SILVYN® SPLIT GMP-M
- Fast assembly
- Easy to disassemble

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

Application range

SILVYN® SPLIT COV-M
- In combination with protective conduit:
- SILVYN® SPLIT
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

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

Product features

SILVYN® SPLIT COV-M
- Divisable counter nut with metric thread

SILVYN® SPLIT COS
- One-piece conduit holder

Note

- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® SPLIT Page 861

Technical data

Classification ETIM 5/6
SILVYN® SPLIT COV-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT GMP-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT COS
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
Halogen-free PA

Temperature range
-40 °C to +120 °C

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

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

Shrink tube PROTECT-M/PROTECT-T

Info

- Medium / thick walled

Benefits

- Is designed to withstand the severe mechanical requirements of submersible and direct-buried installations
- High resistance to abrasion, corrosion and chemicals
- Good weather-resistance

Application range

- Thick and medium-wall shrink tubes for 600 V, 90°C low voltage applications in continuous use
- Ideal for the protection of cable joints and terminations in low voltage power applications

Product features

- Adhesive lining bonds to plastic, rubber, neoprene,steel and polyethylene
- Silicone-free
- UV-resistant
- Halogen-free

Included

- Plastic bags with 1.0 m units

Suitable tools

- HG 2320 hot-air pistol

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

Note
PROTECT-M: medium wall
PROTECT-T: heavy wall
Dielectric strength: 15 kV/mm

Info
Shrinking ratio: 3:1

Colour delivered
Black

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside

Temperature range
-40°C to +120°C
Shrinking temperature: +110°C

Article number	Article description	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	PU (m)	PU
Medium wall					
61742460	PROTECT-M 12/3 BK	12.0 - 3.0	2,2	15	1
61742461	PROTECT-M 33/8 BK	33.0 - 8.0	2,6	10	1
61742462	PROTECT-M 40/12 BK	40.0 - 12.0	2,6	5	1
61742463	PROTECT-M 56/17 BK	56.0 - 17.0	2,9	3	1
61742464	PROTECT-M 92/26 BK	92.0 - 26.0	3,15	1	1
Thick wall					
61742455	PROTECT-T 13/3 BK	13.0 - 3.0	2,65	25	1
61742456	PROTECT-T 19/6 BK	19.0 - 6.0	2,65	15	1
61742457	PROTECT-T 45/13 BK	45.0 - 13.0	3,7	5	1
61742458	PROTECT-T 52/15 BK	52.0 - 15.0	4,1	3	1
61742459	PROTECT-T 130/45 BK	130.0 - 45.0	4,2	1	1

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HOTY heat-shrink tube

The HOTY heat-shrink tube is made of PVC and his special feature is the shrinking by relative low temperature. The material shrinks in length as well as in diameter.

Based on its features, also its aging and weather resistance, the HOTY heat-shrink tube is suitable to be used as electro-insulation tube or sleeve as well as mechanical protection.

Technical data

- Material: PVC
- Colour: Black

Technical Features

- Shrink range 1,2mm up to 31,0mm
- Temperature range -20°C up to +90°C
- Storage temperature under +18°C

Shrinking features

- Shrink temperature +120°C
- Shrink ratio 2/1
- Longitudinal shrinkage 20-30%
- Radial shrinkage 50%
- Suitable tool heat gun

Benefits

- Excellent mechanical, electrical and chemical properties
- Good UV resistance
- Highly flexible

Additional features

- Elongation to break 250%
- Tensile strength 20N/mm²
- Dielectric strength 20kV/mm
- Contact resistance 1E12 Ohm
- Flammability resistance V0 acc. to UL94

Application range

- Power machines (motor, turbine)
- Machine tools (blower, pump, compressor)
- Medical technology
- Automation
- F&B
- Process industry (steel, glass, chemicals, paper processing, etc.)
- Measuring technology
- Open-loop control technology
- Closed-loop control technology
- Control cabinet technology
- Wind power (offshore and onshore systems)
- Telecommunications
- Stage and theatre construction
- Automotive production
- Machine tools (tooling, milling, grinding machine)
- Conveyor systems (crane, conveyor belt) = logistics
- Robotics
- Special machines

Technical data

Material: PVC
Colour: Black

Technical features
Shrink range 1,2mm up to 31,0mm

Temperature range
-20°C up to +90°C
Storage temperature under +18°C

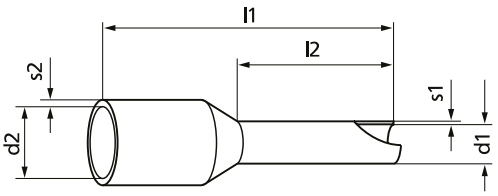
Shrinking features
Shrink temperature +120°C
Shrink ratio 2/1
Longitudinal shrinkage 20-30%
Radial shrinkage 50%

Dimension table

Part No.	Shrink range mm	Wall thickness after shrinking mm
6171 6700	2,5 – 1,2	0,45
6171 6720	4,0 – 2,0	0,5
6171 6740	6,0 – 3,0	0,5
6171 6760	7,0 – 4,0	0,5
6171 6780	11,0 – 6,0	0,6
6171 6800	14,0 – 8,0	0,6
6171 6820	17,0 – 10,0	0,8
6171 6840	20,0 – 13,0	0,8
6171 6860	25,0 – 16,0	1,0
6171 6880	31,0 – 20,0	1,0

For more information please see our current catalogue. Please do not hesitate to contact our laboratory if there are any questions regarding resistance against aggressive agents and special oil.

