



■ Cable Solutions

LÜTZE

Machine and System Installation Technology

Cable and control cables

Cable fittings,

Cable Assemblies and C-tracks

Cable conduit and cable fittings

Installation accessories and Tools

Actor-Sensor-Interface

EMC products

Welcome to the Lutze

Installation Solutions



We have been developing and manufacturing electronic and electrical engineering solutions for controls and installations for more than 50 years.

Great expertise and many years of experience in the development of industrial-grade cables and wires, especially for use in energy supply chains, enable us to develop, together with our customers, an optimal solution for your applications.

Our basic concept as system suppliers, providing a comprehensive and well-matched product range with which we can generate innovative and customized solutions for our customers, has stood the test of time.

Automation Solutions



The close relationship between product development and customer requirements allows Lutze continuously to improve and develop our products for the various markets.

Lutze systems comply with the highest industrial standards; Lutze solutions mean improvement and innovation.

OEM Solutions



Our four product groups include components and concepts suitable for almost any control application. For more information on our products, please visit www.lutze.com.

Transportation Solutions



Contents

Lütze products stand up to the highest demands. Thanks to the wide choice of cables on offer, all your needs throughout your plant can be met – even those for the toughest jobs. We offer a range of cable assemblies, cable fittings (also suitable for difficult EMC environments) and cable conduits that create the optimal connection for all your applications.

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over
1700
types
of cable

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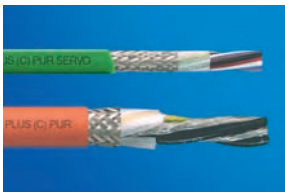


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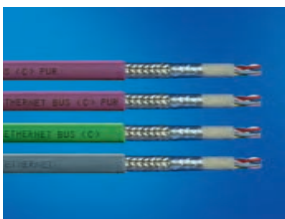


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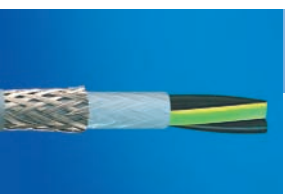


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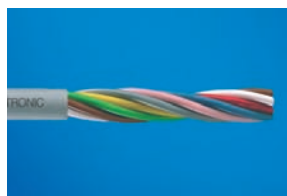


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Our general terms and conditions and our delivery conditions and terms of payment apply to all contracts and orders. You can find these on our homepage at www.luetze.com.

1. Cable Assemblies

Page 1.2 and Page 16.1

Consultation, Design, Assembly

Take advantage of our long experience and profit from our expertise with cable assemblies. Our skilled engineers will advise you and help you plan systems tailored to your needs. They will draw up the documentation and supply high-quality assemblies for your plant and installations. We offer you quick availability of over 1700 types of cables, including all common types of C-track cables, as well as almost 100 different varieties of conduits. Connectors, hydraulic and pneumatic accessories as well as other components are used in line with your requirements. We take care of the purchasing, stocking and assembly. Our modern production and test facilities – with 100% testing – guarantee the highest quality for all our products.



Consultation, Design, Assembly

Page 1.2



C-track Cables

- from the design stage up to complete assembly, everything from one source
- pre-fabricated or complete, ready-to-install cable assemblies



Servo Cables

- assembly of all motor and feedback cables with all popular makes of connector
- 100% electrical testing
- to 6FX 8002, Indramat, Lenze and other leading manufacturers' standards



Bus Cables

- assembly of all bus and network cables with all popular makes of connector
- 100% electrical testing, compliance with common bus specifications
- specially designed for use in the harshest operating environments



Robotic Cables

- assembly of all robotic cables with all popular makes of connector
- 100% electrical testing
- specially designed for use in the harshest operating environments



Halogen free Cables

- assembly of all halogen free cables
- 100% electrical testing



Electronic Cables

- assembly of all electronic cables with all popular makes of connector
- 100% electrical testing
- down to the smallest cross-sections with the highest quality



Control Cables

- assembly of all control cables with all popular makes of connector
- 100% electrical testing ensures process safety



UL-approved Data- and Control Cables

- assembly of all UL approved data and control cables with all popular makes of connector and 100% electrical testing

Customised housings and models

- a wide variety of types and models assembled in line with your requirements



Encoder cables for signal transmission systems, motor connection cables for power transmission systems, to the 6FX 8002 standard

- all Siemens types, up to 20 metres in length, in 5 metre increments (5, 10, 15, 20 m) available for quick delivery!
- all intermediate lengths (between 0.5 m and 125 m) can also be delivered rapidly
- 100% compatible with Siemens systems
- other cable assemblies meeting the Siemens standard 6FX8002 are available on request

2. C-track Cables

Page 2.2

Application: Suitable as data, monitoring and instrumentation cables, subject to continuous flexing stresses. The overall copper shielding protects against external high-frequency interference.

Use with: Robots, industrial handling systems, machine tools, construction of plant and equipment, transport and conveying systems, drag chains, as well as everywhere where signals have to be transmitted to constantly moving plant and machine parts.



C-track cable assemblies

Page 18.1



Consultation, Design, Assembly

- from the design stage up to complete assembly, everything from one source
- pre-fabricated or complete, ready-to-install cable assemblies

PUR C-track cables without screen

Page 2.2



LÜTZE SUPERFLEX® PLUS N PUR

Page 2.2

- UL approved halogen free PUR control cable with numbered TPE conductors
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals, cross-section 0.5 – 2,5mm², 300/500V, UL 600 V



LÜTZE SUPERFLEX® N PUR

Page 2.6

- halogen and PVC free PUR control cable with colour coded conductors
- for flexible continuous operation and drag chains, with low to medium stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals, cross-section 0.5 – 2,5mm², 300/500V



LÜTZE SUPERFLEX® TRONIC PUR

Page 2.12

- UL approved halogen free PUR electronic cable with colour coded TPE conductors
- for flexible continuous operation and drag chains
- for fast movement cycles with low mechanical loading
- 0,14 – 0,34 mm² cross-section, 300 V



LÜTZE SUPERFLEX® PLUS N PUR Servo / Motor

Page 3.4

- UL approved halogen free PUR motor connection cables to the DESINA standard
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals, cross-section 1.5 – 50mm², 0.6/1kV



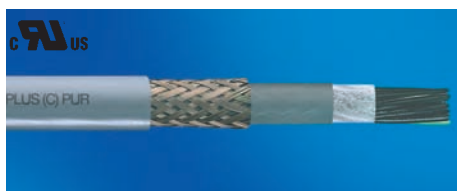
LÜTZE SUPERFLEX® ASB PUR Kombi

Page 6.2

- PUR connection cable for actuators and sensors • see chapter Actuator-Sensor cables

PUR C-track cables with screen

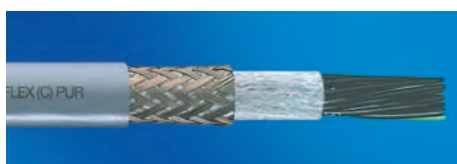
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LÜTZE SUPERFLEX® PLUS N(C)PUR

Page 2.4-2.5

- UL approved halogen free PUR control cable with screen and with numbered TPE conductors
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals
- high active and passive noise immunity
- cross-section 0.5 – 4.0mm², 300/500V, UL - 600 V



LÜTZE SUPERFLEX® N(C)PUR

Page 2.7

- halogen and PVC free PUR control cable, with screen, and with numbered conductors
- for flexible continuous operation and drag chains
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals
- high active and passive noise immunity • cross-section 0.5 – 4.0mm², 300/500V



LÜTZE SUPERFLEX® TRONIC (C)PUR

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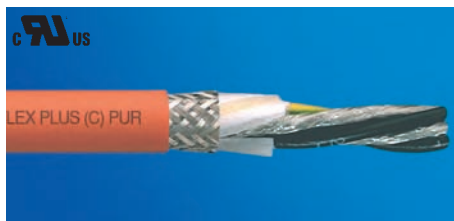
- UL approved halogen free PUR electronic cable with colour-coded TPE conductors
- for flexible continuous operation and drag chains
- for fast movement cycles with low mechanical loading
- high active and passive noise immunity • cross-section 0.14 – 0.34mm², 300V



LÜTZE SUPERFLEX® TRONIC (C)PUR TP

Page 2.14

- UL approved halogen free PUR data cable with screen and with colour-coded TPE conductors
- for flexible continuous operation and drag chains
- for fast movement cycles with low mechanical loading • cross-section 0.25 – 0.75mm², 300V



LÜTZE SUPERFLEX® PLUS N(C)PUR Servo/Motor/Brake

Page 3.2-3.3

- UL approved halogen free PUR motor connection cables, with screen, to the DESINA standard
- high surge voltage resistance and screening attenuation
- ideal for use with frequency inverters
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals, cross-section 1.5 – 350mm², 0.6/1kV



LÜTZE SUPERFLEX® PLUS N (C)PUR Servo/Resolver/Encoder

Page 3.6-3.8

- UL approved halogen free PUR encoder cables to the DESINA standard
- high active and passive noise immunity
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals



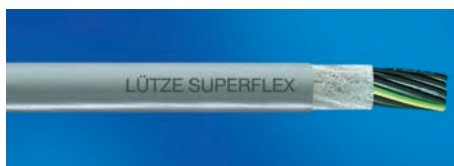
LÜTZE SUPERFLEX® BUS (C)PUR Network cables

Page 4.2

- UL approved halogen free BUS and network cables
- for use with industrial field bus systems, such as Profibus, Interbus, CAN, DeviceNet, Ethernet, Profinet
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals

PVC C-track cables without screen

Page 2.9



LÜTZE SUPERFLEX® N

Page 2.8-2.11

- PVC control cable with colour-coded conductors
- suitable as data, monitoring and instrumentation cables in plant and machine construction
- for flexible continuous operation and drag chains, with low to medium stress
- cross-section 0.5 – 10mm², 300/500V



LÜTZE SUPERFLEX® TRONIC

Page 2.15

- UL approved PVC electronic cable with colour-coded conductors
- suitable as data, monitoring and instrumentation cables
- for flexible continuous operation and drag chains, with low to medium stress
- cross-section 0.14 – 0.34mm², 300V

PVC C-track cables with screen

Page 2.9



LÜTZE SUPERFLEX® N (C)Y

Page 2.9

- PVC control cable with colour-coded conductors
- suitable as data, monitoring and instrumentation cables in plant and machinery construction
- for flexible continuous operation and drag chains, with low to medium stress
- cross-section 0.5 – 10mm², 300/500V



LÜTZE SUPERFLEX® TRONIC (C)Y

Page 2.16

- UL approved PVC electronic cable with colour-coded conductors
- suitable as data, monitoring and instrumentation cables
- for flexible continuous operation and drag chains, with low to medium stress
- cross-section 0.14 – 0.34mm², 300V

3. Servo/Motor/Feedback Cables

Page 3.2

The LÜTZE SUPERFLEX® PLUS servo and motor cables, with their particularly low capacitance, are ideal for drives of all types but especially for motors with frequency inverters.

The insulation material is characterised electrically by high withstand voltage and low inductive capacity, and mechanically by the best anti-friction properties, mechanical strength and temperature-neutral flexibility.

Together with a full PUR jacket, these cables are ideal for use with drag chains, in the harshest operating environments and with aggressive coolants and lubricants.



Servo cable assemblies

Page 18.1



Consultation, Design, Assembly

- assembly of all servo cables
- 100% electrical testing
- all popular makes of connector
- to 6FX 8002 standard
- to Indramat, Lenze and other leading manufacturers' standards

PUR Servo/Motor cables with screen

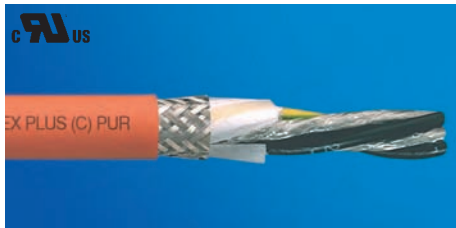
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LÜTZE SUPERFLEX® PLUS N(C)PUR Motor cables

Page 3.2, 3.5

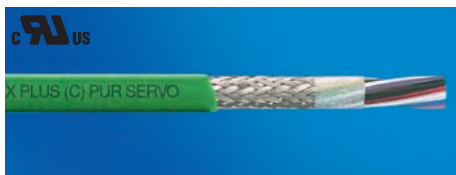
- UL approved halogen free PUR motor connection cables, with screen, to the DESINA standard
- high surge voltage resistance and screening attenuation
- ideal for use with frequency inverters
- for continuous flexible operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals,
- cross-section 1.5 – 35 mm², 0.6/1kV



LÜTZE SUPERFLEX® PLUS N(C)PUR Servo / Motor / Brake

Page 3.3

- UL approved halogen free PUR motor connection cables, with screen, to the DESINA standard
- with one or two control pairs, specially for use with frequency inverters
- high surge voltage resistance and screening attenuation
- for continuous flexible operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals
- cross-section 1.5 – 50 mm², 0.6/1kV



LÜTZE SUPERFLEX® PLUS (C)PUR Resolver / Encoder

Page 3.6-3.8

- UL approved halogen free PUR incremental encoder cables, with screen, to the DESINA standard
- high active and passive noise immunity
- for continuous flexible operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals



LÜTZE-SILFLEX® M (C)PUR Motorleitenungen

Page 3.9

- PUR motor connection cables
- with or without control pair(s)
- for flexible applications with free movement and without tensile load
- 1,5 – 35 mm² Querschnitt, 0,6/1 kV

PUR-Servoleitungen, ungeschirmt

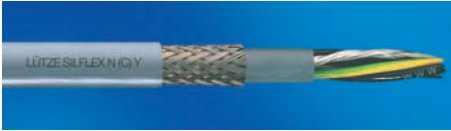
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LÜTZE SUPERFLEX® PLUS M PUR Servo / Motor cables

Page 3.4-3.5

- UL approved halogen free PUR motor connection cables to the DESINA standard
- for continuous flexible operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals
- cross-section 1.5 – 50mm², 0.6/1kV



LÜTZE-SILFLEX® M(C)Y motor cables

Page 3.10

- version with control pair for motors with motor protection device
- for flexible usage with free movement and low mechanical stress
- cross-section 1.5 – 25mm², 300/500V and 0.6/1kV



LÜTZE-SILFLEX® (C)Y SERVO

Page 3.11

- PVC SERVO Feedback cable
- for flexible applications with free movement and without tensile load



LÜTZE-SILFLEX® is a registered trademark Marke in the USA

Precision working of a braiding machine – a pre-requisite for maximum screening attenuation

4. Bus and Network Cables



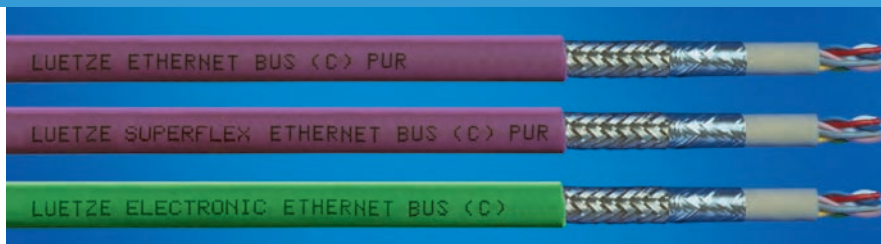
Page 4.2

Application:

For cabling industrial field bus systems such as Profibus, Interbus, F.I.P., SINEC L2 and CANbus

Use in:

Automation, machine tools, construction of plant and equipment, transport and conveying systems. For either fixed installation or for constantly moving use, for example in C-tracks.



Bus cable assemblies

Page 18.1



Consultation, Design, Assembly

- assembly of all bus and network cables
- 100% electrical testing
- with all popular makes of connector
- compliance with common bus specifications
- tailored exactly to your requirements

PUR/TPE Bus cables

Page 4.2



LÜTZE SUPERFLEX® BUS (C)PUR

Page 4.2

- UL approved halogen free BUS and network cables
- for cabling industrial field bus systems such as Profibus, Interbus, CAN, DeviceNet, ASI
- for flexible continuous operation and drag chains, with the highest stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals



LÜTZE ASI-BUS

Page 4.9

- system cable for connecting Actuator-Sensor-Interface components
- various types of jacket construction for differing requirements
- for fast connection with reverse polarity protection

PVC Bus cables

Page 4.3



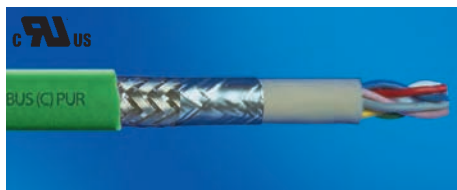
LÜTZE ELECTRONIC BUS (C) Y

Page 4.3/4.5

- UL approved BUS- and network cables with PVC jacket
- For cabling industrial field bus systems such as Profibus, Interbus, CAN, CC-Link
- for flexible usage with free movement and low mechanical stress

Ethernet/Profinet Bus cables

Page 4.6



LÜTZE SUPERFLEX® Ethernet BUS (C) PUR

Page 4.6-4.7

- UL approved halogen free Ethernet cable with PUR jacket
- for constructing industrial Ethernet networks
- for structured cabling in industrial zones
- category 5 to ISO/IEC 110801 and EN 50173 Class D
- for flexible continuous operation and drag chains, with the highest stress

5. Robotic cables

Page 5.2/5.3

Robotic cables normally undergo flexing and torsional stresses simultaneously. Cables suitable for use with robots thus require their own special construction, which is different from that for a C-track cable. Thanks to their full PUR jacket and TPE conductor insulation the Lütze SUPERFLEX® ROBOT cables are ideal for the harshest operating environments and aggressive coolants and lubricants.



Robotic cable assemblies

Page 18.1



Consultation, Design, Assembly

- assembly of all robotic cables with all popular makes of connector
- 100% electrical testing
- with all popular makes of connector
- specially designed for use in the harshest operating environments

PUR Robotic cables without screen

Page 5.2



LÜTZE SUPERFLEX® PLUS Robot N PUR

Page 5.2

- halogen free PUR robotic cable with numbered TPE conductors
- for flexible continuous operation with torsional stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals

PUR Robotic cable with screen

Page 5.2



LÜTZE SUPERFLEX® PLUS Robot N (C)PUR

Page 5.2

- halogen free PUR robotic cable with numbered TPE conductors
- for flexible continuous operation with torsional stress
- where demands are made for flexibility at low temperatures and resistance to abrasion, oil and chemicals



LÜTZE SUPERFLEX® in action

6. Actuator-Sensor cables

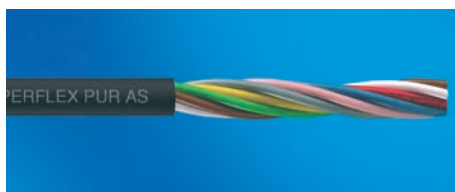
Page 6.2 and Page 16.1

Time consuming hard-wired terminal boxes are now a thing of the past. Modern distribution systems permit quick and cost-effective installation. Lütze distribution systems with M8 and M12 circular connectors offer these advantages. M8 and M12 connecting cables, as well as plug-in connectors for self-assembly, supplement the extensive product range.



PUR Actuator-Sensor cables

Page 6.2



LÜTZE SUPERFLEX® ASB PUR Kombi

Page 6.2

- PUR connector cable with colour-coded conductors for actuators and sensors
- for flexible continuous operation and drag chains, with medium stress



LÜTZE ELECTRONIC LiY PUR AS

Page 6.3

- PUR connector cable with colour-coded conductors for actuators and sensors
- outside diameter ideal match for actuators and sensors
- for flexible usage with free movement and low mechanical stress
- high resistance to abrasion, high resistance to oil and coolants

7. Control Cables

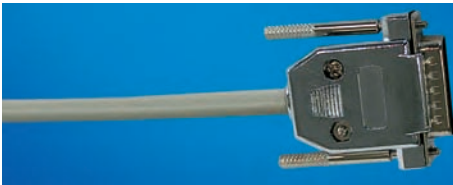
Page 7.2

The 'workhorse' specially for industrial environments, in machine, plant and equipment construction, transport and conveying systems. The shielded cable prevents penetration or emission of electrical interference. For flexible usage with free movement and low mechanical stress



Control cable assemblies

Page 18.1



Consultation, Design, Assembly

- assembly of all control cables
- all popular makes of connector
- 100% electrical testing ensures process safety

PUR Control cables without screen

Page 7.2



LÜTZE-SILFLEX® N PUR

Page 7.2

- halogen and PVC free PUR control cable with numbered conductors and grey outer jacket, abrasion resistant, cut resistant
- for free movement without tensile load
- in machine and equipment construction, transport and conveying systems, HVAC
- cross-section 0.5 – 6.0mm², 300/500V



LÜTZE-SILFLEX® PUR ORANGE

Page 7.4

- flexible PUR control cable with colour-coded conductors, orange outer jacket
- orange outer jacket for interlocking power circuits that remain live after the main power circuit has been switched off.
- cross-section 0.75 – 2.5mm², 300/500V

PUR Control cables with screen

Page 7.3



LÜTZE-SILFLEX® N(C)PUR

Page 7.3

- halogen and PVC free PUR control cable, with screen, and with numbered conductors and grey outer jacket, abrasion resistant, cut resistant
- for free movement without tensile load
- for use everywhere, where electrical noise can interfere with signal transmission
- cross-section 0.5 – 6.0mm², 300/500V

PVC Control cables without screen

Page 7.5



LÜTZE-SILFLEX® N

Page 7.5/7.6

- flexible PVC control cable with numbered conductors and grey PVC outer jacket
- for free movement without tensile load
- in machine and equipment construction, transport and conveying systems, HVAC
- cross-section 0.5 – 2.5mm², 300/500V



LÜTZE-SILFLEX® B

Page 7.7

- flexible PVC control cable with numbered conductors and grey PVC outer jacket
- cross-section 0.5 – 6.0mm², from 2 – 5 conductors, 300/500V

LÜTZE-SILFLEX® is a registered trademark Marke in the USA



LÜTZE-SILFLEX® ORC CNOMO

Page 7.10

- flexible PVC control cable with numbered conductors and grey PVC outer jacket
- very oil-stable insulation and jacket material, complies with the French automobile industry standard (CNOMO)
- cross-section 0.75 – 16mm², 300/500V, UL/CSA 600V



LÜTZE-SILFLEX® EN

Page 7.11

- intrinsically safe PVC control cable with numbered conductors and blue outer jacket
- data, monitoring and instrumentation cables in intrinsically safe circuits (to DIN VDE 0165 Pt.1)
- cross-section 0.5 – 1.5mm², 300/500V



LÜTZE-SILFLEX® QUAD N UL CSA HAR

Page 7.12

- approved, flexible PVC control cable with numbered conductors and grey PVC outer jacket
- especially for systems destined for export, virtually worldwide use thanks to <HAR> UL and CSA approvals
- cross-section 0.5 – 2.5mm², 300/500V

PVC-Steuerleitungen, geschirmt

Page 7.8



LÜTZE-SILFLEX® N(C)Y

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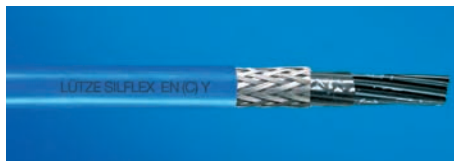
- flexible PVC control cable, with screen, and with numbered conductors and grey PVC outer jacket
- for free movement without tensile load
- for use everywhere, where electrical noise can interfere with signal transmission
- cross-section 0.5 – 35mm², 300/500V



LÜTZE-SILFLEX® NSY

Page 7.9

- flexible PVC control cable with numbered conductors and transparent outer jacket
- the galvanised steel wire braid offers very effective protection against magnetic interference fields and mechanical stresses.
- cross-section 0.5 – 10mm², 300/500V



LÜTZE-SILFLEX® EN (C)Y

Page 7.11

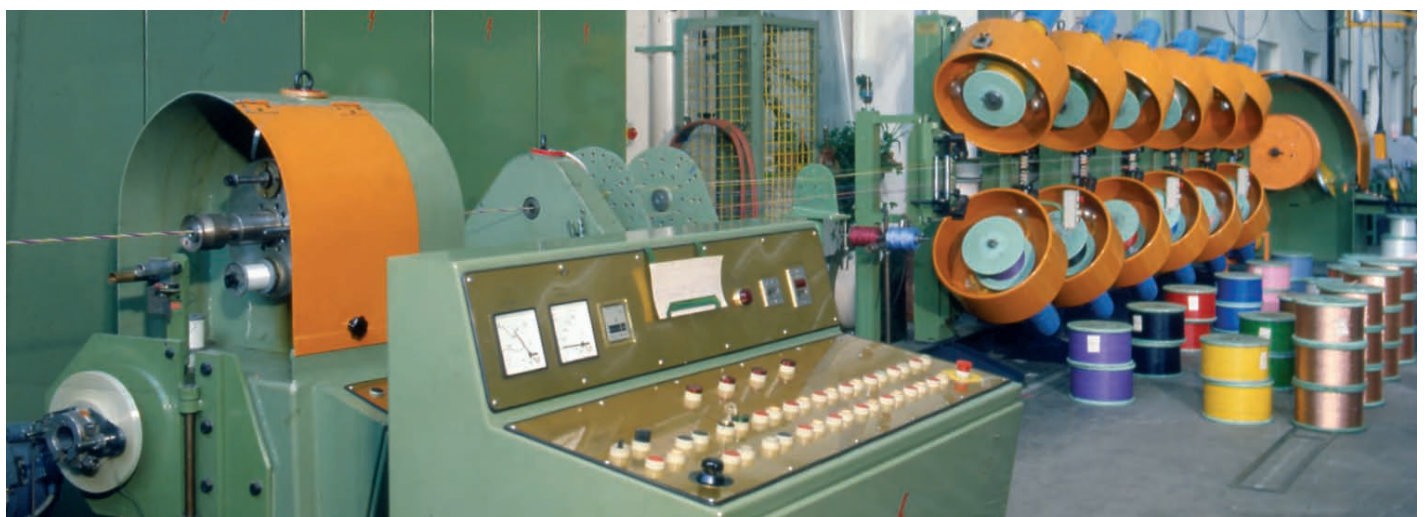
- intrinsically safe PVC control cable, with screen, and with numbered conductors and blue outer jacket
- data, monitoring and instrumentation cables in intrinsically safe circuits (to DIN VDE 0165 Pt.1)
- cross-section 0.75 – 1.5mm², 300/500V



LÜTZE-SILFLEX® QUAD N(C)Y UL CSA HAR

Page 7.13

- approved, flexible PVC control cable, with screen, and with numbered conductors and grey PVC outer jacket
- especially for systems for export, virtually worldwide use thanks to <HAR> UL and CSA approvals
- cross-section 0.75 – 2.5mm², 300/500V, UL/CSA 600V



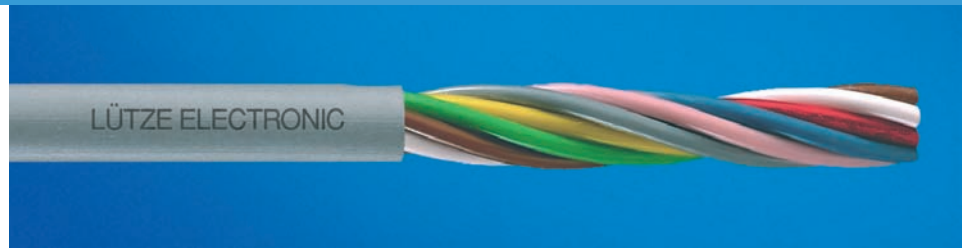
LÜTZE-SILFLEX® is a registered trademark in the USA.

Stranding machine for light, flexible cables

8. Electronic Cables

Application: Suitable as data, monitoring and instrumentation cables in the electronics field. The overall copper shielding protects against external high-frequency interference.

Use with: Machine tools, construction of plant and equipment, HVAC, refrigeration and cooling plant as well as many other areas of application.



Electronic cable assemblies

Page 18.1



Consultation, Design, Assembly

- assembly of all electronic cables
- 100% electrical testing
- with all popular makes of connector
- down to the smallest cross-sections with the highest quality

PUR Electronic cables with screen

Page 2.12 and Page 6.3



LÜTZE SUPERFLEX® TRONIC (C)PUR

Page 2.13

- UL approved halogen free PUR electronic cable with colour-coded TPE conductors
- for flexible continuous operation and drag chains
- for fast movement cycles with low mechanical loading
- high active and passive noise immunity
- cross-section 0.14 – 0.34mm², 300V



LÜTZE SUPERFLEX® TRONIC(C)PUR TP

Page 2.14

- electronic cable suitable for C-tracks
- see chapter C-track cables

PUR Electronic cables without screen

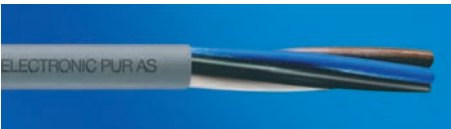
Page 2.12 and Page 6.3



LÜTZE SUPERFLEX® TRONIC PUR

Page 2.12

- electronic cable suitable for C-tracks
- see chapter C-track cables



LÜTZE ELECTRONIC LiY PUR AS

Page 6.3

- electronic cable suitable for C-tracks
- see chapter Actuator-Sensor cables

PVC Electronic cables without screen

Page 8.2



LÜTZE ELECTRONIC LiYY AWG UL2464/CSA

Page 8.2

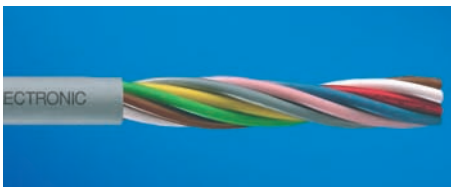
- UL approved PVC control cable with black outer jacket
- ideal for insulation piercing contact
- AWG 26 (0.14²) - AWG 20 (0.56²)



LÜTZE ELECTRONIC LiYY UL2464/CSA

Page 8.4

- UL approved PVC control cable with grey outer jacket
- Stranded in metrical structure Class 5
- 0,14 – 0,75 mm²



LÜTZE ELECTRONIC LiYY

Page 8.6

- PVC electronic cable with colour-coded conductors and grey PVC outer jacket
- suitable as data, monitoring and instrumentation cable in low voltage switchgear, telecommunications and communications engineering
- for flexible applications with free movement and without tensile load
- cross-section 0.14 – 0.75 mm²



LÜTZE SUPERFLEX® TRONIC (C)Y

Page 2.16

- electronic cable suitable for C-tracks
- see chapter C-track cables



LÜTZE ELECTRONIC LiY(C)Y AWG

Page 8.3

- UL approved PVC control cable with black outer jacket
- ideal for insulation piercing contact
- AWG 26 (0.14²) - AWG 20 (0.56²)
- for data transmission free of interference in all areas of electronics and control



LÜTZE ELECTRONIC LiY(C)Y UL2464/CSA

Page 8.5

- UL approved PVC electronic cable with grey outer jacket
- Stranded in metrical structure
- 0,14 - 0,75 mm²



LÜTZE ELECTRONIC LiY(C)Y

Page 8.7/8.8

- PVC electronic cable, with screen, with colour-coded conductors and grey PVC outer jacket
- for data transmission free of interference in all areas of electronics, measurement and control
- for flexible applications with free movement and without tensile load
- cross-section 0.14 – 1.50 mm², 300V



LÜTZE ELECTRONIC LiY(C)Y TP

Page 8.9

- twisted-pair PVC data cable with colour-coded TPE conductors and grey PVC jacket
- paired construction leads to high crosstalk attenuation; high active and passive noise immunity
- for data transmission free of interference in all areas of control
- for flexible applications with free movement and without tensile load
- cross-section 0.14 – 0.75 mm², 300V



Continual testing and monitoring of the production quality

9. Halogen free Data and Control Cables

In the event of a fire, halogen free cables prevent injury to persons and damage to material assets. The deployment of halogen free cables is obligatory in public buildings and in areas with a high concentration of people, as well as where high levels of safety are required (e.g. in tunnels).



Halogen free electronic cable assemblies

Page 18.1

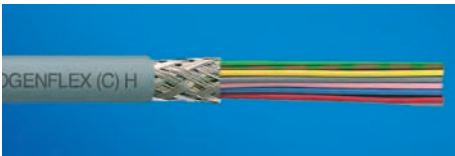


Consultation, Design, Assembly

- assembly of all halogen free cables
- 100% electrical testing
- down to the smallest cross-sections with the highest quality

Halogen free electronic cables with screen

Page 9.2



LÜTZE HALOGENFLEX LiH(C)H-D

Page 9.4

- halogen free, environmentally-friendly electronic cable with colour-coded conductors and grey jacket
- used wherever the release of halogens must be avoided in the case of fire, as well as in areas with a high concentration of people or material assets
- paired stranding leads to high crosstalk attenuation; high active and passive noise immunity
- cross-section 0.14 – 0.75mm²



LÜTZE HALOGENFLEX LiH(C)H-D TP

Page 9.5

- halogen free, environmentally-friendly, pair-stranded electronic cable with colour-coded conductors and grey jacket
- used wherever the release of halogens must be avoided in the case of fire, as well as in areas with a high concentration of people or material assets
- paired stranding leads to high crosstalk attenuation; high active and passive noise immunity
- cross-section 0.14 – 0.75mm²

Halogen free PUR cables without screen

Page 7.2 and Page 2.2/2.6



LÜTZE SUPERFLEX® PLUS N PUR

Page 2.2-2.3

- halogen free PUR control cable
- see chapter PUR C-track cables



LÜTZE SUPERFLEX® N PUR

Page 2.6

- halogen free PUR control cable
- see chapter PUR C-track cables



LÜTZE-SILFLEX® N PUR

Page 7.2

- halogen free PUR control cable
- see chapter PUR control cables

Halogen free PUR cables with screen

Page 2.4, 7.3 and Page 9.2



LÜTZE SUPERFLEX® PLUS N(C)PUR

Page 2.4-2.5

- halogen free PUR electronic cable
- see chapter PUR C-track cables



LÜTZE SUPERFLEX® N(C)PUR

Page 2.7

- halogen free PUR electronic cable
- see chapter PUR C-track cables

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LÜTZE SUPERFLEX® TRONIC (C)PUR

Page 2.13-2.14

- halogen free PUR electronic cable
- see chapter PUR C-track cables



LÜTZE-SILFLEX® N(C)PUR

Page 7.3

- halogen free PUR control cable
- see chapter PUR control cables



LÜTZE HALOGENFLEX D (C) PUR

Page 9.2

- halogen free PUR electronic cable



LÜTZE HALOGENFLEX D (C) PUR TP

Page 9.3

- halogen free, pair-stranded PUR electronic cable

10. Compensating Cables

Page 10.2



LÜTZE COMFLEX

Page 10.2

- for exact temperature measurement and control with thermocouples in all processes
- choice of PVC jacket, galvanised steel braid and PVC jacket or silicon jacket for temperatures up to + 180°C

11. Spiral Cables

Page 11.2



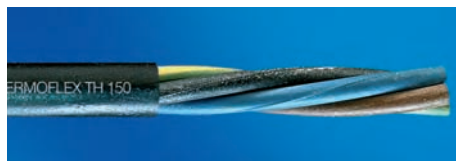
LÜTZE PURFLEX

Page 11.2

- PUR spiral and helical cable with abrasion-resistant jacket and high restoring force
- for machine tools in plant and equipment construction, for lifting platforms and gate drives

12. Temperature-resistant Cables

Page 12.2



LÜTZE THERMOFLEX TH 150

Page 12.2

- temperature-resistant halogen free control cable based on polyolefin
- ideal for use in furnace construction, HVAC and in machine construction, thanks to its high abrasion resistance
- temperature range -50°C to +150°C
- cross section 1.5 – 2.5mm²



LÜTZE SILICON SIHF

Page 12.3

- temperature-resistant halogen free silicon control cable
- for use in furnace construction, HVAC, machine construction, and in the glass, cement and ceramic industries
- temperature range -60°C to +180°C
- cross section 0.75 – 25mm²



LÜTZE SILIKON SIHFP

Page 12.4

- temperature-resistant steel-wire armoured silicon control cable
- temperature range -60°C to +180°C
- cross section 0.75 – 16mm²



Single conductors (no photo)

Page 12.5

- Teflon-FEP, Teflon-PTFE, nickel stranded conductor GL, silicon SIAF

13. Aktor-Sensor-Interface



M8, M12 cables and boxes, valve plugs etc.

Page 13.2



- M8- / M12-Boxes IP68
- Cord-Z
- M8-M12-cable with open end



- M8- to M8-Cables
- M12- to M8-Cables
- M12- to M12-Cables
- M12- to Valve plug cables



- M8- / M12- Connector
- Panel Connector and Accessories

14. Cable Accessories

Page 14.2

To complete the Lütze cable range we offer a multitude of cable glands, cable entry systems and protective conduits in a wide variety of materials and versions.



Cable glands and accessories

Page 14.2



LÜTZE CABLEFIX and CABLEFIX®Vario – the universal cable entry system for actuator, sensor, bus and control cables
Faster, easier, more clearly laid-out!



LÜTZE plastic glands and accessories
Over 60 different types available, including metric and PG versions



LÜTZE metal glands and accessories
• Over 40 different types
• metric and PG versions available



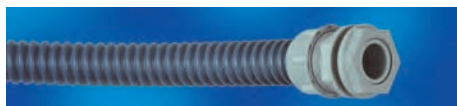
- PG and metric EMC glands for optimal shielding



CONDUFIX cable protection system

- an innovative patented system for the protection and routing of electrical cables and lead wires
- provides a solution for almost any installation problem
- protective conduits and conduit holder
- conduit glands and conduit manifold
- up to IP68/IP69K

Cable conduits and accessories



LÜTZE CONDUFLEX cable conduit CF-EL in PVC and PUR versions with plastic conduit fitting CP EL grey

- with welded hard PVC spiral • high flexibility and form stability



LÜTZE CONDUFIX cable conduit CX-PA in polyamide PA 6 with plastic fitting CXD • halogen free and flame retardant

- flexible corrugated cable conduit with good chemical resistance



LÜTZE WELLFLEX cable conduit WF in PE version with conduit clamp WFH • halogen free

- highly flexible cable conduit for use with moving equipment parts, for example control panel doors.

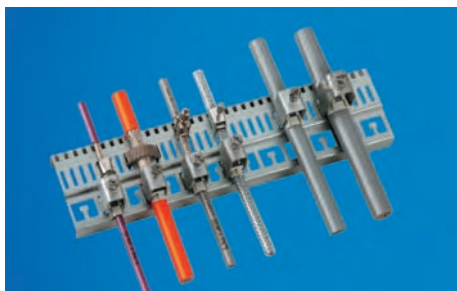
Installation accessories, tools and labelling system



Installation accessories and tools

labelling system

15. EMC-Accessories



- EMV-Shield rails
- Shield brackets
- Shield clamps
- Locking elements
- Ribbon earther
- Cable clamps

16. C-tracks



KM-series, KK-series, KL-series, SL-series

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1. Cable assemblies



Energy supply systems - as perfect as your planning and the components used!

Everything from one source: from the planning to the delivery, one source with ready made energy supply chains with cut and prepared cables.

Just send us your system requirements and we will work out your solution.

Please use our system form at the end of the catalog or contact us directly.

Naturally, we also carry out tests of your system application on our testing facilities.