Conductor end sleeves insulated



Info

- Now with UL approval

Benefits

- Funnel-shaped opening makes it easy to slip them onto the strands
- The conductor is permanently connected to the collar by crimping

Application range

- Control cabinets and equipment wiring
- For cables with category 2,5 and 6 conductors
- Not suitable for solid conductors

Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4
- UL File No. E507990, see table
- Fire behaviour according to UL 94 HB

Note

- From 16mm sleeve length (l2) 2x crimp

Suitable tools

- PEW 12 universal tool refer to page 983
- E-PEW 12 universal tool refer to page 983
- Crimping inserts for PEW 12 system refer to page 984
- PEW 8.185 crimping pliers refer to page 971
- PEW 8.186 crimping pliers refer to page 971

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

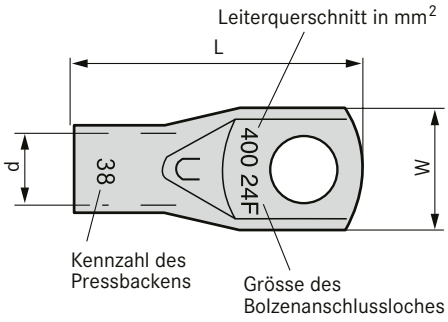
Note
Halogen-free

Material
Copper/PP
Surface: tin-plated

Temperature range
-5°C to +105°C

Article number	Article designation	For mm²	UL certification	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Suitable crimp insert	Pieces / PU
Conductor end sleeves insulated												
61721866	AHI N 0,25/6	0.25	no	light blue	10.5	6	0.8	0.25	1.8	0.25	PEW 12.090	500
61721867	AHI L 0,25/8	0.25	no	light blue	12.5	8	0.8	0.25	1.8	0.25	PEW 12.090	500
61721868	AHI N 0,34/6	0.34	no	turquoise	10.5	6	0.8	0.25	2	0.25	PEW 12.090	500
61721869	AHI L 0,34/8	0.34	no	turquoise	12.5	8	0.8	0.25	2	0.25	PEW 12.090	500
61801580	AHI DIN K 0,5/6	0.50	yes	white	11.5	6	1.1	0.15	2.5	0.25	PEW 12.090	500
61801590	AHI DIN N 0,5/8	0.50	yes	white	13.5	8	1.1	0.15	2.5	0.25	PEW 12.090	500
61801600	AHI DIN HL 0,5/10	0.50	yes	white	15.5	10	1.1	0.15	2.5	0.25	PEW 12.090	500
61721871	AHI N 0,5/8	0.50	no	orange	13.5	8	1.1	0.15	2.5	0.25	PEW 12.090	500
61801620	AHI DIN K 0,75/6	0.75	yes	grey	12	6	1.3	0.15	2.8	0.25	PEW 12.090	500
61801630	AHI DIN N 0,75/8	0.75	yes	grey	14	8	1.3	0.15	2.8	0.25	PEW 12.090	500
61801640	AHI DIN HL 0,75/10	0.75	yes	grey	16	10	1.3	0.15	2.8	0.25	PEW 12.090	500
61801650	AHI DIN L 0,75/12	0.75	yes	grey	18	12	1.3	0.15	2.8	0.25	PEW 12.090	500
61721880	AHI N 0,75/8	0.75	no	white	14	8	1.3	0.15	2.8	0.25	PEW 12.090	500
61801660	AHI DIN K 1/6	1.00	yes	red	12.5	6	1.5	0.15	3	0.3	PEW 12.090	500
61801670	AHI DIN N 1/8	1.00	yes	red	14.5	8	1.5	0.15	3	0.3	PEW 12.090	500
61801680	AHI DIN HL 1/10	1.00	yes	red	16.5	10	1.5	0.15	3	0.3	PEW 12.090	500
61801690	AHI DIN L 1/12	1.00	yes	red	18.5	12	1.5	0.15	3	0.3	PEW 12.090	500
61721890	AHI N 1/8	1.00	no	yellow	14.5	8	1.5	0.15	3	0.3	PEW 12.090	500
61801700	AHI K 1,5/6	1.50	yes	black	12.5	6	1.8	0.15	3.4	0.3	PEW 12.090	500
61801710	AHI DIN N 1,5/8	1.50	yes	black	14.5	8	1.8	0.15	3.4	0.3	PEW 12.090	500
61801720	AHI DIN HL 1,5/10	1.50	yes	black	16.5	10	1.8	0.15	3.4	0.3	PEW 12.090	500
61801730	AHI DIN L 1,5/18	1.50	yes	black	24.5	18	1.8	0.15	3.4	0.3	PEW 12.090	500
61721900	AHI N 1,5/8	1.50	no	red	14.5	8	1.8	0.15	3.4	0.3	PEW 12.090	500
61721910	AHI HL 1,5/10	1.50	no	red	16.5	10	1.8	0.15	3.4	0.3	PEW 12.090	500
61746720	AHI L 1,5/18	1.50	no	red	24.5	18	1.8	0.15	3.4	0.3	PEW 12.090	500
61801750	AHI DIN N 2,5/8	2.50	yes	blue	15	8	2.3	0.15	4.2	0.3	PEW 12.090	500
61801760	AHI DIN HL 2,5/12	2.50	yes	blue	19	12	2.3	0.15	4.2	0.3	PEW 12.090	500
61801770	AHI DIN L 2,5/18	2.50	yes	blue	25	18	2.3	0.15	4.2	0.3	PEW 12.090	500
61801780	AHI DIN N 4/10	4.00	yes	grey	17.5	10	2.9	0.2	4.8	0.3	PEW 12.090	500
61801790	AHI DIN HL 4/12	4.00	yes	grey	20	12	2.9	0.2	4.8	0.3	PEW 12.090	500
61801800	AHI DIN L 4/18	4.00	yes	grey	26	18	2.9	0.2	4.8	0.3	PEW 12.090	100
61801810	AHI DIN N 6/12	6.00	yes	yellow	20	12	3.6	0.2	6.2	0.3	PEW 12.090	100
61801820	AHI DIN L 6/18	6.00	yes	yellow	25	18	3.6	0.2	6.2	0.3	PEW 12.090	100
61721940	AHI N 6/12	6.00	no	black	20	12	3.6	0.2	6.2	0.3	PEW 12.090	100
61721950	AHI L 6/18	6.00	no	black	26	18	3.6	0.2	6.2	0.3	PEW 12.090	100
61801830	AHI DIN N 10/12	10.00	yes	red	21	12	4.6	0.2	7.5	0.3	PEW 12.091	100
61801840	AHI DIN L 10/18	10.00	yes	red	27	18	4.6	0.2	7.5	0.3	PEW 12.091	100
61721960	AHI N 10/12	10.00	no	ivory	21	12	4.6	0.2	7.5	0.3	PEW 12.091	100
61721970	AHI L 10/18	10.00	no	ivory	27	18	4.6	0.2	7.5	0.3	PEW 12.091	100
61801850	AHI DIN N 16/12	16.00	yes	blue	23	12	6	0.2	8.8	0.4	PEW 12.091	100
61801860	AHI DIN L 16/18	16.00	yes	blue	29	18	6	0.2	8.8	0.4	PEW 12.091	100
61721980	AHI N 16/12	16.00	no	green	23	12	6	0.2	8.8	0.4	PEW 12.091	100
61721990	AHI L 16/18	16.00	no	green	29	18	6	0.2	8.8	0.4	PEW 12.091	100