Order Informations for Cable Assemblies

- No minimum order amount
- All intermediate lengths in 0.5 m steps are available in a short time
- When ordering, please indicate base number and length code
- Other types on request

The Lütze Art.-No. consists of two blocks:

- Technical design of the cable assembly
- Length code in cm

Ex: 198360.0500 corresponds to a length of 5.0 m

Technical design

Length code in cm

198360

0500

PUR servo cable assemblies without brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard Base cable



Application

- Base cable, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/ cross-sec- tion	Outer-Ø approx. mm
Base cable				
198360.1000	6FX8002-5CA01-1BA0*	10.0	(4×1.5)	8.0
198380.1000	6FX8002-5CA11-1BA0*	10.0	(4×2.5)	9.6
198400.1000	6FX8002-5CA21-1BA0*	10.0	(4×1.5)	8.0
198410.1000	6FX8002-5CA31-1BA0*	10.0	(4×2.5)	9.6
198430.1000	6FX8002-5CA41-1BA0*	10.0	(4×4)	11.1
198440.1000	6FX8002-5CA51-1BA0*	10.0	(4×6)	13.4
198450.1000	6FX8002-5CA61-1BA0*	10.0	(4×10)	16.7
198980.1000	6FX8002-5CS54-1BA0*	10.0	(4×6)	13.4
198370.1000	6FX8002-5CA02-1BA0*	10.0	(4×2.5)	9.6
198390.1000	6FX8002-5CA12-1BA0*	10.0	(4×4)	11.1
198420.1000	6FX8002-5CA32-1BA0*	10.0	(4×10)	16.7
198950.1000	6FX8002-5CG01-1BA0*	10.0	(4×1.5)	8.0
198040.1000	6FX8002-5CG11-1BA0*	10.0	(4×2.5)	9.6
198035.1000	6FX8002-5CG21-1BA0*	10.0	(4×1.5)	8.0
198045.1000	6FX8002-5CG31-1BA0*	10.0	(4×2.5)	9.6
198050.1000	6FX8002-5CG41-1BA0*	10.0	(4×4)	11.1
198055.1000	6FX8002-5CG51-1BA0*	10.0	(4×6)	13.4
198060.1000	6FX8002-5CG61-1BA0*	10.0	(4×10)	16.7

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PUR servo cable assemblies without brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard
Base cable DRIVE-CLIQ®



Application

- Base cable DRIVE-CLIQ®, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/ cross-section	Outer-Ø approx. mm
Base cable DRIVE-CLIQ®				
198300.1000	6FX8002-5CS01-1BA0*	10.0	(4×1.5)	8.0
198304.1000	6FX8002-5CS21-1BA0*	10.0	(4×1.5)	8.0
198301.1000	6FX8002-5CS02-1BA0*	10.0	(4×1.5)	8.0
198302.1000	6FX8002-5CS11-1BA0*	10.0	(4×2.5)	9.6
198305.1000	6FX8002-5CS31-1BA0*	10.0	(4×2.5)	9.6
198303.1000	6FX8002-5CS12-1BA0*	10.0	(4×2.5)	9.6
198317.1000	6FX8002-5CS41-1BA0*	10.0	(4×4)	11.1
198306.1000	6FX8002-5CS42-1BA0*	10.0	(4×4)	11.1
198318.1000	6FX8002-5CS51-1BA0*	10.0	(4×6)	13.4
198307.1000	6FX8002-5CS52-1BA0*	10.0	(4×6)	13.4
198319.1000	6FX8002-5CS61-1BA0*	10.0	(4×10)	16.7
198308.1000	6FX8002-5CS62-1BA0*	10.0	(4×10)	16.7

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PUR servo cable assemblies without brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard Extension



Application

- Extension, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/ cross-sec- tion	Outer-Ø approx. mm
Extension				
198820.1000	6FX8002-5CA05-1BA0*	10.0	(4×1.5)	8.0
198985.1000	6FX8002-5CA15-1BA0*	10.0	(4×2.5)	9.6
198765.1000	6FX8002-5CA28-1BA0*	10.0	(4×1.5)	8.0
198995.1000	6FX8002-5CA38-1BA0*	10.0	(4×2.5)	9.6
198015.1000	6FX8002-5CA48-1BA0*	10.0	(4×4)	11.1
198020.1000	6FX8002-5CA58-1BA0*	10.0	(4×6)	13.4
198030.1000	6FX8002-5CA68-1BA0*	10.0	(4×10)	16.7

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PUR servo cable assemblies with brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard Base cable



Application

- Base cable, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Base cable				
198460.1000	6FX8002-5DA01-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198480.1000	6FX8002-5DA11-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198500.1000	6FX8002-5DA21-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198530.1000	6FX8002-5DA31-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198560.1000	6FX8002-5DA41-1BA0*	10.0	(4×4+(2×1.5))	13.6
198570.1000	6FX8002-5DA51-1BA0*	10.0	(4×6+(2×1.5))	15.5
198580.1000	6FX8002-5DA61-1BA0*	10.0	(4×10+(2×1.5))	18.3
198470.1000	6FX8002-5DA02-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198490.1000	6FX8002-5DA12-1BA0*	10.0	(4×4+(2×1.5))	13.6
198510.1000	6FX8002-5DA22-1BA0*	10.0	(4×6+(2×1.5))	15.5
198540.1000	6FX8002-5DA32-1BA0*	10.0	(4×10+(2×1.5))	18.3
198870.1000	6FX8002-5DA23-1BA0*	10.0	(4×16+(2×1.5))	21.4
198880.1000	6FX8002-5DA33-1BA0*	10.0	(4×25+(2×1.5))	27.8
198075.1000	6FX8002-5DG01-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198085.1000	6FX8002-5DG11-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198080.1000	6FX8002-5DG21-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198090.1000	6FX8002-5DG31-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198095.1000	6FX8002-5DG41-1BA0*	10.0	(4×4+(2×1.5))	13.6
198100.1000	6FX8002-5DG51-1BA0*	10.0	(4×6+(2×1.5))	15.5
198115.1000	6FX8002-5DG61-1BA0*	10.0	(4×10+(2×1.5))	18.3

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PUR servo cable assemblies with brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard
Base cable DRIVE-CLIQ®



Application

- Base cable DRIVE-CLIQ®, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Base cable DRIVE-CLIQ®				
198310.1000	6FX8002-5DS01-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198311.1000	6FX8002-5DS11-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198312.1000	6FX8002-5DS21-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198313.1000	6FX8002-5DS31-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198314.1000	6FX8002-5DS41-1BA0*	10.0	(4×4+(2×1.5))	13.6
198315.1000	6FX8002-5DS51-1BA0*	10.0	(4×6+(2×1.5))	15.5
198316.1000	6FX8002-5DS61-1BA0*	10.0	(4×10+(2×1.5))	18.3

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PUR servo cable assemblies with brake cores for c-tracks

Acc. to SIEMENS-6FX8002 standard Extension



Application

- Extension, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Extension				
198730.1000	6FX8002-5DA05-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198990.1000	6FX8002-5DA15-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198790.1000	6FX8002-5DA28-1BA0*	10.0	(4×1.5+(2×1.5))	10.5
198800.1000	6FX8002-5DA38-1BA0*	10.0	(4×2.5+(2×1.5))	12.1
198005.1000	6FX8002-5DA48-1BA0*	10.0	(4×4+(2×1.5))	13.6
198010.1000	6FX8002-5DA58-1BA0*	10.0	(4×6+(2×1.5))	15.5
198025.1000	6FX8002-5DA68-1BA0*	10.0	(4×10+(2×1.5))	18.3

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PUR servo cable assemblies with brake cores for c-tracks

Acc. to SIEMENS-6FX2002 standard Base cable



Application

- Base cable, for Siemens servo drives
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Voltage

U_0/U 0.6/1.0 kV

Insulation resistance min. 500 MΩ × km

Temperature range

moving -25 °C to +80 °C

fixed -40 °C to +80 °C

Minimum bending radius

moving Cable diameter × 10

fixed Cable diameter × 6

Burning behaviour

Flame-retardant according to VDE 0482 T 265-2-1;

IEC 60332-1

UL 1581 section 1080 VW-1

CSA FT 1

Halogen-free

according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour petrol RAL 5018

Part-No.	SIEMENS designation	Length m	Number of strands/cross-section	Outer-Ø approx. mm
Base cable				
198185.1000	6FX2002-5DA01-1BA0*	10.0	(4×1.5+(2×1.0))	10.0
198145.1000	6FX2002-5DA11-1BA0*	10.0	(4×2.5+(2×1.0))	11.4
198165.1000	6FX2002-5DA21-1BA0*	10.0	(4×1.5+(2×1.0))	10.0
198135.1000	6FX2002-5DA02-1BA0*	10.0	(4×2.5+(2×1.0))	11.4
198225.1000	6FX2002-5DA12-1BA0*	10.0	(4×4+(2×1.0))	12.9
198175.1000	6FX2002-5DA22-1BA0*	10.0	(4×6+(2×1.0))	16.5

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PUR resolver cables for c-tracks

Acc. to SIEMENS-6FX8002 standard Base cable



Application

- Resolver cable
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	30 V 80 °C / 300 V 80 °C
Rated voltage	300 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Base cable			
198110.1000	6FX8002-2AD00-1BA0*	10.0	8.6
198830.1000	6FX8002-2AH00-1BA0*	10.0	9.0
198120.1000	6FX8002-2CA11-1BA0*	10.0	9.0
198130.1000	6FX8002-2CA15-1BA0*	10.0	8.6
198628.1000	6FX8002-2CA31-1BA0*	10.0	9.5
198850.1000	6FX8002-2CA51-1BA0*	10.0	8.6
198150.1000	6FX8002-2CA61-1BA0*	10.0	8.6
198290.1000	6FX8002-2CA72-1BA0*	10.0	9.0
198191.1000	6FX8002-2CB31-1BA0*	10.0	6.7
198200.1000	6FX8002-2CB51-1BA0*	10.0	9.0
198210.1000	6FX8002-2CC11-1BA0*	10.0	9.0
198220.1000	6FX8002-2CD01-1BA0*	10.0	9.0
198240.1000	6FX8002-2CF02-1BA0*	10.0	8.6
198170.1000	6FX8002-2CG00-1BA0*	10.0	9.0
198250.1000	6FX8002-2CH00-1BA0*	10.0	8.6
198280.1000	6FX8002-2EQ10-1BA0*	10.0	9.5
198140.1000	6FX8002-2CA21-1BA0*	10.0	8.6
198230.1000	6FX8002-2CM00-1BA0*	10.0	8.6
198260.1000	6FX8002-2CE07-1BA0*	10.0	9.0
198270.1000	6FX8002-2EQ00-1BA0*	10.0	9.5

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PUR resolver cables for c-tracks

Acc. to SIEMENS-6FX8002 standard
Base cable DRIVE-CLIQ®



Application

- Resolver cable
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	30 V 80 °C / 300 V 80 °C
Rated voltage	300 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Base cable DRIVE-CLIQ®			
198890.1000	6FX8002-2DC00-1BA0*	10.0	7.0
198900.1000	6FX8002-2DC10-1BA0*	10.0	7.0
198910.1000	6FX8002-2DC20-1BA0*	10.0	7.0

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PUR resolver cables for c-tracks

Acc. to SIEMENS-6FX8002 standard Extension



Application

- Resolver cable
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

UL approval	30 V 80 °C / 300 V 80 °C
Rated voltage	300 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section 1080 VW-1 CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Extension			
198160.1000	6FX8002-2CA34-1BA0*	10.0	9.5
198740.1000	6FX8002-2CF04-1BA0*	10.0	8.6
198700.1000	6FX8002-2EQ14-1BA0*	10.0	9.5
198105.1000	6FX8002-2AD04-1BA0*	10.0	8.6
198295.1000	6FX8002-2CB54-1BA0*	10.0	9.0

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PUR servo cable assemblies with brake cores for hard wiring

Similar to SIEMENS-6FX5002
standard, but with PUR jacket
Base cable



Application

- Base cable, for Siemens servo drives
- For flexible application without compulsory guide

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Voltage

U_0/U 0.6/1.0 kV

Insulation resistance

min. 100 MΩ × km

Temperature range

moving -25 °C to +80 °C

fixed -40 °C to +80 °C

Burning behaviour

Flame-retardant according to
VDE 0482 T 265-2-1;
DIN EN 50265-2-1;
IEC 60332-1

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Base cable				
198462.1000	6FX5002-5DA01-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198482.1000	6FX5002-5DA11-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198502.1000	6FX5002-5DA21-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198532.1000	6FX5002-5DA31-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198562.1000	6FX5002-5DA41-1BA0*	10.0	(4×4+(2×1.5))	15.8
198572.1000	6FX5002-5DA51-1BA0*	10.0	(4×6+(2×1.5))	16.7
198582.1000	6FX5002-5DA61-1BA0*	10.0	(4×10+(2×1.5))	19.1
198472.1000	6FX5002-5DA02-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198492.1000	6FX5002-5DA12-1BA0*	10.0	(4×4+(2×1.5))	15.8
198512.1000	6FX5002-5DA22-1BA0*	10.0	(4×6+(2×1.5))	16.7
198542.1000	6FX5002-5DA32-1BA0*	10.0	(4×10+(2×1.5))	19.1
198077.1000	6FX5002-5DG01-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198087.1000	6FX5002-5DG11-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198082.1000	6FX5002-5DG21-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198092.1000	6FX5002-5DG31-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198097.1000	6FX5002-5DG41-1BA0*	10.0	(4×4+(2×1.5))	15.8
198102.1000	6FX5002-5DG51-1BA0*	10.0	(4×6+(2×1.5))	16.7
198117.1000	6FX5002-5DG61-1BA0*	10.0	(4×10+(2×1.5))	19.1

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PUR servo cable assemblies with brake cores for hard wiring

Similar to SIEMENS-6FX5002
standard but with PUR jacket
Extension



Application

- Extension, for Siemens servo drives
- For flexible application without compulsory guide

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Voltage	
U ₀ /U	0.6/1.0 kV
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-∅ approx. mm
Extension				
198732.1000	6FX5002-5DA05-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198992.1000	6FX5002-5DA15-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198792.1000	6FX5002-5DA28-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198802.1000	6FX5002-5DA38-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198007.1000	6FX5002-5DA48-1BA0*	10.0	(4×4+(2×1.5))	15.8
198012.1000	6FX5002-5DA58-1BA0*	10.0	(4×6+(2×1.5))	16.7
198027.1000	6FX5002-5DA68-1BA0*	10.0	(4×10+(2×1.5))	19.1

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PVC servo cable assemblies with brake cores for hard wiring

Acc. to SIEMENS-6FX5002 standard Base cable



Application

- Base cable, for Siemens servo drives
- For flexible application without compulsory guide

Properties

- PVC Flame-retardant, self-extinguishing
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Voltage

U_0/U 0.6/1.0 kV

Insulation resistance min. 20 MΩ × km

Temperature range

moving -5 °C to +70 °C

fixed -25 °C to +70 °C

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Base cable				
198461.1000	6FX5002-5DA01-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198481.1000	6FX5002-5DA11-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198501.1000	6FX5002-5DA21-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198531.1000	6FX5002-5DA31-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198561.1000	6FX5002-5DA41-1BA0*	10.0	(4×4+(2×1.5))	15.8
198571.1000	6FX5002-5DA51-1BA0*	10.0	(4×6+(2×1.5))	16.7
198581.1000	6FX5002-5DA61-1BA0*	10.0	(4×10+(2×1.5))	19.1
198471.1000	6FX5002-5DA02-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198491.1000	6FX5002-5DA12-1BA0*	10.0	(4×4+(2×1.5))	15.8
198511.1000	6FX5002-5DA22-1BA0*	10.0	(4×6+(2×1.5))	16.7
198541.1000	6FX5002-5DA32-1BA0*	10.0	(4×10+(2×1.5))	19.1
198871.1000	6FX5002-5DA23-1BA0*	10.0	(4×16+(2×1.5))	21.0
198881.1000	6FX5002-5DA33-1BA0*	10.0	(4×25+(2×1.5))	28.5
198076.1000	6FX5002-5DG01-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198086.1000	6FX5002-5DG11-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198081.1000	6FX5002-5DG21-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198091.1000	6FX5002-5DG31-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198096.1000	6FX5002-5DG41-1BA0*	10.0	(4×4+(2×1.5))	15.8
198101.1000	6FX5002-5DG51-1BA0*	10.0	(4×6+(2×1.5))	16.7
198116.1000	6FX5002-5DG61-1BA0*	10.0	(4×10+(2×1.5))	19.1

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PVC servo cable assemblies with brake cores for hard wiring

Acc. to SIEMENS-6FX5002 standard Extension



Application

- Extension, for Siemens servo drives
- For flexible application without compulsory guide

Properties

- PVC Flame-retardant, self-extinguishing
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Voltage

U₀/U 0.6/1.0 kV

Insulation resistance min. 20 MΩ × km

Temperature range

moving -5 °C to +70 °C

fixed -25 °C to +70 °C

Design

- Jacket colour orange RAL 2003

Part-No.	SIEMENS designation	Length m	Number of strands/cross- section	Outer-Ø approx. mm
Extension				
198731.1000	6FX5002-5DA05-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198991.1000	6FX5002-5DA15-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198791.1000	6FX5002-5DA28-1BA0*	10.0	(4×1.5+(2×1.5))	12.5
198801.1000	6FX5002-5DA38-1BA0*	10.0	(4×2.5+(2×1.5))	14.1
198006.1000	6FX5002-5DA48-1BA0*	10.0	(4×4+(2×1.5))	15.8
198011.1000	6FX5002-5DA58-1BA0*	10.0	(4×6+(2×1.5))	16.7
198026.1000	6FX5002-5DA68-1BA0*	10.0	(4×10+(2×1.5))	19.1

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PUR resolver cables for hard wiring

Similar to SIEMENS-6FX5002
standard, but with PUR jacket
Base cable



Application

- Resolver cable
- For flexible application without compulsory guide

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Rated voltage	300 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1

Design

- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Base cable			
198111.1000	6FX5002-2AD00-1BA0*	10.0	8.8
198831.1000	6FX5002-2AH00-1BA0*	10.0	9.0
198121.1000	6FX5002-2CA11-1BA0*	10.0	9.0
198131.1000	6FX5002-2CA15-1BA0*	10.0	8.8
198629.1000	6FX5002-2CA31-1BA0*	10.0	10.5
198851.1000	6FX5002-2CA51-1BA0*	10.0	8.8
198151.1000	6FX5002-2CA61-1BA0*	10.0	8.8
198291.1000	6FX5002-2CA72-1BA0*	10.0	9.0
198192.1000	6FX5002-2CB31-1BA0*	10.0	7.2
198201.1000	6FX5002-2CB51-1BA0*	10.0	9.0
198211.1000	6FX5002-2CC11-1BA0*	10.0	9.0
198221.1000	6FX5002-2CD01-1BA0*	10.0	9.0
198241.1000	6FX5002-2CF02-1BA0*	10.0	8.8
198171.1000	6FX5002-2CG00-1BA0*	10.0	9.0
198251.1000	6FX5002-2CH00-1BA0*	10.0	8.8
198281.1000	6FX5002-2EQ10-1BA0*	10.0	10.5
198141.1000	6FX5002-2CA21-1BA0*	10.0	8.8
198231.1000	6FX5002-2CM00-1BA0*	10.0	8.8
198261.1000	6FX5002-2CE07-1BA0	10.0	9.0
198271.1000	6FX5002-2EQ00-1BA0*	10.0	10.5
198161.1000	6FX5002-2CA34-1BA0	10.0	10.5

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PUR resolver cables for hard wiring

Similar to SIEMENS-6FX5002
standard, but with PUR jacket
Base DRIVE-CLIQ®



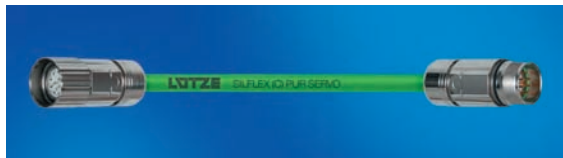
- Application**
- Resolver cable
 - For flexible application without compulsory guide
- Properties**
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant
- Ordering instructions:**
The Lütze Art. no. consists of two blocks that are separated by a dot:
6 digits before the dot: technical design
4 digits after the dot: length code in cm
Ex.: 198360.0500 corresponds to a length of 5.0 m
- Technical data**
- | | |
|-----------------------|--|
| Rated voltage | 300 V |
| Insulation resistance | min. 200 MΩ × km |
| Temperature range | |
| moving | -25 °C to +80 °C |
| fixed | -40 °C to +80 °C |
| Burning behaviour | Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 |
- Design**
- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Base cable DRIVE-CLIQ®			
198891.1000	6FX5002-2DC00-1BA0*	10.0	6.9
198901.1000	6FX5002-2DC10-1BA0*	10.0	6.9
198911.1000	6FX5002-2DC20-1BA0*	10.0	6.9

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PUR resolver cables for hard wiring

Similar to SIEMENS-6FX5002
standard but with PUR jacket
Extension



Application

- Resolver cable
- For flexible application without compulsory guide

Properties

- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Rated voltage	300 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1

Design

- Jacket colour green RAL 6018

Part-No.	SIEMENS designation	Length m	Outer-Ø approx. mm
Extension			
198741.1000	6FX5002-2CF04-1BA0*	10.0	8.8
198701.1000	6FX5002-2EQ14-1BA0*	10.0	10.5

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Pre-fabricated front-end plug S7

S7 Plug For Siemens Simatic PLC/S7



Application

- Wiring from Siemens Simatic PLC/S7

Properties

- Stranded cable with S7 male
- Completely wired, 2. cables run at 90° to connector

Technical data

Conductor labelling	white number imprint, corresponding to the terminal location on the plug
Cross section	0.5 mm ² ; 0.75 mm ² ; 1.00 mm ²
Packaging	Deliverable as 3 m or 5 m or also other cut lengths

Design

- Fully compatible to Siemens
- Colour of strands dark blue RAL5010
- Other strand colours are deliverable upon request

Part-No.	Type	Stranded cable	Cable construction	Length m
S7 Plug with screw termination				
197455	392 1AJ	20-pole	20×0.5	3.0
197456	392 1AJ	20-pole	20×0.5	5.0
197457	392 1AJ	20-pole	20×0.75	3.0
197458	392 1AJ	20-pole	20×0.75	5.0
197459	392 1AJ	20-pole	20×1.0	3.0
197460	392 1AJ	20-pole	20×1.0	5.0
197473	492 1AL	48-pole	48×0.5	3.0
197474	492 1AL	48-pole	48×0.5	5.0
197475	492 1AL	48-pole	48×0.75	3.0
197476	492 1AL	48-pole	48×0.75	5.0
197477	492 1AL	48-pole	48×1.0	3.0
197478	492 1AL	48-pole	48×1.0	5.0
S7 Plug with Easy-Connect				
197500	Compatible to 392 1AM	40-pole	40×0.5	3.0
197501	Compatible to 392 1AM	40-pole	40×0.5	5.0
197502	Compatible to 392 1AM	40-pole	40×0.75	3.0
197503	Compatible to 392 1AM	40-pole	40×0.75	5.0
197504	Compatible to 392 1AM	40-pole	40×1.0	3.0
197505	Compatible to 392 1AM	40-pole	40×1.0	5.0

Other strand colours or strand lengths as well as special contact assignment are deliverable upon request

Patch cable, shielded

Patch cable Cat.5E



Application

- Ethernet network wiring

Properties

- Straight connector
- Assignment according to EIA/TIA 568B
- Moulded sleeve with length imprint (not for c-track suitable)
- Various colours available (not for c-track suitable)
- Lengths: 0.5m; 1m; 2m; 3m; 5m; 7.5m; 10m; 15m; 20m; 25m; 30m available at short notice

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Connector	Shielded RJ45, 3µ–50µ AU
Wire	Cat.5E: (4×2×AWG26) SFTP Cat.5E c-trac suitable: PUR rape yellow (4×2×AWG26/19) SUTP Oil-resistant according to EN60811-2-1 Alternating bending test (with load) according to VDE0472 T603
Wiring	according to EIA/TIA 568B 1:1 or crossover

Design

- Fully plug compatible to IEC 60603-7
- **Colour 1:1 wiring**
Cable and sleeves in the same colour
The following colours are available: grey, green, blue, yellow, red, black
- **Colour of crossover wiring**
Cable grey, sleeves red
- **Colour of c-track suitable PUR**
Cable and sleeves rape yellow

Part-No.	Colour	Wiring	Length m
Cat.5E			
192000.0050	grey	1:1	0.5
192000.0100	grey	1:1	1.0
192000.0150	grey	1:1	1.5
192000.0200	grey	1:1	2.0
192000.0300	grey	1:1	3.0
192000.0500	grey	1:1	5.0
192000.1000	grey	1:1	10.0
192000.1500	grey	1:1	15.0
192000.2000	grey	1:1	20.0
192000.2500	grey	1:1	25.0
192000.3000	grey	1:1	30.0
192000.6000	grey	1:1	60.0
192022.0100	blue	1:1	1.0
192022.0200	blue	1:1	2.0
192022.0300	blue	1:1	3.0
192022.0500	blue	1:1	5.0
192022.1000	blue	1:1	10.0
192030.0030	green	1:1	0.3
192030.0050	green	1:1	0.5
192030.0100	green	1:1	1.0
192030.0200	green	1:1	2.0
192030.0500	green	1:1	5.0
192030.1000	green	1:1	10.0
192030.2000	green	1:1	20.0
192031.0100	yellow	1:1	1.0
192031.0200	yellow	1:1	2.0
192031.0300	yellow	1:1	3.0
192031.0500	yellow	1:1	5.0
192032.0100	red	1:1	1.0
192032.0200	red	1:1	2.0
192032.0300	red	1:1	3.0
Cat.5E			
192050.0050	grey	Crossover	0.5
192050.0100	grey	Crossover	1.0
192050.0200	grey	Crossover	2.0
192050.0300	grey	Crossover	3.0
192050.0500	grey	Crossover	5.0
192050.1000	grey	Crossover	10.0
192050.2000	grey	Crossover	20.0
Cat.5E c-track compatiblePUR			
192300.0100	Rape yellow	1:1	1.0

Other lengths are deliverable upon request

Patch cable, shielded

Patch cable Cat.6



Application

- Ethernet network wiring

Properties

- Straight connector
- Assignment according to EIA/TIA 568B
- Moulded sleeve with length imprint on sleeve (not in industrial version)
- Various colours are available (not in industrial version)
- Lengths: 0.5m; 1m; 2m; 3m; 5m; 7.5m; 10m; 15m; 20m; 25m; 30m available at short notice
- Halogen-free

Ordering instructions:

The Lütze Art. no. consists of two blocks that are separated by a dot:

6 digits before the dot: technical design

4 digits after the dot: length code in cm

Ex.: 198360.0500 corresponds to a length of 5.0 m

Technical data

Connector	Shielded RJ45, 3µ–50µ AU
Wire	Cat.6: (4×2×AWG27) SSTP Cat.6 industrial version: PUR red (4×2×AWG27/7) SSTP Resistant to mineral oil, ASTM oil and UV radiation, highly abrasion- resistant Suitable for outdoor areas, but not for laying directly in earth
Wiring	according to EIA/TIA 568B 1:1 or crossover

Design

- Fully plug compatible to IEC 60603-7
- **Colour 1:1 wiring**
Cable and sleeves in the same colour
The following colours are available: grey, green, blue, yellow, red, black
- **Colour of crossover wiring**
Cable grey, sleeves red
- **Colour of industrial version**
Cable red, sleeves black

Part-No.	Colour	Wiring	Length m
Cat.6			
192100.0050	grey	1:1	0.5
192100.0100	grey	1:1	1.0
192100.0150	grey	1:1	1.5
192100.0200	grey	1:1	2.0
192100.0300	grey	1:1	3.0
192100.0500	grey	1:1	5.0
192100.0750	grey	1:1	7.5
192100.1000	grey	1:1	10.0
192100.1500	grey	1:1	15.0
192100.2000	grey	1:1	20.0
192100.4000	grey	1:1	40.0
192100.5000	grey	1:1	50.0
192112.0050	yellow	1:1	0.5
Cat.6			
192150.0050	grey	Crossover	0.5
192150.0100	grey	Crossover	1.0
192150.0200	grey	Crossover	2.0
192150.0300	grey	Crossover	3.0
192150.0500	grey	Crossover	5.0
192150.1000	grey	Crossover	10.0
192150.2000	grey	Crossover	20.0
Cat.6 industrial version PUR			
192201.0100	red	1:1	1.0

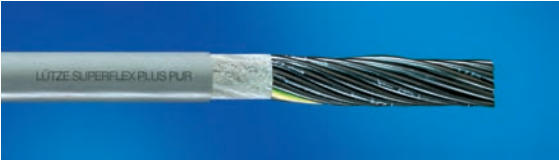
Other lengths are deliverable upon request

2. C-track cables



PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS N PUR UL 300 V



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, in machines, plant and device construction

Properties

- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Radiation-resistance	5×10 ⁷ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2-1; DIN EN 50265-2-1; IEC 60332-1 UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE/HGI conductor insulation, UL certified
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over the stranded cable
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
113431	2×0.5 OZ	4.8	2.9	1.0
113441	3G0.5	4.9	3.5	1.5
113442	4G0.5	5.2	4.1	2.0
113443	5G0.5	5.6	4.8	2.4
113444	7G0.5	6.6	6.4	3.4
113446	12G0.5	8.0	9.6	5.9
113438	18G0.5	9.8	13.5	8.8
113447	25G0.5	10.8	18.2	12.2
0.75 mm²				
113432	2×0.75 OZ	5.5	4.0	1.5
113445	3G0.75	5.6	4.9	2.2
113439	3×0.75 OZ	5.6	4.9	2.2
113435	4G0.75	6.1	5.9	2.9
113422	5G0.75	6.7	6.9	3.4
113437	7G0.75	7.8	9.2	5.1
113425	12G0.75	9.1	14.2	8.8
113428	18G0.75	11.0	20.0	13.2
113448	25G0.75	12.5	27.2	18.3
1.0 mm²				
113484	7×1.5 OZ	5.8	4.8	2.0
113400	3G1.0	6.1	5.8	3.0
113433	4G1.0	6.6	7.1	4.0
113401	5G1.0	7.2	8.5	5.0
113402	7G1.0	8.7	11.3	6.9
113403	12G1.0	10.1	17.5	11.9
113404	18G1.0	11.9	24.9	17.8
113405	25G1.0	14.1	33.9	24.8

CE These products are in conformity with the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS N PUR UL 600 V



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, in machines, plant and device construction

Properties

- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	600 V 80 °C
Voltage	
U ₀ /U	300/500 V
Test voltage	6000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Radiation-resistance	5×10 ⁸ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

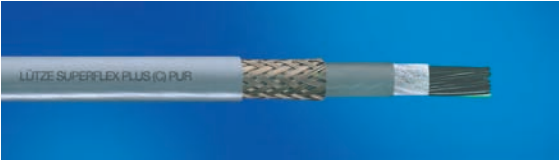
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE/HGI conductor insulation, UL certified
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over the stranded cable
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
113560	2×0.5	6.1	4.3	1.0
113561	3G0.5	6.5	4.9	1.5
113562	4G0.5	6.9	5.8	2.0
113563	5G0.5	7.4	6.6	2.5
113564	7G0.5	8.5	8.6	3.4
113565	12G0.5	10.0	12.6	5.9
113566	18G0.5	11.6	17.3	8.8
113567	25G0.5	13.7	23.2	12.3
1.0 mm²				
113570	2×1.0	7.0	6.0	2.0
113571	3G1.0	7.4	7.1	3.0
113572	4G1.0	7.9	8.5	4.0
113573	5G1.0	8.5	10.1	5.0
113574	7G1.0	9.9	13.2	6.9
113575	12G1.0	11.9	20.1	11.9
113576	18G1.0	13.6	28.1	17.8
113577	25G1.0	16.3	37.9	24.8
1.5 mm²				
113485	2×1.5	7.2	7.7	2.9
113406	3G1.5	8.0	9.3	4.4
113412	4G1.5	8.7	11.3	5.9
113407	5G1.5	9.5	13.3	7.4
113408	7G1.5	11.1	17.5	10.3
113409	12G1.5	13.2	26.9	17.6
113410	18G1.5	15.0	38.0	26.5
113411	25G1.5	18.4	51.5	36.9
2.5 mm²				
113483	3G2.5	9.2	13.3	7.3
113415	4G2.5	9.9	16.2	9.8
113416	5G2.5	10.9	19.3	12.2
113417	7G2.5	12.6	25.9	17.0
113426	12G2.5	15.1	40.4	28.6
113479	18G2.5	17.6	57.7	43.8

CE These products are in conformity with the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS N (C)PUR UL 300 V



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments with high interference potential, in machines, plant and device construction

Properties

- High active and passive interference resistance
- Braided shield optimised for continuous flexible use
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Radiation-resistance	5×10 ⁸ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2; IEC 60332-1 UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

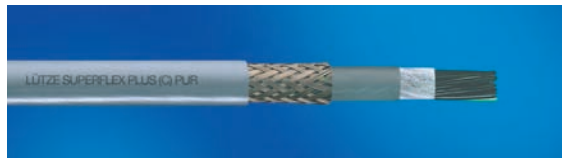
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE/HGI conductor insulation, UL certified
- Conductors black with white number print
- Ground conductor
- G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over the stranded cable
- Inside jacket TPE
- Tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
113300	(3G0.5)	6.6	5.6	2.7
113347	(4G0.5)	7.0	6.4	3.3
113301	(5G0.5)	7.5	7.3	3.9
113302	(7G0.5)	8.3	9.1	5.1
113303	(12G0.5)	9.7	12.8	7.9
113304	(18G0.5)	11.0	17.9	11.9
113305	(25G0.5)	12.0	23.4	15.9
0.75 mm²				
113328	(2×0.75)	6.9	6.3	2.8
113306	(3G0.75)	7.5	7.2	3.6
113430	(3×0.75)	7.5	7.2	3.6
113325	(4G0.75)	7.8	8.4	4.5
113345	(4×0.75)	7.8	8.4	4.5
113307	(5G0.75)	8.3	9.7	5.3
113308	(7G0.75)	9.4	12.4	7.1
113309	(12G0.75)	11.3	18.8	12.0
113310	(18G0.75)	13.0	25.4	16.9
113311	(25G0.75)	14.9	33.4	22.8
1.0 mm²				
113312	(3G1.0)	7.8	8.4	4.5
113324	(4G1.0)	8.3	9.9	5.6
113313	(5G1.0)	9.1	11.4	6.8
113314	(7G1.0)	10.2	14.7	9.1
113315	(12G1.0)	12.1	22.5	15.4
113316	(18G1.0)	14.0	30.6	22.0
113317	(25G1.0)	15.8	41.5	30.5

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS N (C)PUR UL 600 V



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments with high interference potential, in machines, plant and device construction

Properties

- High active and passive interference resistance
- Braided shield optimised for continuous flexible use
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	600 V 80 °C
Voltage	
U ₀ /U	300/500 V
Test voltage	6000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Radiation-resistance	5×10 ⁸ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE/HGI conductor insulation, UL certified
- Conductors black with white number print
- Ground conductor
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over the stranded cable
- Inside jacket TPE
- Tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
113350	(3G0.5)	7.9	7.6	2.9
113351	(4G0.5)	8.3	8.7	3.5
113352	(5G0.5)	8.9	9.9	4.2
113353	(7G0.5)	9.9	12.2	5.5
113354	(12G0.5)	11.6	17.8	9.2
113355	(18G0.5)	13.2	23.3	12.7
113356	(25G0.5)	15.2	30.1	16.9
1.0 mm²				
113360	(3G1.0)	8.7	10.3	4.7
113361	(4G1.0)	9.3	11.9	5.8
113362	(5G1.0)	9.9	13.7	7.0
113363	(7G1.0)	11.4	18.3	10.1
113364	(12G1.0)	13.3	26.1	15.8
113365	(18G1.0)	15.1	35.0	22.4
113366	(25G1.0)	17.9	49.0	33.2
1.5 mm²				
113318	(3G1.5)	9.7	12.5	6.3
113331	(4G1.5)	10.5	14.7	8.7
113319	(5G1.5)	11.3	17.8	10.4
113320	(7G1.5)	12.9	22.7	13.8
113321	(12G1.5)	15.1	33.1	22.0
113322	(18G1.5)	17.2	45.9	32.4
113323	(25G1.5)	19.7	63.2	46.3
2.5 mm²				
113341	(3G2.5)	10.6	16.8	9.5
113332	(4G2.5)	11.9	21.1	12.9
113339	(5G2.5)	12.6	24.5	15.7
113340	(7G2.5)	14.8	31.8	21.2
113344	(12G2.5)	16.7	48.4	35.2
113342	(18G2.5)	19.4	69.3	53.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® N PUR



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines, plant and device construction

Properties

- Extreme space-saving design
- Low capacitance, very good electrical properties
- Halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Excellent coolant and lubricant resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1; EN 60684-2

Design

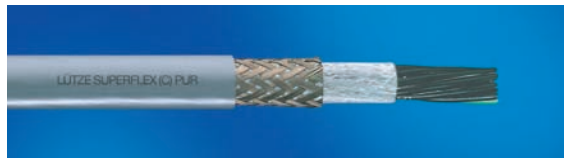
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE/HGI conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111249	3G0.5	4.6	2.5	1.5
110956	4G0.5	4.9	3.1	2.0
111177	5G0.5	5.3	3.7	2.5
111178	7G0.5	6.2	5.0	3.4
111179	12G0.5	7.3	7.9	5.9
118473	18G0.5	9.0	12.0	8.8
108150	25G0.5	10.2	15.5	12.3
0.75 mm²				
110995	2×0.75	5.0	3.0	1.5
110996	3G0.75	5.1	3.7	2.2
118085	4G0.75	5.7	5.0	2.9
111180	5G0.75	6.2	5.5	3.7
111181	7G0.75	7.2	7.5	5.1
118457	12G0.75	8.7	11.9	8.8
111182	18G0.75	10.8	18.6	13.2
111183	25G0.75	12.8	25.3	18.3
1.0 mm²				
110636	2×1.0	5.3	3.6	2.0
110997	3G1.0	5.4	4.5	3.0
110998	4G1.0	6.1	5.7	4.0
110999	5G1.0	6.7	6.8	5.0
111000	7G1.0	7.7	9.3	6.9
101013	12G1.0	9.2	15.7	11.9
111002	18G1.0	11.4	23.2	17.8
111003	25G1.0	13.3	31.7	24.8
1.5 mm²				
111004	3G1.5	6.5	7.0	4.4
111005	4G1.5	7.1	8.1	5.9
111006	5G1.5	7.8	10.4	7.4
111007	7G1.5	9.2	13.4	10.3
111008	12G1.5	10.9	23.3	17.6
111009	18G1.5	13.5	33.4	26.5
111010	25G1.5	15.9	45.7	36.8
2.5 mm²				
111234	3G2.5	7.6	10.2	7.3
111011	4G2.5	8.5	12.8	9.7
111235	5G2.5	9.2	15.6	12.2
111012	7G2.5	12.2	22.9	17.0
111184	12G2.5	13.6	36.7	29.2
111185	18G2.5	16.5	53.0	43.8
108251	25G2.5	19.5	75.5	60.9
4 mm²				
118489	7G4	14.4	50.8	26.9

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® N (C) PUR



Application

- Machine and device construction, transport and conveyor technology
- Through full PUR jacket suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Special for industrial environments with interference potential, in machines, plant and device construction

Properties

- Extreme space-saving design
- Low capacitance, very good electrical properties
- High active and passive interference resistance
- Braided shield optimised for continuous flexible use
- Halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolisis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Excellent coolant and lubricant resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Halogen-free	according to DIN EN 20264 / EN 50267 / 60684

Design

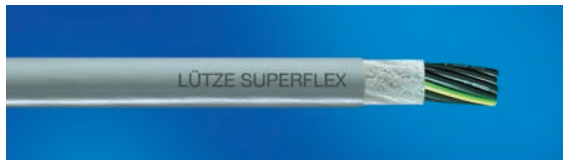
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE/HGI conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with green/yellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork shielding from galvanised Cu wire, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
118800	(2×0.5)	5.0	3.4	2.4
118801	(3G0.5)	5.2	4.0	3.0
118802	(4G0.5)	5.5	4.7	3.6
118803	(4×0.5)	5.5	4.7	3.6
118804	(5G0.5)	5.9	5.4	4.3
118805	(7G0.5)	6.8	7.0	5.6
118806	(12G0.5)	7.9	10.3	8.5
118807	(18G0.5)	9.1	14.2	11.9
118808	(25G0.5)	11.2	21.6	17.3
0.75 mm²				
118810	(2×0.75)	5.6	4.7	3.3
118811	(3G0.75)	5.9	5.5	4.1
118812	(4G0.75)	6.2	6.6	5.0
118813	(5G0.75)	6.7	7.7	6.0
118814	(7G0.75)	7.8	10.0	7.9
118815	(12G0.75)	9.5	14.9	12.2
118816	(18G0.75)	11.5	23.6	18.6
118817	(25G0.75)	13.5	31.2	24.8
1.0 mm²				
118820	(2×1.0)	6.0	5.3	3.9
118821	(3G1.0)	6.3	6.4	5.0
118822	(4G1.0)	6.8	7.7	6.2
118823	(5G1.0)	7.3	9.1	7.4
118824	(7G1.0)	8.3	11.9	9.8
118825	(12G1.0)	10.2	19.3	16.7
118826	(18G1.0)	12.2	28.5	23.5
118827	(25G1.0)	14.4	37.9	31.6
1.5 mm²				
118830	(2×1.5)	6.8	7.0	5.2
118831	(3G1.5)	7.1	8.6	6.8
118832	(4G1.5)	7.7	10.4	7.6
118833	(5G1.5)	8.4	12.4	10.2
118834	(7G1.5)	10.2	16.8	13.4
118835	(12G1.5)	12.3	28.8	23.4
118836	(18G1.5)	14.2	39.6	33.3
118837	(25G1.5)	16.9	57.5	48.7
2.5 mm²				
118840	(2×2.5)	7.8	10.1	7.6
118841	(3G2.5)	8.2	12.6	10.3
118842	(4G2.5)	9.3	15.5	11.8
118843	(5G2.5)	9.8	19.8	17.1
118844	(7G2.5)	12.3	28.0	22.9
118845	(12G2.5)	14.5	44.1	37.6
118846	(18G2.5)	17.5	65.1	57.3
118847	(25G2.5)	21.6	90.1	77.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC c-track cables

LÜTZE SUPERFLEX® N



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and control cable for continuous moving and medium operating conditions
- In energy command chains and everywhere where signals are transmitted to continuously moving system or machine parts

Properties

- Through construction and material suitable for continuous movement application.
- PVC Flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	300/500 V
U ₀ /U	
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Jacket material	Thermal pressure resistance according to DIN VDE 60881 up to 80 °C
Cold flexibility	-25 °C
Radiation-resistance	8×10 ⁷ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2 DIN EN 50265-2 IEC 60332-1

Design

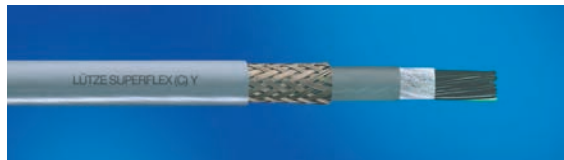
- Bare copper wire, superfine strand according to DIN VDE 0295 Kl. 6, IEC 60228 cl. 6
- Special PVC conductor insulation TI2 according to VDE 0281 or HD 21.1
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with green/yellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Jacket special PVC TM3 according to VDE 0281 or HD21.1
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
101049	3G0.5	5.1	4.0	1.5
111044	3×0.5	5.1	4.0	1.5
118383	4G0.5	5.5	4.8	2.0
118393	5G0.5	5.9	5.6	2.5
118384	7G0.5	6.8	7.0	3.4
101351	12G0.5	8.2	10.8	5.8
101048	18G0.5	9.2	15.0	8.6
108055	25G0.5	11.5	19.6	12.7
0.75 mm²				
100765	2×0.75	5.5	4.4	1.4
100766	3G0.75	5.6	5.2	2.2
101001	3×0.75	5.6	5.2	2.2
111045	4G0.75	6.3	6.3	2.9
100767	5G0.75	6.6	7.4	3.6
100768	7G0.75	7.5	9.4	5.0
100998	12G0.75	9.0	14.9	8.8
100901	14G0.75	9.5	16.8	10.3
100778	18G0.75	10.5	20.8	13.2
101425	18×0.75	10.5	20.8	13.2
100856	25G0.75	12.5	28.2	18.3
1.0 mm²				
100788	2×1.0	5.7	5.2	2.0
100789	3G1.0	5.9	6.3	3.0
100761	4G1.0	6.5	7.6	4.0
100777	5G1.0	7.0	8.9	5.0
100790	7G1.0	8.2	11.5	6.9
100791	12G1.0	9.8	18.2	11.9
100782	18G1.0	11.1	25.8	17.8
100784	25G1.0	13.7	35.0	24.8
100771	34G1.0	15.0	45.9	33.7
100779	42G1.0	16.5	55.4	41.6
1.5 mm²				
101424	2×1.5	6.6	7.7	2.9
100796	3G1.5	6.7	9.3	4.4
100787	4G1.5	7.2	11.4	5.9
100808	5G1.5	8.0	13.5	7.4
100792	7G1.5	9.2	17.5	10.3
100793	12G1.5	11.3	28.1	17.7
100794	18G1.5	13.0	40.0	26.5
100795	25G1.5	15.6	54.5	36.8
2.5 mm²				
100893	3G2.5	8.5	13.4	7.2
100707	4G2.5	9.2	16.6	9.6
100769	5G2.5	9.9	19.8	12.0
100797	7G2.5	11.8	26.0	16.8
100807	12G2.5	14.5	42.3	28.8
100900	18G2.5	16.9	60.7	43.2
100781	25G2.5	21.6	86.9	60.0
4 mm²				
100988	2×4	9.6	21.0	7.7
108049	4G4	11.8	30.0	15.4
108045	5G4	13.2	38.0	19.2
100154	7G4	15.9	48.0	26.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC c-track cables

LÜTZE SUPERFLEX® N (C)Y



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and control cable for continuous moving and medium operating conditions
- In energy command chains and everywhere where signals are transmitted to continuously moving system or machine
- Especially for industrial environment with high interference potential, in machine, plant and device construction

Properties

- Through construction and material suitable for continuous movement application.
- High active and passive interference resistance
- PVC Flame-retardant, self-extinguishing
- Largely resistant to oils, greases, acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Jacket material	Thermal pressure resistance according to DIN VDE 60881 up to 80 °C
Cold flexibility	to -25 °C
Radiation-resistance	8×10 ⁷ cJ/kg
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2 DIN EN 50265-2 IEC 60332-1

Design

- Bare copper wire, superfine strand according to DIN VDE 0295 Kl. 6, IEC 60228 cl. 6
- Special PVC conductor insulation TI2 according to VDE 0281 or HD 21.1
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Inside jacket PVC
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Non-woven material over stranded cable
- Jacket special PVC TM3 according to VDE 0281 or HD21.1
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
110446	(2×0.5)	6.6	6.1	2.2
110774	(3×0.5)	6.8	6.8	2.8
101288	(3G0.5)	6.8	6.8	2.8
110423	(4×0.5)	7.1	7.7	3.4
108800	(4G0.5)	7.1	7.7	3.4
118039	(5G0.5)	7.5	8.7	4.0
110775	(7×0.5)	8.7	10.3	5.1
108801	(7G0.5)	8.7	10.3	5.1
110447	(12×0.5)	10.0	15.0	8.0
108802	(12G0.5)	10.0	15.0	8.0
110591	(18×0.5)	10.9	20.6	12.1
110776	(25×0.5)	12.6	26.8	16.2
0.75 mm²				
110489	(2×0.75)	7.0	7.3	2.8
110441	(3×0.75)	7.2	8.2	3.6
108803	(3G0.75)	7.2	8.2	3.6
110566	(4×0.75)	7.5	9.5	4.5
108000	(4G0.75)	7.2	8.2	3.6
111245	(5G0.75)	8.1	10.8	5.4
108001	(7G0.75)	8.6	13.1	7.0
110491	(12×0.75)	10.7	20.3	12.0
110563	(12G0.75)	8.6	13.1	7.0
108002	(18G0.75)	12.1	27.2	16.9
110564	(25G0.75)	14.0	35.6	22.7
1.0 mm²				
111246	(2×1.0)	7.3	8.3	3.5
111215	(3G1.0)	7.6	9.4	4.5
110567	(4G1.0)	8.1	11.0	5.7
118042	(5G1.0)	8.6	12.6	6.8
118239	(7G1.0)	9.2	15.4	8.9
111001	(12G1.0)	11.5	24.1	15.4
111247	(18G1.0)	13.0	32.6	21.9
111248	(25G1.0)	15.3	43.8	30.4
1.5 mm²				
110947	(2×1.5)	8.1	11.4	4.8
110954	(3G1.5)	8.5	13.2	6.3
110499	(4G1.5)	9.0	14.6	8.0
118194	(5G1.5)	10.4	18.8	10.5
111303	(7G1.5)	11.2	23.2	13.7
111304	(12G1.5)	14.0	35.5	22.1
111305	(18G1.5)	16.0	49.4	32.5
111306	(25G1.5)	19.3	68.1	46.5
2.5 – 10 mm²				
110608	(3G2.5)	10.0	18.6	10.3
108003	(4G2.5)	10.9	22.2	13.0
118111	(4G4)	13.8	40.0	21.2
118112	(4G6)	16.2	50.0	31.6
110701	(5G2.5)	11.0	25.9	15.8
111329	(7G2.5)	13.0	32.6	21.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC c-track cables · UL/CSA 600 V

LÜTZE SUPERFLEX® N cULus



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and control cable for continuous moving and medium operating conditions
- In energy command chains and everywhere where signals are transmitted to continuously moving system or machine parts

Properties

- Minimal cable diameter through special TPE/HGI conductor insulation according to UL
- Low capacitance, very good electrical properties
- Through construction and material suitable for continuous movement application.
- Outer jacket special-PVC Class 43 according to UL
- Largely resistant to oils, greases, acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
UL	600 V
Test voltage	6000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Jacket material	Thermal pressure resistance according to DIN VDE 60881 up to 90 °C
Cold flexibility	according to UL up to -25 °C
Radiation-resistance	8×10 ⁷ cJ/kg
Burning behaviour	Flame-retardant according to UL VW-1; DIN EN 50265-2
Oil resistant	according to UL 4d100C and DIN EN 60811-2-1

Design

- Bare copper wire, superfine strand according to DIN VDE 0295 Kl. 6, IEC 60228 cl. 6
- Special TPE/HGI conductor insulation according to UL
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Jacket special PVC according to UL class 43 and VDE 0207 TM5, Temperature-resistant according to VDE 0207 up to 90 °C
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
109450	3G0.5	5.7	4.4	1.5
109451	4G0.5	6.1	5.3	2.0
109452	5G0.5	6.7	6.2	2.5
109453	7G0.5	7.7	8.3	3.4
109454	12G0.5	9.3	11.6	5.9
109455	18G0.5	10.7	16.2	8.8
109456	25G0.5	12.5	21.8	12.3
1.0 mm²				
109457	3G1.0	6.6	6.6	2.9
109458	4G1.0	7.2	8.1	4.0
109459	5G1.0	7.8	9.5	5.0
109460	7G1.0	9.1	12.4	6.9
109461	12G1.0	10.8	18.9	11.9
109462	18G1.0	12.7	26.7	17.8
109463	25G1.0	15.1	36.3	24.7
109464	34G1.0	16.8	47.5	33.7
109479	41G1.0	18.8	58.4	37.5
1.5 mm²				
109465	3G1.5	7.2	8.6	4.4
109466	4G1.5	7.8	10.6	5.9
109467	5G1.5	8.6	12.6	7.4
109468	7G1.5	10.1	16.6	10.3
109469	12G1.5	12.4	25.8	17.5
109470	18G1.5	14.5	36.7	26.5
109471	25G1.5	16.8	50.1	36.8
2.5 mm²				
109472	4G2.5	9.1	15.9	9.8
109473	5G2.5	10.0	18.9	12.8
109474	7G2.5	12.1	25.3	17.0
4 mm²				
109475	4G4	10.7	23.0	15.5
109476	7G4	14.0	37.7	27.3

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC c-track cables

LÜTZE SUPERFLEX® N ORC



Application

- Machine tools, transfer lines as well as additional areas in the French automobile industry
- In dry and moist rooms
- As control, measurement and regulation cable medium operating conditions
- In energy command chains and everywhere where signals are transmitted to continuously moving system or machine parts
- Approved by the French automobile industry for use in conjunction with cutting and cooling oils

Properties

- Isolation and jacket material especially oil-stabilised according to the French automobile industry norm (CNOMO)
- Through construction and material suitable for continuous movement application
- PVC flame-retardant, self-extinguishing
- Widely resistant to acids and bases
- Free from paint wetting disruptive substances (LABS-free)
- RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ/km
Temperature range	
moving	-5 °C to +70 °C
fixed	-25 °C to +70 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according DIN VDE 0295 Kl. 5, IEC 60228 cl. 5
- Special PVC conductor insulation according to CNOMO
- Conductors black with white number print according to DIN EN 50334
- Ground conductor
G = with greenyellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC according to CNOMO, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
1.0 mm²				
101165	3G1.0	7.6	7.9	2.8
108022	4G1.0	8.3	10.6	3.8
101164	5G1.0	9.4	13.0	4.8
101209	7G1.0	11.0	15.5	6.7
101167	12G1.0	13.0	25.6	11.5
101210	18G1.0	15.4	42.6	17.2
101211	20G1.0	16.4	45.0	19.2
101166	25G1.0	18.5	54.0	24.0
1.5 mm²				
101212	3G1.5	8.1	11.3	4.3
101229	4G1.5	9.0	12.8	5.7
100933	5G1.5	10.0	16.0	7.2
101213	7G1.5	11.8	20.1	10.0
101228	12G1.5	13.6	31.8	17.3
101015	18G1.5	16.4	50.8	25.9
108036	25G1.5	20.4	67.1	36.0
2.5 mm²				
101238	3G2.5	10.0	17.0	7.2
101227	4G2.5	11.1	21.6	9.6
4 – 10 mm²				
108026	4G4	13.8	30.0	15.4
101256	4G6	17.0	42.0	23.0
108037	4G10	20.6	65.0	38.4

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR c-track cables · For highest requirements

LUTZE-SUPERFLEX[®] TRONIC PUR



Application

- Robots, energy supply chains and anywhere where signals are transmitted to continuously moving system or machine parts
- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As monitoring, measurement and control cable for continuous bending loads with the highest service life requirements

Properties

- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free)
- RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2, DIN EN 50265-2, IEC 60332-1; UL 1581 section VW-1Flame-Test according to DIN EN 50264-1; EN 50267-2-1; EN 60684-2
Halogen-free	

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE/HGI conductor insulation
- Conductor labelling Conductors colour-coded according to DIN 47100
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
AWG 26 / 0,14 mm²				
117030	2×0.14	3.4	2.1	0.3
117031	3×0.14	3.5	2.3	0.4
117032	4×0.14	3.8	2.8	0.6
117033	5×0.14	4.1	3.2	0.7
117034	7×0.14	4.4	4.7	1.0
117035	10×0.14	5.8	5.5	1.4
117036	12×0.14	6.0	6.0	1.6
117037	18×0.14	7.1	7.8	2.5
117038	25×0.14	8.4	10.4	3.4
AWG 24 / 0,25 mm²				
117039	2×0.25	3.5	3.5	0.5
117040	3×0.25	3.8	3.4	0.7
117041	4×0.25	4.2	4.0	1.0
117042	5×0.25	4.5	4.5	1.2
117043	7×0.25	5.2	5.8	1.7
117044	10×0.25	6.1	7.0	2.4
117045	12×0.25	6.2	7.8	2.9
117046	18×0.25	7.2	10.4	4.3
117047	25×0.25	8.8	13.6	5.9
AWG 22 / 0,34 mm²				
117048	2×0.34	3.7	3.4	0.6
117049	3×0.34	4.3	3.9	1.0
117050	4×0.34	4.5	4.5	1.2
117051	5×0.34	5.0	5.2	1.5
117052	7×0.34	5.8	6.5	2.2
117053	10×0.34	6.5	8.2	3.0
117054	12×0.34	6.9	9.1	3.7
117055	18×0.34	8.1	12.3	5.6
117056	25×0.34	9.2	17.4	7.8

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PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® TRONIC (C)PUR



Application

- Robots, energy supply chains as well as everywhere where signals are transmitted to continuously moving system or machine parts
- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As monitoring, measurement and control cable for continuous bending loads with the highest service life requirements
- Especially for industrial environments with high interference potential in machine, plant and device construction

Properties

- High active and passive interference resistance
- Braided shield optimised for continuous flexible use
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free)
- RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1; EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE conductor insulation
- Conductor labelling Conductors colour-coded according to DIN 47100
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
117090	(2×0.14)	4.0	2.3	1.1
117091	(3×0.14)	4.3	2.5	1.3
117092	(4×0.14)	4.5	2.9	1.5
117093	(5×0.14)	4.7	3.2	1.7
117094	(7×0.14)	5.4	4.1	2.2
117095	(10×0.14)	6.2	5.0	2.8
117096	(12×0.14)	6.4	5.5	3.1
117097	(18×0.14)	7.3	7.2	4.3
117098	(25×0.14)	8.7	9.5	5.6
0.25 mm²				
117099	(2×0.25)	4.3	2.7	1.3
117100	(3×0.25)	4.5	3.0	1.7
117101	(4×0.25)	4.9	3.5	2.0
117102	(5×0.25)	5.1	4.0	2.3
117103	(7×0.25)	5.9	5.0	3.1
117104	(10×0.25)	6.7	6.4	4.1
117105	(12×0.25)	7.2	7.1	4.7
117106	(18×0.25)	8.2	9.5	6.4
117107	(25×0.25)	9.4	12.8	8.5
0.34 mm²				
117108	(2×0.34)	4.5	3.0	1.6
117109	(3×0.34)	4.7	3.4	2.0
117110	(4×0.34)	5.1	4.0	2.4
117111	(5×0.34)	5.4	4.6	2.8
117112	(7×0.34)	6.2	5.8	3.7
117113	(10×0.34)	7.0	7.5	5.0
117114	(12×0.34)	7.3	8.4	5.7
117115	(18×0.34)	8.5	11.5	8.0
117116	(25×0.34)	9.6	16.0	11.5

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PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX[®] TRONIC (C)PUR TP



Application

- Robots, energy supply chains and anywhere where signals are transmitted to continuously moving system or machine parts
- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As monitoring, measurement and control cable for continuous bending loads with the highest service life requirements
- Especially for industrial environments with high interference potential in machine, plant and device construction

Properties

- High active and passive interference resistance
- High crosstalk attenuation through paired stranding
- Braided shield optimised for continuous flexible use
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- Halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free)
- RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1Flame-Test
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1; EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE conductor insulation
- Conductor labelling Conductors colour-coded according to DIN 47100
- Zero-potential paired stranding, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 mm²				
117170	(2×2×0.25)	6.3	8.2	2.2
117171	(3×2×0.25)	6.6	9.1	2.8
117172	(4×2×0.25)	6.8	10.3	3.4
117173	(5×2×0.25)	7.5	11.7	4.0
117177	(6×2×0.25)	8.1	13.1	4.7
117174	(8×2×0.25)	9.4	16.0	6.0
117175	(10×2×0.25)	10.5	19.1	7.9
117176	(12×2×0.25)	10.8	20.7	9.1
0.34 mm²				
117180	(2×2×0.34)	6.6	9.2	2.6
117181	(3×2×0.34)	6.9	10.2	3.4
117182	(4×2×0.34)	7.4	11.7	4.2
117183	(5×2×0.34)	8.0	13.3	5.1
117184	(6×2×0.34)	8.6	15.0	5.9
117185	(8×2×0.34)	10.0	19.2	8.3
117186	(10×2×0.34)	10.8	22.1	10.0
117187	(12×2×0.34)	11.1	24.1	11.4
0.5 mm²				
117190	(2×2×0.5)	7.3	10.9	3.4
117191	(3×2×0.5)	7.7	12.3	4.5
117303	(4×2×0.5)	8.2	14.2	5.7
117192	(5×2×0.5)	9.1	16.3	6.9
117193	(6×2×0.5)	9.9	18.4	8.0
117194	(8×2×0.5)	11.2	23.8	11.2
117195	(10×2×0.5)	12.4	27.5	13.5
117196	(12×2×0.5)	13.0	30.2	15.6
0.75 mm²				
117199	(2×2×0.75)	8.5	14.3	4.7
117201	(3×2×0.75)	9.0	16.2	6.3
117202	(4×2×0.75)	9.7	18.9	8.0
117203	(5×2×0.75)	10.8	22.7	10.5
117204	(6×2×0.75)	11.7	25.9	12.3
117205	(8×2×0.75)	13.5	32.0	16.0
117206	(10×2×0.75)	14.7	37.3	19.3
117207	(12×2×0.75)	15.2	42.1	23.1

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PVC c-track cables

LÜTZE SUPERFLEX® TRONIC



Application

- Energy carrying systems as well as anywhere where signals are transmitted to continuously moving system or machine parts
- As control, measurement and regulation cable medium operating conditions without tensile loading

Properties

- Minimal cable diameter through thin-walled PVC semi-rigid conductor insulation according to UL
- Especially suitable for cost-efficient IDC-connection (Insulation Displacement Connection)
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Widely resistant to acid and bases (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Insulation resistance	min. 20 MΩ × km
Temperature range according to UL	
continuously moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Cold flexibility	according to UL up to -25 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1Flame-Test; CSA FT 1
Oil resistant	according to UL 4d100C and DIN EN 60811-2-1

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special PVC semi-rigid conductor insulation according to UL, temperature-resistant according to VDE 0207 up to 105 °C
- Conductors colour-coded according to DIN 47100
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Jacket special PVC according to UL class 43 and VDE 0207 TM5, Temperature-resistant according to VDE 0207 up to 90 °C
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
117000	2×0.14	4.1	2.1	0.3
117001	3×0.14	4.2	2.3	0.5
117003	5×0.14	4.8	3.1	0.7
117004	7×0.14	5.4	3.8	1.0
117005	10×0.14	6.1	4.8	1.5
117006	12×0.14	6.3	5.3	1.8
117007	18×0.14	7.2	7.2	2.6
117008	25×0.14	8.4	9.5	3.6
0.25 mm²				
117009	2×0.25	4.3	2.5	0.5
117010	3×0.25	4.5	2.8	0.7
117012	5×0.25	5.1	3.8	1.2
117013	7×0.25	5.8	4.8	1.7
117014	10×0.25	6.7	6.2	2.5
117015	12×0.25	6.8	6.9	2.9
117016	18×0.25	7.8	9.4	4.4
117017	25×0.25	9.9	12.6	6.3
0.34 mm²				
117018	2×0.34	4.5	2.8	0.6
117019	3×0.34	4.7	3.2	1.0
117021	5×0.34	5.3	4.4	1.6
117022	7×0.34	6.1	5.6	2.2
117023	10×0.34	7.0	7.3	3.2
117024	12×0.34	7.2	8.2	3.9
117025	18×0.34	8.3	11.4	5.8
117026	25×0.34	9.7	15.2	8.4

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PVC c-track cables

LÜTZE SUPERFLEX® TRONIC (C)Y LÜTZE SUPERFLEX® TRONIC (C)Y TP



Application

- Energy carrying systems as well as anywhere where signals are transmitted to continuously moving system or machine parts.
- As control, measurement and regulation cable medium operating conditions without tensile loading
- Especially for industrial environment with high interference potential, in machine, plant and device construction.

Properties

- Minimal cable diameter through thin-walled PVC semi-rigid conductor insulation according to UL
- Especially suitable for cost-efficient IDC-connection (Insulation Displacement Connection)
- High active and passive interference resistance
- Braided shield optimised for continuous flexible use
- Outer jacket special PVC class 43 according to UL
- Very good oil resistance
- Widely resistant to acids and bases (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range according to UL	
continuously moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Cold flexibility	according to UL up to -25 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2, DIN EN 50265-2, IEC 60332-1; UL 1581 section VW-1Flame-Test; CSA FT 1
Oil resistant	according to UL 4d100C and DIN EN 60811-2-1

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special PVC semi-rigid conductor insulation according to UL, temperature-resistant according to VDE 0207 up to 105 °C
- Conductors colour-coded according to DIN 47100
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC according to UL class 43 and VDE 0207 TM5, Temperature-resistant according to VDE 0207 up to 90 °C
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
117060	(2×0.14)	4.7	3.1	1.1
117061	(3×0.14)	4.8	3.3	1.2
117062	(4×0.14)	4.9	3.9	1.4
117063	(5×0.14)	5.4	4.2	1.7
117064	(7×0.14)	6.0	5.0	2.2
117065	(10×0.14)	6.7	6.2	2.8
117066	(12×0.14)	6.9	6.7	3.1
117067	(18×0.14)	7.8	12.8	4.2
117068	(25×0.14)	9.2	11.4	5.6
0.25 mm²				
117069	(2×0.25)	4.9	3.4	1.3
117070	(3×0.25)	5.1	3.8	1.7
117072	(5×0.25)	5.5	4.9	2.3
117073	(7×0.25)	6.3	6.1	3.0
117074	(10×0.25)	7.1	7.6	4.7
117075	(12×0.25)	7.2	8.4	4.5
117076	(18×0.25)	8.2	11.2	6.3
117077	(25×0.25)	9.9	14.6	9.3
0.34 mm²				
117078	(2×0.34)	5.1	3.8	1.6
117079	(3×0.34)	5.3	4.2	2.0
117081	(5×0.34)	5.8	5.6	2.8
117082	(7×0.34)	6.7	6.9	3.7
117083	(10×0.34)	7.6	8.9	5.0
117084	(12×0.34)	7.7	9.8	5.7
117085	(18×0.34)	8.9	13.2	8.0
117086	(25×0.34)	10.4	18.4	11.5
0.25 mm² Design with paired stranding				
117130	(2×2×0.25)	6.3	6.1	2.3
117131	(3×2×0.25)	6.5	7.2	2.8
117136	(4×2×0.25)	7.2	8.3	3.5
117133	(5×2×0.25)	7.7	10.3	4.2
117139	(6×2×0.25)	8.7	11.1	4.8
117134	(8×2×0.25)	9.6	12.4	6.2
117135	(10×2×0.25)	10.5	18.5	8.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Long-term durability C-track cables LÜTZE SUPERFLEX®

We don't accept production downtimes

Continuously moving machines and system parts are subject to extreme operating conditions.

Normal control cables are no longer up to the increased requirements for permanent operation with high cycle times or high traversing speeds.

The result is something that a competitive company can hardly afford: Malfunctions and failure of power supply and signal transmission, machine standstill and finally production downtimes.

For over 25 years, we have been leading in the development and manufacture of flexible cables that meet the challenge of continuous bending stresses.

With **LÜTZE SUPERFLEX®**, we have developed a control cable program that stands out through its exceptional resilience and is thus created for extreme operating conditions – like e.g. in C-tracks. Through the special cable construction and conductor insulation which causes no resistance to sliding, the cables have complete freedom of movement and can compensate for stresses and strains that occur. This ensures good flexibility and the greatest possible protection from wire breaks.

Our **LÜTZE SUPERFLEX®** cables are in permanent operation throughout the world with proven toughness for meeting the highest requirements.

LÜTZE SUPERFLEX® cables have proven themselves outstandingly for over 25 years in thousands of systems and plants.

Continuous tests at well-known users were finally aborted after more than 7 million successful movement cycles.

LÜTZE SUPERFLEX® cables are designed in their construction, choice of material and production technique for the highest requirements in energy supply systems. The expected requirements are:

Type	Traverse path (m)	Bending radius = Factor x cable Ø (mm)	Speed (m/s)	Acceleration (m/S²)	Bending cycles (approx. mio)
LÜTZE SUPERFLEX® PLUS N PUR	≤ 100	≥ 7.5 x Ø	≤ 5	≤ 10	2
	≤ 20	≥ 7.5 x Ø	≤ 5	≤ 10	10
LÜTZE SUPERFLEX® PLUS N(C) PUR	≤ 100	≥ 10 x Ø	≤ 5	≤ 10	2
	≤ 20	≥ 10 x Ø	≤ 5	≤ 10	10
LÜTZE SUPERFLEX® PLUS N(C) PUR Motor/Servo ≥ 4 mm²	≤ 40	≥ 10 x Ø	≤ 3,5	≤ 5	5
LÜTZE SUPERFLEX® PLUS N(C) PUR Motor (with inside jacket)	≤ 100	≥ 10 x Ø	≤ 3,5	≤ 5	5
LÜTZE SUPERFLEX® N PUR	≤ 40	≥ 10 x Ø	≤ 4	≤ 5	3
	≤ 20	≥ 10 x Ø	≤ 4	≤ 5	5
LÜTZE SUPERFLEX® N(C) PUR	≤ 40	≥ 12 x Ø	≤ 4	≤ 5	3
	≤ 20	≥ 12 x Ø	≤ 4	≤ 5	5
LÜTZE SUPERFLEX® N	≤ 15	≥ 10 x Ø	≤ 5	≤ 10	5
LÜTZE SUPERFLEX® N (C) Y	≤ 15	≥ 12 x Ø	≤ 5	≤ 10	5
LÜTZE SUPERFLEX® TRONIC (C) PUR	≤ 20	≥ 12 x Ø	≤ 5	≤ 10	5
LÜTZE SUPERFLEX® TRONIC (C) PUR TP	≤ 20	≥ 12 x Ø	≤ 5	≤ 10	5

Prerequisites for fulfilling these values are the optimal chain selection and proper, careful installation, see mounting guidelines.

The specified values are permissible limit loads, a larger bending radius and smaller number of cables in particular have a positive influence on the expected service life. The specification of minimum bending radius for cables is based on the use at normal temperatures.

Depending on application case, the specified standard values can be exceeded. Please consult with us in this case.

Selection of chains and cables – installation in C-tracks

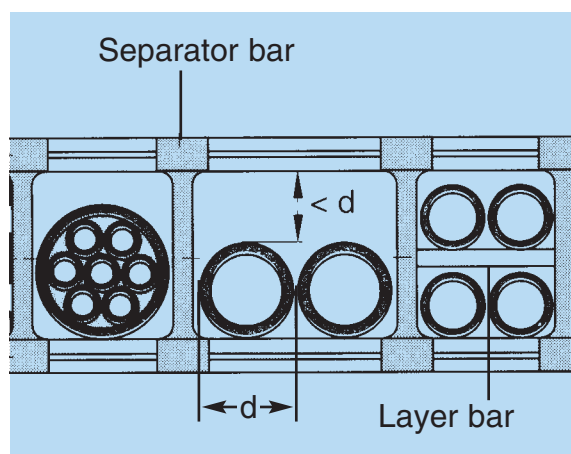
Selection of chains and cables

- Only cables that are suitable for use in c-tracks may be used
- The installation in the C-track requires extreme care and should occur with minimal strain on the cable
- The weight distribution in the chain should be as symmetrical as possible, the heavier cables should be placed outwards
- C-track and cables are a system which only function optimally when c-track and cables are matched to each other
- In principle, the essential parameters of the system to be supplied are determined, e.g. bending radius, speed, acceleration and traverse path are normally fixed sizes
- Through a larger chain, free spaces can be increased
- A cable with a high strand count can possibly be distributed over two cables with lower strand counts (this applies in particular to cables with 25 or more strands)

• In general the following is valid:

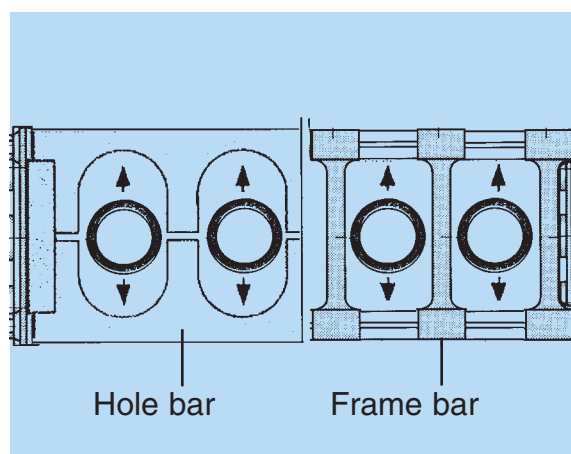
- The smaller the bending radius
- The longer the traverse path
- The greater the speed and acceleration
- The higher the number of wires in the cable
- The smaller the free space of the cable
- the greater the strain on the cable

- A larger bending radius than the specified minimum bending radius increases the expected service life significantly

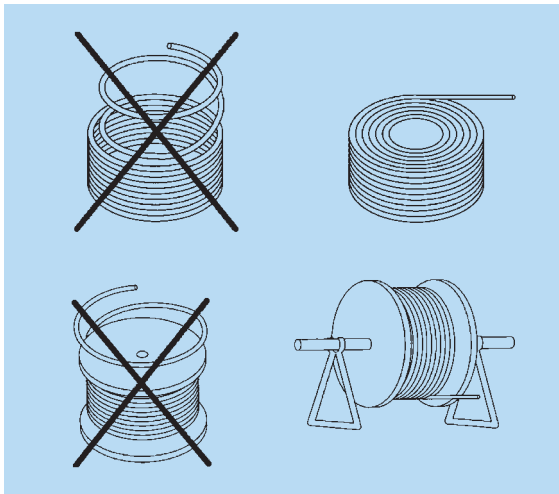


Sectioning of the C-track

- The running of every cable in a separate chamber is advantageous
- Do not run cables on top of one another, absolutely use separating bars
- If running multiple cables in one chamber is unavoidable, the remaining free space must be smaller than the smallest cable diameter; this is the only way to prevent the mutual entwining of the cables
- The cables must be able to move freely, they may not be fixed in the C-track nor bundled together
- For multilayered run flat cables, layer bars must strictly be used
- Required free space
(Minimum values) Width $\geq 10\%$ of the cable diameter
 Height $\geq 15\%$ of the cable diameter
- With increasing traverse path, the vertical free space must be clearly increased (up to 100%), a multilayered running is therefore not recommended for long traverse paths
- Pressure hoses must always lie in separate chambers since these can greatly shorten or lengthen with pressure change. Cables run in the same chamber can thus become clamped.

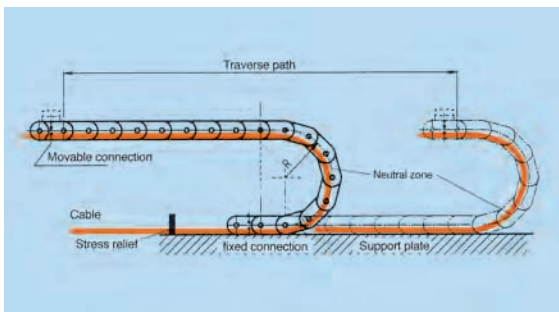


Selection of chains and cables – Installation in C-tracks

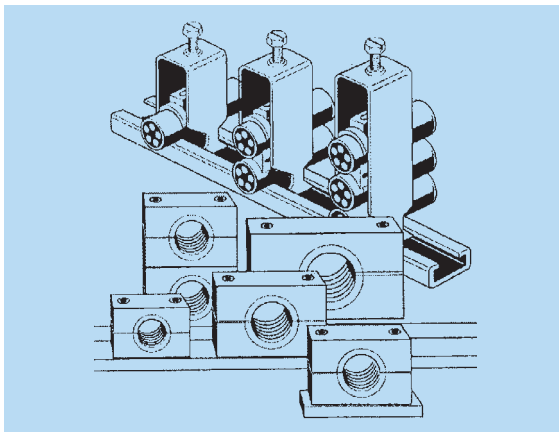


Inserting the cables in the chain

- The cables must be unwound twist free (tangential) from the drum or ring
- It is advantageous to leave the cables stretched out for up to 24 hours to compensate for the possibly existing tension
- When running the cables in the chain, observe that the cables do not become twisted, pulled strongly or even kinked
- If a pulling line is used, the attachment must be made to all elements of the cable, it damages the cable if only e.g. conductor or jacket is attached or pulled

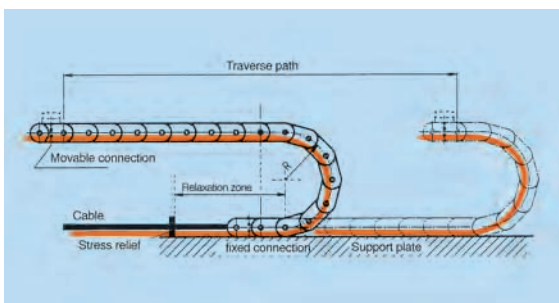


- The cables must run through the bending radius in the neutral zone
- Free space must always be present above and below
- The cables may never be clamped to the inner bars or tied in bundles to the outer bars. This applies in particular to multilayer utilizations



- For short C-tracks, the cables are attached at the fixed point and at the driving dog
- For longer traverse paths, the cables are only relieved of tension at the driving dog
- For vertical power track chains, both ends must be relieved of tension
- In general, it is to be observed that the fixation occurs on a large area so that the cable is fixed, but that individual wires in the cable are not clamped
- **Cable ties within the C-track are never permitted**
- On moving and firm chain ends, the cables may only be first fixed after the relaxation zone.

Relaxation zone (distance radius end - strain relief)



- The length of the relaxation zone must be $\geq$ factor 50 x to the largest cable diameter
- After completion of the installation, the free space over the entire traverse path must be checked
- If necessary, the cable lengths must be corrected
- The cable must be marked at the endpoints so that it can be determined at later checks or corrections if the cable has shifted or if it works successfully.
- After 500-1,000 cycles, the free space in the chain bending must be checked again and possibly corrected. This check must be carried out both after the push movement as well as after the pull movement.

3. Servo cables



PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS M (C) PUR 0.6/1kV Motor/Power supply cable



Application

- Motor connection cable, especially for frequency converters and SERVO drives
- Through full PUR jacket and TPE / HGI cable insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- For travel paths over 40 m, we recommend conductors with inside jacket

Properties

- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1 kV
Test voltage	4000 V
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C

Minimum bending radius

moving	Cable diameter × 10
fixed	Cable diameter × 6

Burning behaviour

Flame-retardant according to
VDE 0482 part 265-2
DIN EN 50265-2;
IEC 60332-1;
UL 1581 section 1080 VW-1;
CSA FT 1

Halogen-free

according to DIN EN 202641-1,
EN 50267-2-1, EN 60684-2

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 or IEC 60228
- Special TPE/HGI conductor insulation, UL qualified
- Conductor labelling Power conductors black with number print U/ L1/C/L+; V/L2; W/L3/D/L-
- Ground conductor greenyellow according to DIN EN 50334
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Inside jacket TPE (optional)
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour orange RAL 2003

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
Design without inside jacket				
111496	(4G1.0)	9.5	12.2	6.5
111460	(4G1.5)	8.0	11.7	7.7
111461	(4G2.5)	9.6	17.3	12.0
111462	(4G4)	11.1	24.5	18.8
111463	(4G6)	13.4	36.5	29.0
111464	(4G10)	16.7	54.9	45.1
111465	(4G16)	20.4	84.9	71.1
111466	(4G25)	25.0	129.9	110.0
111467	(4G35)	28.3	169.2	151.0
111468	(4G50)	33.3	244.2	213.0
Design with inside jacket				
111480	(4G1.5)	10.0	16.0	8.3
111481	(4G2.5)	11.7	22.1	12.6
111482	(4G4)	13.3	32.1	20.2
111483	(4G6)	15.3	41.2	27.0
111484	(4G10)	17.9	62.8	45.5
111485	(4G16)	21.7	97.8	71.5
111486	(4G25)	26.3	144.5	109.3
111487	(4G35)	31.0	200.4	149.8

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0.6/1kV Supply Line Motor/Brake



Application

- Termination cable motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Through full PUR jacket and TPE / HGI cable insulation optimally suited for c-tracks, extremely harsh operating conditions and aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- High active and passive interference resistance (EMC)
- Braided shield optimised for flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	1000 V 80 °C
Voltage	
VDE U ₀ /U	0.6/1 kV
Test voltage	4000 V
Insulation resistance	min. 500 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section 1080 VW-1; CSA FT 1
Halogen-free	according to DIN EN 202641-1, EN 50267-2-1, EN 60684-2

Design

- Bare copper wire, superfine strand according to DIN VDE 0295 Kl. 6 or IEC 60228 cl. 6
- Special TPE/HGI conductor insulation, UL qualified
- Power conductors black with number print U/L1/C/L+; V/L2; W/L3/D/L-
- Ground conductor greenyellow according to DIN EN 50334 G = with greenyellow ground conductor; × = without ground conductor
- Control pair(s) (black; white) or (5,6) (7,8)
Control quads: (black; white; red; yellow)
Three-way element: Number print (1, 2, 3)
Control pair(s)/Control quads with braided shield and foil banding
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour Orange RAL 2003; Petrol RAL 5018

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
Design with control pair				
111439	(4G1.0 + (2×0.5))	9.4	15.5	9.3
111469	(4G1.0+(2×0.75))	9.6	14.5	8.1
111420	(4G1.5+(2×1.5))	10.5	21.0	13.5
111421	(4G2.5+(2×1.5))	12.1	23.5	17.5
111422	(4G4+(2×1.5))	13.6	32.0	25.4
111423	(4G6+(2×1.5))	15.5	43.0	34.3
111424	(4G10+(2×1.5))	18.8	68.0	50.5
111425	(4G16+(2×1.5))	22.1	86.0	77.2
111426	(4G25+(2×1.5))	25.8	136.5	115.0
111427	(4G35+(2×1.5))	29.0	274.6	157.0
111428	(4G50+(2×1.5))	33.3	373.7	218.0
Without UL approval, jacket colour petrol RAL 5018				
111400	(4G1.5 + (2×1.5))	19.0	16.0	11.2
111401	(4G2.5 + (2×1.5))	11.4	21.1	15.5
111402	(4G4.0 + (2×1.5))	12.9	28.8	22.1
Design with two control pairs				
111270	(4G1.0+2×(2×0.75)StC)	11.6	23.2	14.0
111271	(4G1.5+2×(2×0.75)StC)	12.5	25.5	16.2
111272	(4G2.5+2×(2×0.75)StC)	13.5	31.9	21.5
111279	(4G×2.5+2×(2×1.0)StC)	13.7	33.0	23.0
111273	(4G4+2×(2×1.0)StC)	15.6	41.1	28.8
111280	(4G4+2×(2×1.5)StC)	16.0	45.4	33.8
111274	(4G6+2×(2×1.0)StC)	16.4	51.2	36.8
111281	(4G6+2×(2×1.5)StC)	17.9	54.0	39.5
111275	(4G10+2×(2×1.0)StC)	19.3	73.0	56.9
111282	(4G10+2×(2×1.5)StC)	19.8	73.5	59.5
111276	(4G16+2×(2×1.5)StC)	23.2	106.4	82.3
111277	(4G25+2×(2×1.5)StC)	29.4	171.4	119.2
111278	(4G35+2×(2×1.5)StC)	32.0	217.6	158.8
Design with four-way element for linear drives, with inside jacket				
111530	(4G1.5+(4×0.5))	12.0	23.8	13.1
111531	(4G2.5+(4×0.5))	13.5	28.9	17.4
111532	(4G4+(4×0.5))	15.3	40.9	25.5
111533	(4G6+(4×0.5))	16.9	52.0	33.5
111534	(4G10+(4×0.5))	19.9	73.9	50.8
111535	(4G16+(4×0.5))	22.3	100.9	74.9
Design with three-way element, with inside jacket				
111560	(4G1.5+(3×1.0))	15.5	35.3	16.5
111561	(4G2.5+(3×1.0))	16.5	43.3	20.2
111562	(4G4+(3×1.0))	17.6	54.8	25.5
111563	(4G6+(3×1.0))	18.8	72.3	33.5
111564	(4G10+(3×1.0))	20.2	109.5	51.0

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS M PUR 0.6/1 kV Motor/Power supply cable



Application

- Motor connection cable, specifically for machine and device construction, transport and conveyor technology
- Through full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely harsh operating conditions and aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval 1000 V 80 °C

Voltage U_0/U 0.6/1 kV

Test voltage 4000 V

Insulation resistance min. 500 MΩ × km

Temperature range
moving -25 °C to +80 °C
fixed -40 °C to +80 °C

Minimum bending radius
moving Cable diameter × 7.5
fixed Cable diameter × 4

Burning behaviour Flame-retardant according to
VDE 0482 part 265-2;
DIN EN 50265-2;
IEC 60332-1;
UL 1581 section 1080 VW-1;
CSA FT 1

Halogen-free according to DIN EN 202641-1,
EN 50267-2-1, EN 60684-2

Design

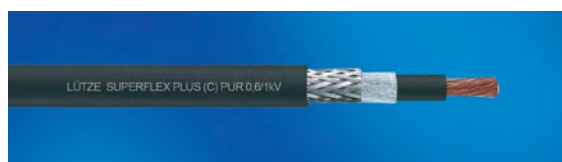
- Bare copper wire, superfine strand according to DIN VDE 0295 Kl. 6 or IEC 60228 cl. 6
- Special TPE/HGI conductor insulation, UL qualified
- Conductors black with white imprint
- Ground conductor greenyellow according to DIN EN 50334
G = with greenyellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour black RAL 9005

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
111370	4G1.5	7.7	12.1	5.8
111371	4G2.5	9.3	14.3	9.6
111372	4G4	10.8	23.3	15.4
111373	4G6	12.9	32.8	23.1
111374	4G10	15.5	52.5	38.4
111375	4G16	18.8	99.0	61.4
111376	4G25	23.7	120.0	96.0
111377	4G35	26.6	185.0	134.4
111378	4G50	31.8	245.0	192.0
111545	5G4	12.1	28.5	19.4
111430	5G6	14.5	40.0	28.9
111429	5G10	18.2	75.0	49.0
111548	5G16	20.8	116.6	76.8
111549	5G25	26.3	148.0	121.0

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR c-track cables · For highest requirements

LÜTZE SUPERFLEX® PLUS PUR 0.6/1kV LÜTZE SUPERFLEX® PLUS (C) PUR 0.6/1kV Motor/Power supply cable



Application

- Performance cable, specifically for machine and device construction for transport and conveyor technology
- As motor supply or ground conductor
- Through full PUR jacket and TPE cable insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	1000 V 80 °C
Voltage	
U ₀ /U	0.6/1 kV
Test voltage	4000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section 1080 VW-1; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE conductor insulation, UL qualified
- Meshwork shielding (optional) from galvanised Cu wire, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour black RAL 9005; green/yellow upon request

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
Without shield, black				
111135	1×4	6.4	6.6	3.7
111136	1×6	7.1	9.0	5.6
111126	1×10	8.4	13.8	9.3
111127	1×16	9.8	20.5	14.8
111128	1×25	11.4	30.6	23.3
111129	1×35	13.4	43.1	32.6
111130	1×50	15.2	57.2	47.8
111131	1×70	16.6	78.3	64.5
111132	1×95	19.2	104.3	88.8
111133	1×120	22.2	130.2	120.0
Without screen, insulation and jacket green/yellow				
111242	1×4	6.4	6.6	3.7
111241	1×6	7.1	9.0	5.6
111243	1×10	8.4	13.8	9.3
111197	1×16	9.8	20.5	14.8
111337	1×25	11.4	30.6	23.3
111285	1×35	13.4	43.1	32.6
With CU shield, black				
111287	(1×4)	7.0	8.6	5.5
111288	(1×6)	7.7	11.5	7.7
111289	(1×10)	9.0	17.1	12.1
111290	(1×16)	10.4	24.1	18.1
111291	(1×25)	12.0	35.3	27.3
111292	(1×35)	14.0	48.1	37.3
111293	(1×50)	15.8	63.1	53.1
111294	(1×70)	17.4	85.3	70.6
111295	(1×95)	20.2	114.6	98.0
111296	(1×120)	23.4	143.1	132.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR encoder cables, c-track suitable · For highest requirements

LÜTZE SUPERFLEX® PLUS (C) PUR SERVO Feedback typical capacitance wires cULus



Application

- Incremental encoder cable, termination cable for tachometer, brake sensor, speed sensor
- Through full PUR jacket and TPE cable insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- High active and passive interference-resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolisis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Excellent coolant and lubricant resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