Tube cable lugs KR/ KRT/ KRF



Benefits

- With inspection hole (starting from 4 mm²)
- High-quality electrolytic copper ensures a good crimping quality

Application range

- KR: For fine and multi-wire copper conductors (class 2 an 5) with a cross-sectional range of 0.75 -10.00 mm²
- KRT: For multi-wire copper conductors (class 2)with a cross-sectional range of 10 - 1000 mm²
- KRF: For fine wire copper conductors (class 2, 5 and 6) with a cross-sectional range of 16 - 800 mm²
- Mainly for connection to rails and to copper connectors
- Max. 48 kV

Norm references / Approvals

- In combination with recommended crimp tool fulfill requirments of EN-IEC 61238:1, BS 4579:1 and VDE 0220:1
- UL file number: E205350 (see table)

Suitable tools

- T 2288 pressing pliers refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981
- Die holders for system 1311 refer to page 981
- Dies for system 1311 and 1300 refer to page 982

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001051
ETIM 5.0/6.0 Class-Description: Tube cable lug for copper conductors

Material
Tinned electrolyte copper (Cu/Sn4 , tin surface of 4µ)

Temperature range
Temperature range up to +90°C
Working temperature: 110°C, max. +140°C

Article number	Article designation	Screw hole Ø (mm)	UL certification	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
KR								
61796480	KR 0,75/3	3	no	16		1.3	6	100
61796490	KR 0,75/4	4	no	17		1.3	6	100
61796500	KR 1,5/3	3	yes	16		1.8	6.5	100
61796510	KR 1,5/4	4	yes	17		1.8	6.5	100
61796520	KR 1,5/5	5	yes	18		1.8	7.5	100
61796530	KR 2,5/3	3	yes	17		2.3	7.5	100
61796540	KR 2,5/4	4	yes	18		2.3	7.5	100
61796550	KR 2,5/5	5	yes	19		2.3	8.5	100
61796560	KR 2,5/6	6	yes	19		2.3	8.5	100
61796570	KR 4/4	4	yes	21		3	8.5	100
61796580	KR 4/5	5	yes	22		3	9	100
61796590	KR 4/6	6	yes	23		3	10	100
61796600	KR 6/4	4	yes	22		4	9.5	100
61796610	KR 6/5	5	yes	22		4	9.5	100
61796620	KR 6/6	6	yes	23		4	10	100
61796630	KR 6/8	8	yes	30		4	13.5	100
61796631	KR 10/5	5	yes	29	B 7/ B 8	5	11.5	100
61796632	KR 10/6	6	yes	29	B 7/ B 8	5	11.5	100
61796633	KR 10/8	8	yes	33	B 7/ B 8	5	13.5	100
KRT								
61796640	KRT 10/5	5	yes	29	B 7	4.5	10	100
61796650	KRT 10/6	6	yes	29	B 7	4.5	10	100
61796660	KRT 10/8	8	yes	34	B 7	4.5	13	100
61796670	KRT 10/10	10	yes	34	B 7	4.5	16	100
61796680	KRT 10/12	12	yes	41	B 7	4.5	19	100
61796690	KRT 16/5	5	yes	34	B 8.5	5.5	12	100
61796700	KRT 16/6	6	yes	34	B 8.5	5.5	12	100
61796710	KRT 16/8	8	yes	39	B 8.5	5.5	15	100
61796720	KRT 16/10	10	yes	39	B 8.5	5.5	16	100
61796730	KRT 16/12	12	yes	47	B 8.5	5.5	19	100
61796740	KRT 25/6	6	yes	43	B 10	7	14	100
61796750	KRT 25/8	8	yes	43	B 10	7	15	100
61796760	KRT 25/10	10	yes	43	B 10	7	16	100
61796770	KRT 25/12	12	yes	48	B 10	7	19	100
61796780	KRT 35/6	6	yes	49	B 12	8.5	17	100
61796790	KRT 35/8	8	yes	49	B 12	8.5	17	100
61796800	KRT 35/10	10	yes	49	B 12	8.5	19	100

PEW 12 universal tool

More Details

Benefits
- Parallel jaw closing
- Ergonomic handles
- One or two-hand operation
- Inserts are easily changeable

Application range
- Compatible with most of the crimping dies for the PEW 12 system (see product description of the cirmping dies)
- Crimping of almost all crimped connections with conductor cross-sections 0.08-95 mm²

Product features
- Version PEW 12S has a larger opening angle and is therefore intended for the larger PEW 12S crimping dies (see item description of the crimping dies)

Included
- Crimping tool will be delivered without case and without inserts
- Empty case inludes placeholders for 15 crimping dies and 4 locators

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Colour delivered
Burnished
Chrome-plated pressing pliers available upon request (article no. 61813800)