UL approval	30 V 80°C / 300 V 80°C
Rated voltage	300 V
Test voltage	2000 V for UL 300 V 500 V for UL 30 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 20265-2; IEC 60332-1; UL 1581 section 1080 VW-1; CSA FT 1
Halogen-free	according to DIN EN 50264-1, EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE conductor insulation, UL qualified
- Conductors colour-coded for specific system
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour green RAL 6018 or orange RAL 2003 or black RAL 9005

Part-No.	Number of strands/cross-section/ strand colours	cULus	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
For Heidenhain system, black jacket					
111476	(4×0.5+4×2×0.14+(4×0.14)StC) 0.5: white, blue, brown/green, white/green 4×2×0.14: yellow/violet, green/pink, brown/green, red/black (4×0.14): green/black, blue/black, yellow/black, red/black	30 V	8.0	12.3	6.1
111478	(4×0.5+4×2×0.14) 0.5: white, blue, white/brown, white/green 0.14: yellow/violet, grey/pink, brown/green, red/black	300 V	8.0	9.0	4.9
For Indramat system, orange jacket					
110941	(2×1.0+4×2×0.25) 0.5: white, brown 0.25: brown/green, grey/pink, blue/violet, red/ black	300 V	8.3	10.0	6.3
110940	(9×0.5) Strand colour according to DIN 47100	300 V	8.8	12.5	6.0
111139	(2×0.5+10×0.14) 0.5: white, brown 0.14: white, brown, green, yellow, grey, pink, blue, red, black, violet	300 V	6.9	7.0	4.2
111495	(4×1.0+4×2×0.14+(4×0.14)) 1.0: blue, white/green, brown/green, white 0.14: grey/pink, yellow/violet, green/brown, red/black 0.14: green/black, blue/black, yellow/black, red/black	30 V	9.5	13.7	8.6
For Siemens system, green jacket					
111452	(2×2×0.18) Star quad, black, red, orange, brown	30 V	5.0	4.2	2.2
111453	(4×2×0.18) black/brown, red/orange, green/yellow, blue/ violet	30 V	6.4	7.6	3.2
111412	(8×2×0.18) black/brown, red/orange, yellow/green, blue/ violet, grey/white, white/black/white/brown, white/red/white/oran- ge, white/green/white/yellow	30 V	8.1	13.1	7.3
111454	(12×0.23) black, brown, red, orange, green, yellow, blue, violet, grey, white, white/black, white/brown	30 V	6.7	8.5	4.7
111455	(4×0.5+4×2×0.14) 0.5: white, blue, white/green, brown/green 0.14: yellow/violet; grey/pink; white/green; brown/green	300 V	8.0	9.0	4.9
111459	(2×(0.5)+3×(2×0.14)) 0.5: black, red 0.14: black/brown, red/orange, green/yellow	300 V	8.7	10.4	7.5
111456	(4×0.5+4×2×0.38) 0.5: white/blue, white/black, white/red, white/yel- low 0.38: black/brown, red/orange, green/yellow, blue/violet	300 V	9.2	13.2	8.6
111457	(2×0.5+3×(2×0.14)+4×0.23+4×0.14) 0.5: brown/blue, brown/red 0.23: green/black, green/red, brown/yellow, brown/grey (0.14) black/brown, red/orange, yellow/green 0.14: blue, grey, white/black, white/yellow	30 V	10.3	15.3	9.3
111458	(2×0.5+3×(2×0.14)+4×0.14) 0.5: brown/blue, brown/red (0.14) black/brown, red/orange, green/yellow 0.14: blue, grey, white/black, white/yellow	30 V	8.5	12.2	6.1
111499	(2×0.5+3×2×0.14) 0.5: white, brown 0.14: green/yellow, grey/pink, blue/red	300 V	10.3	11.0	6.6

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR encoder cables, c-track suitable · For highest requirements

LÜTZE SUPERFLEX® PLUS (C) PUR SERVO Feedback cables cULus



Application

- Incremental encoder cable, termination cable for tacho sensor, brake sensor, speed sensor
- Through full PUR jacket and TPE cable insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- High active and passive interference-resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolisis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Excellent coolant and lubricant resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	2000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 20265-2; IEC 60332-1; UL 1581 section 1080 VW-1; CSA FT 1
Halogen-free	according to DIN EN 50264-1, EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE conductor insulation, UL qualified
- Conductors colour-coded for specific system
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour green RAL 6018 or orange RAL 2003

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer- approx. mm	Weight kg/100 m	Cu-Index kg/100 m
For Fanuc system					
111490	(5×0.5+1×2×0.18) 0.5: green, grey, grey, pink, blue 0.14: white/brown	green	7.5	8.1	4.9
111491	(5×0.5+2×2×0.18) 0.5: green, grey, grey, pink, blue 0.14: white/brown, black/violet	green	7.8	9.3	6.3
111492	(6×0.5+3×2×0.18) 0.5: black 1-3, red 4-6 0.14: black/red, white/red, black/white	green	8.7	9.8	6.3
For NUM system					
111416	4×(2×AWG22) black/white, black/green, black/blue, black/red	green	10.3	11.0	6.6
111417	4×(2×AWG22)+2×(2×2) 0.5: black/orange, black/green 0.22: black/white, black/pink, black/ blue, black/red	green	12.5	18.0	11.9
For Berger Lahr system					
111479	(1×2×0.5+5×2×0.25) 0.5: blue, red 0.25: white/brown, green/yellow, grey/ pink, black/violet, greypink/redblue	green	8.7	14.0	5.8
For B+R system					
111437	(3×2×AWG24/19) white/brown, green/yellow, grey/pink	green	6.6	6.9	2.7
111438	(2×0.5+5×2×0.14) 0.5: blue, red 0.25: white/brown, green/yellow, grey/ pink, black/violet, greypink/redblue	orange	7.8	12.5	5.0

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR encoder cables, c-track suitable · For highest requirements

LÜTZE SUPERFLEX® PLUS (C) PUR SERVO Feedback cables



Application

- Incremental encoder cable, termination cable for tachometer, brake sensor, speed sensor
- Through full PUR jacket and TPE cable insulation optimally suited for c-tracks, extremely harsh operating conditions, aggressive coolants and lubricants
- Especially for industrial environments, machines and plants

Properties

- High active and passive interference-resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Excellent coolant and lubricant resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	2000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1,

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE conductor insulation, UL certified
- Conductors colour-coded for specific system
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour green RAL 6018 or orange RAL 2003

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
For Heidenhain System					
111092	(2×0.5+10×0.14) 0.5: white, brown 0.14: white, brown, green, yellow, grey, pink, blue, red, black, violet	orange	6.6	7.0	4.6
111093	(4×0.5+10×0.14) 0.5: white, brown, green, yellow 0.14: white, brown, green, yellow, grey, pink, blue, red, black, violet	orange	7.6	8.5	5.6
111094	(2×(0.5)+3×(2×0.14)) 0.5: white, brown 0.14: green/yellow, grey/pink, blue/red	orange	8.4	10.0	5.7
111100	(4×0.5+4×2×0.14) 0.5: white, blue, whitegreen, brown- green 0.14: yellow/violet, brown/green, black/ red, grey/pink	orange	8.0	9.3	4.9
111101	(2×1.0+3×(2×0.14)) 0.5: white, brown 0.14: green/yellow, grey/pink blue/red	orange	8.0	9.2	5.8

CE These products are in conformity to the EC Low Voltage Directive 73/23/EWG or 93/68/EWG respectively

PUR servo cables · halogen-free

LÜTZE-SILFLEX® M (C) PUR motor cables 0.6/1 kV With or without shielded control pair



Application

- Motor supply cable in machine and device construction, transport and conveyor technology, heating, climate technology
- Especially for industrial environments with high interference potential, in machine, plant and device construction
- Cables with integrated, shielded measurement circuit cable for motor protector devices
- For flexible application without compulsory guide

Properties

- High active and passive interference resistance
- Low capacitance, very good electrical properties
- Very good cold flexibility
- Halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	0.6/1 kV
Test voltage	4000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 Kl. 5 or IEC 60228 cl. 5
- Special thermoplastic conductor insulation
- Conductor marking: Power conductors black with number print U/L1/C/L+; V/L2; W/L3/D/L-
- Ground conductor greenyellow according to DIN EN 50334 G = with greenyellow ground conductor; × = without ground conductor
- Control pair(s) (black; white) or (5,6) (7,8) control pair(s) with braided shield and foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour orange RAL 2003

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
without control pair				
111720	(4G1.5)	9.8	13.8	9.0
111721	(4G2.5)	11.3	20.3	13.3
111722	(4G4)	13.4	29.3	21.2
111723	(4G6)	14.9	39.5	29.7
111724	(4G10)	18.8	65.1	46.7
111725	(4G16)	21.5	93.8	71.4
with control pair				
108515	(4G1.5+(2×1.5))	12.5	24.6	15.3
108516	(4G2.5+(2×1.5))	14.1	32.4	20.8
108517	(4G4+(2×1.5))	15.8	41.5	27.4
108518	(4G6+(2×1.5))	16.7	52.7	35.9
108519	(4G10+(2×1.5))	19.1	75.4	52.1
108520	(4G16+(2×1.5))	21.0	102.7	75.9
108521	(4G25+(2×1.5))	28.5	156.0	115.4
108522	(4G35+(2×1.5))	31.8	201.7	155.5
with two control pairs				
108524	(4G1.5+2×(2×0.75)StC)	14.5	32.5	19.4
108525	(4G2.5+2×(2×0.75)StC)	15.6	38.7	23.3
108526	(4G4+2×(2×1.0)StC)	17.3	49.6	30.9
108527	(4G6+2×(2×1.0)StC)	18.4	60.1	39.4
108528	(4G10+2×(2×1.0)StC)	22.5	86.0	56.4
108529	(4G16+2×(2×1.5)StC)	23.4	114.4	82.2
108530	(4G25+2×(2×1.5)StC)	26.5	160.0	118.4
108531	(4G35+2×(2×1.5)StC)	34.1	208.5	159.3

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC servo cables

LÜTZE-SILFLEX® M (C)Y PVC motor cables 0.6/1 kV With or without shielded control pair(s)



Application

- Motor supply cable in machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- Cables with integrated, shielded measurement circuit cable for motor protector devices
- For flexible application without compulsory guide

Properties

- High active and passive interference resistance (EMC)
- PVC Flame-retardant, self-extinguishing
- Outer jacket special PVC TM5 according to HD 21.1
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	0.6/1 kV
Test voltage	4000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-25 °C to +70 °C
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 Kl. 5 or IEC 60228 cl. 5
- Special PVC conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor greenyellow according to DIN EN 50334
G = with greenyellow ground conductor; × = without ground conductor
- Control pair(s) (black; white) or (5,6) (7,8)
control pair(s) with braided shield and foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM5 according to HD21.1, matt, adhesion-free surface
- Jacket colour orange RAL 2003 or grey RAL 7001

Part-No.	Number of strands/cross-section	Jacket colour	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
without control pair, without inside jacket					
116260	(4G1.5)	orange	9.8	26.3	10.1
116261	(4G2.5)	orange	11.3	42.3	16.8
116262	(4G4)	orange	13.4	58.9	24.4
116263	(4G6)	orange	14.9	73.5	32.7
116264	(4G10)	orange	18.8	115.6	50.6
116265	(4G16)	orange	21.5	163.2	75.4
116266	(4G25)	orange	26.0	216.1	111.9
with control pair, with inside jacket					
116194	(4G1.5)	grey	9.6	26.3	10.1
116195	(4G2.5)	grey	13.8	42.3	16.8
116196	(4G4)	grey	15.3	58.9	24.4
116198	(4G10)	grey	21.4	115.6	50.6
with control pair, without inside jacket					
101399	(4G1.5+(2×1.5))	orange	12.5	24.6	15.3
108299	(4G2.5+(2×1.5))	orange	14.1	32.4	20.8
108500	(4G4+(2×1.5))	orange	15.8	41.5	27.4
108300	(4G6+(2×1.5))	orange	16.7	52.7	35.9
108501	(4G10+(2×1.5))	orange	19.1	75.4	52.0
108502	(4G16+(2×1.5))	orange	21.0	102.7	75.9
108503	(4G25+(2×1.5))	orange	28.5	156.0	115.4
108504	(4G3+(2×1.5))	orange	31.8	201.7	155.5
with two control pairs, without inside jacket					
101667	(4G1.5+2×(2×0.75)StC)	orange	14.5	32.5	19.4
108506	(4G2.5+2×(2×0.75)StC)	orange	15.6	38.7	23.3
108507	(4G4+2×(2×1.0)StC)	orange	17.3	49.6	30.9
108508	(4G6+2×(2×1.0)StC)	orange	18.4	60.1	39.4
108509	(4G10+2×(2×1.0)StC)	orange	22.5	86.0	56.4
108510	(4G16+2×(2×1.5)StC)	orange	23.4	114.4	82.2
108511	(4G25+2×(2×1.5)StC)	orange	26.5	160.0	118.4
108512	(4G35+2×(2×1.5)StC)	orange	34.1	208.5	159.3

CE These products are in conformity with the EC Low Voltage Directive 73/23/EWG or 93/68/EWG
LÜTZE-SILFLEX® is a registered trademark in the USA

PVC encoder cables · shielded

LÜTZE-SILFLEX® (C) Y SERVO Encoder cables



Application

- Incremental encoder cable, termination cable for tacho sensor, brake sensor, speed sensor
- In dry and moist rooms
- For flexible application without compulsory guide

Properties

- High active and passive interference resistance (EMC)
- PVC Flame-retardant, self-extinguishing
- Outer jacket special-PVC TM2 according to HD 21.1
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	2000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-25 °C to +70 °C
Burning behaviour	Flame-retardant according to VDE 0482 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper braid, fine stranded according to DIN VDE 0295 cl. 6 and IEC 60228 cl. 5
- Special TPVC conductor insulation
- Colour coded wires
- Ground conductor greenyellow according to DIN EN 50334
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour orange RAL 2003 or grey RAL 7001 or green RAL 6018

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer- approx. mm	Weight kg/100 m	Cu-Index kg/100 m
For Heidenhain system					
110138	(2×0.5+10×0.14) 0.5: white, brown 0.14: white, brown, green, yellow, grey, pink, blue, red, black, violet	grey	7.9	9.3	5.6
118035	(4×0.5+10×0.14) 0.5: white, brown, red, blue 0.14: white, brown, green, yellow, grey, pink, blue, red, black, violet	grey	9.0	12.0	6.5
110652	(2×(0.5)+3×(2×0.14)) 0.5: white, brown 0.14: green/yellow, grey/pink, blue/red	grey	8.0	10.2	6.1
118685		grey	9.4	9.9	5.5
For Indramat System					
108540	(2×0.5+4×2×0.25) 0.5: white, brown 0.25: brown/green, grey/pink, blue/violet, red/black	orange	8.6	10.0	5.6
For Siemens system					
111041	(2×0.5+3×(2×0.14)) 0.5: brownblue, brownred 0.14: black/brown, red/orange, yellow/ green	grey	8.2	8.0	6.1
108543	(2×0.5+3×(2×0.14)+4×0.14) 0.5: brownblue, brownred (0.14): black/brown, red/orange, yellow/green 0.14: blue, grey, whiteblack, whiteyellow	green	8.8	12.2	6.1
108544	(4×0.5+4×2×0.38) 0.5: whiteblue, whiteblack, whitered, whiteyellow 0.38: black/brown, red/orange, green/yellow, blue/violet	green	9.0	14.4	7.3
108545	(2×0.5+3×(2×0.14)+4×0.14+4×0.23) 0.5: brownblue, brownred 0.23: greenblack, greenred, brownyellow, browngrey (0.14): black/brown, red/orange, yellow/green 0.14: blue, grey, whiteblack, whiteyellow	green	10.5	15.7	8.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

4. BUS and network cables



PUR BUS conductors · c-track compatible

LÜTZE SUPERFLEX® BUS (C) PUR Profibus



Application

- For the cabling of industrial field bus systems like PROFIBUS DP, SINEC L2, F.I.P.
- For continuous flexible use e.g. in c-tracks or free movement in automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	150 Ω ± 15 %
Loop resistance	<155 Ω/km
Operating capacitance	< 30 pF/m
Voltage	
Signal	250 V
Supply	300 V
Test voltage	
Signal	1500 V
Supply	3000 V
Temperature range	
moving	-20 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 7.5
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL approval 60 °C 30 V (see UL article designation)
Note	Instructions for laying of c-track lines in Chapter 2 of catalogue TK1.

Design

- Bare copper wire
- Braid according to AWG
 Braid AWG 24/19 = 0.64 mm Ø
- Conductor insulation special polyolefin
- Stranding with filler
- ST static shield
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Special PUR, matt, adhesion-free surface
- Jacket colour violet, RAL 4001

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
104215	(1×2×0.64/AWG24/19)StC red, green	8.0	6.7	2.0
104265	(1×2×0.64/AWG24/19)StC UL red, green	8.0	5.5	2.3
104275	(1×2×0.64/AWG24/19+3×0.75)StC UL red, green blue, black greenyellow	9.8	14.4	6.6
With inside jacket, easy stripping				
104287	(1×2×0.64/AWG24/19)StC FC UL red, green	8.0	8.5	2.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Bus cables for Profibus

LÜTZE ELECTRONIC BUS (C) Profibus



Application

- For the cabling of industrial field bus systems like PROFIBUS DP, SINEC L2, F.I.P.
- With solid conductor AWG22/1 for hard wiring or with stranded conductor for moving use without compulsory guide in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	150 Ω ± 15 %
Loop resistance	
Braid AWG 22/7= 0.34 ²	<110 Ω/km
Wire AWG 22/1= 0.34 ²	<110 Ω/km
Braid AWG 24/19= 0.24 ²	<155 Ω/km
Operating capacitance	< 30 pF/m
Voltage	
Signal	250 V
Supply	300 V
Test voltage	
Signal	1500 V
Supply	3000 V
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Approvals	UL approval 60 °C 30 V (see UL article designation)

Design

- Bare copper wire
- Braid according to AWG or DIN, solid wire according to DIN
- Braid AWG22/7 0.34 mm² = 0.75 mm Ø
- Wire AWG22/1 0.34 mm² = 0.64 mm Ø
- Braid AWG24/19 0.24 mm² = 0.64 mm Ø
- Conductor insulation special polyolefin
- Stranding with filler
- ST static shield
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special thermoplastic, matt, adhesion-free surface
- PUR for industrial environment, halogen-free
- HM = halogen-free, flame-retardant, low smoke
- PE for food areas, halogen-free
- Mod-PE can be laid in earth
- Jacket colour violet RAL 4001 or black RAL 9005

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
104214	(1×2×0.64/AWG22/7)StC red, green	PVC violet	7.9	5.3	2.5
104292	(1×2×0.64/AWG22/1)StC red, green	PVC violet	8.1	7.4	2.3
104264	(1×2×0.64/AWG24/19)StC UL red, green	PVC violet	7.9	5.3	2.5
104224	(1×2×0.64/AWG22/7+3×0.75)StC red, green blue, black greenyellow	PVC violet	10.7	14.4	5.7
104290	(1×2×0.64/AWG22/1)StC red, green	PE black	8.0	5.3	2.5
With inside jacket, machinable peel off					
104267	(1×2×0.64/AWG22/1)StC FC red, green	HM violet	8.0	8.8	3.5
104251	(1×2×0.64/AWG22/1)StC FC red, green	PUR violet	8.0	8.8	3.5
104284	(1×2×0.64/AWG22/1)StC FC red, green	Mod-PE black	10.0	12.6	3.5
104291	(1×2×0.64/AWG22/1)StC FC red, green	PE black	8.0	8.8	3.5
104293	(1×2×0.64/AWG22/1)StC FC UL red, green	PVC violet	8.1	9.1	1.9

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR BUS conductors · c-track compatible

LÜTZE SUPERFLEX® BUS (C)PUR CAN-BUS, INTERBUS



Application

- For wiring of industrial field bus systems such as CAN-BUS and INTERBUS-S
- For continuous flexible use e.g. in c-tracks or free movement in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 or 120 Ω
Loop resistance	
Braid AWG 24/19= 0.24 ²	<155 Ω/km
Braid DIN 0.25 ²	<145 Ω/km
Braid DIN 1.0 ²	<41 Ω/km
Operating capacitance	< 60 pF/m
Voltage	
Signal	300 V
Supply	300 V
Test voltage	
Signal	3000 V
Supply	3000 V
Temperature range	
moving	-20 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL approval 80°C 300 V (see UL article designation)
Note	Instructions for laying of c-track lines in Chapter 2 of catalogue TK1.

Design

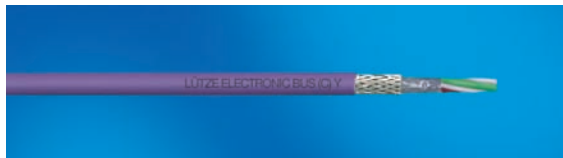
- Bare copper wire
- Wire according to AWG or DIN
- Conductor insulation special polyolefin
- Conductors stranded pairs, foil banding
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface
- Jacket colour violet RAL 4001

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS Impedance 120 Ω				
104202	(1×2×0.25) white/brown	6.1	3.2	2.1
104220	(2×2×0.25/AWG24/19) Star quad Transmission pair: white-brown; green-yellow	6.0	6.7	2.7
104210	(1×2×0.25+3G1.0) BUS: white, brown Supply: red, blue, greenyellow	7.5	11.0	5.1
104252	(1×2×0.25/AWG24/19) UL white/brown	6.1	3.2	2.1
104270	(2×2×0.25/AWG24/19) UL Star quad Transmission pair: white-brown; green-yellow	6.0	5.8	2.4
INTERBUS impedance 100 Ω				
104208	(3×2×0.25) white/brown; green/yellow; grey/pink	7.7	6.0	3.3
104211	(1×2×1.0) Jacket colour black with white numbers Connector black with white numbers	6.8	8.8	3.0
104258	(3×2×0.25/AWG24/19) UL white/brown; green/yellow; grey/pink	7.8	6.0	3.3
104259	(3×2×0.25/AWG24/19+3G1.0) UL white/brown; green/yellow; grey/pink; blue, red, greenyellow	8.3	13.9	8.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC BUS conductors

LÜTZE ELECTRONIC BUS (C) Y CAN-BUS, INTERBUS



CANopen



Application

- For wiring of industrial field bus systems such as CAN-BUS and INTERBUS-S
- For hard wiring or moving use without compulsory guide in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 or 120 Ω
Loop resistance	
Braid AWG 24/7= 0.22 ²	<165 Ω /km
Braid 0.34 ²	<110 Ω /km
Operating capacitance	< 60 pF/m
Rated voltage	300 V
Test voltage	1500 V
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	
moving	Cable diameter $\times$ 12
fixed	Cable diameter $\times$ 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1

Design

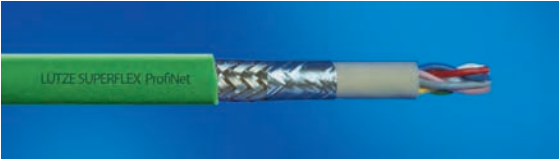
- Bare copper wire
- Wire according to AWG or DIN
- Conductor insulation special polyolefin
- Conductors stranded pairs, foil banding
- Galvanised copper wire braid, optical coverage $\geq$ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour violet RAL 4001

Part-No.	Number of strands/cross-section/ strand colours	Outer- $\varnothing$ approx. mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS				
Impedance 120 Ω				
104205	(1 $\times$ 2 $\times$ 0.22/AWG24/7) white/brown	4.7	5.3	2.5
104206	(2 $\times$ 2 $\times$ 0.22/AWG24/7) white/brown, green/yellow	7.0	4.3	2.4
104238	(2 $\times$ 2 $\times$ 0.34) white/brown; green/yellow	10.5	11.8	4.7
INTERBUS				
impedance 100 Ω				
104207	(3 $\times$ 2 $\times$ 0.22/AWG24/7) white/brown, green/yellow, grey/pink	7.5	5.5	3.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

BUS conductors · c-track compatible

LÜTZE SUPERFLEX® ETHERNET BUS (C) PUR



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- Applicable in automation technology, transport and conveyor technology, machine tool manufacture
- For continuous flexible application e.g. in c-tracks or free movement

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 Ω ± 10 % (1–100 MHz)
Loop resistance	
Braid AWG 23/19= 0.30 ²	<130 Ω/km
Braid AWG 24/19= 0.24 ²	<155 Ω/km
Braid AWG 26/19= 0.14 ²	<280 Ω/km
Braid AWG 22/7= 0.34 ²	<110 Ω/km
Operating capacitance	< 50 pF/m
Rated voltage	250 V
Test voltage	1500 V
Temperature range	
moving	-25 °C to +70 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL approval 30 V 80°C (see article designation UL)
Note	Instructions for laying of c-track lines in Chapter 2 of catalogue TK1.

Design

- Bare copper wire
- Braid according to AWG
- Conductor insulation special polyolefin
- ST static shield
- Halogen-free inside jacket
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface
- Jacket colour violet RAL 4001; green RAL 6018; black RAL 9005

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
SUPERFLEX Fast Ethernet / ProfiNet					
104304	(2×2×AWG23/19)StC Cat5 UL Star quad; ProfiNet Transmission pair white/blue; yellow/ orange	PUR green	6.6	7.5	3.7
104246	(4×2×AWG24/19) Cat5 UL white/brown, green/yellow, grey/pink, blue/red	PUR violet	9.6	12.5	5.7
104245	(2×2×AWG24/19) Cat5 UL Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	3.7
104242	(4×2×AWG24/19) Cat5 white/brown; green/yellow; grey/pink; blue/red	PUR violet	9.6	12.5	5.7
104241	(2×2×AWG24/19) Cat5 Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	3.7
104303	(2×2×AWG22/7)StC Cat5 UL Star quad; ProfiNet Transmission pair white/blue; yellow/ orange	PUR green	6.5	6.1	3.1
104326	(4×2×AWG26/19) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	6.3	5.2	3.0
104337	(4×2×AWG24/19) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	7.8	6.8	5.5
For Siemens Drive-Clq® system					
104310	(2×2×AWG26+2×AWG22)	PUR green	6.8	7.3	3.4
104328	(2×2×AWG24+2×AWG22)	PUR black	6.8	7.3	3.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

BUS cables

LÜTZE ELECTRONIC ETHERNET BUS (C) PUR LÜTZE ELECTRONIC ETHERNET BUS (C) PVC



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- Applicable in automation technology, transport and conveyor technology, machine tool manufacture
- For continuous flexible application e.g. in c-tracks or free movement

Properties

- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 Ω ± 10 % (1–100 MHz)
Loop resistance	
Wire AWG 22/1= 0.34 ²	<110 Ω/km
Braid AWG 24/7= 0.22 ²	<165 Ω/km
Braid AWG 26/7=0.14 ²	<273 Ω/km
Operating capacitance	< 50 pF/m
Rated voltage	250 V
Test voltage	1500 V
Temperature range	
moving	-5 °C to +70 °C
run	-30 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL approval 30 V 80°C (see article designation UL)

Design

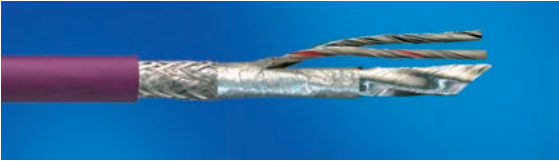
- Bare copper wire
- Braid according to AWG
- Conductor insulation special polyolefin
- ST static shield
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface or PVC
- Jacket colour violet RAL 4001; green RAL 6018

Part-No.	Number of strands/cross-section/ strand colours	Jacket colour	Outer- approx. mm	Weight kg/100 m	Cu-Index kg/100 m
ELECTRONIC Fast Ethernet / ProfiNet					
104247	(2×2×0.22/AWG24/7) Cat5 UL Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	2.5
104243	(2×2×0.22/AWG24/7) Cat5 Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	2.5
104301	(2×2×0.64/AWG22/1) StC Cat5 UL Star quad, FC, ProfiNet type A Transmission pair white/blue, yellow/ orange	PVC green	6.5	6.5	3.7
104307	(2×2×0.34/AWG22/7) StC Cat5 UL Star quad, FC, ProfiNet type B Transmission pair white/blue, yellow/ orange	PVC green	6.5	6.5	3.1
104327	(4x2xAWG26/7 StC) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	6.3	5.0	3.0
104335	(4x2xAWG26/7 StC) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	6.3	5.4	3.0
104336	(4x2xAWG24/7 StC) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	7.6	6.7	5.5
104338	(4x(2xAWG26/7)StC) Cat6 whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	6.4	5,3	3.3
104339	(4x(2xAWG26/7)StC) Cat7 whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	7.0	6.1	3.3
For Siemens Drive-Clq[®] system					
104313	(2×2×AWG26+2×AWG22)	PVC green	6.8	7.3	3.4
104311	(2×2×AWG26+2×AWG22)	PUR green	6.8	7.3	3.4

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR BUS conductors · c-track compatible

LÜTZE SUPERFLEX® DeviceNet™ (C) PUR



Application

- For the wiring of industrial devices, sensors, control devices (SPS), valves
- DeviceNet™ is the leading BUS system for industry automation in the USA
- For continuous flexible application e.g. in c-tracks or free movement in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- 2-pair cable: The pair with the smaller cross section serves for the data transmission, the pair with the larger cross section is for the power supply
- High active and passive interference resistance through double shielding (StC)
- Free from silicon paint wetting disruptive substances (LABS-free)
- RoHS-compliant

Technical data

Impedance	120 Ω ± 10 %
Operating capacitance	< 40 pF/m
Rated voltage	300 V
Test voltage	3000 V
Temperature range	
moving	-20 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL approvals 300 V 80°C
Note	Instructions for laying of c-track lines in Chapter 2 of catalogue TK1.

Design

- Bare copper wire
- Conductor insulation special polyolefin
- BUS element statically shielded
- Overall shield:
 - static shield (foil)
 - braid from galvanised Cu wire, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface
- Jacket colour violet RAL 4001

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
104279	((2×2)+(2×2))StC-Thick 0.75: blue, white 1.5: red, black	11.9	21.5	7.1
104289	((2×2)+(2×2))StC-Thin 0.22: blue, white 0.34: red, black	6.8	8.5	2.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

BUS cables

LÜTZE ELECTRONIC ASI BUS



Application

- System cables for connection of actuator interface components
- Application in the automation technology, in tool and machine construction, plants and device construction, transport and conveyor technology

Properties

- Inverse-polarity-proof flat cable
- Fast contacting through penetration technology
- In the TPE design especially suitable in areas in which oils, greases and cooling lubricants occur
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	2000 V
Temperature range	
EPDM moving	-30 °C to +85 °C
EPDM fixed	-40 °C to +85 °C
PUR moving	-30 °C to +80 °C
PUR fixed	-40 °C to +80 °C
TPE moving	-5 °C to +70 °C
TPE fixed	-30 °C to +70 °C
Loop resistance	27,4 mΩ/m
Cu-Index	2.9 kg/100 m
Weight	6.8 kg/100 m

Design

- Bare copper wire 1.5 mm²
- Wire according to VDE 0295 class 5
- Conductor insulation coloured, brown and blue
- Moulded outer jacket
- Jacket colour black: for auxiliary power 30 V_{DC}
yellow: data and energy transmission

Part-No.	Number of strands/cross-section	Insulation	Jacket material	Jacket colour
1.5 mm²				
104203	2 × 1.5	EPDM	PUR	yellow
104204	2 × 1.5	EPDM	PUR	black
104216	2 × 1.5	PVC	TPE	yellow
104217	2 × 1.5	PVC	TPE	black
104219	2 × 1.5	EPDM	EPDM	yellow
104218	2 × 1.5	EPDM	EPDM	black

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Bus cables and Industrial Ethernet

Bus cables

Since the mid-1980s, bus systems have been an important fixture of industrial automation systems. A basic distinction can be made among the following automation fields:

- **Factory automation:** the use of field buses such as PROFIBUS, INTERBUS, DeviceNet, CAN, Ethernet, etc.
- **Process automation:** control of processes in the chemical and petrochemical industries, including: Profibus PA, AS-i Bus, Ethernet
- **Building automation:** building management, including: EIB, Ethernet

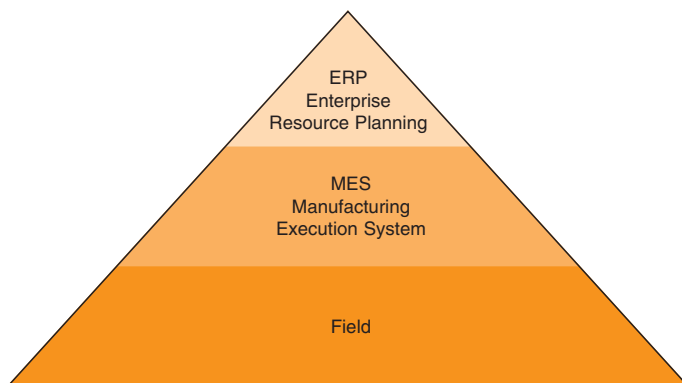
Passive components also play an important role

Besides the hardware and software components, passive components such as the bus cables and connectors play a great role in functional reliability. Bus cables must satisfy the requirements of the respective systems with respect to all electro-technical parameters. For this reason there is no universally usable bus cable - the industrial requirements are too varied. Lütze offers the systems most commonly used worldwide for fixed laying (indoors and outdoors), as well as for flexible applications. The material selected must be able to cope with the mechanical and chemical stresses in the industrial environment, and the cables must be of sufficiently rugged construction. Electromagnetic compatibility (EMC) requirements are also becoming more and more important. Environmental protection aspects must likewise be taken into account.

Seamless flow of information

A fully-integrated communication structure between the production systems/attachments and the administrative office sphere creates a seamless flow of integration all the way from the actuator/sensor level to the company's executive management.

Because the conditions in the industrial environment differ significantly from those in office spaces, terminal equipment such as switches, firewalls and hubs have to adapt for the often harsh environmental conditions. This includes, among other things, being able to snap the equipment onto a 35mm top hat rail, a 24 V power supply, higher IP protection ratings, the operating temperatures and increased resistance to various oils.



Seamless flow of information through vertical integration

Industrial Ethernet

Most commonly used communication technology

The most commonly used communication technology is Ethernet. It uses a wide variety of transmission media such as copper, glass or polymer fibres, or wireless. Unlike Ethernet, the various field bus systems operate using different physical transmission types, and thus no special infrastructure components are needed for the individual system. In many cases this means they are tied to a particular technology. Connection to the higher-level Ethernet is provided via gateways (translators).

With the Ethernet standard it is possible to increase the bandwidth significantly, from 12 Mbit/s with bus systems to up to 10 Gbit/s with Ethernet. Furthermore, the Ethernet protocol is open and allows vertical integration. A wide range of systems can be integrated into the Ethernet technology. For this reason, interest in integrating the Ethernet standard into production processes is increasing more and more.

Rugged infrastructure in industry

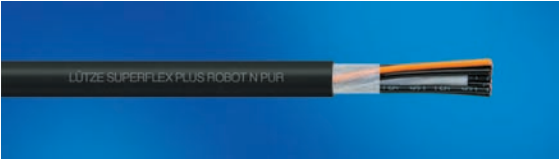
Ethernet has already established itself as a standard technology in the office sphere, but conditions in the industrial environment are significantly different from those in the office spaces. Firstly, a more rugged infrastructure is required, and secondly criteria such as real-time capability require special IT solutions. As a result, various suppliers have developed different systems (for example ProfiNet, EtherCAT, Modbus/TCP and PowerLink), which are not always compatible with each other. In contrast, Ethernet-compatible cabling according to EN 50173-3 supports any proprietary Ethernet system.

5. Robotic cables



PUR Robot cables · For highest requirements

LÜTZE SUPERFLEX® PLUS ROBOT N PUR LÜTZE SUPERFLEX® PLUS ROBOT N (D) PUR SERVO



Application

- Industrial robots, machine and device construction, transport and conveyor technology, assembly and welding robots
- Through full PUR jacket and TPE conductor insulation optimally suited, extremely harsh operating conditions, aggressive coolants and lubricants
- Anywhere where a torsional strain is present

Properties

- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone, UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	600 V 80 °C
Voltage	
U ₀ /U	300/500 V
Test voltage	6000
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
run	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 7
Torsion area	max. ± 360° / m
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VV-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1, EN 50267-2-1 ad EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 5/6, IEC 60228 class 5/6
- Special TPE conductor insulation, UL qualified
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Optional twisted shield of tin-plated Cu wires, visual coverage ≥ 98%
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour black RAL 9005

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC



Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
Control cable LÜTZE SUPERFLEX® PLUS ROBOT N PUR				
112955	3G1.0	7.2	5.9	3.2
112916	4G1.0	7.7	9.5	4.3
112950	7G1.0	9.6	12.9	7.5
112917	12G1.0	11.2	22.9	12.8
112918	18G1.0	13.0	36.0	19.2
112919	25G1.0	15.6	42.0	26.7
112954	34G1.0	17.8	59.6	36.2
112957	18G1.5	15.0	39.8	28.8
112958	25G1.5	17.8	53.0	40.0
112959	4G2.5	10.0	15.4	10.7
Power cable LÜTZE SUPERFLEX® PLUS ROBOT N PUR				
112906	1×35	12.7	38.0	34.6
112911	3G16	19.0	89.0	52.1
112912	3G25	22.5	115.0	80.0
112913	3G35	26.5	155.0	114.4
112914	2G25+1×16	21.0	98.0	71.3
Servo cable LÜTZE SUPERFLEX® PLUS ROBOT N (D) PUR				
112900	(4G1.5+2×(2×0.5))	12.4	27.0	13.0
112915	(4G1.5+(2×1.0))	12.0	20.5	12.8
112901	(4G2.5+2×(2×0.5))	12.8	31.5	18.9

PUR Robot cables · For highest requirements

LÜTZE SUPERFLEX® PLUS ROBOT (D) PUR BUS cables, servo encoder cables



Application

- Industrial robots, machine and device construction, transport and conveyor technology
- With stranded wire for moving use in automation technology, transport and conveyor technology, tool and machine construction
- Anywhere where a torsional strain is present

Properties

- High active and passive interference resistance
- Flame-retardant, self-extinguishing
- halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	BUS cables 30 V 80 °C Encoder cables 300 V 80 °C
Voltage	
BUS	250 V
Encoder	300 V
Test voltage	
BUS	1500 V
Encoder	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-20 °C to +80 °C
run	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 7
Torsion area	max. ± 360° / m
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1, EN 50267-2-1 and EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295
- Special polyolefines, UL approved
- Colour coded wires
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over stranded cable
- Twisted shield of tin-plated Cu wires, visual coverage ≥ 98%
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour Bus cables violet RAL 4001
Servo cables black RAL 9005

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
LÜTZE SUPERFLEX® PLUS ROBOT N (D) PUR - BUS				
Profibus – characteristic impedance 150 Ω ± 15 %				
104323	(1×2×0.64/AWG24)StD	8.2	7.5	2.5
DeviceNet – characteristic impedance 120 Ω ± 10 %				
104324	(1×2×AWG24+1×2×AWG22)StD	9.8	8.6	3.8
LÜTZE SUPERFLEX® PLUS ROBOT (D) PUR – SERVO/encoder				
112921	(4×2×0.14)	6.6	4.9	2.2
112922	(12×0.25)	7.3	7.2	4.2
112920	(14×0.5)	8.9	15.5	8.9
112904	(2×0.5+4×2×0.25)	7.4	9.0	4.6

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

6. Actuator sensor cables



PUR actor-sensor cables · c-track suitable

LÜTZE SUPERFLEX® TRONIC AS PUR LÜTZE SUPERFLEX® ASB PUR KOMBI



Application

- Machine and device construction, transport and conveyor technology
- Actor, sensor technology
- Combination cable SUPERFLEX® ASB for actuator box, schleppfähig
- Through full PUR jacket, optimally suited for c-tracks, extremely harsh operating conditions and aggressive coolants and lubricants

Properties

- Flame-retardant, self-extinguishing
- Very good alternating bending strength
- Good pressure and roll-over resistance
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from silicone paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

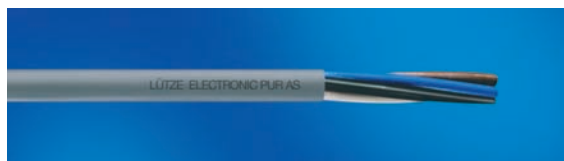
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special-TPE conductor insulation
- Conductors colour-coded
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001 and black RAL 9005

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
LÜTZE-SUPERFLEX-TRONIC PUR AS jacket grey				
117304	3×0.34 brown, blue, black	4.3	4.0	1.0
117305	4×0.34 brown, blue, black, white	4.5	4.8	1.3
117306	5×0.34 brown, blue, black, white, greenyellow	4.9	6.2	1.6
117307	3×0.5 brown, blue, greenyellow	4.7	5.5	1.5
LÜTZE-SUPERFLEX® ASB PUR black jacket				
110870	3G1.0+4×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey	7.5	8.5	4.2
110871	3G1.0+6×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, violet, red	7.8	9.1	4.9
110872	3G1.0+8×0.34 1.0: brown, blue, greenyellow 0.34: white, black, green, yellow, grey, pink, violet, red	8.2	9.9	5.5
110873	3G1.0+12×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, violet, red, greypink, redblue, white-green, browngreen, white yellow, yellowbrown	8.8	11.3	6.8
110874	3G1.0+16×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, red, black, violet, greypink, redblue, whitegreen, browngreen, whiteyellow, yellowbrown, whitegrey, greybrown	9.7	13.5	8.1
110875	5G1.0 + 4×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey	9.1	10.8	4.9
110876	5G1. + 6×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, red	9.4	15.5	5.6
110877	5G1.0+ 8×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, red, black, violet	9.8	18.2	6.2
110878	5G1.0 + 12×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, violet, red, greypink, redblue, white-green, browngreen, white yellow, yellowbrown	10.5	25.5	7.5
110879	5G1.0 + 16×0.34 1.0: brown, blue, greenyellow 0.34: white, green, yellow, grey, pink, red, black, violet, greypink, redblue, whitegreen, browngreen, whiteyellow, yellowbrown, whitegreen, greybrown	12.4	31.8	8.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR actor-sensor cables

LÜTZE ELECTRONIC PUR AS



Application

- Machine and device construction, transport and conveyor technology
- Actor, sensor technology

Properties

- Flame-retardant, self-extinguishing
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from silicone paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	
up to 0.34 mm ²	1200 V
after 0.5 mm ²	2000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +80 °C
fixed	-25 °C to +80 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special thermoplastic conductor insulation
- Conductors colour-coded
- Full polyurethane jacket, matt, adhesion-free surface