Article number	Article designation	Pieces / PU
Pliers		
61813807	PEW 12 without inserts	1
61814610	PEW 12S without inserts	1
61813819	Case for PEW 12	1

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

E-PEW 12 universal tool

More Details

Benefits
- Electromechanical tool with Li-Ion battery
- Dependable, reliable, low maintenance
- Precise tap positioning of contacts
- Quickstop, no overcrimping
- Process monitoring on multifunction display:
  - Battery charge level
  - Service interval display
  - Overheating / overload warning

Application range
- Compatible with most of the crimping dies for the PEW 12 system (see product description of the cirmping dies)
- Crimping of almost all crimped connections with conductor cross-sections 0.08-95 mm²
- Various applications in the cable assembly

Included
- Supplied in plastic case (500 x 420 x 125 mm)
- Tool without crimping dies and locators
- Including battery and battery recharger

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Colour delivered
Black

Article number	Article designation	Weight (kg)
E-PEW 12 universal tool		
61813817	E-PEW 12	4.7

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

PVX 1300 pressing pliers battery-operated

More Details

Info

- NEW: two-stage DUAL crimping technique (first hexagonal pressing, then additional mandrel pressing)

Benefits

- Pressure strength control using pressure monitoring
- Buzzing signal and flashing light if right pressure is not achieved
- Display with information on the tool and service interval
- Single-handed operation for easy handling
- Rapid feed for more efficient crimping

Application range

- Battery powered crimp tool for crimping of CU terminals KRF/KRT 10-400 mm²
- Same accessories as V 1311-A pliers

Product features

- Crimps/charge: 60-120 depending on size and temperature
- Battery type: Makita 5 Ah
- Charging time: 40 min

Included

- Supplied with robust plastic case, battery charger and instruction manual
- Pressing dies and die holders need to be ordered seperately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Note
Crimping profile: DUAL (hexagonal + mandrel) or hexagonal
Pressing force: 124 kN (13 t)

Article number	Article designation
PVX 1300 pressing pliers battery-operated	
61813872	Crimping tool PVX 1300

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

Die holders for system 1311

More Details

Application range

- Both the inner die holder V 1316 and the outer die holder V 1318 is needed

Note

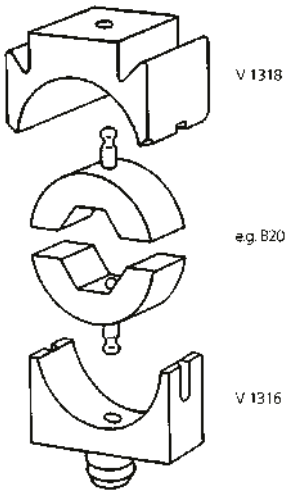
- Only needed for dies which have no „13“ in article designation

Suitable tools

- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

Technical data

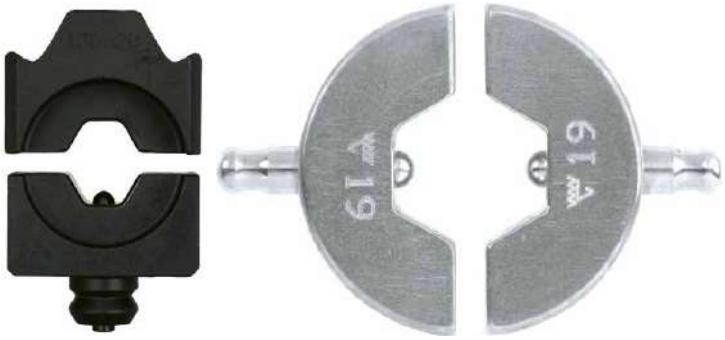
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection



Article number	Article designation	Dies per PU	PU
Die holders for system 1311			
61795941	V 1316 inner die-holder	1	1
61795942	V 1318 outer die-holder	1	1

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Dies for system 1311 and 1300



Info

- NEW: two-stage DUAL crimping technique (first hexagonal pressing, then additional mandrel pressing)

Application range

- Pressing dies for V 1311 and PVX 1300 for crimping cable lugs (KRT/KRF) and butt connectors (KST/KSF)

Included

- Pressing dies are delivered in pairs
- For pressing dies where the article designation begins with „13B“ no extra die holders are needesd, for all other dies you need to order the die holders separately.

Suitable tools

- V 1311-A pressing pliers, hydraulic refer to page 980
- PVX 1300 pressing pliers battery-operated refer to page 981

Technical data

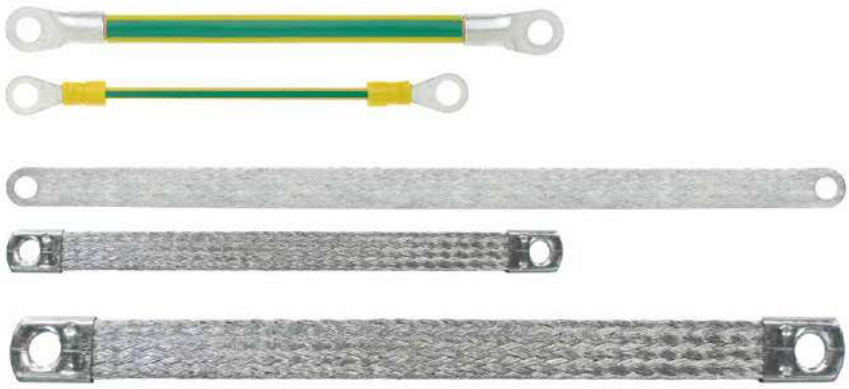
ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	For KRT/KST mm²	For KRF/KSF mm²	PU
Pressing dies DUAL				
61795982	13DB8		10	1
61795983	13DB9		16	1
61795984	13DB11		25	1
61813899	13DB13		35	1
61795952	13DB14,5		50	1
61795985	13DB17		70	1
61813874	13DB20		95	1
61813871	13DB22		120	1
61795986	13DB25		150	1
61813873	13DB27		185	1
61795987	13DB30		240	1
61795988	13DB32		300	1
Pressing dies hexagonal				
61795950	B7	10		1
61795951	B8		10	1
61795960	B8,5	16		1
61795970	B9		16	1
61795971	B10	25		1
61795972	B11		25	1
61795980	B12	35		1
61795981	B13		35	1
61795990	B14	50		1
61795991	B14,5		50	1
61796000	B16	70		1
61796001	B17		70	1
61796010	B18	95		1
61796020	B19	120		1
61796021	B20		95	1
61796030	B22	150	120	1
61796031	B24	185		1
61796032	B25		150	1
61796043	13B26	240		1
61796047	13B27		185	
61796044	13B30	300	240	1
61796045	13B32	400	300	1
61796046	13B38		400	1