Part-No.	Number of strands/cross-section/ strand colours	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
Lütze Electronic PUR AS grey jacket				
111053	3×0.34 brown, blue, black	5.0	3.6	1.0
110190	4×0.34 white, brown, blue, black	5.0	4.4	1.3
110617	3×0.5 brown, blue, black	5.4	4.2	1.5
101278	3×0.75 brown, blue, black	5.9	5.2	2.2
Lütze Electronic PUR AS, black jacket				
118442	2×0.25 brown, blue	3.9	1.7	0.5
118004	3×0.25 brown, blue, black	4.0	2.0	0.8
118636	4×0.25 white, brown, blue, black	4.3	2.8	1.0
118005	5×0.25 white, brown, black, white, grey	4.5	2.8	1.3
110624	2×0.34 brown, blue	4.9	3.4	0.7
118049	3×0.34 brown, blue, black	4.9	3.6	1.0
118006	4×0.34 white, brown, blue, black	4.5	2.8	1.4
118007	5×0.34 white, brown, blue, black, greenyellow	4.9	3.3	1.7
118070	2×0.5 brown, blue	4.3	2.6	1.0
110621	3×0.5 brown, blue, black	4.5	3.1	1.5
118008	4×0.5 white, brown, blue, black	5.0	3.8	2.0
118014	5×0.5 white, brown, blue, black, greenyellow	5.4	4.4	2.5
Lütze Electronic PUR AS shielded, black jacket				
118009	(2×0.34) brown, blue	4.5	2.7	1.5
118160	(3×0.34) brown, blue, black	4.7	3.2	2.0
118010	(4×0.34) white, brown, blue, black	5.0	3.8	2.4
118011	(5×0.34) white, brown, black, white, grey	5.4	4.4	2.8
118012	(5×0.34) white, brown, blue, black, greenyellow	5.4	4.4	2.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

7. Control cables



PUR control cables · unshielded

LÜTZE-SILFLEX® N PUR



Application

- Machine and device construction, transport and conveyor technology
- For flexible application with free movement
- Especially for industrial environments, machines and plants
- In rooms with high concentrations of people or material assets

Properties

- Low capacitance, very good electrical properties
- Very good cold flexibility
- halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from silicone paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Halogen-free according to DIN EN 20264-1; EN 50267-2-1, EN 60684-2

Design

- Bare copper braid, fine stranded according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special Thermoplast conductor insulation (21Y)
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
110437	2×0.5	4.5	2.6	1.0
110196	3G0.5	4.7	3.2	1.5
110457	4G0.5	5.1	4.0	1.9
110372	5G0.5	5.9	5.2	2.4
111016	7G0.5	6.4	6.6	3.4
111707	12G0.5	8.7	11.8	5.8
110644	18G0.5	10.4	17.2	8.6
110459	25G0.5	12.1	23.6	12.0
0.75 mm²				
110168	2×0.75	5.0	3.3	1.4
110197	3G0.75	5.3	4.2	2.2
110169	4G0.75	5.8	5.5	2.9
110991	5G0.75	6.4	6.7	3.6
110424	7G0.75	7.2	8.9	5.0
110506	12G0.75	9.5	15.4	8.6
110992	18G0.75	11.6	23.0	13.0
110526	25G0.75	13.5	31.6	18.0
1.0 mm²				
110443	2×1.0	5.2	3.9	2.0
110182	3G1.0	5.8	5.3	2.9
110418	4G1.0	6.3	6.6	3.8
110184	5G1.0	6.8	8.1	4.8
110185	7G1.0	7.7	10.8	6.7
110188	12G1.0	10.3	19.0	11.5
110189	18G1.0	12.3	27.9	17.3
110191	25G1.0	14.5	38.7	24.0
1.5 mm²				
110250	2×1.5	5.9	5.5	2.9
110177	3G1.5	6.4	7.1	4.3
110186	4G1.5	7.1	9.3	5.8
110178	5G1.5	7.8	11.4	7.2
110179	7G1.5	8.7	15.1	10.1
110180	12G1.5	11.7	26.6	17.3
110181	18G1.5	14.0	39.0	25.9
110183	25G1.5	16.4	53.9	36.0
2.5 mm²				
111102	3G2.5	7.8	11.4	7.2
110192	4G2.5	8.7	14.7	9.6
110193	5G2.5	9.6	18.1	12.0
110194	7G2.5	10.7	24.1	16.8
110975	12G2.5	14.6	42.8	28.8
4 – 6 mm²				
110195	4G4	10.5	22.4	15.4
110450	4G6	12.4	32.4	23.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR control cables - shielded

LÜTZE-SILFLEX® N (C)PUR, without inside jacket



Application

- Machine and device construction, transport and conveyor technology
- For flexible application with free movement
- Especially for industrial environments with high interference potential, in machines, plant and device construction
- In rooms with high concentrations of people or material assets

Properties

- High active and passive interference resistance
- Low capacitance, very good electrical properties
- Very good cold flexibility
- halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from silicone paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Halogen-free according to DIN EN 20264-1; EN 50267-2-1, EN 60684-2

Design

- Bare copper braid, fine stranded according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special Thermoplast conductor insulation (21Y)
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111651	(2×0.5)	5.2	3.8	2.3
111652	(3G0.5)	5.5	4.5	2.8
111653	(4G0.5)	5.9	6.0	3.7
111654	(5G0.5)	6.5	7.0	4.8
111656	(7G0.5)	7.2	9.1	5.6
111657	(12G0.5)	9.3	14.6	9.0
111658	(18G0.5)	11.0	20.6	12.4
111659	(25G0.5)	13.1	28.9	17.8
0.75 mm²				
111660	(2×0.75)	5.6	4.7	2.8
111661	(3G0.75)	6.0	6.0	3.9
111662	(4G0.75)	6.5	7.2	4.6
111663	(5G0.75)	7.2	9.2	5.8
111664	(7G0.75)	7.8	11.8	7.4
111665	(12G0.75)	10.3	18.4	11.9
111666	(18G0.75)	12.2	26.6	17.2
111667	(25G0.75)	14.5	37.2	24.6
1.0 mm²				
111668	(2×1.0)	6.0	5.7	3.7
111669	(3G1.0)	6.3	6.9	4.6
111670	(4G1.0)	6.8	8.8	6.1
111671	(5G1.0)	7.6	10.6	7.1
111672	(7G1.0)	8.2	13.5	9.5
111673	(12G1.0)	10.9	22.0	15.3
111674	(18G1.0)	13.3	33.5	23.1
111675	(25G1.0)	15.3	43.7	30.6
1.5 mm²				
111676	(2×1.5)	6.6	7.0	4.7
111677	(3G1.5)	7.0	9.4	6.6
111678	(4G1.5)	7.6	11.4	8.1
111679	(5G1.5)	8.6	14.4	10.0
111680	(7G1.5)	9.3	18.2	13.4
111681	(12G1.5)	12.3	29.6	21.5
111682	(18G1.5)	15.0	45.2	32.6
111683	(25×1.5)	17.4	59.8	43.4
2.5 mm²				
111684	(3G2.5)	8.6	13.9	10.1
111685	(4G2.5)	9.3	17.6	12.9
111686	(5G2.5)	10.4	21.4	15.3
111687	(7G2.5)	11.5	27.8	20.5
111648	(12G2.5)	15.4	47.4	35.4
111649	(18G2.5)	18.3	69.6	51.5
111650	(25G2.5)	21.3	93.0	70.0
4 – 6 mm²				
111688	(4G4)	11.0	25.7	19.1
111690	(4G6)	13.4	38.3	28.9

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PUR Handheld tools and device cables

LÜTZE-SILFLEX® PUR ORANGE, coloured conductors



Application

- Handheld tools of all kinds such as drills, sanders, handsaws
- For flexible application with free movement
- Anywhere where an especially flexible cable is advantageous
- Orange outer jacket for locking circuits that remain under voltage after switching off of the main power circuit

Properties

- Abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	2000 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-25 °C to +80 °C
fixed	-40 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Halogen-free according to DIN EN 20264-1; EN 50267-2-1, EN 60684-2

Design

- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special Thermoplast conductor insulation (21Y)
- Conductors coloured according to DIN VDE 0293-308 (new)
- 2-wire: brown, blue
- 3-wire: greenyellow, brown, blue
- 4-wire: greenyellow, brown, black, grey
- 5-wire: greenyellow, blue, brown, black, grey
- Ground conductor greenyellow according to DIN EN 50334
- G = with greenyellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Full polyurethane jacket
- Jacket colour orange RAL 2003

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.75 mm²				
110296	3G0.75	5.3	4.2	2.2
111713	4G0.75	5.8	5.5	2.9
118995	5G0.75	6.4	6.7	3.6
1.0 mm²				
110199	3G1.0	5.8	5.4	2.9
110198	4G1.0	6.3	6.6	3.9
110144	5G1.0	6.8	8.1	4.8
1.5 mm²				
110171	3G1.5	6.4	7.2	4.3
110172	4G1.5	7.1	9.3	5.8
110173	5G1.5	7.8	11.4	7.2
2.5 mm²				
110329	3G2.5	7.8	10.4	7.2
110176	4G2.5	8.7	14.7	9.6
100866	5G2.5	9.6	18.2	12.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables · unshielded

LÜTZE-SILFLEX® N



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and regulation cable for medium operating conditions
- For flexible application without compulsory guide

Properties

- PVC flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1
Special version	
K= cold resistant	-30 °C to +70 °C
T= heat resistant	0 °C to +90 °C

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
100363	2×0.5	5.0	3.5	1.0
100364	3G0.5	5.3	4.3	1.4
101311	3×0.5	5.3	4.3	1.4
100365	4G0.5	5.8	5.2	1.9
108208	4×0.5	5.8	5.2	1.9
100366	5G0.5	6.4	6.1	2.4
100375	5×0.5	6.4	6.1	2.4
100215	7G0.5	7.0	7.5	3.4
100368	8G0.5	7.6	8.4	3.8
100369	10G0.5	8.7	10.5	4.8
100370	12G0.5	9.2	12.2	5.8
100371	14G0.5	9.8	14.1	6.7
100372	16G0.5	10.2	16.1	7.7
100373	18G0.5	11.0	18.0	8.6
100374	21G0.5	11.8	20.8	10.1
100358	25G0.5	13.3	25.3	12.0
100378	30G0.5	14.0	29.5	14.4
100379	36G0.5	15.0	35.0	17.3
100380	40G0.5	16.0	38.6	19.2
100382	50G0.5	18.0	48.2	24.0
100383	65G0.5	19.7	60.8	31.2
0.75 mm²				
100384	2×0.75	5.6	4.3	1.4
100385	3G0.75	5.8	5.6	2.2
100734	3×0.75	5.8	5.6	2.2
100386	4G0.75	6.6	6.8	2.9
100736	4×0.75	6.6	6.8	2.9
100387	5G0.75	6.9	8.0	3.6
100738	5×0.75	6.9	8.0	3.6
100389	7G0.75	7.5	9.8	5.0
100390	8G0.75	9.0	11.2	5.8
100391	10G0.75	9.6	14.0	7.2
100392	12G0.75	9.7	16.2	8.6
100388	14G0.75	10.8	18.8	10.1
100394	16G0.75	11.5	21.4	11.5
100395	18G0.75	12.0	24.1	13.0
101063	21G0.75	13.3	27.7	15.1
100398	25G0.75	14.0	33.8	18.0
100400	34G0.75	15.8	44.0	24.5
101312	41G0.75	18.0	54.8	29.5
100402	50G0.75	19.8	64.6	36.0
1.0 mm²				
100405	2×1.0	5.9	5.0	1.9
100406	3G1.0	6.2	6.6	2.9
100746	3×1.0	6.2	6.6	2.9
100407	4G1.0	6.7	8.0	3.8
100737	4×1.0	6.7	8.0	3.8
100408	5G1.0	7.3	9.5	4.8
100739	5×1.0	7.3	9.5	4.8
100409	6G1.0	8.2	11.2	5.8
100410	7G1.0	8.2	11.9	6.7
100411	8G1.0	9.0	11.3	7.7
100412	10G1.0	9.7	17.1	9.6
100413	12G1.0	10.6	20.0	11.5
100414	14G1.0	11.5	23.0	13.4
100415	16G1.0	12.0	26.3	15.4
100416	18G1.0	12.9	29.5	17.3
100420	20G1.0	13.8	32.8	19.2
101085	21G1.0	14.0	34.1	20.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables · unshielded

LÜTZE-SILFLEX® N



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and regulation cable for medium operating conditions
- For flexible application without compulsory guide

Properties

- PVC flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1
Special version	
K= cold resistant	-30 °C to +70 °C
T= heat resistant	0 °C to +90 °C

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
1.0 mm²				
100417	25G1.0	15.3	41.5	24.0
100419	34G1.0	17.5	54.6	32.6
100169	42G1.0	19.0	68.6	40.3
100421	50G1.0	21.0	79.6	48.0
100426	65G1.0	23.8	100.9	62.4
1.5 mm²				
100429	2×1.5	6.0	6.6	2.9
100430	3G1.5	7.0	8.6	4.3
100874	3×1.5	7.0	8.6	4.3
100431	4G1.5	7.4	10.7	5.8
100258	4×1.5	7.4	10.7	5.8
100432	5G1.5	8.3	12.7	7.2
100433	7G1.5	9.1	16.0	10.1
100434	8G1.5	9.8	18.4	11.5
100435	10G1.5	11.0	23.6	14.4
100437	12G1.5	11.7	27.6	17.3
100438	14G1.5	12.9	33.0	20.2
100440	18G1.5	14.7	40.8	25.9
100443	25G1.5	16.9	57.4	36.0
100447	50G1.5	23.9	110.6	72.0
2.5 mm²				
118389	2×2.5	7.7	9.9	4.8
100453	3G2.5	8.3	13.3	7.2
100454	4G2.5	9.1	16.6	9.6
100455	5G2.5	10.2	19.8	12.0
100456	7G2.5	11.3	25.7	16.8
100458	12G2.5	14.7	45.0	28.8
100460	18G2.5	18.1	67.0	43.2
100461	25G2.5	20.8	94.0	60.0
4 mm²				
100871	2×4	9.5	14.8	7.7
100990	3G4	10.2	21.1	11.6
100464	4G4	11.0	25.4	15.4
100465	5G4	12.3	30.9	19.2
100466	7G4	13.6	40.0	26.9
6 mm²				
100467	3G6	11.9	28.3	17.3
100468	4G6	12.7	35.8	17.3
100469	5G6	14.2	43.8	28.8
100470	7G6	15.7	56.9	40.3
10 mm²				
100479	3G10	15.5	49.5	28.8
100471	4G10	16.3	62.6	38.4
100475	5G10	18.2	76.5	48.0
100472	7G10	20.2	99.1	67.2
16 mm²				
100473	4G16	20.1	95.0	61.4
100354	5G16	22.6	116.3	76.8
100474	7G16	25.0	151.2	107.5
25 mm²				
100480	4G25	22.9	139.6	96.0
108205	5G25	27.6	171.2	120.0
35 mm²				
100481	4G35	28.9	187.5	134.4
100484	5G35	31.6	230.2	168.0
50 mm²				
108062	4G50	35.4	290.0	192.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables · unshielded

LÜTZE-SILFLEX® B



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and regulation cable for medium operating conditions
- For flexible application without compulsory guide

Properties

- PVC flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1
Special version	
K= cold resistant	-30 °C to +70 °C
T= heat resistant	0 °C to +90 °C

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors coloured according to DIN VDE 0293-308 (new)
 - 2-wire: brown, blue
 - 3-wire: greenyellow, brown, blue
 - 4-wire: greenyellow, brown, black, grey
 - 5-wire: greenyellow, blue, brown, black, grey
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
 - G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
100013	2×0.5	5.0	3.5	1.0
100001	3G0.5	5.3	4.0	1.4
110921	3×0.5	5.3	4.0	1.4
100002	4G0.5	5.8	5.2	1.9
100003	5G0.5	6.4	6.1	2.4
0.75 mm²				
100024	2×0.75	5.6	4.3	1.4
100025	3G0.75	5.8	5.6	2.2
100012	3×0.75	5.8	5.6	2.2
100026	4G0.75	6.4	6.8	2.9
100027	5G0.75	6.9	8.0	3.6
1.0 mm²				
100050	2×1.0	5.9	5.0	1.9
100051	3G1.0	6.2	6.6	2.9
100983	3×1.0	6.2	6.6	2.9
100052	4G1.0	6.7	8.0	3.8
100053	5G1.0	7.3	9.5	4.8
1.5 mm²				
100078	2×1.5	6.0	6.6	2.9
100079	3G1.5	7.0	8.6	4.3
100080	4G1.5	7.4	10.7	5.8
100081	5G1.5	8.3	12.7	7.2
2.5 mm²				
100104	2×2.5	7.7	9.9	4.8
100105	3G2.5	8.3	13.3	7.2
100106	4G2.5	9.1	16.6	9.6
100107	5G2.5	10.2	19.8	12.0
4 mm²				
100118	4G4	11.0	25.4	15.4
100119	5G4	12.3	30.9	19.2
6 mm²				
100123	4G6	12.7	43.8	23.0
100124	5G6	14.2	56.9	28.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cable · shielded, without inside jacket

LÜTZE-SILFLEX® N (C) Y



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and regulation cable for medium operating conditions
- For flexible application without compulsory guide
- Anywhere where electrical interference fields can influence the signal transmission

Properties

- The overall shield of braided copper wires prevents both the interference of signals and measured values as well as the radiation of interfering signals
- PVC Flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-25 °C to +70 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
116191	(2×0.5)	5.6	4.5	2.9
116139	(3G0.5)	6.2	6.3	4.5
116226	(3×0.5)	6.2	6.3	4.5
116238	(5G0.5)	7.1	9.6	5.7
116235	(7G0.5)	7.8	13.6	6.9
116236	(7×0.5)	7.8	13.6	6.9
116246	(12G0.5)	10.0	20.0	10.8
116247	(18G0.5)	11.6	27.5	14.4
116250	(25G0.5)	13.7	35.0	21.1
0.75 mm²				
116174	(2×0.75)	6.3	5.5	3.1
116100	(3G0.75)	6.5	7.0	4.6
116101	(3×0.75)	6.5	7.0	4.6
116102	(4G0.75)	7.1	9.5	5.6
116103	(5G0.75)	7.7	13.0	7.0
116104	(7G0.75)	8.4	16.8	9.8
116105	(12G0.75)	11.0	23.2	14.8
116106	(18G0.75)	12.8	31.5	20.5
116107	(25G0.75)	15.1	43.0	26.0
1.0 mm²				
116234	(2×1.0)	6.6	8.4	5.1
116110	(3G1.0)	6.9	11.0	7.0
116112	(4G1.0)	7.4	13.0	8.0
116113	(5G1.0)	8.2	15.6	9.5
116114	(7G1.0)	8.9	19.2	12.0
116115	(12G1.0)	11.6	28.5	18.5
116116	(18G1.0)	14.0	39.5	24.5
116117	(25G1.0)	16.0	64.2	33.0
1.5 mm²				
116137	(2×1.5)	7.2	9.7	6.5
116121	(3G1.5)	7.4	12.5	9.0
116122	(3×1.5)	7.4	12.5	9.0
116123	(4G1.5)	8.3	16.5	11.0
116124	(5G1.5)	9.0	19.3	12.5
116125	(7G1.5)	10.0	24.5	15.9
116126	(12G1.5)	13.3	36.5	24.5
116127	(18G1.5)	15.7	55.3	34.5
116128	(25G1.5)	18.0	72.0	46.5
2.5 mm²				
116132	(3G2.5)	9.2	18.8	12.4
116133	(4G2.5)	10.0	23.6	15.0
116134	(5G2.5)	11.1	27.0	18.0
116135	(7G2.5)	12.0	34.0	23.5
116136	(12G2.5)	15.8	58.5	38.5
116249	(18G2.5)	18.8	95.5	56.9
116144	(25G2.5)	22.0	131.0	77.5
4 – 35 mm²				
116150	(4G4)	11.8	30.2	22.0
116153	(4G6)	14.2	41.2	30.5
116156	(4G10)	17.2	72.0	51.7
116158	(4G16)	20.2	107.0	75.6
116159	(4G25)	24.9	152.1	114.6
116143	(4G35)	27.8	229.0	154.3

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables · with steel braid

LÜTZE-SILFLEX® NSY



Application

- Machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- As control, measurement and regulation cable for medium operating conditions
- For the hardest operating conditions
- For flexible application without compulsory guide

Properties

- High mechanical protection through galvanised steel braid and PVC inside jacket
- PVC Flame-retardant, self-extinguishing
- outer jacket transparent special PVC
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +80 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; * = without ground conductor
- Conductors stranded layers
- Inside jacket PVC
- Hot-dipped galvanised steel wire braid, optical covering ≥ 65 %
- Jacket special-PVC **transparent**

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
100573	3G0.5	7.9	13.4	1.4
100574	4G0.5	9.0	14.0	1.9
100575	5G0.5	9.7	15.6	2.4
101327	7G0.5	10.7	18.0	3.4
100600	12G0.5	12.3	27.5	5.8
100581	18G0.5	15.0	35.0	8.6
108025	25G0.5	17.3	30.0	12.0
0.75 mm²				
100588	2×0.75	8.2	12.9	1.4
100589	3G0.75	8.5	14.0	2.2
100590	4G0.75	9.5	16.2	2.9
100591	5G0.75	10.1	16.8	3.6
100592	7G0.75	11.2	19.7	5.0
100602	12G0.75	14.0	30.0	8.6
100597	18G0.75	15.5	39.8	13.0
100537	25G0.75	18.2	50.0	18.0
1.0 mm²				
100605	2×1.0	9.8	17.0	1.9
100606	3G1.0	10.1	18.7	2.9
100607	4G1.0	10.8	19.6	3.8
100608	5G1.0	11.6	23.0	4.8
100611	7G1.0	12.4	27.0	6.7
100616	12G1.0	15.1	38.0	11.5
100618	18G1.0	17.3	50.6	17.3
100619	25G1.0	20.0	62.0	24.0
1.5 mm²				
100610	2×1.5	10.2	18.0	2.9
100625	3G1.5	10.6	19.5	4.3
100626	4G1.5	11.3	21.0	5.8
100627	5G1.5	12.2	24.7	7.2
100628	7G1.5	13.0	31.3	10.1
100630	12G1.5	15.9	45.6	17.3
100632	18G1.5	20.0	65.0	25.9
100633	25G1.5	25.5	93.1	36.0
2.5 mm²				
100638	3G2.5	12.7	25.6	7.2
100637	4G2.5	13.6	30.3	9.6
100639	5G2.5	14.7	34.3	12.0
100640	7G2.5	15.8	42.6	16.8
100642	12G2.5	20.5	79.0	28.8
100644	18G2.5	26.5	93.0	43.2
100645	25G2.5	31.5	145.0	60.0
4 – 10 mm²				
100648	4G4	16.1	41.5	15.4
100650	5G4	17.5	48.3	19.2
100646	7G4	21.5	70.0	26.9
100652	4G6	18.4	60.0	23.4
100653	5G6	20.0	65.1	28.8
100649	7G6	22.5	85.0	40.3
100654	4G10	22.3	100.0	38.4
100655	5G10	25.5	107.0	48.0
100656	7G10	27.5	140.0	67.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cable

LÜTZE-SILFLEX® ORC



Application

- Machine tools, transfer lines as well as other areas in the French automobile industry
- As monitoring, measurement and control cable
- For flexible application without compulsory guide
- Approved by the French automobile industry for use in conjunction with cutting and cooling oils

Properties

- Isolation and jacket material especially oil-stabilised according to the French automobile industry norm (**CNOMO**)
- Largely resistant to oils, greases, acids and bases
- PVC Flame-retardant, self-extinguishing
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-5 °C to +70 °C
fixed	-25 °C to +70 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation according to HD 21.1 T11
- Black conductors with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC according to CNOMO and HD 21.1 TM5, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.75 mm²				
101257	3G0.75	5.5	5.1	2.2
101239	4G0.75	6.2	6.6	2.9
101258	5G0.75	6.8	8.0	3.6
101259	7G0.75	7.6	10.4	5.0
101260	12G0.75	9.9	17.7	8.6
101261	18G0.75	14.1	32.7	13.0
101262	27G0.75	14.8	39.6	19.4
1.0 mm²				
101130	2×1.0	5.5	4.9	1.9
101098	3G1.0	6.1	6.4	2.9
101099	4G1.0	6.6	7.9	3.8
101100	5G1.0	7.2	9.5	4.8
101101	7G1.0	8.0	12.3	6.7
101102	12G1.0	10.7	21.7	11.5
101131	18G1.0	12.7	31.1	17.3
101104	27G1.0	15.7	47.5	25.9
101233	36G1.0	18.8	64.0	34.6
101236	48G1.0	21.3	96.0	46.1
1.5 mm²				
101135	2G1.5	6.3	6.8	2.9
101136	3G1.5	6.7	8.4	4.3
101137	4G1.5	7.5	10.8	5.8
101138	5G1.5	8.2	13.1	7.2
101139	7G1.5	9.1	17.1	10.1
101140	12G1.5	12.1	29.8	17.3
101141	18G1.5	14.4	43.3	25.9
101144	27G1.5	22.1	65.5	38.9
2.5 – 16 mm²				
101147	3G2.5	8.2	13.2	7.2
101148	4G2.5	9.1	16.7	9.6
101253	5G2.5	10.0	20.5	12.0
101226	7G2.5	11.1	26.8	16.8
101149	4G4	10.9	25.1	15.3
101151	4G6	12.8	36.0	23.0
108047	4G10	16.3	59.1	38.4
100921	4G16	18.8	86.4	61.4

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables intrinsically safe

LÜTZE-SILFLEX® EN LÜTZE-SILFLEX® EN (C) Y



Application

- Control, monitoring and instrumentation cable in intrinsically safe electric circuits (according to DIN VDE 0165 T.1)
- For explosive areas with ignition type(EX) -I-
- Painting and drying systems, machine and plant construction
- In dry and moist rooms

Properties

- PVC flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage

U₀/U 300/500 V

Test voltage

3000 V

Insulation resistance

min. 20 MΩ × km

Operating capacity (unshielded) at 800 Hz

Strand/Strand approx. 110 pF/m

Operating capacity (shielded) at 800 Hz

Strand/Strand approx. 130 pF/m

Strand/Shield approx. 185 pF/m

(pF/m at 800 Hz)

Inductance

approx. 0.65 mH/km

Temperature range

moving -5 °C to +70 °C

fixed -30 °C to +80 °C

Minimum bending radius

according to VDE 0298 table 6

Burning behaviour

Flame-retardant according to VDE

0482 part 265-2; DIN EN 50265-2;

IEC 60332-1

Design

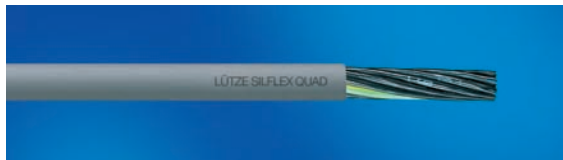
- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Black conductors with white number print according to DIN EN 50334
- Conductors stranded layers
- Shielded design: meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour blue RAL 5015

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
unshielded - jacket colour blue				
100751	2×0.75	5.6	5.4	1.4
100754	3×0.75	5.9	6.6	2.2
100758	4×0.75	6.4	7.8	2.9
100760	5×0.75	6.9	10.0	3.6
110762	18×0.75	12.0	27.6	13.0
100753	2×1.0	5.9	6.0	1.9
100755	4×1.0	6.7	10.6	3.8
100756	2×1.5	6.8	8.4	2.9
100757	3×1.5	6.9	10.2	4.3
100759	5×1.5	8.3	14.5	7.2
100704	7×1.5	9.1	17.1	10.1
shielded - jacket colour blue				
100711	(2×0.75)	6.3	5.6	4.0
100747	(3×0.75)	6.6	7.0	5.1
100713	(4×0.75)	7.1	9.5	6.2
100715	(8×0.75)	9.0	17.3	12.0
100716	(2×1.0)	6.6	8.4	6.0
100714	(3×1.0)	6.9	11.0	7.0
100717	(4×1.0)	7.4	13.0	9.0
108059	(12×1.0)	11.6	28.5	17.3
100719	(2×1.5)	7.2	9.7	7.4
100256	(3×1.5)	7.8	12.0	9.0
100720	(4×1.5)	8.3	16.5	11.6

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables · unshielded

LÜTZE-SILFLEX® QUAD N (H05VV5-F)



Application

- Machine and device construction, assembly lines, production lines, linking of control devices to conveyor systems
- These cables are especially suited for systems that are intended for export. Through the <HAR> UL CSA approval, these cables can be used virtually worldwide.
- The especially oil-resistant and flame-retardant PVC Jacket enables the use even under difficult conditions.

Properties

- PVC Flame-retardant, self-extinguishing
- Outer jacket special-PVC TM5 according to HD 21.1
- Largely resistant to oils, greases, acids and bases
- Oil resistant according to HD 21.1, UL, CSA
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
UL/CSA	600 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range <HAR>	
moving	-5 °C to +70 °C
fixed	-40 °C to +70 °C
Temperature range UL/CSA	
moving	-5 °C to +90 °C
fixed	-40 °C to +90 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Approbations	H05VV5-F <HAR> HD21.13 UL-Style 2587 90 °C/600V CSA AWM I

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation TI2 according to HD 21.1
- Black conductors with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special PVC TM5 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
108349	2×0.5	5.7	4.4	1.0
108350	3G0.5	6.1	5.5	1.4
108351	4G0.5	6.7	6.6	1.9
108352	5G0.5	7.5	8.3	2.4
108353	7G0.5	8.2	12.6	3.4
108354	12G0.5	10.9	18.2	5.8
108355	18G0.5	13.0	25.6	8.6
108356	25G0.5	15.2	35.8	12.0
0.75 mm²				
108401	2G0.75	6.1	5.6	1.5
108357	3G0.75	6.6	6.6	2.1
108358	4G0.75	7.3	8.1	2.9
108359	5G0.75	8.1	10.1	3.6
108360	7G0.75	8.9	15.4	5.0
108361	12G0.75	11.9	23.0	8.6
108362	18G0.75	14.2	32.4	13.0
108363	25G0.75	16.5	45.2	18.0
1.0 mm²				
108410	2×1.0	6.5	6.4	1.9
108364	3G1.0	6.9	7.7	2.9
108365	4G1.0	7.7	9.5	3.8
108366	5G1.0	8.5	11.7	4.8
108367	7G1.0	9.4	18.3	6.7
108368	12G1.0	12.6	26.8	11.5
108369	18G1.0	15.0	38.6	17.3
108370	25G1.0	17.5	53.7	24.0
1.5 mm²				
108391	2×1.5	7.6	9.1	2.9
108372	3G1.5	8.2	11.0	4.3
108373	4G1.5	9.1	13.9	5.8
108374	5G1.5	10.1	16.7	7.2
108375	7G1.5	11.1	26.0	10.1
108376	12G1.5	14.9	39.0	17.3
108377	18G1.5	17.9	55.9	25.9
108378	25G1.5	20.9	77.6	36.0
2.5 mm²				
108380	3G2.5	9.7	16.2	7.2
108381	4G2.5	10.7	20.5	9.6
108382	5G2.5	12.0	25.3	12.0
108383	7G2.5	13.2	38.9	16.8
108384	12G2.5	17.8	58.4	28.8
108385	18G2.5	21.3	83.6	43.2
108386	25G2.5	24.9	117.2	60.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC control cables - shielded

LÜTZE-SILFLEX® QUAD N (C)Y (H05VVC4V5-K)



Application

- Machine and device construction, assembly lines, production lines, linking of control devices to conveyor systems
- These cables are especially suited for systems that are intended for export. Through the <HAR> UL CSA approval, these cables can be used virtually worldwide.
- The especially oil-resistant and flame-retardant PVC Jacket enables use even under difficult conditions.
- Especially for industrial environments with high interference potential, in machine, plant and device construction

Properties

- The overall shield of braided copper wires prevents both the interference of signals and measured values as well as the radiation of interfering signals.
- PVC Flame-retardant, self-extinguishing
- Outer jacket special-PVC TM5 according to HD 21.1
- Largely resistant to oils, greases, acids and bases
- Oil resistant according to HD 21.1, UL, CSA
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
UL/CSA	600 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range <HAR>	
moving	-5 °C to +70 °C
fixed	-40 °C to +70 °C
Temperature range UL/CSA	
moving	-5 °C to +90 °C
fixed	-40 °C to +90 °C
Minimum bending radius	according to VDE 0298 table 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Approbations	H05VV5-F <HAR> HD21.13 UL-Style 2587 90 °C/600V CSA AWM I

Design

- Bare copper braid, superfine strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation TI2 according to HD 21.1
- Black conductors with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- PVC inside jacket
- Jacket special PVC TM5 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.75 mm²				
109582	(3G0.75)	8.8	12.5	5.2
109583	(4G0.75)	9.6	14.7	5.7
109584	(5G0.75)	10.3	17.2	6.9
109585	(7G0.75)	12.2	23.5	9.3
109587	(12G0.75)	14.5	35.4	16.2
1.0 mm²				
109568	(3G1.0)	9.3	14.1	6.3
109569	(4G1.0)	9.9	16.5	7.5
109570	(5G1.0)	10.9	19.5	8.8
109581	(7G1.0)	12.9	27.2	12.3
109571	(12G1.0)	15.4	40.5	18.9
1.5 mm²				
109572	(3G1.5)	10.4	18.0	8.0
109573	(4G1.5)	11.3	21.7	8.9
109574	(5G1.5)	12.6	26.7	10.9
109575	(7G1.5)	14.9	37.9	13.5
109576	(12G1.5)	17.6	53.8	32.2
2.5 mm²				
109577	(3G2.5)	12.0	24.6	10.9
109578	(4G2.5)	13.3	31.7	13.0
109579	(5G2.5)	14.6	38.3	18.3
109580	(7G2.5)	17.3	52.3	22.7

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

8. Electronic cables



PVC electronic cables · unshielded · UL style 2464 / CSA

LÜTZE ELECTRONIC LiYY AWG



Application

- In all areas of electronics, measuring, control and regulation technologies
- In low voltage switchgears, communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- Minimal cable diameter through thin-walled PVC semi-rigid conductor insulation according to UL
- Especially suitable for cost-efficient IDC-connection (Insulation Displacement Connection)
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Very good UV stability
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	1500 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-15 °C to +80 °C
fixed	-30 °C to +80 °C
Minimum bending radius	
fixed	Cable diameter × 4
for free movement	Cable diameter × 15
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1

Design

- Bare copper wire in the AWG design
 - AWG 26/7 = 0.14 mm²
 - AWG 24/7 = 0.23 mm²
 - AWG 22/7 = 0.34 mm²
 - AWG 20/7 = 0.56 mm²
- Special semi-rigid PVC conductor insulation according to UL
- Conductors colour-coded according to international colour code (up to 19 conductors identical according to VDE 0881)
- Conductors stranded layers
- Jacket special PVC according to UL class 43
- Jacket colour black RAL 9005, grey RAL 7001 available on request

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
AWG26				
118770	2×AWG26	3.6	1.2	0.3
118771	3×AWG26	3.8	1.5	0.4
118772	4×AWG26	4.0	1.8	0.6
118773	6×AWG26	4.6	2.5	0.8
118774	8×AWG26	5.1	3.4	1.1
118775	10×AWG26	5.6	3.8	1.4
118776	12×AWG26	5.8	4.6	1.7
AWG24				
118792	2×AWG24	3.8	1.6	0.5
118793	3×AWG24	4.0	1.9	0.7
118794	4×AWG24	4.3	2.3	0.9
118777	6×AWG24	4.9	3.2	1.4
118778	8×AWG24	5.7	4.6	1.8
118779	10×AWG24	6.0	5.5	2.3
118780	12×AWG24	6.2	6.0	2.8
AWG22				
118733	2×AWG22	4.3	2.3	0.7
118740	3×AWG22	4.4	2.7	1.0
118734	4×AWG22	4.8	3.3	1.4
118735	6×AWG22	5.7	3.7	2.0
118781	8×AWG22	6.2	5.9	2.7
118782	10×AWG22	7.0	7.1	3.4
118783	12×AWG22	7.2	8.2	4.1
AWG20				
118741	2×AWG20	4.6	2.9	1.1
118784	3×AWG20	4.8	3.5	1.7
118795	4×AWG20	5.4	4.5	2.2
118785	6×AWG20	6.1	6.3	3.4
118786	8×AWG20	6.8	7.9	4.5
118787	10×AWG20	7.6	10.2	5.6
118788	12×AWG20	8.1	11.0	6.7

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · shielded · UL style 2464 / CSA

LÜTZE ELECTRONIC LiY(C)Y AWG



Application

- In all areas of electronics, measuring, control and regulation technology
- In low voltage switchgears and communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading
- Especially for industrial environments with high interference potential, in machines, plant and device construction

Properties

- Minimal cable diameter through thin-walled PVC semi-rigid conductor insulation according to UL
- Especially suitable for cost-efficient IDC-connection (Insulation Displacement Connection)
- High active and passive interference resistance
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Very good UV stability
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	1500 V
Insulation resistance	min. 100 MΩ × km
Temperature range	
moving	-15 °C to +80 °C
fixed	-30 °C to +80 °C
Minimum bending radius	
fixed	Cable diameter × 4
for free movement	Cable diameter × 15
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1

Design

- Bare copper wire in the AWG design
 - AWG 26/7 = 0.14 mm²
 - AWG 24/7 = 0.23 mm²
 - AWG 22/7 = 0.34 mm²
 - AWG 20/7 = 0.56 mm²
- Special semi-rigid PVC conductor insulation according to UL
- Conductors colour-coded according to international colour code (up to 19 conductors identical according to VDE 0881)
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC according to UL class 43
- Jacket colour black RAL 9005, grey RAL 7001 available on request

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
AWG26				
118750	(2×AWG26)	4.2	1.7	1.2
118751	(3×AWG26)	4.4	1.9	1.3
118752	(4×AWG26)	4.7	2.3	1.5
118753	(6×AWG26)	5.2	3.1	2.0
118754	(8×AWG26)	5.6	4.0	3.1
118755	(10×AWG26)	6.3	4.5	3.4
118756	(12×AWG26)	6.6	5.1	3.8
AWG24				
118767	(2×AWG24)	4.6	1.9	1.4
118768	(3×AWG24)	4.8	2.4	1.7
118769	(4×AWG24)	5.2	2.8	2.3
118747	(6×AWG24)	5.8	3.9	2.9
118749	(8×AWG24)	6.3	3.8	3.8
118748	(10×AWG24)	7.5	4.3	4.3
118739	(12×AWG24)	7.8	5.1	5.1
AWG22				
118742	(2×AWG22)	4.8	3.2	1.5
118757	(3×AWG22)	5.0	3.6	1.7
118736	(4×AWG22)	5.4	4.5	2.5
118758	(6×AWG22)	5.8	6.1	3.4
118759	(8×AWG22)	6.8	7.3	4.1
118760	(10×AWG22)	7.9	9.3	5.7
AWG20				
118761	(2×AWG20)	5.1	4.1	2.2
118762	(3×AWG20)	5.3	4.8	2.7
118763	(4×AWG20)	5.7	5.8	3.3
118764	(6×AWG20)	6.6	7.8	4.6
118765	(8×AWG20)	7.7	10.2	6.6
118766	(10×AWG20)	8.2	12.0	7.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · unshielded · UL style 2464 / CSA

LÜTZE ELECTRONIC LiYY



Application

- In all areas of electronics, measuring, monitoring and regulation technologies
- In low voltage switchgears, communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- Minimal cable diameter through thin-walled PVC conductor insulation according to UL
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	2000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-15 °C to +80 °C
fixed	-30 °C to +70 °C
Minimum bending radius	
fixed	Cable diameter × 4
for free movement	Cable diameter × 12
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1

Design

- Bare copper braid, fine stranded according to DIN VDE 0295 class 5 and IEC 60228 class 5
- Special PVC conductor insulation according to UL 1729
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers
- Jacket special PVC according to UL class 43
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
108600	2×0.14	3.6	1.7	0.3
108601	3×0.14	3.8	1.9	0.4
108602	4×0.14	4.0	2.2	0.5
108603	5×0.14	4.3	2.4	0.7
108604	6×0.14	4.6	2.9	0.8
108605	8×0.14	5.0	3.6	1.1
108606	10×0.14	5.6	4.3	1.4
108607	12×0.14	5.8	4.8	1.6
108608	16×0.14	6.3	5.9	2.2
108609	18×0.14	6.6	6.5	2.4
108610	25×0.14	7.6	8.6	3.4
0.25 mm²				
108612	2×0.25	4.2	2.0	0.5
108613	3×0.25	4.4	2.3	0.7
108614	4×0.25	4.7	2.7	1.0
108615	5×0.25	5.1	3.0	1.2
108616	6×0.25	5.5	3.6	1.4
108617	8×0.25	6.0	4.5	1.9
108618	10×0.25	6.8	5.4	2.4
108619	12×0.25	7.0	5.9	2.9
108620	16×0.25	7.7	7.4	3.8
108621	18×0.25	8.1	8.1	4.3
108622	25×0.25	9.4	10.7	6.0
0.34 mm²				
108624	2×0.34	4.6	2.4	0.7
108625	3×0.34	4.8	2.9	1.0
108626	4×0.34	5.2	3.4	1.3
108627	5×0.34	5.7	5.4	1.6
108628	6×0.34	6.1	4.6	2.0
108629	8×0.34	6.7	5.7	2.6
108630	10×0.34	7.4	6.9	3.3
108631	12×0.34	7.8	7.7	3.9
108632	16×0.34	8.5	9.7	5.2
108633	18×0.34	8.9	10.7	5.9
108634	25×0.34	10.8	14.3	8.2
0.5 mm²				
108636	2×0.5	4.8	3.1	1.0
108637	3×0.5	5.1	3.8	1.4
108638	4×0.5	5.5	4.6	1.9
108639	5×0.5	5.9	5.9	2.4
108640	6×0.5	6.2	6.2	2.9
108641	8×0.5	7.2	7.9	3.8
108642	10×0.5	8.2	9.5	4.8
108643	12×0.5	8.5	10.8	5.8
108644	16×0.5	9.3	13.7	7.7
108645	18×0.5	9.8	15.1	8.6
108646	25×0.5	11.4	20.6	12.0
0.75 mm²				
108648	2×0.75	5.6	3.7	1.4
108649	3×0.75	5.9	4.5	2.2
108650	4×0.75	6.4	5.5	2.9
108651	5×0.75	7.0	7.0	3.6
108652	6×0.75	7.4	7.6	4.3
108653	8×0.75	8.5	9.5	5.8
108654	10×0.75	9.8	11.5	7.2
108655	12×0.75	10.1	13.3	8.6
108656	16×0.75	11.2	16.9	11.5
108657	18×0.75	11.8	18.9	13.0
108658	25×0.75	14.4	25.8	18.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · shielded · UL style 2464 / CSA

LÜTZE ELECTRONIC LiY (C)Y



Application

- For trouble-free transmission in all areas of electronics, measuring, monitoring and regulation technology
- In low voltage switchgears, communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading
- Especially for industrial environments with high interference potential in machine, plant and device construction

Properties

- Minimal cable diameter through thin-walled PVC conductor insulation according to UL
- High active and passive interference resistance
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Largely resistant to acids and bases (see tech. information)
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

UL approval	300 V 80 °C
Rated voltage	300 V
Test voltage	2000 V
Insulation resistance	min. 20 MΩ × km
Operating capacitance	approx. 120 – 150 pF/m
Temperature range	
moving	-15 °C to +80 °C
fixed	-30 °C to +80 °C
Minimum bending radius	
fixed	Cable diameter × 4
for free movement	Cable diameter × 15
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation according to UL
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC according to UL class 43
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
108670	(2×0.14)	4.2	2.7	1.2
108671	(3×0.14)	4.4	3.0	1.3
108672	(4×0.14)	4.6	3.4	1.5
108673	(5×0.14)	4.9	4.0	1.7
108674	(6×0.14)	5.2	4.3	2.0
108675	(8×0.14)	5.6	5.1	2.4
108676	(10×0.14)	6.2	6.0	2.9
108677	(12×0.14)	6.6	6.5	3.2
108678	(16×0.14)	6.9	9.0	3.9
108679	(18×0.14)	7.2	11.5	4.3
108680	(25×0.14)	8.1	15.4	5.5
0.25 mm²				
108682	(2×0.25)	4.8	3.2	1.5
108683	(3×0.25)	5.0	3.7	1.8
108684	(4×0.25)	5.4	4.4	2.2
108685	(5×0.25)	5.7	5.2	2.6
108686	(6×0.25)	6.1	5.6	2.9
108687	(8×0.25)	6.6	6.8	3.6
108688	(10×0.25)	7.4	8.0	4.3
108689	(12×0.25)	7.6	8.8	4.8
108690	(16×0.25)	8.3	12.4	6.1
108691	(18×0.25)	8.7	14.3	6.6
108692	(25×0.25)	10.1	17.2	8.7
0.34 mm²				
108694	(2×0.34)	5.2	3.7	1.8
108695	(3×0.34)	5.5	4.3	2.2
108696	(4×0.34)	5.8	5.0	2.7
108697	(5×0.34)	6.3	6.6	3.2
108698	(6×0.34)	6.7	6.8	3.6
108699	(8×0.34)	7.3	8.0	4.5
108700	(10×0.34)	8.2	9.4	5.4
108701	(12×0.34)	8.5	14.2	6.2
108702	(16×0.34)	9.3	16.0	7.7
108703	(18×0.34)	9.9	17.3	8.5
108704	(25×0.34)	11.3	25.9	11.2
0.5 mm²				
108706	(2×0.5)	5.4	4.1	2.2
108707	(3×0.5)	5.7	4.8	2.8
108708	(4×0.5)	6.1	5.8	3.4
108709	(5×0.5)	6.5	9.0	4.0
108710	(6×0.5)	7.0	7.8	4.6
108711	(8×0.5)	7.6	10.2	5.8
108712	(10×0.5)	8.6	16.0	7.1
108713	(12×0.5)	8.9	17.7	8.1
108714	(16×0.5)	9.9	21.0	10.3
108715	(18×0.5)	10.4	23.9	11.4
108716	(25×0.5)	11.9	35.2	15.1
0.75 mm²				
108718	(2×0.75)	5.9	6.4	3.8
108719	(3×0.75)	6.2	7.6	4.9
108720	(4×0.75)	6.6	9.2	5.8
108721	(5×0.75)	7.5	10.9	6.7
108722	(6×0.75)	7.7	11.3	8.7
108723	(8×0.75)	8.9	14.5	11.0
108724	(10×0.75)	9.6	18.7	13.0
108725	(12×0.75)	9.9	21.8	15.4
108726	(16×0.75)	11.0	27.5	18.3
108727	(18×0.75)	11.5	32.7	19.5
108728	(25×0.75)	13.7	45.4	28.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · unshielded

LÜTZE ELECTRONIC LiYY



Application

- In all areas of electronics, measuring, control and regulation technologies
- In low voltage switchgears, communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- PVC flame-retardant, self-extinguishing
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
up to 0.34 mm ²	300 V
from 1,5 mm ²	500 V
Test voltage	
up to 0.34 mm ²	1200 V
after 0.5 mm ²	2000 V
Insulation resistance	min. 20 MΩ × km
Operating capacitance	approx. 120 – 150 pF/m
Temperature range	
moving	-5 °C to +70 °C
fixed	-30 °C to +70 °C
Minimum bending radius	
fixed	Cable diameter × 4
for free movement	Cable diameter × 12
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
110000	3×0.14	3.4	1.6	0.4
110001	4×0.14	3.6	2.1	0.5
110002	5×0.14	4.0	2.2	0.7
110003	6×0.14	4.4	3.1	0.8
110004	7×0.14	4.4	3.3	0.9
110415	8×0.14	4.9	3.5	1.1
110005	10×0.14	5.5	4.7	1.3
110006	12×0.14	5.6	5.3	1.6
110008	16×0.14	6.2	6.9	2.2
110009	18×0.14	6.6	7.2	2.4
110010	20×0.14	7.1	8.5	2.7
110011	24×0.14	8.0	10.5	3.2
0.25 mm²				
110988	2×25	3.8	2.0	0.5
110070	3×0.25	4.0	3.1	0.7
110071	4×0.25	4.5	3.5	1.0
110072	5×0.25	5.0	4.0	1.2
110073	6×0.25	5.4	5.0	1.4
110089	7×0.25	5.4	5.3	1.7
110074	8×0.25	6.0	5.6	1.9
110075	10×0.25	6.9	6.5	2.4
110076	12×0.25	7.2	7.2	2.9
110078	16×0.25	7.8	9.2	3.8
110079	18×0.25	8.5	11.0	4.3
110080	20×0.25	8.8	11.5	4.8
110081	24×0.25	9.4	13.0	5.8
0.34 mm²				
110122	3×0.34	4.4	2.7	1.0
110123	4×0.34	4.6	3.2	1.3
110249	5×0.34	5.3	4.2	1.6
110125	6×0.34	5.5	4.6	2.0
110127	8×0.34	6.6	6.2	2.6
110129	10×0.34	7.6	8.0	3.3
110131	12×0.34	7.7	8.8	3.9
110719	16×0.34	8.9	12.6	5.2
110135	18×0.34	9.0	12.8	5.9
110945	20×0.34	9.6	15.9	6.5
0.5 mm²				
108125	2×0.5	5.0	3.5	1.0
100327	3×0.5	5.3	4.2	1.4
100338	4×0.5	5.9	5.2	1.9
101052	5×0.5	6.5	7.7	2.4
100918	6×0.5	7.1	9.0	2.9
108126	7×0.5	7.1	10.0	3.4
100920	8×0.5	7.7	12.0	3.8
100922	10×0.5	8.6	12.5	4.8
100964	12×0.5	8.9	13.3	5.8
100948	16×0.5	10.0	15.2	7.7
108128	20×0.5	11.5	19.0	9.6
100951	24×0.5	12.2	23.7	11.5
0.75 mm²				
108130	2×0.75	5.6	4.7	1.4
108131	4×0.75	6.3	5.0	2.8
108132	5×0.75	7.1	6.0	3.6
108133	7×0.75	7.7	8.0	5.0
108134	10×0.75	9.6	11.0	7.2
108317	12×0.75	10.1	14.5	8.6
108136	16×0.75	11.5	19.0	11.5
108137	20×0.75	12.5	24.0	14.4
108138	24×0.75	13.6	25.0	17.3

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · shielded

LÜTZE ELECTRONIC LiY (C)Y GREY



Application

- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- In low voltage switchgears and communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- PVC Flame-retardant, self-extinguishing
- Very good shielding attenuation
- Outer jacket special-PVC TI2 according to HD 21.1
- Largely resistant to acids and bases
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage

up to 0.34 mm ²	300 V
from 1,5 mm ²	500 V

Test voltage

up to 0.34 mm ²	1200 V
after 0.5 mm ²	2000 V

Insulation resistance min. 20 MΩ × km

Operating capacitance approx. 120 – 150 pF/m

Temperature range

moving	-5 °C to +70 °C
fixed	-30 °C to +70 °C

Minimum bending radius

fixed	Cable diameter × 6
for free movement	Cable diameter × 12

Burning behaviour

Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers, foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
111206	(2×0.14)	3.7	2.1	1.3
108147	(3×0.14)	3.9	2.5	1.4
108149	(4×0.14)	4.1	2.9	1.4
110929	(5×0.14)	4.4	3.5	2.0
111086	(6×0.14)	4.7	3.8	2.2
110658	(7×0.14)	4.7	4.1	2.4
110722	(8×0.14)	5.0	4.5	2.6
110710	(10×0.14)	5.9	5.6	2.9
110736	(12×0.14)	6.1	6.1	3.2
118466	(16×0.14)	6.8	8.1	4.9
118481	(18×0.14)	7.1	9.2	5.4
110478	(21×0.14)	7.4	10.6	6.0
118438	(25×0.14)	8.3	12.0	7.8
0.25 mm²				
110993	(2×0.25)	4.3	2.0	1.5
118430	(3×0.25)	4.5	3.5	1.8
118439	(4×0.25)	4.8	4.4	2.2
108154	(5×0.25)	5.2	5.0	2.5
118406	(6×0.25)	5.8	5.8	3.0
110650	(7×0.25)	5.8	6.0	3.2
118407	(8×0.25)	6.2	6.7	3.5
110475	(10×0.25)	7.3	8.1	4.2
118467	(12×0.25)	7.5	9.1	5.0
100552	(16×0.25)	8.2	13.3	7.1
118476	(18×0.25)	8.6	13.7	8.0
111327	(21×0.25)	9.0	17.1	10.5
110471	(25×0.25)	10.7	19.0	11.7
0.34 mm²				
110787	(2×0.34)	4.7	3.3	1.7
110371	(3×0.34)	5.2	4.1	2.1
110743	(4×0.34)	5.5	4.8	2.5
118408	(5×0.34)	6.0	5.8	3.0
118409	(6×0.34)	6.4	6.4	3.6
118410	(7×0.34)	6.4	7.0	4.2
118411	(8×0.34)	7.1	9.3	4.5
118421	(10×0.34)	8.1	11.0	6.3
110790	(12×0.34)	8.3	12.0	7.0
101280	(16×0.34)	9.2	14.7	8.7
110717	(18×0.34)	10.2	17.2	10.8
118427	(21×0.34)	10.7	19.6	12.7
101281	(24×0.34)	11.7	22.9	14.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables · shielded

LÜTZE ELECTRONIC LiY (C)Y GREY



Application

- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- In low voltage switchgears and communications engineering
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- PVC Flame-retardant, self-extinguishing
- Very good shielding attenuation
- Outer jacket special-PVC TI2 according to HD 21.1
- Largely resistant to acids and bases
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage

up to 0.34 mm ²	300 V
from 1,5 mm ²	500 V

Test voltage

up to 0.34 mm ²	1200 V
after 0.5 mm ²	2000 V

Insulation resistance

min. 20 MΩ × km

Operating capacitance

approx. 120 – 150 pF/m

Temperature range

moving	-5 °C to +70 °C
fixed	-30 °C to +70 °C

Minimum bending radius

fixed	Cable diameter × 6
for free movement	Cable diameter × 12

Burning behaviour

Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers, foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111324	(1×0.5)	3.2	2.0	1.4
118320	(2×0.5)	5.2	4.2	2.9
118413	(3×0.5)	5.7	5.5	3.5
118412	(4×0.5)	6.1	6.8	4.5
110720	(5×0.5)	6.8	8.2	5.0
110374	(7×0.5)	7.4	10.9	6.8
118471	(8×0.5)	7.9	12.3	7.5
101423	(10×0.5)	9.1	13.5	9.3
118991	(12×0.5)	9.4	16.0	10.7
110507	(16×0.5)	10.9	21.0	12.9
110742	(18×0.5)	11.5	23.7	15.2
110514	(25×0.5)	13.5	33.5	21.1
0.75 mm²				
118300	(1×0.75)	3.5	2.0	1.8
118414	(2×0.75)	5.8	5.0	3.5
118298	(3×0.75)	6.1	7.1	4.6
118299	(4×0.75)	6.8	7.8	5.6
118295	(5×0.75)	7.4	10.0	7.0
110376	(6×0.75)	8.0	11.6	8.5
118349	(7×0.75)	8.0	13.1	9.0
118445	(8×0.75)	8.5	15.1	11.0
110399	(10×0.75)	10.5	17.3	13.1
110477	(12×0.75)	10.8	21.8	14.8
111117	(16×0.75)	12.1	29.0	18.3
1.0 – 1.5 mm²				
108057	(2×1.0)	6.1	7.4	4.5
110915	(3×1.0)	6.4	9.0	5.4
110917	(4×1.0)	7.2	10.7	6.9
110918	(5×1.0)	7.8	13.2	8.2
110919	(7×1.0)	8.4	15.8	10.6

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

PVC electronic cables· stranded pairs, shielded

LÜTZE ELECTRONIC LiY (C)Y TP



Application

- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- In low voltage switchgears and communications engineering
- In office machines and computers
- In dry and moist rooms
- For flexible application for free movement and without tensile loading

Properties

- PVC flame-retardant, self-extinguishing
- Very good shielding attenuation
- High crosstalk attenuation through paired stranding
- Widely resistant to oils, greases, acids and bases
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage

up to 0.34 mm ²	300 V
from 1,5 mm ²	500 V

Test voltage

up to 0.34 mm ²	1200 V
after 0.5 mm ²	2000 V

Insulation resistance min. 20 MΩ × km

Operating capacitance approx. 120 – 150 pF/m

Temperature range

moving	-5 °C to +70 °C
fixed	-30 °C to +70 °C

Minimum bending radius

fixed	Cable diameter × 6
for free movement	Cable diameter × 12

Burning behaviour

Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded pairs, foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Jacket special PVC TM2 according to HD21.1, matt, adhesion-free surface
- Jacket colour grey RAL 7032

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
110600	(2×2×0.14)	5.1	3.5	1.8
110601	(3×2×0.14)	5.5	4.2	2.3
110602	(4×2×0.14)	6.3	5.0	2.5
101321	(5×2×0.14)	6.9	7.0	2.8
110604	(6×2×0.14)	7.3	8.5	3.8
110659	(8×2×0.14)	8.1	9.0	4.8
110606	(10×2×0.14)	8.9	11.5	6.0
110607	(12×2×0.14)	9.3	12.5	7.3
110609	(16×2×0.14)	10.5	14.8	9.8
110611	(20×2×0.14)	11.5	18.5	11.5
0.25 mm²				
110618	(2×2×0.25)	6.5	4.6	2.4
110619	(3×2×0.25)	6.7	5.7	3.5
110620	(4×2×0.25)	7.5	7.7	4.2
118195	(5×2×0.25)	8.0	8.7	5.0
110622	(6×2×0.25)	9.0	10.4	5.8
118251	(8×2×0.25)	9.4	11.8	7.0
110625	(10×2×0.25)	11.1	14.0	10.2
110626	(12×2×0.25)	12.1	19.0	12.0
110629	(20×2×0.25)	14.1	26.2	16.0
0.34 mm²				
110633	(2×2×0.34)	6.6	5.2	2.6
110634	(3×2×0.34)	7.4	6.8	4.0
110635	(4×2×0.34)	8.2	9.0	5.2
110637	(6×2×0.34)	9.6	13.7	6.8
118252	(8×2×0.34)	10.9	13.9	8.8
110665	(10×2×0.34)	12.3	14.3	12.2
118297	(25×2×0.34)	18.1	41.5	26.6
0.5 mm²				
110641	(2×2×0.5)	8.0	8.7	4.6
110642	(3×2×0.5)	8.6	10.9	6.4
110643	(4×2×0.5)	9.6	13.9	8.2
110248	(5×2×0.5)	11.8	17.6	9.8
110660	(6×2×0.5)	11.3	18.0	10.8
110645	(8×2×0.5)	12.0	23.8	13.6
118244	(10×2×0.5)	14.1	28.4	16.0
118322	(12×2×0.5)	15.0	32.4	18.6
110647	(16×2×0.5)	17.6	44.6	24.0
0.75 mm²				
110651	(2×2×0.75)	8.6	10.6	5.8
110137	(3×2×0.75)	9.5	14.0	8.4
110653	(4×2×0.75)	10.8	17.9	10.8
110795	(5×2×0.75)	12.2	22.4	12.6
111109	(6×2×0.75)	12.5	24.6	14.6
110829	(8×2×0.75)	14.8	30.5	18.8
111232	(12×2×0.75)	17.6	45.6	26.1
110745	(16×2×0.75)	21.5	49.2	33.6

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

9. Halogen-free data and control cables



Halogen-free data cables · shielded

HALOGENFLEX D(C)PUR



Application

- Ideal for all application locations in which the release of halogens in the event of fire is to be avoided, above all in rooms and public buildings with high concentrations of people as well as machine and device construction, transport and conveyor technology, heating, climate technology
- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- Connection and data cable for signal, measurement and data transmission for telephone and voice transmission
- In dry and moist rooms
- As control, measurement and regulation cable medium operating conditions
- For flexible application without compulsory guide

Properties

- Environmentally friendly halogen-free cable
- Halogen-free conductors prevent poisonous and corrosive fire gases from damaging property and causing injury to people
- Very good shielding attenuation
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300
Test voltage	1200 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-25 °C to +70 °C
fixed	-40 °C to +70 °C
Minimum bending radius	
moving	Cable diameter × 12
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1
Halogen-free	according to VDE 0482 T. 267-2-1; EN 50267-2-1; IEC 60754-1
Corrosiveness of smoke emissions	according to VDE 0482 T. 267-2-2; EN 50267-2-2; IEC 60754-2

Design

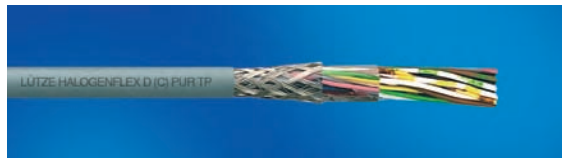
- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special-TPE conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001 or 7032

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
113780	(2×0.14)	3.9	2.0	0.7
113781	(3×0.14)	4.1	2.4	1.2
113782	(4×0.14)	4.6	2.7	1.4
113783	(5×0.14)	4.9	3.2	1.6
113784	(7×0.14)	5.2	3.9	2.0
113785	(10×0.14)	6.5	5.5	3.3
113786	(12×0.14)	6.7	6.0	3.0
113787	(18×0.14)	7.6	8.8	5.0
113788	(25×0.14)	9.1	11.3	6.3
0.25 mm²				
113791	(3×0.25)	4.7	2.9	1.8
113792	(4×0.25)	4.8	3.4	2.2
113793	(5×0.25)	5.6	4.3	2.5
113794	(7×0.25)	6.0	5.1	3.0
113795	(10×0.25)	7.4	8.0	5.0
113796	(12×0.25)	7.6	9.4	5.0
113797	(18×0.25)	8.8	12.7	7.8
113798	(25×0.25)	10.2	16.5	9.2
0.34 mm²				
113801	(3×0.34)	5.3	3.9	2.0
113802	(4×0.34)	5.3	4.7	2.4
113803	(5×0.34)	6.4	5.8	2.9
113804	(7×0.34)	6.9	7.7	4.4
113805	(10×0.34)	8.4	11.2	6.0
113806	(12×0.34)	8.7	11.8	6.5
113807	(18×0.34)	10.1	17.1	9.5
113808	(25×0.34)	12.3	22.7	14.2
0.5 mm²				
113810	(2×0.5)	5.2	3.6	1.9
113811	(3×0.5)	5.5	4.6	2.5
113812	(4×0.5)	5.9	6.2	3.7
113813	(5×0.5)	6.3	7.6	4.4
113814	(7×0.5)	7.3	9.9	5.8
113815	(10×0.5)	8.8	12.2	7.6
113816	(12×0.5)	9.2	14.1	8.8
113817	(18×0.5)	10.5	21.0	12.1
113818	(25×0.5)	13.0	28.4	18.8
0.75 mm²				
113820	(2×0.75)	5.8	4.7	2.5
113821	(3×0.75)	6.1	5.2	3.7
113822	(4×0.75)	6.8	7.8	4.9
113823	(5×0.75)	7.1	9.0	5.8
113824	(7×0.75)	8.0	12.0	7.8
113825	(10×0.75)	10.0	17.6	12.3
113826	(12×0.75)	10.2	19.7	11.9
113827	(18×0.75)	11.8	20.3	16.8

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Halogen-free data cables · stranded pairs, shielded

HALOGENFLEX D (C)PUR TP



Application

- Ideal for all application locations in which the release of halogens in the event of fire is to be avoided, above all in rooms and public buildings with high concentrations of people as well as machine and device construction, transport and conveyor technology, heating, climate technology
- In dry and moist rooms
- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- As control, measurement and control cable for medium operating conditions
- For flexible use without compulsory guide

Properties

- Environmentally friendly, halogen-free data cable
- High active and passive interference resistance
- High crosstalk attenuation through paired stranding
- Low capacitance, very good electrical properties
- Very good cold flexibility
- Halogen-free, no corrosive gases
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant, hydrolisis-resistant, microbe-resistant, and rot-resistant
- Widely resistant to acids and bases (see tech. information)
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-15 °C to +80 °C
fixed	-40 °C to +80 °C
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1
Halogen-free	Halogen-free according to VDE 0482 T. 267-2-1; EN 50267-2-1; IEC 60754-1
Corrosiveness of smoke emissions	according to VDE 0482 T. 267-2-2; EN 50267-2-2; IEC 60754-2

Design

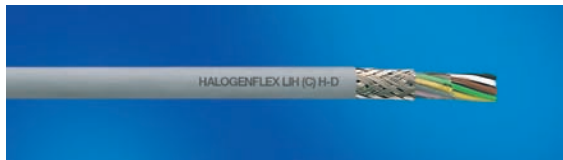
- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special-TPE conductor insulation
- Conductors colour-coded according to DIN 47100
- Conductors stranded pairs
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Full polyurethane jacket, matt, adhesion-free surface
- Jacket colour grey RAL 7001

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
113860	(2×2×0.14)	5.5	3.8	2.1
113861	(3×2×0.14)	5.8	4.8	2.5
113862	(4×2×0.14)	6.2	5.4	2.4
113863	(6×2×0.14)	7.3	5.6	3.8
113864	(7×2×0.14)	7.5	9.5	5.3
113865	(12×2×0.14)	9.3	13.7	7.8
0.25 mm²				
113868	(2×2×0.25)	6.0	4.5	2.6
113869	(3×2×0.25)	6.8	6.9	4.1
113870	(4×2×0.25)	7.0	8.3	5.0
113871	(6×2×0.25)	8.0	11.5	6.5
113872	(7×2×0.25)	8.5	11.9	7.0
113873	(12×2×0.25)	10.6	17.6	10.7
113874	(15×2×0.25)	11.8	21.3	12.3
0.34 mm²				
113876	(2×2×0.34)	6.9	6.9	4.2
113877	(3×2×0.34)	7.4	8.4	4.0
113878	(4×2×0.34)	8.0	9.4	5.2
113879	(6×2×0.34)	9.4	14.9	8.4
113880	(7×2×0.34)	10.0	15.4	9.1
113881	(12×2×0.34)	12.5	24.5	13.9
0.5 mm²				
113884	(2×2×0.5)	7.3	7.1	4.1
113885	(3×2×0.5)	7.9	9.2	5.3
113886	(4×2×0.5)	9.0	12.5	6.6
113887	(6×2×0.5)	10.5	17.8	10.7
113888	(7×2×0.5)	11.2	18.6	11.7
113889	(12×2×0.5)	14.5	33.2	20.3
0.75 mm²				
113892	(2×2×0.75)	8.0	10.5	6.4
113893	(3×2×0.75)	8.6	13.8	7.0
113894	(4×2×0.75)	10.0	16.8	10.6
113895	(6×2×0.75)	12.0	23.7	13.8
113896	(7×2×0.75)	12.5	25.4	16.0
113897	(12×2×0.75)	15.8	43.3	24.2

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Halogen-free data cables · shielded

HALOGENFLEX LIH (C) H-D



Application

- Ideal for all application locations in which the release of halogens in the event of fire is to be avoided, above all in rooms and public buildings with high concentrations of people
- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- Connection and data cable for signal, measurement and data transmission for telephone and voice transmission.
- In dry and moist rooms
- As control, measurement and regulation cable medium operating conditions
- For flexible application without compulsory guide

Properties

- Environmentally friendly halogen-free cable
- Halogen-free conductors prevent poisonous and corrosive fire gases from damaging property and causing injury to people
- Very good shielding attenuation
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300
Test voltage	1200 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-25 °C to +70 °C
fixed	-40 °C to +70 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1
Halogen-free	according to VDE 0482 T. 267-2-1; EN 50267-2-1; IEC 60754-1
Corrosiveness of smoke emissions	according to VDE 0482 T. 267-2-2; EN 50267-2-2; IEC 60754-2
Smoke density	VDE 0482 section 268-2; EN 50268-2;

Design

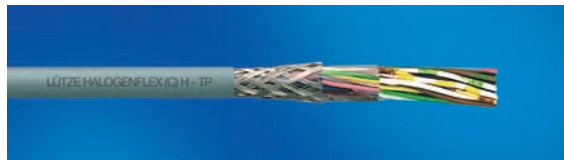
- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special conductor insulation HI2 according to VDE 0207 T. 23
- Conductors colour-coded according to DIN 47100
- Conductors stranded layers
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Outer jacket Flame-retardant, halogen-free special thermoplast HM2 according to VDE 0207T. 24
- Jacket colour grey RAL 7001 or 7032

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
103681	(3×0.14)	4.0	2.4	1.2
103682	(4×0.14)	4.2	2.8	1.4
103683	(5×0.14)	4.9	3.3	1.7
103684	(7×0.14)	4.9	3.9	2.0
103685	(10×0.14)	5.8	5.3	3.4
103686	(12×0.14)	6.6	7.1	3.7
103687	(18×0.14)	7.6	9.4	4.9
103688	(25×0.14)	9.1	12.7	6.3
0.25 mm²				
103690	(3×0.25)	4.7	3.3	1.7
103691	(4×0.25)	5.0	3.9	2.0
103692	(5×0.25)	5.5	4.6	2.4
103693	(7×0.25)	6.1	6.4	3.7
103694	(10×0.25)	6.8	8.4	5.1
103695	(12×0.25)	8.0	10.2	5.7
103696	(18×0.25)	8.4	13.8	8.6
103697	(25×0.25)	11.3	20.1	11.1
0.34 mm²				
103699	(3×0.34)	4.9	3.7	2.0
103700	(4×0.34)	5.3	4.4	2.5
103701	(5×0.34)	6.0	6.1	3.6
103702	(7×0.34)	6.4	7.3	4.4
103703	(10×0.34)	8.3	10.8	6.1
103704	(12×0.34)	8.4	11.7	6.7
103705	(18×0.34)	10.0	17.4	10.7
103706	(25×0.34)	11.9	23.7	13.6
0.5 mm²				
103707	(2×0.5)	5.6	4.1	2.2
103708	(3×0.5)	6.4	6.4	3.4
103709	(4×0.5)	6.8	7.6	4.1
103710	(5×0.5)	7.5	8.8	4.8
103711	(7×0.5)	8.0	11.2	6.1
103712	(10×0.5)	9.6	16.5	9.7
103713	(12×0.5)	10.2	18.3	10.7
103714	(18×0.5)	12.3	26.2	14.6
103715	(25×0.5)	14.3	34.1	18.9
0.75 mm²				
103717	(3×0.75)	7.0	7.7	4.4
103718	(4×0.75)	7.6	10.0	5.4
103719	(5×0.75)	8.3	11.1	6.4
103720	(7×0.75)	9.1	14.8	9.1
103721	(10×0.75)	11.7	21.6	12.6
103722	(12×0.75)	11.8	23.8	14.1
103723	(18×0.75)	13.8	32.9	19.9
103724	(25×0.75)	16.5	44.5	25.9

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Halogen-free data cables · stranded pairs, shielded

HALOGENFLEX LIH (C) H-D TP



Application

- Ideal for all application locations in which the release of halogens in the event of fire is to be avoided, above all in rooms and public buildings with high concentrations of people
- For trouble-free transmission in all areas of electronics, measuring, control and regulation technology
- Connection and data cable for signal, measurement and data transmission for telephone and voice transmission.
- In dry and moist rooms
- As control, measurement and regulation cable medium operating conditions

Properties

- Environmentally friendly halogen-free cable
- Halogen-free conductors prevent poisonous and corrosive fire gases from damaging property and causing injury to people
- Very good shielding attenuation
- High crosstalk attenuation through paired stranding
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	1200 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-25 °C to +70 °C
fixed	-40 °C to +70 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 6
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1
Halogen-free	according to VDE 0482 T. 267-2-1; EN 50267-2-1; IEC 60754-1
Corrosiveness of smoke emissions	according to VDE 0482 T. 267-2-2; EN 50267-2-2; IEC 60754-2
Smoke density	VDE 0482 section 268-2; EN 50268-2;

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special conductor insulation HI2 according to VDE 0207 T. 23
- Conductors colour-coded according to DIN 47100
- Conductors stranded pairs, foil banding
- Meshwork from tinned copper wire braid, optical covering ≥ 85 %
- Outer jacket Flame-retardant, halogen-free special thermoplast HM2 according to VDE 0207T. 24
- Jacket colour grey RAL 7001 or 7032

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
103780	(2×2×0.14)	5.2	3.5	1.9
103781	(3×2×0.14)	5.4	3.8	2.2
103782	(4×2×0.14)	5.5	4.3	3.2
103783	(5×2×0.14)	6.2	4.9	3.5
103784	(8×2×0.14)	7.5	9.5	5.1
103785	(10×2×0.14)	8.3	11.2	6.0
0.25 mm²				
103786	(2×2×0.25)	6.7	4.5	3.1
103787	(3×2×0.25)	7.1	6.7	3.7
103788	(4×2×0.25)	7.9	8.3	4.5
103789	(5×2×0.25)	8.6	8.6	5.3
103790	(8×2×0.25)	9.9	12.3	8.4
103791	(10×2×0.25)	11.2	13.0	10.1
0.34 mm²				
103792	(2×2×0.34)	7.0	6.9	3.5
103793	(3×2×0.34)	7.4	9.4	4.4
103794	(4×2×0.34)	8.3	11.1	5.5
103795	(5×2×0.34)	9.3	12.3	7.5
103796	(8×2×0.34)	10.5	15.9	10.1
103797	(10×2×0.34)	12.2	20.9	12.2
0.5 mm²				
103798	(2×2×0.5)	8.7	7.8	4.7
103799	(3×2×0.5)	9.2	10.9	5.9
103800	(4×2×0.5)	10.8	13.5	7.3
103801	(5×2×0.5)	11.9	16.1	10.1
103802	(8×2×0.5)	13.4	19.4	13.8
103803	(10×2×0.5)	15.1	24.4	16.7
0.75 mm²				
103804	(2×2×0.75)	9.8	10.5	7.1
103805	(3×2×0.75)	10.4	13.8	8.9
103806	(4×2×0.75)	10.7	15.8	11.1
103807	(5×2×0.75)	13.3	19.9	13.3
103808	(8×2×0.75)	15.0	27.1	18.6
103809	(10×2×0.75)	17.5	34.3	22.6

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

10. Compensating cables



Compensation cables

COMFLEX



Application

- Temperature measurement and regulation with thermo elements in all processing areas

Properties

- Compensation cables are required for the precise temperature measurements. The thermovoltage created by the thermoelement is conducted to the measuring device over the compensation cable. The compensation cable consists of a positive and a negative conductor which create the same thermovoltage as the thermoelement at 200°C.
- Compensation cables are composed of an alloy and are not identical with the associated thermoelement

Technical data

Test voltage	500 V
Insulation resistance	min. 10 MΩ × km
Temperature range	
PVC	-5 °C to +70 °C
Silicon	-25 °C to +180 °C
Burning behaviour	Flame-retardant according to VDE 0482 part 265-2; DIN EN 50265-2; IEC 60332-1;
Halogen-free	Silicone cables: according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Conductor from special material, material see table
- Conductor insulation see order details
- Conductor labelling coloured, with multi-paired conductors additional number printing
- Conductors stranded pairs
- Designs with steel wire braid are labelled with "+S" (inside jacket steel braid outer jacket)
- GL=Glass silk
- SI=Silicon
- Jacket colour see order details
- _ = use order designation/element short abbreviation

AC = compensation cable Cu-CuNi

AE = compensation cable Fe-CuNi

AN = compensation cable NiCr-Ni

AP = compensation cable PtRh-Pt

Cu-CuNi (AC) Cu=brown(+); CuNi=white(-); Jacket brown;

Element T

Fe-CuNi (AE) Fe=red(+); CuNi=blue(-); Jacket blue, Element L;

NiCr-Ni (AN) NiCr= green(+); Ni=white(-); Jacket green;

Element K;

PtRh-Pt (AP) PtRh=orange(+); Pt=white(-); Jacket orange;

Element R/S

Part-No.	Type	Number of strands/ cross-section	Insulation/Jacket	Outer Ø approx. mm	Weight kg/100 m
COMFLEX					
110351	A_12L	1×2×1.5	PVC-PVC	4,3×7,0	7.0
110353	A_9L	1×2×1.5	PVC-PVC	7	10.0
110359	A_13L	1×2×1.5	Silicon-GL	3,2×5,9	5.0
110360	A_3LN	1×2×1.5	Silicon SI	4,3×7,0	6.0
110361	A_4LN	1×2×1.5	Silicon SI+S	5,1×7,8	9.0
110362	A_15L	1×2×1.5	Silicon SI	7	8.0
110363	A_15 LP	1×2×1.5	Silicon SI+S	7,8	12.0
110364	A_11LR	1×2×1.5	Silicon-GL+S	6,7	10.0
110381	A_9-4L	2×2×1.5	PVC-PVC	8,1	12.0
110382	A_9-6L	3×2×1.5	PVC-PVC	10,1	17.5
110383	A_9-12L	6×2×1.5	PVC-PVC	13,2	30.5
110384	A_9-16L	8×2×1.5	PVC-PVC	15,1	45.5
110385	A_9-20L	10×2×1.5	PVC-PVC	16,7	63.0
110386	A_9-24L	12×2×1.5	PVC-PVC	19	71.0
110387	A_9-32L	16×2×1.5	PVC-PVC	21,3	89.0
110388	A_9-36L	18×2×1.5	PVC-PVC	22,1	97.0
110389	A_9-40L	20×2×1.5	PVC-PVC	24,1	110.0
110401	A_9-2LSY	1×2×1.5	PVC-PVC+S PVC	9,8	18.5
110402	A_9-4LSY	2×2×1.5	PVC-PVC+S PVC	10,9	24.5
110403	A_9-6LSY	3×2×1.5	PVC-PVC+S PVC	13,3	33.0
110404	A_9-12LSY	6×2×1.5	PVC-PVC+S PVC	17	52.0
110405	A_9-16LSY	8×2×1.5	PVC-PVC+S PVC	18,9	70.0
110406	A_9-20LSY	10×2×1.5	PVC-PVC+S PVC	20,5	86.0
110407	A_9-24LSY	12×2×1.5	PVC-PVC+S PVC	23,8	102.0
110408	A_9-32LSY	16×2×1.5	PVC-PVC+S PVC	26,1	122.0
110409	A_9-36LSY	18×2×1.5	PVC-PVC+S PVC	26,9	129.0
110410	A_9-40LSY	20×2×1.5	PVC-PVC+S PVC	28,9	143.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

11. Spiral cable



PUR Coil cables unshielded

LÜTZE PURFLEX



Application

- Machine and device construction , transport and conveyor technology
- Especially for industrial environments, machines and plants
- Lifting platforms, test benches and measuring systems as well as door drives

Properties

- Very good restoring force
- Low adhesion, abrasion-proof, nick-resistant, tear-propagation-resistant
- Hydrolisis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good industrial- and salt water resistance
- Widely resistant to oils, greases, alcohol-free benzines and kerosene
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	3000 V
Insulation resistance	min. 20 MΩ × km
Temperature range	
moving	-20 °C to +80 °C
unmoving	-40 °C to +80 °C

Design

- Bare copper wire, multi-strand according to DIN VDE 0295 class 5, IEC 60228 class 5
- Special PVC conductor insulation
- Conductors coloured according to DIN VDE 0293-308 (new)
- 2-wire: brown, blue
- 3-wire: greenyellow, brown, blue
- 4-wire: greenyellow, brown, black, grey
- 5-wire: greenyellow, blue, brown, black, grey
- starting with 6 conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- Polyurethane jacket, matt, adhesion-free surface
- Jacket colour
- up to 5-wires orange RAL 2003
- starting with 6-wires black RAL 9005

Part-No.	Number of strands/cross-section	Coil-Ø approx. mm	Spiral length, WL mm	Max. extension length, AL mm	Connection end, AE mm
PURFLEX					
190003	3×1.5	30	500	2250	250
190007	3×1.5	30	1000	4000	250
190012	3×1.5	30	1500	5750	250
190016	3×1.5	30	2000	7500	250
190004	4×1.5	33	500	2250	250
190008	4×1.5	33	1000	4000	250
190013	4×1.5	33	1500	5750	250
190017	4×1.5	33	2000	7500	250
190005	5×1.5	40	500	2250	250
190009	5×1.5	40	1000	4000	250
190014	5×1.5	40	1500	5750	250
190018	5×1.5	40	2000	7500	250
190559	5×1.5	40	2000	7000	600
190570	7×1.5	46	1000	4000	600
190560	7×1.5	46	2000	7000	600
190006	12×1.5	70	500	2250	250
190010	12×1.5	70	1000	4000	250
190015	12×1.5	70	1500	5750	250
190019	12×1.5	70	2000	7500	250

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Design questionnaire for spiral cables

Company: _____
 Contact person: _____
 Department: _____
 Street address: _____
 Postal code, city/town: _____
 Telephone: _____
 Fax: _____



Germany

Friedrich Lütze GmbH & Co. KG
 Tel.: +49 (0)71 51 60 53-0
 Fax: +49 (0)71 51 60 53-277(-288)
 info@luetze.de

Switzerland

LÜTZE AG
 Tel.: +41 (0)55 450 23 23
 Fax: +41 (0)55 450 23 13
 info@luetze.ch

Austria

LÜTZE Elektrotechnische
 Erzeugnisse Ges.m.b.H.
 Tel.: +43 (0)1 257 52 52-0
 Fax: +43 (0)1 257 52 52-20
 office@luetze.at

Please let us know your requirements using this design questionnaire for spiral cables:

L: _____ mm L0: _____ mm
 Ø AD: _____ mm Ø WD: _____ mm
 L1: _____ mm L2: _____ mm
 L3: _____ mm L4: _____ mm
 L5: _____ mm L6: _____ mm
 Quantity: _____ pcs.

Purpose

Installation situation: _____

Winding direction: _____

Standard cable art. no.: _____

Jacket insulation material: _____

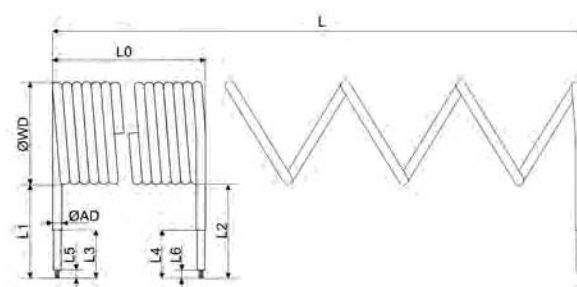
Number of strands: _____

Strand cross-section: _____ mm²

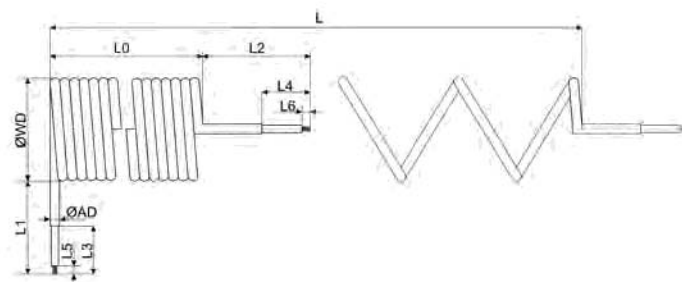
Shielding: ☐ yes ☐ no

Please fill out this questionnaire and fax it back to us. We will be happy to give you a quotation.

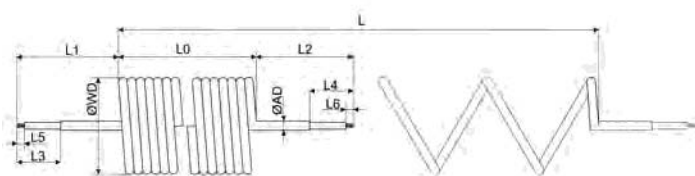
Thank you!