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Ground Straps / Flat Ground Straps



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000490
ETIM 5.0/6.0 Class-Description:
Accessories for earthing and lightning

Core identification code
Assembled ground straps
Green/Yellow

Conductor stranding
Assembled ground straps
IEC 60 228 Class 6
Assembled flat ground straps
IEC 60 228 Class 6, tin-plated
Extra-fine wire

Minimum bending radius
Assembled ground straps
7 x outer diameter
Assembled flat ground straps
2 x thickness of the strap

Test voltage
Assembled ground straps
2500 V

Temperature range
Assembled ground straps
-30°C to +70°C
Assembled flat ground straps
-5°C to +70°C

Application range

- Control cabinet manufacturing
- The protective earth safety measure is prescribed by standard
- Fixed and moving metal parts, such as doors in switch cabinet construction, must be earthed

Product features

- Fixed lengths for M6 and M8 screws

Norm references / Approvals

- UL File number: E501239, see table

Product Make-up

- Ground straps:
  - Strands of bare copper wires
  - PVC-based core insulation
  - Assembled with ring cable lugs
- Pressure-welded flat ground straps:
  - Strand made of tinned-copper wires
  - Welded ends
- Flat ground straps with sleeves:
  - Strands made of tinned-copper wires
  - Assembled with pressed contact sleeves

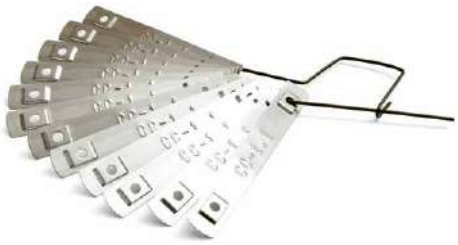
Article number	Article designation	UL certification	Cross-section (mm²)	For	Length (mm)	Thickness (mm) +- 0,5 mm	Copper index kg/1.000 pieces	PU
Ground straps								
4571120	Ground strap 1 x 4/M6/170 mm GN/YE	no	4	M6	170		6.5	25
4571123	Ground strap 1x4/M8/300mm GN/YE	no	4	M8	300		11.4	25
4571121	Ground straps 1x16/M6/170mm GN/YE	no	16	M6	170		26.2	25
4571198	Ground strap 1x16/M6/500mm GN/YE	no	16	M6	500		76.8	25
4571124	Ground strap 1x16/M8/300mm GN/YE	no	16	M8	300		46.2	25
4571122	Ground strap 1x25/M6/170mm GN/YE	no	25	M6	170		40.8	25
4571125	Ground strap 1x25/M8/300mm GN/YE	no	25	M8	300		72	25
Pressure-welded flat ground straps								
4571132	Flat ground strap/press. 1X10/M6/200mm	no	10	M6	200	1	18	25
4571135	Flat ground strap/press. 1x10/M6/300mm	no	10	M6	300	1	27	25
70399965	Flat ground strap/press. 1X16/M6/200mm	no	16	M6	200	1.5	30.72	25
70399966	Flat ground strap/press. 1X16/M6/300mm	no	16	M6	300	1.5	46.08	25
4571133	Flat ground strap/press. 1x16/M8/200mm	no	16	M8	200	1.5	29	25
4571136	Flat ground strap/press. 1x16/M8/300mm	no	16	M8	300	1.5	43.5	25
4571134	Flat ground strap/press. 1X25/M8/200mm	no	25	M8	200	1.5	45	25
4571137	Flat ground strap/press. 1x25/M8/300mm	no	25	M8	300	1.5	67.5	25
70399969	Flat ground strap/press. 1X25/M8/500mm	no	25	M8	500	1.5	120	25
Flat ground straps with terminals								
4571196	Flat ground strap/terminals 1x6/M6/200mm	yes	6	M6	200	2	15	25
4571197	Flat ground strap/terminals 1x6/M6/300mm	yes	6	M6	300	2	20	25
4571126	Flat ground straps/terminals 1x10/M6/200mm	yes	10	M6	200	2.5	25	25
4571129	Flat ground strap/terminals 1x10/M6/300mm	yes	10	M6	300	2.5	32	25
4571127	Flat ground strap/terminals 1x16/M8/200mm	yes	16	M8	200	3	35	25
4571130	Flat ground strap/terminals 1x16/M8/300mm	yes	16	M8	300	3	51	25
4571128	Flat ground strap/terminals 1x25/M8/200mm	yes	25	M8	200	3.5	55	25
4571131	Flat ground strap/terminals 1x25/M8/300mm	yes	25	M8	300	3.5	80	25

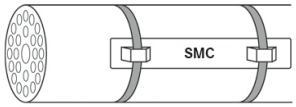
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Details of the clamping force are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

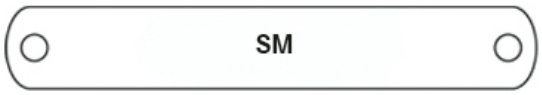
FLEXIMARK® Stainless steel FCC

Info

- Included in FLEXIMARK® sample bag (article no. M3251010)







Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Extremely durable

Application range

- Resists harsh environmental influences and extreme weather conditions
- Railway industry, food industry, wind industry, oil and gas industry

Norm references / Approvals

- Achilles JQS certified

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity
- Markers are sorted prior to delivery
- Included cable ties in article no.83251406, 83251456, 83251426, 83251468: Stainless steel cable ties LS 4,6-200 (article no.61812950)

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
  Print jobs template: www.lappkabel.com/service/downloadcenter/markingsystem/fleximark-customized-markings.html
- Length of the markers is depending on the number of characters
- All characters are printed in capital letters
- Max. number of characters:
  one-line embossing: short size 15, long size 25
  two-line embossing: short size 30 (15 per line), long size 50 (25 per line)

Suitable tools

- Steel Gun HT-338 Cable tie pliers refer to page 1010

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Dimensions
Character height: 4.2 mm
Gap between 2 characters: approx. 1 mm
Borehole diameter: 3.2 mm
Cable tie width: max. 7.9 mm

Note
Blanko version article no. 83251575 and 83251576

Info
Available characters: A-Ü 0-9 + - / . : , = Earth sign

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

Article number	Article designation	Height (mm)	Product Make-up	Number of characters per line	Markers / PU
One line embossing / with cable tie brackets					
83251406	FLEXIMARK® Stainless steel SMC FCC LS200 0-15	9.9	with cable tie	0-15	1
83251456	FLEXIMARK® Stainless steel SMC FCC LS 16-25	9.9	with cable tie	16-25	1
83251402	FLEXIMARK® Stainless steel SMC FCC 0-15	9.9	without cable tie	0-15	1
83251454	FLEXIMARK® Stainless steel SMC FCC 16-25	9.9	without cable tie	16-25	1
One line embossing / with srew hole					
83251450	FLEXIMARK® Stainless steel SM FCC 0-15	9.9	with screw hole	0-15	1
83251478	FLEXIMARK® Stainless steel SM FCC 16-25	9.9	with screw hole	16-25	1
Two-line embossing / with cable tie brackets					
83251426	FLEXIMARK® Stainless steel SMC2R FCC LS 0-15	13.9	with cable tie	0-15	1
83251468	FLEXIMARK® Stainless steel SMC2R FCC LS 16-25	13.9	with cable tie	16-25	1
83251422	FLEXIMARK® Stainless steel SMC2R FCC 0-15	13.9	without cable tie	0-15	1
83251466	FLEXIMARK® Stainless steel SMC2R FCC 16-25	13.9	without cable tie	16-25	1
Two-line embossing / with srew hole					
83251451	FLEXIMARK® Stainless steel SM2R FCC 0-15	13.9	with screw hole	0-15	1
83251479	FLEXIMARK® Stainless steel SM2R FCC 16-25	13.9	with screw hole	16-25	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Blank markers could be found on the product page „SP Metalprint“ (article no. 83251575 and 83251576).

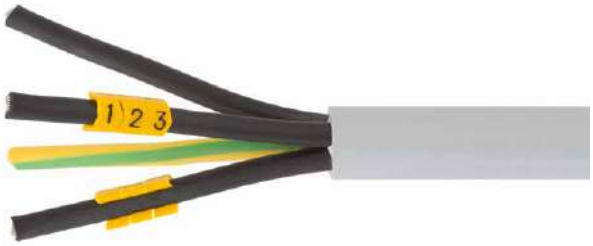
Similar products

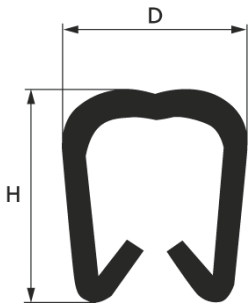
- FLEXIMARK® Stainless steel kit refer to page 942
- M1011 Manual embossing machine refer to page 948
- SP Metal print

Accessories

- Steel Gun HT-338 Cable tie pliers refer to page 1010
- LS steel cable ties refer to page 1008

Marking rings PC





Info

- Accessories (storage box) available in the web catalogue

Benefits

- Open marking rings with pre-printed number or character
- The shape ensures secure fixation to the cable, while the anti-rotation feature allows for a secure combination marking.
- Good UV resistance
- Easy mounting through clipping

Application range

- For single core marking
- Marking after assembly
- Also possible to use for marking wires before assembly

Product features

- Cross-section in mm²:
  PC 10: 1
  PC 20: 2.5
  PC 30: 4
  PC 40: 6
- Diameter application area in mm:
  PC 10: 2.4-3
  PC 20: 3-4
  PC 30: 4-5
  PC 40: 5-6.2
- Width x heigt mm / sleeve length mm:
  PC 10: 3,7 x 3,6 / 3
  PC 20: 4,5 x 4,2 / 3
  PC 30: 5,7 x 5,5 / 3
  PC 40: 6,9 x 6,7 / 4

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Note
Sizes PC 20 - PC 40 in web catalogue

Colour delivered
Yellow

Material
Cadmium-free and silicon-free hard PVC

Temperature range
-30°C to +60°C

Article number	Article designation	Markers / PU	PU
PC 10			
61820900	PC 10 / O	200	1
61820910	PC 10 / 1	200	1
61820920	PC 10 / 2	200	1
61820930	PC 10 / 3	200	1
61820940	PC 10 / 4	200	1
61820950	PC 10 / 5	200	1
61820960	PC 10 / 6	200	1
61820970	PC 10 / 7	200	1
61820980	PC 10 / 8	200	1
61820990	PC 10 / 9	200	1
61821000	PC 10 / blank	200	1
61821010	PC 10 / A	200	1
61821020	PC 10 / B	200	1
61821030	PC 10 / C	200	1
61821040	PC 10 / D	200	1
61821050	PC 10 / E	200	1
61821060	PC 10 / F	200	1
61821070	PC 10 / G	200	1
61821080	PC 10 / H	200	1
61821090	PC 10 / I	200	1
61821100	PC 10 / J	200	1
61821110	PC 10 / K	200	1
61821120	PC 10 / L	200	1