☐ Cable outlets, radial



☐ Cable outlets, radial and axial



☐ Cable outlets, axial

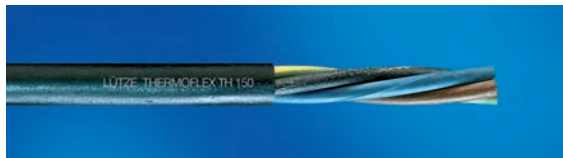
Comments

12. Temperature-resistant cables



Temperature-resistant networked control cables

LÜTZE THERMOFLEX TH 150



Application

- The wide range of application temperatures of networked materials means that they can be used in the most extreme climatic conditions.
- In machine and plant construction at high ambient temperatures and extremely harsh operating conditions
- Optimally suited for use outdoors under extreme conditions
- Wherever constant ambient temperatures up to +130 °C are present
- Heating, climate and ventilation technology

Properties

- High resistance to welding beads
- Temperature and hot air resistant control cable
- halogen-free, no corrosive gases
- High electrical dielectric strength
- Optimal resistance to weathering, UV and abrasion
- Free from paint wetting impairment substances (LABS-free), RoHS-compliant

Technical data

Voltage	
U ₀ /U	450/750 V
Test voltage	2500 V
Insulation resistance	min. 200 MΩ × km
Temperature range	-50 °C to +150 °C
Hot deformation resistance	up to 150 °C according to DIN EN 60811-3-1
Minimum bending radius	
moving	Cable diameter × 10
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2-1; IEC 60332-1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper braid galvanised, fine stranded according to DIN VDE 0295 class 5 and IEC 60228 class 5
- Conductor insulation networked polyolefin copolymer
- Conductor colour according to DIN VDE 0293-308 (new)
- 2-wire: brown, blue
- 3-wire: greenyellow, brown, blue
- 4-wire: greenyellow, brown, black, grey
- 5-wire: greenyellow, blue, brown, black, grey
- starting with 6 conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket networked polyolefin copolymer
- Jacket colour black

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111820	2x0.5	4.3	2.8	1.0
111821	3G0.5	4.5	3.4	1.5
111822	4G0.5	4.9	4.1	2.0
111823	5G0.5	5.4	5.1	2.5
111824	7G0.5	5.9	6.5	3.5
0.75 mm²				
111826	2x0.75	4.8	3.7	1.5
111827	3G0.75	5.1	4.5	2.4
111828	4G0.75	5.6	5.7	3.0
111829	5G0.75	6.1	6.7	3.7
111830	7G0.75	6.7	8.7	5.2
1.0 mm²				
111832	2x1.0	5.4	4.9	2.0
111833	3G1.0	5.7	5.9	3.0
111834	4G1.0	6.2	7.3	4.0
111835	5G1.0	6.8	8.6	5.0
111836	7G1.0	7.5	11.5	7.0
1.5 mm²				
111838	2x1.5	6.0	6.2	2.9
110155	3G1.5	6.2	7.7	4.4
110156	4G1.5	6.9	9.5	5.8
110157	5G1.5	7.6	11.6	7.3
110158	7G1.5	8.3	15.2	10.2
2.5 mm²				
111840	2x2.5	7.0	9.1	4.9
111841	3G2.5	7.5	11.8	7.3
111842	4G2.5	8.2	14.6	9.7
111843	5G2.5	9.0	17.6	12.1
111844	7G2.5	10.0	23.6	16.9

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Silicon control cable

LÜTZE SILICON SIHF



Application

- In electrical devices with ambient temperatures up to +180 °C
- In smelting works, steel works and rolling mills, cement, glass and ceramic industries
- In lighting and heating devices
- Flexibly usable for low temperatures

Properties

- Temperature and hot air-resistant control cable
- Halogen-free, no burning transmission
- High dielectric strength
- The mechanical properties are reduced for running under air termination
- Resistant to high-molecular oils, plant and animal based greases, bases, salt solutions and diluted acids
- RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	2000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
continuous	-60 °C to +180 °C
temporary	to +220 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2-1; IEC 60332-1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

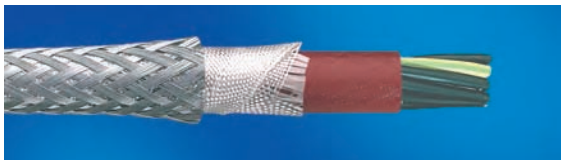
- Bare copper braid galvanised, fine stranded according to DIN VDE 0295 class 5 and IEC 60228 class 5
- Silicon conductor isolation
- Conductor colour according to DIN VDE 0293-308 (new)
 - 2-wire: brown, blue
 - 3-wire: green/yellow, brown, blue
 - 4-wire: green/yellow, brown, black, grey
 - 5-wire: green/yellow, blue, brown, black, grey
- starting with 6 conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
 - G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special silicone rubber, light talcum-powdered
- Jacket colour redbrown

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
118377	2×0.5	5.8	4.0	1.0
110732	3G0.5	6.1	4.7	1.5
111810	4G0.5	6.7	4.9	1.9
111811	5G0.5	7.7	7.5	2.4
110245	7G0.5	8.3	10.0	3.4
110165	12G0.5	10.8	14.1	5.8
110159	16G0.5	11.9	18.6	7.7
0.75 – 1.0 mm²				
110200	2×0.75	6.4	5.7	1.4
110201	3G0.75	6.8	6.6	2.2
110202	4G0.75	7.8	6.8	2.9
110203	5G0.75	8.5	10.5	3.6
110204	7G0.75	9.2	13.1	5.0
110244	12G0.75	11.1	18.5	8.7
110977	16G0.75	12.6	21.8	11.5
1.5 mm²				
110205	2×1.0	6.6	5.9	1.9
110206	3G1.0	7.4	7.7	2.9
110207	4G1.0	8.0	9.4	3.8
110208	5G1.0	8.8	11.5	4.8
110209	7G1.0	9.5	14.4	6.7
110901	12G1.0	11.5	23.1	11.5
110150	16G1.0	13.1	30.2	15.4
1.5 mm²				
110210	2×1.5	7.6	8.1	2.9
110211	3G1.5	8.0	9.8	4.3
110212	4G1.5	8.8	12.2	5.8
110213	5G1.5	9.6	14.7	7.2
110214	7G1.5	10.4	18.7	10.1
110216	12G1.5	14.6	31.4	17.3
110217	16G1.5	16.2	44.5	23.0
110218	20G1.5	18.2	56.6	28.8
110239	24G1.5	20.0	72.2	34.6
2.5 mm²				
110220	2×2.5	9.2	13.4	4.8
110221	3G2.5	9.7	15.2	7.2
110222	4G2.5	10.6	18.8	9.6
110223	5G2.5	11.6	22.8	12.0
110224	7G2.5	13.0	32.0	16.8
110225	12G2.5	17.5	50.2	28.8
4 – 25 mm²				
110226	2×4	10.8	18.0	7.7
110227	3G4	11.4	22.4	11.5
110228	4G4	13.1	29.5	15.4
110229	5G4	14.4	35.9	19.2
110230	7G4	16.2	47.9	26.9
110231	3G6	14.2	33.8	17.3
110232	4G6	16.2	44.1	23.0
110233	5G6	17.7	53.5	28.8
110234	7G6	19.2	68.5	40.3
110235	4G10	20.4	70.7	38.4
110242	5G10	22.5	90.0	48.0
110236	4G16	24.3	71.4	61.6
110243	4G25	31.8	150.0	96.0

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Silicon control cable steel wire-reinforced

LÜTZE SILICON SIHFP



Application

- In electrical devices with ambient temperatures up to +180 °C
- In smelting works, steel works and rolling mills, cement, glass and ceramic industries
- In lighting and heating devices
- Flexibly usable for low temperatures

Properties

- Temperature and hot air-resistant control cable
- Halogen-free, no burning transmission
- High dielectric strength
- The mechanical properties are reduced for running under air termination
- Resistant to high-molecular oils, plant and animal based greases, bases, salt solutions and diluted acids
- RoHS-compliant

Technical data

Voltage	
U ₀ /U	300/500 V
Test voltage	2000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
continuous	-60 °C to +180 °C
temporary	to +220 °C
Minimum bending radius	
moving	Cable diameter × 15
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2-1; IEC 60332-1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper braid galvanised, fine stranded according to DIN VDE 0295 class 5 and IEC 60228 class 5
- Silicon conductor insulation
- Conductor colour according to DIN VDE 0293-308 (new)
 - 2-wire: brown, blue
 - 3-wire: green/yellow, brown, blue
 - 4-wire: green/yellow, brown, black, grey
 - 5-wire: green/yellow, blue, brown, black, grey
- starting with 6 conductors black with white number print according to DIN EN 50334
- Ground conductor green/yellow according to DIN EN 50334 in the top layer
 - G = with green/yellow ground conductor; × = without ground conductor
- Conductors stranded layers
- Jacket special silicone rubber, light talcum-powdered
- Banding Glass silk tape
- Galvanised steel wire braid

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.75 mm²				
110251	2×0.75	6.8	10.7	1.4
110252	3G0.75	7.1	11.5	2.2
110253	4G0.75	7.7	12.0	2.9
110254	5G0.75	8.3	17.5	3.6
110255	7G0.75	9.2	20.9	5.0
1.0 mm²				
110256	2×1.0	7.0	12.1	1.9
110257	3G1.0	7.3	14.5	2.9
110258	4G1.0	7.9	15.8	3.8
110259	5G1.0	8.8	20.2	4.8
110260	7G1.0	9.5	23.2	6.7
1.5 mm²				
110261	2×1.5	8.2	12.5	2.9
110262	3G1.5	8.6	14.5	4.3
110263	4G1.5	9.5	17.0	5.8
110264	5G1.5	10.4	20.0	7.2
110265	7G1.5	11.4	24.4	10.1
2.5 mm²				
110271	2×2.5	9.6	22.2	4.8
110272	3G2.5	10.1	22.4	7.2
110273	4G2.5	11.4	29.6	9.6
110274	5G2.5	12.6	34.3	12.0
110275	7G2.5	13.8	41.6	16.8
4 mm²				
110277	2×4	11.2	29.2	7.7
110278	3G4	11.8	33.9	11.5
110279	4G4	13.0	44.6	15.4
110280	5G4	14.4	52.3	19.2
110281	7G4	15.6	58.0	26.9
6 mm²				
110282	3G6	15.0	41.6	17.3
110283	4G6	15.7	60.3	23.0
110284	5G6	18.9	69.8	28.8
110285	7G6	19.8	79.1	40.3
10 – 16 mm²				
110286	4G10	21.6	88.1	38.4
110287	4G16	25.2	122.1	61.4

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Silicon single conductor

LÜTZE SILICON SIF



Application

- In electrical devices with ambient temperatures up to +180 °C
- In smelting works, steel works and rolling mills, cement, glass and ceramic industries
- In lighting and heating devices
- Flexibly usable for low temperatures
- Engines and ignition cables

Properties

- Temperature and hot air-resistant conductor
- Halogen-free, no burning transmission
- High dielectric strength
- The mechanical properties are reduced for running under air termination
- Resistant to high-molecular oils, plant and animal based greases, bases, salt solutions and diluted acids
- RoHS-compliant

Technical data

Voltage	
U	500 V
Test voltage	2000 V
Insulation resistance	min. 200 MΩ × km
Temperature range	
continuous	-60 °C to +180 °C
temporary	to +220 °C
Minimum bending radius	
moving	Cable diameter × 7.5
fixed	Cable diameter × 4
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2-1; IEC 60332-1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Bare copper braid galvanised, fine stranded according to DIN VDE 0295 class 5 and IEC 60228 class 5
- Silicon conductor insulation
- Strand colour preferably black, additional colour upon request

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 – 150 mm²				
110528	0.25	1.6	0.5	0.2
110529	0.5	1.9	0.8	0.5
110530	0.75	2.2	1.1	0.7
110531	1	2.3	1.3	1.0
110532	1.5	2.7	1.8	1.4
110533	2.5	3.4	3.0	2.4
110534	4	4.0	4.5	3.3
110535	6	4.5	6.3	5.8
110549	10	6.8	11.9	9.6
110550	16	7.8	18.6	15.4
110551	25	9.7	28.7	24.0
110552	35	10.9	38.4	33.6
110553	50	13.6	55.0	48.0
110554	70	14.6	73.7	67.2
110555	95	18.0	101.5	91.2
110655	120	19.5	122.1	115.2
110558	150	21.6	152.1	144.0

Glass silk isolated high temperature single conductor

LÜTZE NICKEL BRAID GL



Application

- In electrical devices with ambient temperatures up to +400°C
- For stove and kiln engineering
- In smelting works, steel works and rolling mills, cement, glass and ceramic industries as well as chemical industries
- In lighting and heating devices

Properties

- very good electrical properties
- very good mechanical properties

Technical data

Voltage	
U	300 V
Test voltage	1500 V
Temperature range	
continuous	-60 °C to +350 °C
temporary	to +400 °C
Burning behaviour	Flame-retardant according to VDE 0482 T 265-2; DIN EN 50265-2-1; IEC 60332-1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2

Design

- Multi-strand nickel wire
- Isolation:
 - separating foil
 - counter-running glass silk
 - Heat-resistant impregnation treatment
- Wire colour no colour with coloured label coil

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m
0.75 – 10 mm²			
110536	0.75	3.4	1.3
110537	1.0	3.5	1.5
110538	1.5	3.8	2.1
110539	2.5	4.3	3.3
110540	4	4.9	4.7
110541	6	5.7	6.6
110582	10	7.1	10.5

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Fluoropolymer single conductors

LÜTZE PTFE single conductor

LÜTZE FEP single conductor



Application

- In electrical devices with ambient temperatures up to +180°C or +260°C
- In smelting works, steel works and rolling mills, cement, glass and ceramic industries
- In lighting and heating devices
- Flexibly usable for low temperatures
- Engine and ignition cables
- Everywhere where the highest requirements are placed on the electrical, mechanical and chemical stability

Properties

- Non-flammable
- High isolation resistance and electrical dielectric strength with minimal wall thicknesses
- Small dielectric losses
- Absolute weathering and ozone resistance
- Resistant to high-molecular oils, plant and animal based greases, bases, salt solutions and diluted acids
- Free from paint wetting impairment substances (LABS-free)
- RoHS-compliant

Technical data

Voltage

U 600 V

Test voltage

2500 V

Insulation resistance

min. 2GΩ × km

Temperature range

PTFE -190°C to +280°C
temporary +300°C

FEP -100°C to +205°C
temporary +230°C

Minimum bending radius

moving Cable diameter × 7.5

fixed Cable diameter × 4

Burning behaviour

Flame-retardant according to
VDE 0482 T 265-2;
DIN EN 50265-2-1; IEC 60332-1

Design

- Bare copper wire multi-strand according to DIN VDE 0295
- Conductor insulation fluoropolymer
- Strand colour preferably black, additional colour upon request

Part-No.	Number of strands/cross-section	Outer-Ø approx. mm	Weight kg/100 m	Cu-Index kg/100 m
PTFE single conductor				
111026	0.5	1.4	0.9	0.5
110313	0.75	1.7	1.1	0.7
111027	1.0	1.9	1.4	1.0
110315	1.5	2.2	2.0	1.4
110316	2.5	2.6	3.2	2.4
110785	4	3.3	4.9	3.8
110318	6	4.5	7.1	5.8
111028	10	5.8	12.4	9.6
111029	16	7.0	18.8	15.4
FEP single conductor				
110311	0.25	1.2	0.4	0.2
110312	0.5	1.4	0.9	0.5
110516	0.75	1.7	1.1	0.7
110314	1.0	1.9	1.4	1.0
110517	1.5	2.2	2.0	1.4
110518	2.5	2.6	3.2	2.4
110317	4	3.3	4.9	3.8
110519	6	4.5	7.1	5.8
110319	10	5.8	12.4	9.6
110320	16	7.0	18.8	15.4

13. Actor-Sensor-Interface



Actuator-Sensor-Interface · Overview



24mm



48mm



48mm, pluggable



60mm



60mm, pluggable



M8 / M12 cable

M8 / M12 Boxes IP68

Type	Number of Terminations				Plug-in positions					Termination		Cable length		Form					Page
	M8	M12	3pole	3pole + PE	4pole	4pole + PE	4x	6x	8x	10x	12x	fix cable	fix cable, rewirable	5,0m	10,0m	24mm	48mm	48mm, pluggable	
•	•						•	•	•	•	•	•	•	•	•	•			up to 13.6
•					•		•	•	•	•				•	•	•			13.7
•			•						•			•	•				•		13.8
•			•						•				•				•		13.9
	•		•			•	•		•			•		•	•			•	up to 13.10
	•		•			•	•		•				•					•	up to 13.12

Cord Z

Cord Z					Termination Side 1		Termination Side 2			Cable length										Page
CAN	DeviceNet	Ethernet	Interbus	Profibus	Male straight	Female straight	Male straight	Female straight	Open end	0,3m	0,5m	0,6m	0,7m	0,8m	1,0m	1,5m	2,0m	5,0m	10,0m	
•					•				•								•	•	•	13.14
•						•			•								•	•	•	13.15
•								•		•	•	•	•	•	•	•	•	•	•	13.16
	•				•				•								•	•	•	13.17
	•					•			•								•	•	•	13.18
	•				•			•		•	•	•	•	•	•	•	•	•	•	13.19
		•			•				•								•	•	•	13.20
		•			•			•		•		•			•	•	•	•	•	13.21
			•		•				•								•	•	•	13.22
			•		•				•			•					•	•	•	13.23
				•	•				•								•	•	•	13.24
				•	•				•								•	•	•	13.25
				•	•				•								•	•	•	13.26
				•	•			•		•	•				•	•	•	•	•	13.27

M8 M12 cable with open end

Type	Number of Terminations				Termination										Cable length				Page		
	M8	M12	3pole	4pole	5pole	8pole		Male straight	Male straight shielded	Male angled	Male angled shielded	Female straight	Female straight shielded	Female angled	Female angled shielded	Female angled with LED	2,0m	5,0m	10,0m		
•			•	•				•									•	•	•		13.28
•			•	•					•								•	•	•		13.29
•			•	•								•					•	•	•		13.30
•			•	•									•				•	•	•		13.31
•			•	•										•			•	•	•		13.32
•			•	•											•		•	•	•		13.33
•			•													•	•	•	•		13.34
	•	•	•	•	•	•		•									•	•	•		up to 13.35
	•	•	•	•	•	•			•								•	•	•		up to 13.37
	•	•	•	•	•	•						•					•	•	•		up to 13.39
	•	•	•	•	•	•							•				•	•	•		up to 13.41
	•	•	•	•	•	•								•			•	•	•		up to 13.43
	•	•	•	•	•	•									•		•	•	•		up to 13.45
	•	•	•	•												•	•	•	•		up to 13.47

Actuator-Sensor-Interface · Overview



M8 to M8 Cables

Termination Side 1			Termination Side 2					Number of Term.		Cable length							Page
Male straight	Male straight shielded		Female straight	Female straight shielded	Female angled	Female angled shielded	Female angled with LED	3pole	4pole	0,3m	0,6m	1,0m	1,5m	2,0m	5,0m		
•			•					•	•	•	•	•	•	•	•		13.48
•					•			•	•	•	•	•	•	•	•		13.50
•							•	•	•	•	•	•	•	•	•		13.52
	•			•				•	•	•	•	•	•	•	•		13.49
	•					•		•	•	•	•	•	•	•	•		13.51

M12 to M8 Cables

Termination Side 1			Termination Side 2					Number of Term.		Cable length							Page
Male straight	Male straight shielded		Female straight	Female straight shielded	Female angled	Female angled shielded	Female angled with LED	3pole		0,3m	0,6m	1,0m	1,5m	2,0m	5,0m		
•			•					•		•	•	•	•	•	•		13.53
•					•			•		•	•	•	•	•	•		13.54
•							•	•		•	•	•	•	•	•		13.55

M12 to M12 Cables

Termination Side 1			Termination Side 2					Number of Term.		Cable length									Page
Male straight	Male straight shielded		Female straight	Female straight shielded	Female angled	Female angled shielded	Female angled with LED	3pole	4pole	5pole	8pole	0,3m	0,6m	1,0m	1,5m	2,0m	5,0m		
•			•					•	•	•	•	•	•	•	•	•	•		up to 13.56
•					•			•	•	•	•	•	•	•	•	•	•		up to 13.60
•							•	•	•			•	•	•	•	•	•		13.64
	•			•				•	•	•	•	•	•	•	•	•	•		up to 13.58
	•					•		•	•	•	•	•	•	•	•	•	•		up to 13.62

M12 to Valve plug cables

M12			Valve plug					Number		Cable length							Protection device		Page
Male straight			A	A - Pressure switch	B - DIN	BI - Industry	C - DIN	CI - Industry		3pole	5pole	0,3m	0,6m	1,0m	1,5m	2,0m	Varistor		
•			•	•					•	•	•	•	•	•	•		•		up to 13.65
•					•	•			•	•	•	•	•	•	•		•		13.67
•							•	•	•	•	•	•	•	•	•		•		13.68

Actuator-Sensor-Interface · Overview



M8 - Insulation displacement connection



M12 - Insulation displacement connection



Panel connector with wire



Panel connector USB



Panel connector RJ45



Wall bushing M12/ RJ45

M8 / M12 Connector

Type				Connection								Number of Termination				Connection				Code				Page
				Male straight	Duoplug, straight	Male angled	Male straight shielded	Female straight	Female angled	Female angled shielded	T-connector	3pole	4pole	5pole	8pole	Screw termination	Solder termination	Insulation displacement connection		A-coded	A-coded (CAN)	B-coded (Profi-, Interbus)	D-coded (Ethernet)	
M8				•								•	•			•								13.69
	M12			•				•				•	•					•						13.70
					•							•	•	•	•	•				•				13.71
		•				•			•			•	•	•	•	•				•				13.73
		•						•				•	•	•	•	•				•				13.72
		•			•			•					•					•		•				13.75
		•					•			•			•	•	•	•				•	•			13.78
		•					•			•			•	•	•	•						•		13.79
		•					•			•			•			•							•	13.80
		•			•							•	•			•				•				13.76
•	•			•	•			•			•	•	•	•	•	•				•				13.77

Panel Connector

Type				Connection Side 1			Connection Side 2			Number of Termination				Code		Cable lenght									Page
				Male	Female		Male	Female	Open end	3pole	4pole	5pole	8pole	A-coded	D-coded (Ethernet)	0,3m	0,5m	0,6m	0,8m	1,0m	1,5m	2,0m	3,0m	5,0m	
M8				•	•				•		•	•	•	•			•								13.81
	•			•	•				•	•	•	•	•				•								13.82
		•			•				•		•				•		•								13.83
		•		•	•		•			•						•	•	•	•	•	•	•	•	•	13.84
		•		•	•			•					•												13.85
	•	•		•	•		•			•		•	•												13.86

Accessories

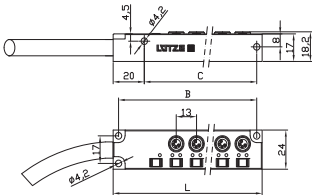
Type			Other		Page
			protection cap	Identification unit	
M8			•		13.87
	•			•	13.88

Actuator sensor interface · M8 - Actuator sensor box IP 68

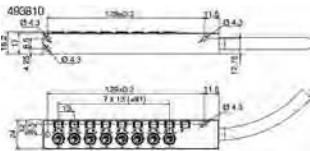
M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
4-way, 6-way, 8-way / 3-pole
c-track compatible



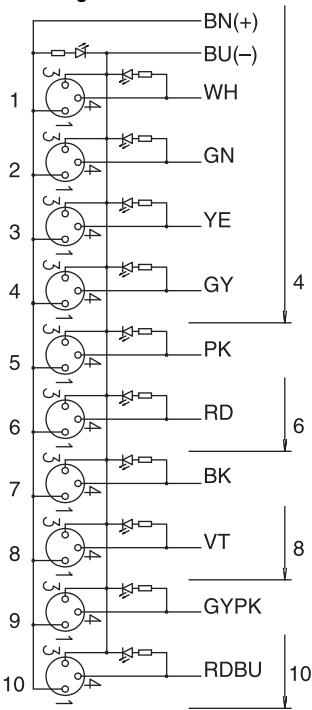
Dimensions



	L	B ^{+0.1} _{-0.1}	C ^{+0.1} _{-0.1}
4xM8	92	85	68,5
6xM8	118	111	94,5
8xM8	144	137	120,5
10xM8	170	163	146,5
12xM8	196	189	172,5



PIN assignment



Description		Part-No.	Type	PU
Slots	4-way	493005	BOX-M8-3L4S 5m PUR	1
	4-way	493010	BOX-M8-3L4S 10m PUR	1
	6-way	493105	BOX-M8-3L6S 5m PUR	1
	6-way	493110	BOX-M8-3L6S 10m PUR	1
	8-way	493205	BOX-M8-3L8S 5m PUR	1
	8-way	493810	BOX-M8-3L8S 10m PUR	1

Technical data	4-way, 5m	4-way, 10m	6-way, 5m	6-way, 10m	8-way, 5m	8-way, 10m
Nominal voltage	DC 24 V					
Nominal voltage range	10 – 30 V					
Rated current	max. 2A per channel					
Amperage range	max. total 7.5 A					
Number of terminations	3-pole					
Slots	4-way		6-way		8-way	
Cable length	5.0	10.0	5.0	10.0	5.0	10.0
Status Indication	Supply: 1 x LED green, I/O: each 1 x LED yellow					
Current Consumption per LED	< 10mA / LED					
Coding	–					
Shielding	–					

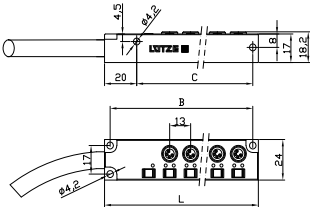
General						
Form	M8 × 1, connector					
Rated insulation voltage (EN 50178)	32 V					
Test voltage	1.0 kV					
Pollution degree	3					
Insulation resistance	> 10 ⁹ Ω					
Contact resistance	< 5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 68, in screwed condition					
Housing material	PBT grey					
Contact material	CuZn, gold-plated					
Thread material	CuSn nickel plated					
Gasket	Viton					
Cable construction	2×0.75 + 4×0.34 mm ²	2×0.75 + 6×0.34 mm ²	2×0.75 + 8×0.34 mm ²			
Cable jacket	PUR					
Conductor insulation	PP coloured					
Cable diameter	7.0 mm	7.2 mm	7.4 mm			
Bending radius	fixed: 4 × D, cable track: 10 × D					
Termination	–					
Storage temperature range	-40 °C – 90 °C					
Operation temperature range	-20 °C – 80 °C					
Temperature range cable fixed	-40 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Dimensions (w × h × d)	24.0 × 18.2 × 92.0 mm	24.0 × 18.2 × 118.0 mm	24.0 × 18.2 × 144.0 mm			
Weight (kg/piece)	0.620	1.200	0.680	1.300	0.740	1.400
Approvals	UL, CSA					
Accessories	Article number		Type		PU	
Protective cover M8	499989		SK M8		50	

Actuator sensor interface · M8 - Actuator sensor box IP 68

M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
10-way, 12-way / 3-pole
c-track compatible

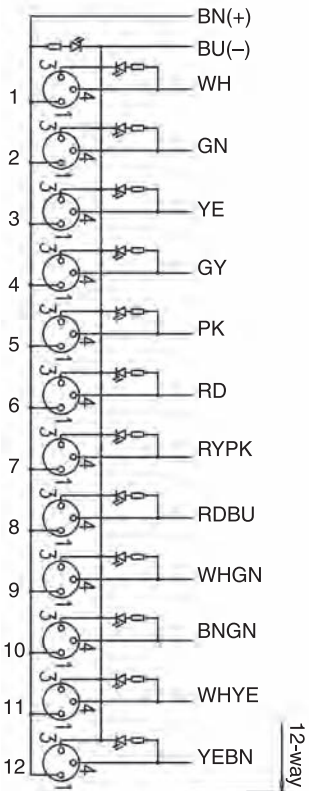


Dimensions



	L	B ^{+0.1} _{-0.1}	C ^{+0.1} _{-0.1}
4xM8	92	85	68,5
6xM8	118	111	94,5
8xM8	144	137	120,5
10xM8	170	163	146,5
12xM8	196	189	172,5

PIN assignment



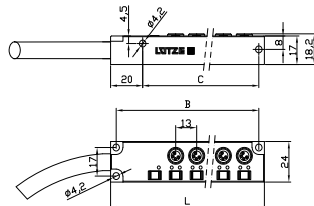
Description	Part-No.		Type	PU
Slots	10-way	493305	BOX-M8-3L10S 5m PUR	1
	10-way	493310	BOX-M8-3L10S 10m PUR	1
	12-way	493405	BOX-M8-3L12S 5m PUR	1
	12-way	493410	BOX-M8-3L12S 10m PUR	1
Technical data				
	10-way, 5m	10-way, 10m	12-way, 5m	12-way, 10m
Nominal voltage	DC 24 V			
Nominal voltage range	10 – 30 V			
Rated current	max. 2A per channel			
Amperage range	max. total 7.5 A			
Number of terminations	3-pole			
Slots	10-way		12-way	
Cable length	5.0	10.0	5.0	10.0
Status Indication	Supply: 1 × LED green, I/O: each 1 × LED yellow			
Current Consumption per LED	< 10mA / LED			
Coding	–			
Shielding	–			
General				
Form	M8 × 1, connector			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	1.0 kV			
Pollution degree	3			
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PBT grey			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	Viton			
Cable construction	2×0.75 + 10×0.34 mm ²		2×0.75 + 12×0.34 mm ²	
Cable jacket	PUR			
Conductor insulation	PP coloured			
Cable diameter	7.6 mm		7.7 mm	
Bending radius	fixed: 4 × D, cable track: 10 × D			
Termination	–			
Storage temperature range	-40 °C – 90 °C			
Operation temperature range	-20 °C – 80 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Dimensions (w × h × d)	24.0 × 18.2 × 170.0 mm		24.0 × 18.2 × 196.0 mm	
Weight (kg/piece)	0.810	1.580	0.830	1.600
Approvals	UL, CSA			
Accessories		Article number	Type	PU
Protective cover M8		499989	SK M8	50

Actuator sensor interface · M8 - Actuator sensor box IP 68

M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
4-way, 6-way, 8-way / 4-pole
c-track compatible

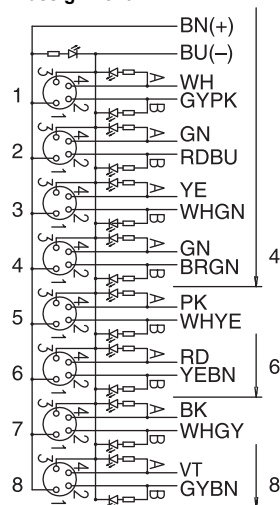


Dimensions



	L	B ^{+0.1 -0.1}	C ^{+0.1 -0.1}
4xM8	92	85	68,5
6xM8	118	111	94,5
8xM8	144	137	120,5

PIN assignment



Description		Part-No.	Type	PU
Slots	4-way	493505	BOX-M8-4L4S 5m PUR	1
	4-way	493510	BOX-M8-4L4S 10m PUR	1
	6-way	493605	BOX-M8-4L6S 5m PUR	1
	6-way	493610	BOX-M8-4L6S 10m PUR	1
	8-way	493705	BOX-M8-4L8S 5m PUR	1
	8-way	493710	BOX-M8-4L8S 10m PUR	1

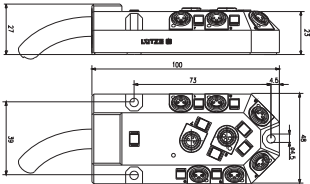
Technical data	4-way, 5m	4-way, 10m	6-way, 5m	6-way, 10m	8-way, 5m	8-way, 10m
Nominal voltage	DC 24 V					
Nominal voltage range	10 – 30 V					
Rated current	max. 2A per channel					
Amperage range	max. total 7.5 A					
Number of terminations	4-pole					
Slots	4-way		6-way		8-way	
Cable length	5.0	10.0	5.0	10.0	5.0	10.0
Status Indication	Supply: 1 × LED green, I/O: each 1 × LED yellow					
Current Consumption per LED	< 10mA / LED					
Coding	–					
Shielding	–					
General						
Form	M8 × 1, connector					
Rated insulation voltage (EN 50178)	32 V					
Test voltage	1.0 kV					
Pollution degree	3					
Insulation resistance	> 10 ⁹ Ω					
Contact resistance	< 5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 68, in screwed condition					
Housing material	PBT grey					
Contact material	CuZn, gold-plated					
Thread material	CuSn nickel plated					
Gasket	Viton					
Cable construction	2×0.75 + 8×0.34 mm ²		2×0.75 + 12×0.34 mm ²		2×0.75 + 16×0.34 mm ²	
Cable jacket	PUR					
Conductor insulation	PP coloured					
Cable diameter	7.4 mm		7.7 mm		8.5 mm	
Bending radius	fixed: 4 × D, cable track: 10 × D					
Termination	–					
Storage temperature range	-40 °C – 90 °C					
Operation temperature range	-20 °C – 80 °C					
Temperature range cable fixed	-40 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Dimensions (w × h × d)	24.0 × 18.2 × 92.0 mm		24.0 × 18.2 × 118.0 mm		24.0 × 18.2 × 144.0 mm	
Weight (kg/piece)	0.650	1.200	0.650	1.350	0.910	1.750
Approvals	UL, CSA					
Accessories			Article number		Type	PU
Protective cover M8			499989		SK M8	50

Actuator sensor interface · M8 - Actuator sensor box IP 68

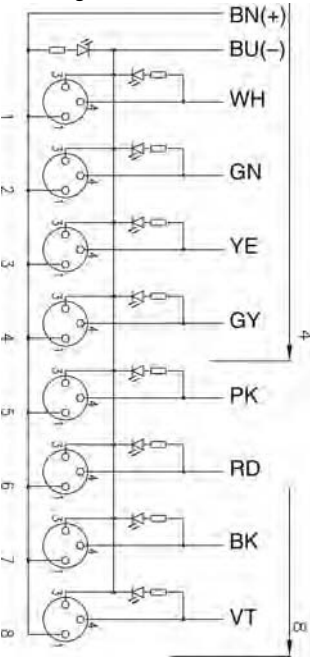
M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
8-way / 3 pole
c-track compatible



Dimensions



PIN assignment



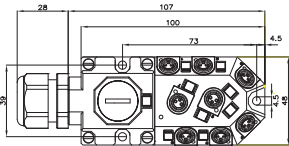
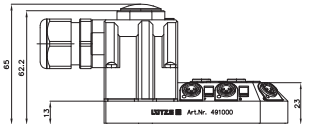
Description	Part-No.	Type	PU	
Slots	8-way	492050	BOX-M8-3L8 5m PUR	1
	8-way	492100	BOX-M8-3L8 10m PUR	1
Technical data	8-way, 5m		8-way, 10m	
Nominal voltage			DC 24 V	
Nominal voltage range			10 – 30 V	
Rated current			max. 2A per channel	
Amperage range			max. total 7.5 A	
Number of terminations			3-pole	
Slots			8-way	
Cable length	5.0		10.0	
Status Indication	Supply: 1 × LED green, I/O: each 1 × LED yellow			
Current Consumption per LED	< 10mA / LED			
Coding	–			
Shielding	–			
General				
Form	M8 × 1, connector			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	1.0 kV			
Pollution degree	3			
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PBT grey			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	Viton			
Cable construction	2×0.75 + 8×0.34 mm ²			
Cable jacket	PUR			
Conductor insulation	PP coloured			
Cable diameter	7.4 mm			
Bending radius	fixed: 4 × D, cable track: 10 × D			
Termination	–			
Storage temperature range	-40 °C – 90 °C			
Operation temperature range	-20 °C – 80 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Dimensions (w × h × d)	48.0 × 27.0 × 100.0 mm			
Weight (kg/piece)	0.850		1.470	
Approvals	UL, CSA			
Accessories	Article number	Type	PU	
Protective cover M8	499989	SK M8	50	

Actuator sensor interface · M8 - Actuator sensor box IP 68

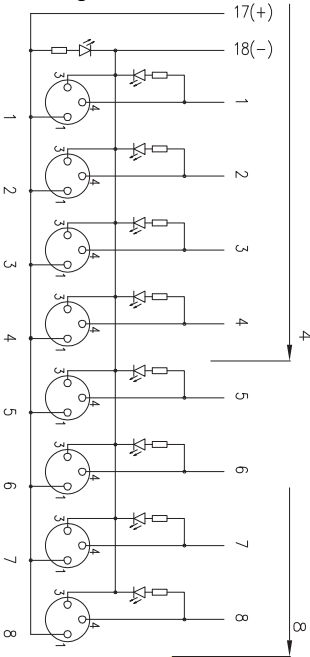
M 8 – Actuator sensor boxes – IP 68 with LED indication 8-way / 3-pole, wireable



Dimensions



PIN assignment



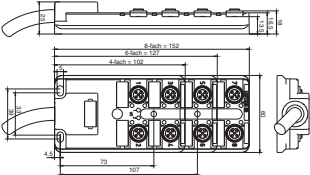
Description	Part-No.	Type	PU	
8-way				
Slots	8-way	491000	BOX-M8-3H8	1
Technical data		8-way		
Nominal voltage	DC 24 V			
Nominal voltage range	10 – 30 V			
Rated current	max. 2A per channel			
Amperage range	max. total 7.5 A			
Number of terminations	3-pole			
Slots	8-way			
Cable length	–			
Status Indication	Supply: 1 × LED green, I/O: each 1 × LED yellow			
Current Consumption per LED	< 10mA / LED			
Coding	–			
Shielding	–			
General				
Form	M8 × 1, connector			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	1.0 kV			
Pollution degree	3			
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PBT grey			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	Viton			
Cable construction	–			
Cable jacket	–			
Conductor insulation	–			
Cable diameter	10 – 14 mm			
Bending radius	–			
Termination	Screw terminal: 0,08 – 1.5 mm ²			
Storage temperature range	-40 °C – 90 °C			
Operation temperature range	-20 °C – 80 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Dimensions (w × h × d)	48.0 × 65.0 × 135.0 mm			
Weight (kg/piece)	0.220			
Approvals	UL, CSA			
Accessories		Article number	Type	PU
Protective cover M8		499989	SK M8	50

Actuator sensor interface · M12 - Actuator sensor box IP 68

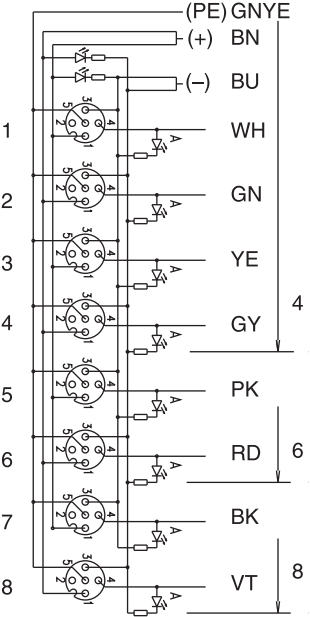
M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
4-way, 8-way / 3-pole + PE
c-track compatible



Dimensions



PIN assignment



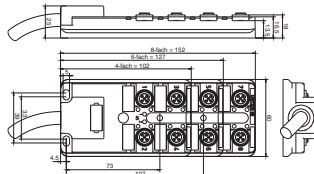
Description	Part-No.		Type	PU
Slots	4-way	400050	BOX-M12 3L4 5m PUR	1
	4-way	400100	BOX-M12 3L4 10m PUR	1
	8-way	402050	BOX-M12 3L8 5m PUR	1
	8-way	402100	BOX-M12 3L8 10m PUR	1
Technical data				
	4-way, 5m	4-way, 10m	8-way, 5m	8-way, 10m
Nominal voltage	DC 24 V			
Nominal voltage range	10 – 30 V			
Rated current	max. 2A per channel			
Amperage range	max. total 12 A			
Number of terminations	3-pole + PE			
Slots	4-way		8-way	
Cable length	5.0	10.0	5.0	10.0
Status Indication	Supply: 2 × LED green, I/O: each 1 × LED yellow			
Current Consumption per LED	< 10 mA / LED			
Coding	A			
Shielding	–			
General				
Form	M12 × 1, connector			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	1.0 kV			
Pollution degree	3			
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PBT grey			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	Viton			
Cable construction	3×1.0 + 4×0.34 mm ²		3×1.0 + 8×0.34 mm ²	
Cable jacket	PUR			
Conductor insulation	PP coloured			
Cable diameter	7.5 mm		8.2 mm	
Bending radius	fixed: 4 × D, cable track: 10 × D			
Termination	–			
Storage temperature range	-40 °C – 90 °C			
Operation temperature range	-20 °C – 80 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Dimensions (w × h × d)	60.0 × 25.0 × 102.0 mm		60.0 × 25.0 × 152.0 mm	
Weight (kg/piece)	0.860	1.560	1.160	1.940
Approvals	UL, CSA			
Accessories		Article number	Type	PU
protective cover M12		499994	SK M12	50
T-junction M12 on 2 × M12		490026	T-connector M12/M12	10
T-junction M12 on 2 × M8		490038	T-connector M12/M8	10

Actuator sensor interface · M12 - Actuator sensor box IP 68

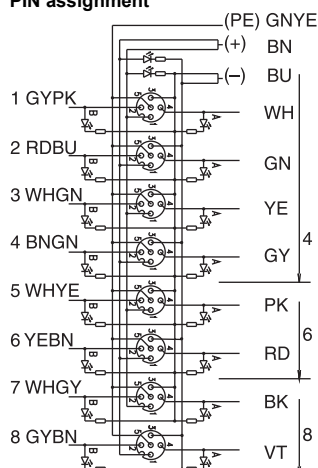
M 8 – Actuator sensor boxes – IP 68 with LED indication and connected PUR cable
4-way, 8-way / 4-pole + PE
c-track compatible



Dimensions



PIN assignment



Description	Part-No.	Type	PU
Slots	4-way	407050	BOX-M12 4L4 5m PUR
	4-way	407100	BOX-M12 4L4 10m PUR
	8-way	409050	BOX-M12 4L8 5m PUR
	8-way	409100	BOX-M12 4L8 10m PUR

Technical data	4-way, 5m	4-way, 10m	8-way, 5m	8-way, 10m
Nominal voltage			DC 24 V	
Nominal voltage range			10 – 30 V	
Rated current			max. 2A per channel	
Amperage range			max. total 12 A	
Number of terminations			4-pole + PE	
Slots		4-way		8-way
Cable length	5.0	10.0	5.0	10.0
Status Indication			Supply: 2 × LED green, I/O: each 1 × LED yellow	
Current Consumption per LED			< 10 mA / LED	
Coding			A	
Shielding			–	

General				
Form			M12 × 1, connector	
Rated insulation voltage (EN 50178)			32 V	
Test voltage			1.0 kV	
Pollution degree			3	
Insulation resistance			> 10 ⁹ Ω	
Contact resistance			< 5 mΩ	
Class of flammability according to UL 94			V0	
Protection class			IP 68, in screwed condition	
Housing material			PBT grey	
Contact material			CuZn, gold-plated	
Thread material			CuSn nickel plated	
Gasket			Viton	
Cable construction		3×1.0 + 8×0.34 mm ²		3×1.0 + 16×0.34 mm ²
Cable jacket			PUR	
Conductor insulation			PP coloured	
Cable diameter		8.2 mm		9.7 mm
Bending radius			fixed: 4 × D, cable track: 10 × D	
Termination			–	
Storage temperature range			–40 °C – 90 °C	
Operation temperature range			–20 °C – 80 °C	
Temperature range cable fixed			–40 °C – 80 °C	
Temperature range cable moving			–5 °C – 80 °C	
Dimensions (w × h × d)		60.0 × 25.0 × 102.0 mm		60.0 × 25.0 × 152.0 mm
Weight (kg/piece)		0.860	1.560	1.160
				1.940