Article number	Article designation	Markers / PU	PU
61821130	PC 10 / M	200	1
61821140	PC 10 / N	200	1
61821150	PC 10 / O	200	1
61821160	PC 10 / P	200	1
61821170	PC 10 / Q	200	1
61821180	PC 10 / R	200	1
61821190	PC 10 / S	200	1
61821200	PC 10 / T	200	1
61821210	PC 10 / U	200	1
61821220	PC 10 / V	200	1
61821230	PC 10 / W	200	1
61821240	PC 10 / X	200	1
61821250	PC 10 / Y	200	1
61821260	PC 10 / Z	200	1
61821270	PC 10 / /	200	1
61821280	PC 10 / .	200	1
61821290	PC 10 / ,	200	1
61821300	PC 10 / :	200	1
61821310	PC 10 / =	200	1
61821320	PC 10 / earth	200	1
61821360	PC 10 / +	200	1
61821370	PC 10 / -	200	1
61821380	PC 10 / ~	200	1

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

Similar products
- Marking rings Pliosnap

Accessories
- Storage box

FLEXIMARK® Cablelabel PUR

Info

- PUR 60x10 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon:
  Text colour black:
  FTI-Y 60-360 BK (article no. 83260201),
  Text colour white:
  FTI-X 55-300 WH (article no. 83260260)
- With customized print: see product FLEXIMARK® Cablelabel PUR FCC

Included

- Delivered as a roll of labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Colour delivered
Standard colour: yellow, white
Also available in red, orange, blue, green and black

Material
Halogen-free polyurethane

Temperature range
-50°C to +100°C
Could also withstand +125°C in the short term

Article number	Article designation	Colour	Width × length (mm)	Markers/PU	PU
Mounting centrally (with 1 cable tie)					
83280275	FLEXIMARK® Cablelabel PUR 20×30 YE Diamond	yellow	30 × 20	1000	1
83280276	FLEXIMARK® Cablelabel PUR 20×30 WH Diamond	white	30 × 20	1000	1
Mounting left (with 1 cable tie)					
83280277	FLEXIMARK® Cablelabel PUR 55×12 YE	yellow	12 × 55	1000	1
83280278	FLEXIMARK® Cablelabel PUR 55×12 WH	white	12 × 55	1000	1
Mounting two-sided (with 2 cable ties)					
83280279	FLEXIMARK® Cablelabel PUR 35×10 YE	yellow	10 × 35	1000	1
83260191	FLEXIMARK® Cablelabel PUR 60×10 YE	yellow	10 × 60	1000	1
83260192	FLEXIMARK® Cablelabel PUR 75×15 YE	yellow	15 × 75	1000	1
83260193	FLEXIMARK® Cablelabel PUR 75×25 YE	yellow	25 × 75	500	1
83255321	FLEXIMARK® Cablelabel PUR 100×60 YE	yellow	60 × 100	250	1
83280280	FLEXIMARK® Cablelabel PUR 35×10 WH	white	10 × 35	1000	1
83260194	FLEXIMARK® Cablelabel PUR 60×10 WH	white	10 × 60	1000	1
83260195	FLEXIMARK® Cablelabel PUR 75×15 WH	white	15 × 75	1000	1
83260196	FLEXIMARK® Cablelabel PUR 75×25 WH	white	25 × 75	500	1
83255322	FLEXIMARK® Cablelabel PUR 100×60 WH	white	60 × 100	250	1
83280260	FLEXIMARK® Cablelabel PUR 60×10 RD	red	10 × 60	1000	1
83280261	FLEXIMARK® Cablelabel PUR 75×15 RD	red	15 × 75	1000	1
83280262	FLEXIMARK® Cablelabel PUR 75×25 RD	red	25 × 75	500	1
83280263	FLEXIMARK® Cablelabel PUR 60×10 OG	orange	10 × 60	1000	1
83280264	FLEXIMARK® Cablelabel PUR 75×15 OG	orange	15 × 75	1000	1
83280265	FLEXIMARK® Cablelabel PUR 75×25 OG	orange	25 × 75	500	1
83280266	FLEXIMARK® Cablelabel PUR 60×10 BU	blue	10 × 60	1000	1
83280267	FLEXIMARK® Cablelabel PUR 75×15 BU	blue	15 × 75	1000	1
83280268	FLEXIMARK® Cablelabel PUR 75×25 BU	blue	25 × 75	500	1
83280269	FLEXIMARK® Cablelabel PUR 60×10 BK	black	10 × 60	1000	1
83280270	FLEXIMARK® Cablelabel PUR 75×15 BK	black	15 × 75	1000	1
83280271	FLEXIMARK® Cablelabel PUR 75×25 BK	black	25 × 75	500	1
83280272	FLEXIMARK® Cablelabel PUR 60×10 GN	green	10 × 60	1000	1
83280273	FLEXIMARK® Cablelabel PUR 75×15 GN	green	15 × 75	1000	1
83280274	FLEXIMARK® Cablelabel PUR 75×25 GN	green	25 × 75	500	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- Basic Tie cable tie refer to page [P1364]
- FLEXIMARK® Software 10.0 refer to page [P1448]
- FLEXIMARK® thermal printer SQUIX and EOS4* refer to page [P1463]

Ty-Rap® Heat-resistant cable ties with steel nose

More Details

Benefits
- Contains all the advantages of TY-RAP®, with higher heat-resistance

Application range
- Can be used in areas exposed to high temperatures such as electrical heating devices or heating installations

Norm references / Approvals
- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Design
- Heat-resistant cable ties have the extension „M“

Suitable tools
- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers refer to page 1009

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Light green- transparent

Material
Heat-resistant polyamide 6.6
Halogen-free and silicone-free

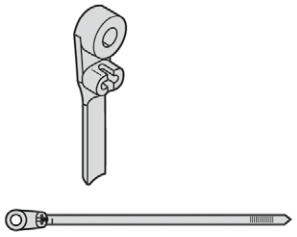
Temperature range
-40 °C to +105 °C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Ty-Rap® Heat-resistant cable ties with steel nose						
61723470	TYH 23 M	yes	92.0 x 2.4	2.0 - 16.0	80	1000
61723460	TYH 232 M	yes	203.0 x 2.4	2.0 - 50.0	80	1000
61723440	TYH 24 M	yes	140.0 x 3.6	2.0 - 29.0	130	1000
61723430	TYH 242 M	no	208.0 x 3.6	2.0 - 50.0	130	1000
61723410	TYH 26 M	yes	284.0 x 3.6	2.0 - 76.0	130	1000
61723420	TYH 25 M	yes	186.0 x 4.8	3.5 - 45.0	220	1000
61723380	TYH 28 M	yes	360.0 x 4.8	3.5 - 102.0	220	1000
61723390	TYH 272 M	yes	222.0 x 7.6	6.0 - 50.0	540	500
61723400	TYH 27 M	yes	340.0 x 7.0	6.0 - 90.0	540	500
61723350	TYH 29 M	yes	771.0 x 6.9	6.0 - 229.0	530	500

TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Ty-Rap® Cable tie with steel nose for screwing on

More Details



Benefits
- Cable ties with fasteners
- Allow installation and bundling in one step
- Steel nose ensures secure and durable binding

Application range
- For assembly with screws, bolts and rivets
- Simultaneous installation and bundling
- Possible application areas: Cable assemblies, pre- and final installation of parts and bundles, and for maintenance-free installation of cables and ducts

Norm references / Approvals
- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Design
- Also deliverable in black and UV-resistant

Suitable tools
- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers refer to page 1009

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	UL certification	Hole Ø (mm)	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Ty-Rap® Cable tie with steel nose for srewing on							
61715420	TY 33 M	yes	2.8	102.0 x 2.3	2.0 - 16.0	80	1000
61715480	TY 34 M	yes	4.2	151.0 x 3.5	2.0 - 29.0	180	1000
61720000	TY 635 M	yes	3.5	198.0 x 4.7	3.5 - 45.0	220	1000
61715540	TY 35 M	yes	4.8	199.0 x 4.7	3.5 - 45.0	220	1000
61720070	TY 1435 M	yes	6.3	198.0 x 4.7	3.5 - 45.0	220	1000
61715600	TY 37 M	yes	6.3	356.0 x 7.7	6.0 - 90.0	540	500

TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Connector RJ45 CAT.6 Hirose TM21

More Details

Product features
- Fully screened
- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige

Norm references / Approvals
- Cat.6acc. to ISO/IEC 11801

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Article number	Article designation	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG 7-wire
Connector RJ45 CAT.6 Hirose TM21						
CE6324	Connector RJ45 CAT.6 Hirose TM21	6.6	0.9	1	50	27-24

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Connector RJ45 Cat.6$_A$ Hirose TM31

More Details

Connector RJ45 Cat.6$_A$, Class E$_A$ bis 500 MHz

Application range
- Connector RJ45 CAT.6$_A$ Hirose TM31
- For data transfer rates up to 500 MHz

Product features
- Easy to handle

Norm references / Approvals
- Cat.6$_A$ acc. to ISO/IEC 11801

Technical data
Protection rating
IP 20

Ambient temperature (operation)
-25°C .. +60°C

Product Make-up
- Connector (inkl. Antikink & Guide Plate)
- Suitable for braided conductors: AWG24/7, AWG26/7, AWG27/7
- Fully screened

Article number	Article designation	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG 7-wire
Connector RJ45 Cat.6$_A$ Hirose TM31						
24441256	RJ45 connector TM31 Hirose Cat.6$_A$ GY	6	0.9	1	50	27-24
24441258	RJ45 Connector TM31 Hirose Cat.6$_A$ BK	6	0.9	1	50	27-24
24441259	RJ45 connector TM31 Hirose Cat.6$_A$ RD	6	0.9	1	50	27-24
24441260	RJ45 connector TM31 Hirose Cat.6$_A$ GN	6	0.9	1	50	27-24
24441261	RJ45 connector TM31 Hirose Cat.6$_A$ BU	6	0.9	1	50	27-24
24441262	RJ45 connector TM31 Hirose Cat.6$_A$ YE	6	0.9	1	50	27-24

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

Crimping tool RJ45 Hirose

On Request

Product features
- Crimping tool for RJ45 connector Hirose TM11 TM21 and TM31

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000385
ETIM 5.0/6.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation	PU
Crimping tool RJ45 Hirose		
CE5091	Crimping tool RJ45 Hirose TM11/TM21 8-pole	1

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS PNF

Industrial PROFINET® Switches in compact design

Info

- Compact design
- Compatible for PROFINET® networks

Benefits

- Compact design with high port density
- Easy Configuration via web-interface
- Space saving and industrial grade DIN rail mounting

Application range

- Industrial application
- PROFINET®-networks

Product features

- PROFINET® switches with 4, 8 and 16 ports
- PROFINET® Conformance Class B
- Prioritization of PROFINET® telegramms
- Neighbourhood detection LLDP
- RJ45 Ports: 10/100/1000 BaseT(X)

Norm references / Approvals

- UL 61010

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

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

Protection rating
IP20

Temperature range
-40°C up to +75°C

Article number	Article designation	Type	number of ports	Feature	MTBF in years
ETHERLINE® ACCESS PNF					
21700140	ETHERLINE® ACCESS PNF04T	Managed	4 x RJ45	for Profinet	>15,21
21700142	ETHERLINE® ACCESS PNF08T	Managed	8 x RJ45	for Profinet	>13,09
21700143	ETHERLINE® ACCESS PNF16T	Managed	16 x RJ45	for Profinet	>9,64

PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

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