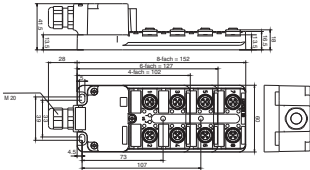
Approvals			
UL, CSA			
Accessories	Article number	Type	PU
protective cover M12	499994	SK M12	50
T-junction M12 on 2 × M12	490026	T-connector M12/M12	10
T-junction M12 on 2 × M8	490038	T-connector M12/M8	10

Actuator sensor interface · M12 - Actuator sensor box IP 68

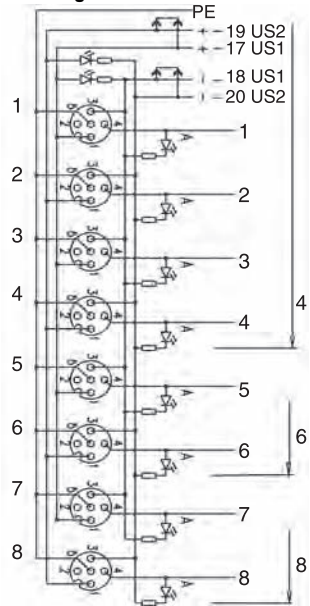
M 12 – Actuator sensor boxes – IP 68 with LED indication 4-way, 8-way / 3-pole + PE, wireable



Dimensions



PIN assignment



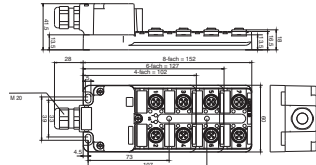
Description	Part-No.	Type	PU	
Slots	4-way	491002	BOX-M12-3H4	1
	8-way	491004	BOX-M12-3H8	1
Technical data				
	4-way		8-way	
Nominal voltage	DC 24 V			
Nominal voltage range	10 – 30 V			
Rated current	max. 2A per channel			
Amperage range	max. total: 10A with single power supply, 2 × 8A with dual power supply			
Number of terminations	3-pole + PE			
Slots	4-way	8-way		
Cable length	–			
Status Indication	Supply: 2 × LED green, I/O: each 1 × LED yellow			
Current Consumption per LED	< 10 mA / LED			
Coding	A			
Shielding	–			
General				
Form	M12 × 1, connector			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	1.0 kV			
Pollution degree	3			
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PBT grey			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	Viton			
Cable construction	–			
Cable jacket	–			
Conductor insulation	–			
Cable diameter	6 – 12 mm			
Bending radius	–			
Termination	Screw terminal: 0.08 – 1.5 mm ²			
Storage temperature range	-40 °C – 90 °C			
Operation temperature range	-20 °C – 80 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Dimensions (w × h × d)	60.0 × 41.5 × 102.0 mm		60.0 × 41.5 × 152.0 mm	
Weight (kg/piece)	0.200		0.280	
Approvals	UL, CSA			
Accessories		Article number	Type	PU
protective cover M12		499994	SK M12	50
T-junction M12 on 2 × M12		490026	T-connector M12/M12	10
T-junction M12 on 2 × M8		490038	T-connector M12/M8	10

Actuator sensor interface · M12 - Actuator sensor box IP 68

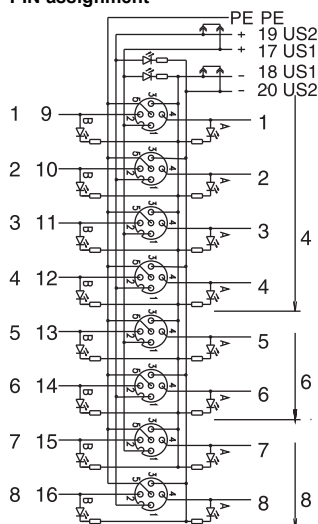
M 12 – Actuator sensor boxes – IP 68 with LED indication 4-way, 8-way / 4-pole + PE, wireable



Dimensions



PIN assignment



Description		Part-No.	Type	PU
Slots	4-way	491003	BOX-M12-4H4	1
	8-way	491005	BOX-M12-4H8	1

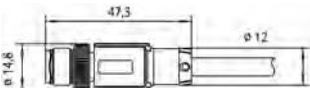
Technical data	4-way	8-way	
Nominal voltage	DC 24 V		
Nominal voltage range	10 – 30 V		
Rated current	max. 2A per channel		
Amperage range	max. total: 10A with single power supply, 2 × 8A with dual power supply		
Number of terminations	4-pole + PE		
Slots	4-way	8-way	
Cable length	–		
Status Indication	Supply: 2 × LED green, I/O: each 1 × LED yellow		
Current Consumption per LED	< 10 mA / LED		
Coding	A		
Shielding	–		
General			
Form	M12 × 1, connector		
Rated insulation voltage (EN 50178)	32 V		
Test voltage	1.0 kV		
Pollution degree	3		
Insulation resistance	> 10 ⁹ Ω		
Contact resistance	< 5 mΩ		
Class of flammability according to UL 94	V0		
Protection class	IP 68, in screwed condition		
Housing material	PBT grey		
Contact material	CuZn, gold-plated		
Thread material	CuSn nickel plated		
Gasket	Viton		
Cable construction	–		
Cable jacket	–		
Conductor insulation	–		
Cable diameter	6 – 12 mm		
Bending radius	–		
Termination	Screw terminal: 0,08 – 1.5 mm ²		
Storage temperature range	-40 °C – 90 °C		
Operation temperature range	-20 °C – 80 °C		
Temperature range cable fixed	-40 °C – 80 °C		
Temperature range cable moving	-5 °C – 80 °C		
Dimensions (w × h × d)	60.0 × 41.5 × 102.0 mm	60.0 × 41.5 × 152.0 mm	
Weight (kg/piece)	0.200	0.280	
Approvals	UL, CSA		
Accessories	Article number	Type	PU
protective cover M12	499994	SK M12	50
T-junction M12 on 2 × M12	490026	T-connector M12/M12	10
T-junction M12 on 2 × M8	490038	T-connector M12/M8	10

Actuator sensor interface · CANopen field bus cables

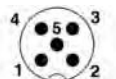
Male M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free



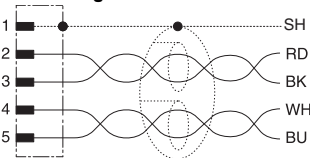
Dimensions



PIN assignment



Circuit diagram



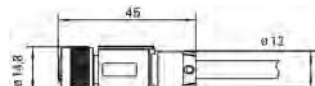
Description		Part-No.	Type	PU
Cable length	2.0	475702	STG5-M12/CAN 2M-PUR	10
	5.0	475705	STG5-M12/CAN 5M-PUR	10
	10.0	475710	STG5-M12/CAN 10M-PUR	10
Technical data				
Nominal voltage			AC/DC 24 V	
Nominal voltage range			max. 30 V	
Rated current			4 A	
Number of terminations			5	
Cable length	2.0	5.0	10.0	
Status Indication			–	
Current Consumption per LED			–	
Coding			A	
Shielding			360°	
General				
Form		M12 × 1, male straight		
Rated insulation voltage (EN 50178)		60 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 67, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		–		
Cable construction	2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19			
Cable jacket	PUR, RAL 4001 violet			
Conductor insulation	Shield, blue, white, red, black			
Cable diameter	6.7 mm			
Bending radius	15 x cable diameter			
Storage temperature range	-40 °C – 90 °C			
Temperature range connector	-25 °C – 90 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-20 °C – 75 °C			
Mechanical service life	–			
Weight (kg/piece)	0.135	0.305	0.605	
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · CANopen field bus cables

**Female M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free**



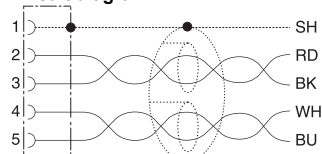
Dimensions



PIN assignment



Circuit diagram



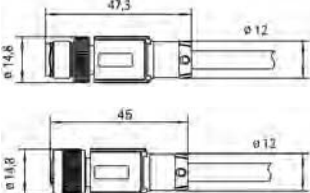
Description		Part-No.	Type	PU
Cable length	2.0	475802	KUG5-M12/CAN 2M-PUR	10
	5.0	475805	KUG5-M12/CAN 5M-PUR	10
	10.0	475810	KUG5-M12/CAN 10M-PUR	10
Technical data				
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		4 A		
Number of terminations		5		
Cable length	2.0	5.0	10.0	
Status Indication		–		
Current Consumption per LED		–		
Coding		A		
Shielding		360°		
General				
Form		M12 × 1, female straight		
Rated insulation voltage (EN 50178)		60 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 67, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		NBR		
Cable construction		2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19		
Cable jacket		PUR, RAL 4001 violet		
Conductor insulation		Shield, blue, white, red, black		
Cable diameter		6.7 mm		
Bending radius		15 x cable diameter		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 90 °C		
Temperature range cable fixed		-40 °C – 80 °C		
Temperature range cable moving		-20 °C – 75 °C		
Mechanical service life		–		
Weight (kg/piece)	0.135	0.305	0.605	
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · CANopen field bus cables

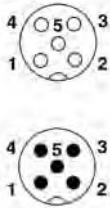
Male-female M12 straight with PUR cable, shielded 360°
self-locking screwed connection
c-track compatible, halogen free



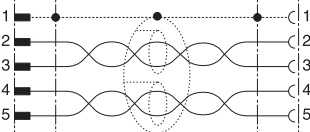
Dimensions



PIN assignment



Circuit diagram



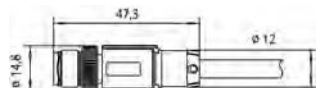
Description			Part-No.			Type					PU
Cable length	0.3		475903		STG5-M12/KUG5-M12/CAN 0,3M-PUR	10					
	0.5		475905		STG5-M12/KUG5-M12/CAN 0,5M-PUR	10					
	0.6		475906		STG5-M12/KUG5-M12/CAN 0,6M-PUR	10					
	0.7		475907		STG5-M12/KUG5-M12/CAN 0,7M-PUR	10					
	0.8		475908		STG5-M12/KUG5-M12/CAN 0,8M-PUR	10					
	1.0		475910		STG5-M12/KUG5-M12/CAN 1,0M-PUR	10					
	1.5		475915		STG5-M12/KUG5-M12/CAN 1,5M-PUR	10					
	2.0		475920		STG5-M12/KUG5-M12/CAN 2,0M-PUR	10					
	3.0		475930		STG5-M12/KUG5-M12/CAN 3,5M-PUR	10					
	5.0		475950		STG5-M12/KUG5-M12/CAN 5,0M-PUR	10					
Technical data											
Nominal voltage			AC/DC 24 V								
Nominal voltage range			max. 30 V								
Rated current			4 A								
Number of terminations			5								
Cable length	0.3	0.5	0.6	0.7	0.8	1.0	1.5	2.0	3.0	5.0	
Status Indication	–										
Current Consumption per LED	–										
Coding	A										
Shielding	360°										
General											
Form			M12 × 1, male - female straight								
Rated insulation voltage (EN 50178)			60 V								
Test voltage			1.5 kV								
Pollution degree			3								
Insulation resistance			>10 ⁹ Ω								
Contact resistance			< 5 mΩ								
Class of flammability according to UL 94			V0								
Protection class			IP 67, in screwed condition								
Housing material			TPU black								
Contact material			CuSn, gold plated nickel								
Thread material			CuSn nickel plated								
Gasket			NBR (female)								
Cable construction			2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19								
Cable jacket			PUR, RAL 4001 violet								
Conductor insulation			Shield, blue, white, red, black								
Cable diameter			6.7 mm								
Bending radius			15 x cable diameter								
Storage temperature range			-40 °C – 90 °C								
Temperature range connector			-25 °C – 90 °C								
Temperature range cable fixed			-40 °C – 80 °C								
Temperature range cable moving			-20 °C – 75 °C								
Mechanical service life			–								
Weight (kg/piece)	0.055	0.070	0.075	0.080	0.085	0.100	0.125	0.150	0.230	0.315	
Approvals			the cable is UL, CSA certified 80° 300V								
Accessories			Article number		Type		PU				
Cable markers 4×23mm			499988		LB M8/M12		5				
Torque setting tool M12			490091		DM-SET M12		1				

Actuator sensor interface · DeviceNet field bus cables

**Male M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free**



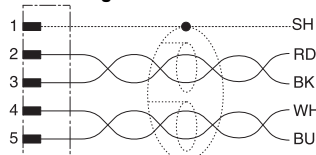
Dimensions



PIN assignment



Circuit diagram



Description	Part-No.	Type	PU
Cable length	2.0	496702	STG5-M12/DN 2M-PUR
	5.0	496705	STG5-M12/DN 5M-PUR
	10.0	496710	STG5-M12/DN 10M-PUR

Technical data

Nominal voltage	AC/DC 24 V		
Nominal voltage range	max. 30 V		
Rated current	4 A		
Number of terminations	5		
Cable length	2.0	5.0	10.0
Status Indication	—		
Current Consumption per LED	—		
Coding	A		
Shielding	360°		

General

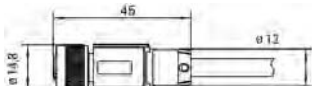
Form	M12 × 1, male straight		
Rated insulation voltage (EN 50178)	60 V		
Test voltage	1.5 kV		
Pollution degree	3		
Insulation resistance	>10 ⁹ Ω		
Contact resistance	< 5 mΩ		
Class of flammability according to UL 94	V0		
Protection class	IP 67, in screwed condition		
Housing material	TPU black		
Contact material	CuSn, gold plated nickel		
Thread material	CuSn nickel plated		
Gasket	—		
Cable construction	2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19		
Cable jacket	PUR, RAL 4001 violet		
Conductor insulation	Shield, blue, white, red, black		
Cable diameter	6.7 mm		
Bending radius	15 x cable diameter		
Storage temperature range	-40 °C – 90 °C		
Temperature range connector	-25 °C – 90 °C		
Temperature range cable fixed	-40 °C – 80 °C		
Temperature range cable moving	-20 °C – 75 °C		
Mechanical service life	—		
Weight (kg/piece)	0.135	0.305	0.605
Approvals	the cable is UL, CSA certified 80° 300V		
Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Actuator sensor interface · DeviceNet field bus cables

**Female M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free**



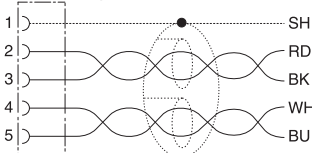
Dimensions



PIN assignment



Circuit diagram



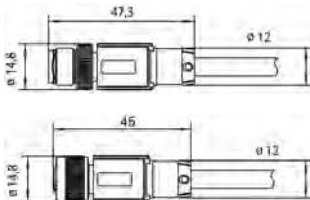
Description		Part-No.	Type	PU
Cable length	2.0	496802	KUG5-M12/DN 2M-PUR	10
	5.0	496805	KUG5-M12/DN 5M-PUR	10
	10.0	496810	KUG5-M12/DN 10M-PUR	10
Technical data				
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		4 A		
Number of terminations		5		
Cable length	2.0	5.0	10.0	
Status Indication		–		
Current Consumption per LED		–		
Coding		A		
Shielding		360°		
General				
Form		M12 × 1, female straight		
Rated insulation voltage (EN 50178)		60 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 67, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		NBR		
Cable construction	2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19			
Cable jacket	PUR, RAL 4001 violet			
Conductor insulation	Shield, blue, white, red, black			
Cable diameter	6.7 mm			
Bending radius	15 x cable diameter			
Storage temperature range	-40 °C – 90 °C			
Temperature range connector	-25 °C – 90 °C			
Temperature range cable fixed	-40 °C – 80 °C			
Temperature range cable moving	-20 °C – 75 °C			
Mechanical service life		–		
Weight (kg/piece)	0.135	0.305	0.605	
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · DeviceNet field bus cables

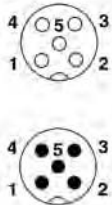
Male-female M12 straight with PUR cable, shielded 360°
self-locking screwed connection
c-track compatible, halogen free



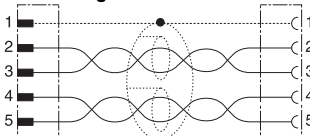
Dimensions



PIN assignment



Circuit diagram



Description		Part-No.	Type	PU
Cable length	0.3	496903	STG5-M12/KUG5-M12/DN 0,3M-PUR	10
	0.5	496905	STG5-M12/KUG5-M12/DN 0,5M-PUR	10
	0.6	496906	STG5-M12/KUG5-M12/DN 0,6M-PUR	10
	0.7	496907	STG5-M12/KUG5-M12/DN 0,7M-PUR	10
	0.8	496908	STG5-M12/KUG5-M12/DN 0,8M-PUR	10
	1.0	496910	STG5-M12/KUG5-M12/DN 1,0M-PUR	10
	1.5	496915	STG5-M12/KUG5-M12/DN 1,5M-PUR	10
	2.0	496920	STG5-M12/KUG5-M12/DN 2,0M-PUR	10
	3.0	496930	STG5-M12/KUG5-M12/DN 3,5M-PUR	10
	5.0	496950	STG5-M12/KUG5-M12/DN 5,0M-PUR	10

Technical data

Nominal voltage	AC/DC 24 V										
Nominal voltage range	max. 30 V										
Rated current	4 A										
Number of terminations	5										
Cable length	0.3	0.5	0.6	0.7	0.8	1.0	1.5	2.0	3.0	5.0	
Status Indication	—										
Current Consumption per LED	—										
Coding	A										
Shielding	360°										

General

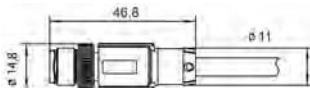
Form	M12 × 1, male - female straight										
Rated insulation voltage (EN 50178)	60 V										
Test voltage	1.5 kV										
Pollution degree	3										
Insulation resistance	>10 ⁹ Ω										
Contact resistance	< 5 mΩ										
Class of flammability according to UL 94	V0										
Protection class	IP 67, in screwed condition										
Housing material	TPU black										
Contact material	CuSn, gold plated nickel										
Thread material	CuSn nickel plated										
Gasket	NBR (female)										
Cable construction	2 × AWG 22/19 + 2 × AWG 24/19 + Drainwire AWG 22/19										
Cable jacket	PUR, RAL 4001 violet										
Conductor insulation	Shield, blue, white, red, black										
Cable diameter	6.7 mm										
Bending radius	15 x cable diameter										
Storage temperature range	-40 °C – 90 °C										
Temperature range connector	-25 °C – 90 °C										
Temperature range cable fixed	-40 °C – 80 °C										
Temperature range cable moving	-20 °C – 75 °C										
Mechanical service life	—										
Weight (kg/piece)	0.055	0.070	0.075	0.080	0.085	0.100	0.125	0.150	0.230	0.315	
Approvals	the cable is UL, CSA certified 80° 300V										
Accessories	Article number		Type		PU						
Cable markers 4×23mm	499988		LB M8/M12		5						
Torque setting tool M12	490091		DM-SET M12		1						

Actuator sensor interface · CORD SET ETHERNET

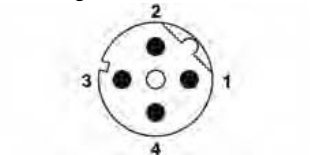
Male M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free



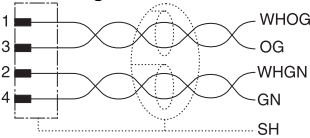
Dimensions



PIN assignment



Circuit diagram



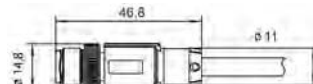
Description		Part-No.	Type	PU
Cable length	2.0	475002	STG4-M12/ET 2M-PUR	10
	5.0	475005	STG4-M12/ET 5M-PUR	10
	10.0	475010	STG4-M12/ET 10M-PUR	10
Technical data				
Nominal voltage			AC/DC 24 V	
Nominal voltage range			max. 30 V	
Rated current			4 A	
Number of terminations			4	
Cable length	2.0		5.0	10.0
Status Indication			–	
Current Consumption per LED			–	
Coding			D	
Shielding			360°	
General				
Form		M12 × 1, male straight		
Rated insulation voltage (EN 50178)		250 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 65, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		–		
Cable construction		2 × 2 × AWG 26/7		
Cable jacket		PUR, RAL 5021 blue		
Conductor insulation		white/green, white/orange		
Cable diameter		6.7 mm		
Bending radius		15 x cable diameter		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 90 °C		
Temperature range cable fixed		-20 °C – 70 °C		
Temperature range cable moving		0 °C – 50 °C		
Mechanical service life		–		
Weight (kg/piece)	0.140		0.330	0.640
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · CORD SET EHTERNET

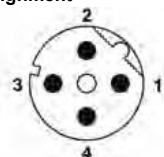
**Male M12 straight on male M12 straight with PUR cable, shielded 360°
self-locking screwed connection
c-track compatible, halogen free**



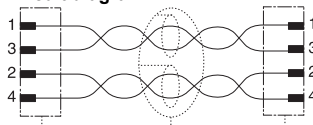
Dimensions



PIN assignment



Circuit diagram



Description		Part-No.	Type	PU
Cable length	0.3	475203	STG4-M12/STG4-M12/ET 0,3M PUR	10
	0.6	475206	STG4-M12/STG4-M12/ET 0,6M PUR	10
	1.0	475210	STG4-M12/STG4-M12/ET 1,0M PUR	10
	1.5	475215	STG4-M12/STG4-M12/ET 1,5M PUR	10
	2.0	475220	STG4-M12/STG4-M12/ET 2,0M PUR	10
	5.0	475250	STG4-M12/STG4-M12/ET 5,0M PUR	10

Technical data

Nominal voltage	AC/DC 24 V					
Nominal voltage range	max. 30 V					
Rated current	4 A					
Number of terminations	4					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0
Status Indication	—					
Current Consumption per LED	—					
Coding	D					
Shielding	360°					

General

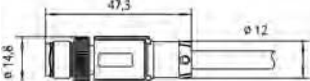
Form	M12 × 1, male straight / M12 × 1, male straight					
Rated insulation voltage (EN 50178)	250 V					
Test voltage	1.5 kV					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	< 5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 67, in screwed condition					
Housing material	TPU black					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	—					
Cable construction	2 × 2 × AWG 26/7					
Cable jacket	PUR, RAL 5021 blue					
Conductor insulation	white/green, white/orange					
Cable diameter	6.7 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-20 °C – 70 °C					
Temperature range cable moving	0 °C – 50 °C					
Mechanical service life	—					
Weight (kg/piece)	0.060	0.070	0.090	0.110	0.150	0.325
Approvals	the cable is UL, CSA certified 80° 300V					
Accessories	Article number	Type				PU
Cable markers 4×23mm	499988	LB M8/M12				5
Torque setting tool M12	490091	DM-SET M12				1

Actuator sensor interface · CORD SET INTERBUS

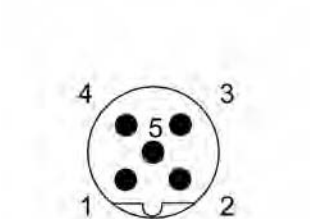
Male M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free



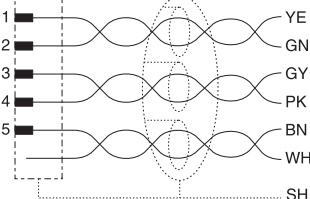
Dimensions



PIN assignment



Circuit diagram



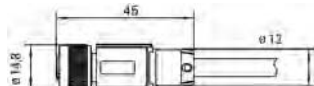
Description		Part-No.	Type	PU
Cable length	2.0	463002	STG5-M12/IB 2M-PUR	10
	5.0	463005	STG5-M12/IB 5M-PUR	10
	10.0	463010	STG5-M12/IB 10M-PUR	10
Technical data				
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		4 A		
Number of terminations		5		
Cable length	2.0	5.0	10.0	
Status Indication		—		
Current Consumption per LED		—		
Coding		B - invers		
Shielding		360°		
General				
Form		M12 × 1, male straight		
Rated insulation voltage (EN 50178)		60 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 65, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		—		
Cable construction		2 × 2 × AWG 26/7 + 2 × AWG 24/19		
Cable jacket		PUR, RAL 6017 green		
Conductor insulation		Shield, yellow, green, grey, pink, brown		
Cable diameter		8.0 mm		
Bending radius		15 x cable diameter		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 90 °C		
Temperature range cable fixed		-40 °C – 80 °C		
Temperature range cable moving		-20 °C – 70 °C		
Mechanical service life		—		
Weight (kg/piece)	0.160	0.400	0.707	
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · CORD SET INTERBUS

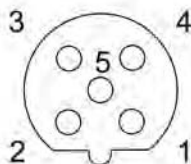
**Female M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible, halogen free**



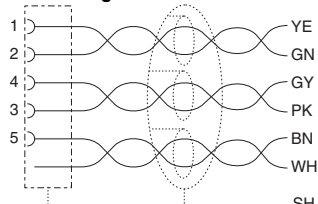
Dimensions



PIN assignment



Circuit diagram



Description	Part-No.	Type	PU
Cable length	2.0	463102	KUG5-M12/IB 2M-PUR
	5.0	463105	KUG5-M12/IB 5M-PUR
	10.0	463110	KUG5-M12/IB 10M-PUR

Technical data

Nominal voltage	AC/DC 24 V		
Nominal voltage range	max. 30 V		
Rated current	4 A		
Number of terminations	5		
Cable length	2.0	5.0	10.0
Status Indication	-		
Current Consumption per LED	-		
Coding	B - invers		
Shielding	360°		

General

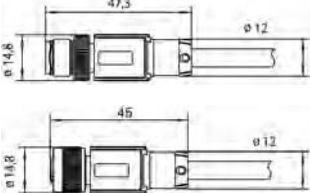
Form	M12 × 1, female straight		
Rated insulation voltage (EN 50178)	60 V		
Test voltage	1.5 kV		
Pollution degree	3		
Insulation resistance	>10 ⁹ Ω		
Contact resistance	< 5 mΩ		
Class of flammability according to UL 94	V0		
Protection class	IP 65, in screwed condition		
Housing material	TPU black		
Contact material	CuSn, gold plated nickel		
Thread material	CuSn nickel plated		
Gasket	NBR		
Cable construction	2 × 2 × AWG 26/7 + 2 × AWG 24/19		
Cable jacket	PUR, RAL 6017 green		
Conductor insulation	Shield, yellow, green, grey, pink, brown		
Cable diameter	8.0 mm		
Bending radius	15 x cable diameter		
Storage temperature range	-40 °C – 90 °C		
Temperature range connector	-25 °C – 90 °C		
Temperature range cable fixed	-40 °C – 80 °C		
Temperature range cable moving	-20 °C – 70 °C		
Mechanical service life	-		
Weight (kg/piece)	0.160	0.365	0.707
Approvals	the cable is UL, CSA certified 80° 300V		
Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Actuator sensor interface · CORD SET INTERBUS

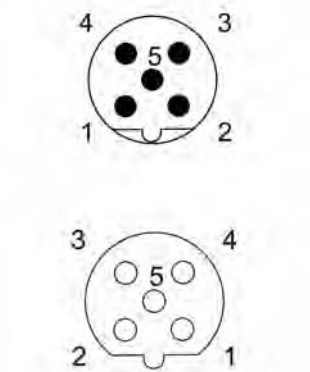
Male-female M12 straight with PUR cable, shielded 360°
self-locking screwed connection
c-track compatible, halogen free



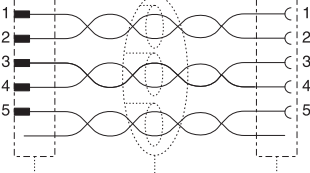
Dimensions



PIN assignment



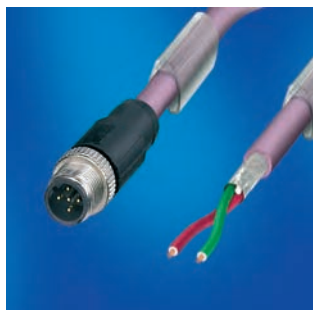
Circuit diagram



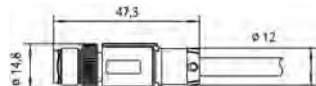
Description		Part-No.		Type			PU
Cable length	0.3	463203	STG5-M12/KUG5-M12/IB 0,3M-PUR			10	
	0.6	463206	STG5-M12/KUG5-M12/IB 0,6M-PUR			10	
	1.0	463210	STG5-M12/KUG5-M12/IB 1,0M-PUR			10	
	1.5	463215	STG5-M12/KUG5-M12/IB 1,5M-PUR			10	
	2.0	463220	STG5-M12/KUG5-M12/IB 2,0M-PUR			10	
	5.0	463250	STG5-M12/KUG5-M12/IB 5,0M-PUR			10	
Technical data							
Nominal voltage		AC/DC 24 V					
Nominal voltage range		max. 30 V					
Rated current		4 A					
Number of terminations		5					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication	–						
Current Consumption per LED	–						
Coding	B - invers						
Shielding	360°						
General							
Form	M12 × 1, male - female straight						
Rated insulation voltage (EN 50178)	60 V						
Test voltage	1.5 kV						
Pollution degree	3						
Insulation resistance	>10 ⁹ Ω						
Contact resistance	< 5 mΩ						
Class of flammability according to UL 94	V0						
Protection class	IP 65, in screwed condition						
Housing material	TPU black						
Contact material	CuSn, gold plated nickel						
Thread material	CuSn nickel plated						
Gasket	NBR (female)						
Cable construction	2 × 2 × AWG 26/7 + 2 × AWG 24/19						
Cable jacket	PUR, RAL 6017 green						
Conductor insulation	Shield, yellow, green, grey, pink, brown						
Cable diameter	8.0 mm						
Bending radius	15 x cable diameter						
Storage temperature range	-40 °C – 80 °C						
Temperature range connector	-25 °C – 90 °C						
Temperature range cable fixed	-40 °C – 80 °C						
Temperature range cable moving	-20 °C – 70 °C						
Mechanical service life	–						
Weight (kg/piece)	0.570	0.750	0.107	0.140	0.170	0.385	
Approvals	the cable is UL, CSA certified 80° 300V						
Accessories		Article number		Type		PU	
Cable markers 4×23mm		499988		LB M8/M12		5	
Torque setting tool M12		490091		DM-SET M12		1	

Actuator sensor interface · CORD SET PROFIBUS

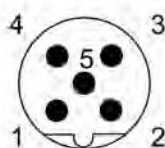
Male M12 straight with PUR cable, shielded 360°, end open
self-locking screwed connection
c-track compatible, halogen free



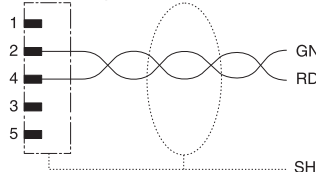
Dimensions



PIN assignment



Circuit diagram



Description	Part-No.	Type	PU
Cable length	2.0	475302	STG2-M12/PB 2M-PUR
	5.0	475305	STG2-M12/PB 5M-PUR
	10.0	475310	STG2-M12/PB 10M-PUR

Technical data

Nominal voltage	AC/DC 24 V		
Nominal voltage range	max. 30 V		
Rated current	4 A		
Number of terminations	2		
Cable length	2.0	5.0	10.0
Status Indication	—		
Current Consumption per LED	—		
Coding	B - invers		
Shielding	360°		

General

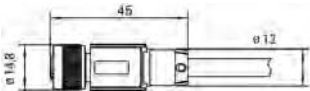
Form	M12 × 1, male straight		
Rated insulation voltage (EN 50178)	60 V		
Test voltage	1.5 kV		
Pollution degree	3		
Insulation resistance	>10 ⁹ Ω		
Contact resistance	< 5 mΩ		
Class of flammability according to UL 94	V0		
Protection class	IP 65, in screwed condition		
Housing material	TPU black		
Contact material	CuSn, gold plated nickel		
Thread material	CuSn nickel plated		
Gasket	—		
Cable construction	1 × 2 × 0.64 mm / AWG 24/19		
Cable jacket	PUR, RAL 4001 violet		
Conductor insulation	Shield, red, green		
Cable diameter	7.8 mm		
Bending radius	cable diameter		
Storage temperature range	-40 °C – 90 °C		
Temperature range connector	-25 °C – 90 °C		
Temperature range cable fixed	-40 °C – 80 °C		
Temperature range cable moving	-20 °C – 80 °C		
Mechanical service life	—		
Weight (kg/piece)	0.160	0.350	0.675
Approvals	the cable is UL, CSA certified 80° 300V		
Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Actuator sensor interface · CORD SET PROFIBUS

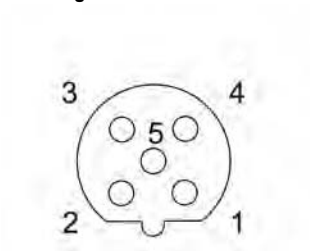
Female M12 straight with PUR cable, shielded 360°, end open
self-locking screwed connection
c-track compatible, halogen free



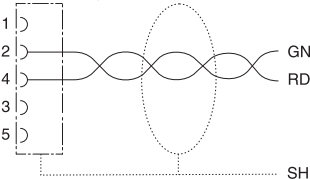
Dimensions



PIN assignment



Circuit diagram



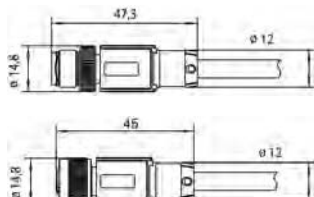
Description		Part-No.	Type	PU
Cable length	2.0	475402	KUG2-M12/PB 2M-PUR	10
	5.0	475405	KUG2-M12/PB 5M-PUR	10
	10.0	475410	KUG2-M12/PB 10M-PUR	10
Technical data				
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		4 A		
Number of terminations		2		
Cable length	2.0	5.0	10.0	
Status Indication		–		
Current Consumption per LED		–		
Coding		B - invers		
Shielding		360°		
General				
Form		M12 × 1, female straight		
Rated insulation voltage (EN 50178)		60 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		>10 ⁹ Ω		
Contact resistance		< 5 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 65, in screwed condition		
Housing material		TPU black		
Contact material		CuSn, gold plated nickel		
Thread material		CuSn nickel plated		
Gasket		–		
Cable construction		1 × 2 × 0.64 mm / AWG 24/19		
Cable jacket		PUR, RAL 4001 violet		
Conductor insulation		Shield, red, green		
Cable diameter		7.8 mm		
Bending radius		10 x cable diameter		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 90 °C		
Temperature range cable fixed		-40 °C – 80 °C		
Temperature range cable moving		-20 °C – 80 °C		
Mechanical service life		–		
Weight (kg/piece)	0.160	0.350	0.675	
Approvals		the cable is UL, CSA certified 80° 300V		
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M12		490091	DM-SET M12	1

Actuator sensor interface · CORD SET PROFIBUS

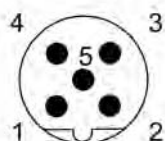
**Male-female M12 straight with PUR cable, shielded 360°
self-locking screwed connection
c-track compatible, halogen free**



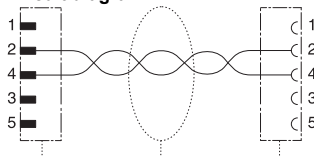
Dimensions



PIN assignment



Circuit diagram



Description		Part-No.	Type	PU
Cable length	0.3	475503	STG2-M12/KUG2-M12/PB 0,3M-PUR	10
	0.6	475506	STG2-M12/KUG2-M12/PB 0,6M-PUR	10
	1.0	475510	STG2-M12/KUG2-M12/PB 1,0M-PUR	10
	1.5	475515	STG2-M12/KUG2-M12/PB 1,5M-PUR	10
	2.0	475520	STG2-M12/KUG2-M12/PB 2,0M-PUR	10
	5.0	475550	STG2-M12/KUG2-M12/PB 5,0M-PUR	10

Technical data

Nominal voltage	AC/DC 24 V					
Nominal voltage range	max. 30 V					
Rated current	4 A					
Number of terminations	2					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0
Status Indication	—					
Current Consumption per LED	—					
Coding	B - invers					
Shielding	360°					

General

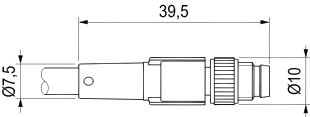
Form	M12 × 1, male - female straight					
Rated insulation voltage (EN 50178)	60 V					
Test voltage	1.5 kV					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	< 5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 65, in screwed condition					
Housing material	TPU black					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	NBR (female)					
Cable construction	1 × 2 × 0.64 mm / AWG 24/19					
Cable jacket	PUR, RAL 4001 violet					
Conductor insulation	Shield, red, green					
Cable diameter	7.8 mm					
Bending radius	10 x cable diameter					
Storage temperature range	-40 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-40 °C – 80 °C					
Temperature range cable moving	-20 °C – 80 °C					
Mechanical service life	—					
Weight (kg/piece)	0.060	0.080	0.105	0.140	0.017	0.365
Approvals	the cable is UL, CSA certified 80° 300V					
Accessories	Article number		Type		PU	
Cable markers 4×23mm	499988		LB M8/M12		5	
Torque setting tool M12	490091		DM-SET M12		1	

Actuator sensor interface · M8 – cables

Male M8 straight with PUR cable, open end
self-locking screwed connection
c-track compatible

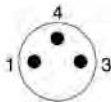


Dimensions



PIN assignment

486020, 486050, 486100

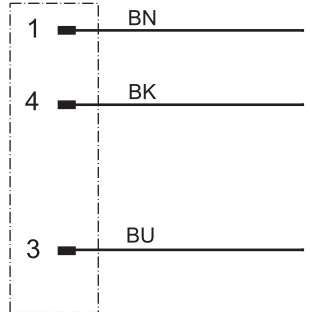


447020, 447050, 447100

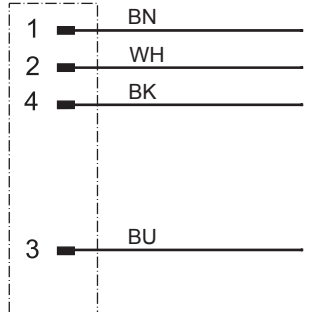


Circuit diagram

486020, 486050, 486100



447020, 447050, 447100



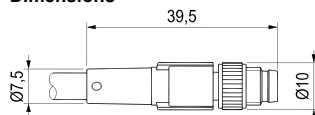
Description	Part-No.			Type		PU
3-pole						
Cable length	2.0	486020	STG3-M8 2M-PUR		10	
	5.0	486050	STG3-M8 5M-PUR		10	
	10.0	486100	STG3-M8 10M-PUR		10	
4-pole						
Cable length	2.0	447020	STG4-M8 2M-PUR		10	
	5.0	447050	STG4-M8 5M-PUR		10	
	10.0	447100	STG4-M8 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 30 V				
Rated current		3 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		–				
Shielding		–				
General						
Form		M8 × 1, male straight				
Rated insulation voltage (EN 50178)		100 V				
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		< 5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		–				
Cable construction	3 × 0.25mm ² (32 × 0.1)		4 × 0.25mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	4.4 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life	–					
Weight (kg/piece)	0.05	0.14	0.27	0.07	0.16	0.32
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M8		490090		DM-SET M8		1

Actuator sensor interface · M8 – cables

Male M8 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible

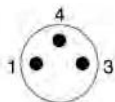


Dimensions



PIN assignment

458102, 458105, 458110

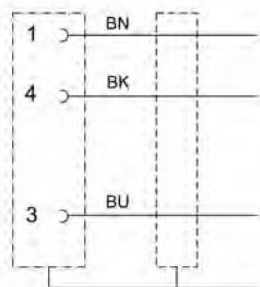


458202, 458205, 458210

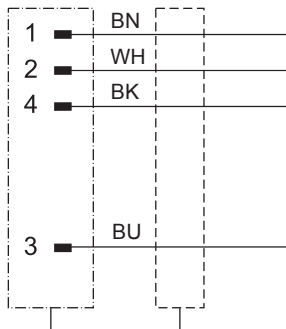


Circuit diagram

458102, 458105, 458110



458202, 458205, 458210

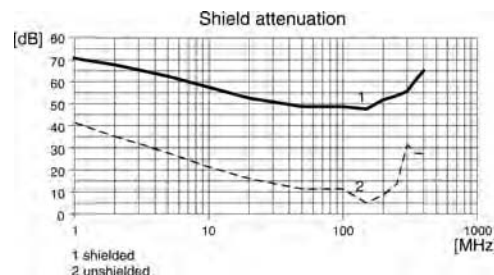


Description		Part-No.	Type	PU
3-pole				
Cable length	2.0	458102	STG3-M8 (C) 2M-PUR	10
	5.0	458105	STG3-M8 (C) 5M-PUR	10
	10.0	458110	STG3-M8 (C) 10M-PUR	10
4-pole				
Cable length	2.0	458202	STG4-M8 (C) 2M-PUR	10
	5.0	458205	STG4-M8 (C) 5M-PUR	10
	10.0	458210	STG4-M8 (C) 10M-PUR	10

Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 30 V				
Rated current		3 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		–				
Shielding		360°				
General						
Form		M8 × 1, male straight				
Rated insulation voltage (EN 50178)		100 V				
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		< 5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		–				
Cable construction	3 × 0.25mm ² (32 × 0.1)		4 × 0.25mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	5.0 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life		–				
Weight (kg/piece)	0.08	0.19	0.38	0.09	0.21	0.42

Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M8	490090	DM-SET M8	1

Action chart

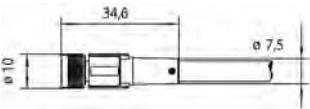


Actuator sensor interface · M8 – cables

Female M8 straight with PUR cable, open end
self-locking screwed connection
c-track compatible

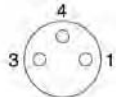


Dimensions



PIN assignment

481020, 481050, 481100

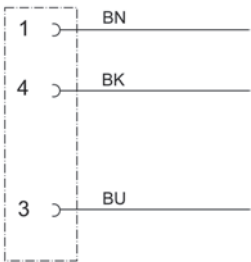


415020, 415050, 415100

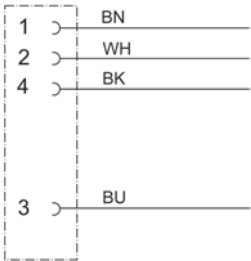


Circuit diagram

481020, 481050, 481100



415020, 415050, 415100



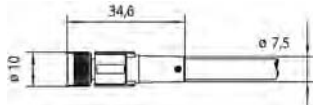
Description	Part-No.			Type		PU
3-pole						
Cable length	2.0	481020	KUG3-M8 2M-PUR		10	
	5.0	481050	KUG3-M8 5M-PUR		10	
	10.0	481100	KUG3-M8 10M-PUR		10	
4-pole						
Cable length	2.0	415020	KUG4-M8 2M-PUR		10	
	5.0	415050	KUG4-M8 5M-PUR		10	
	10.0	415100	KUG4-M8 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 30 V				
Rated current		3 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		–				
Shielding		–				
General						
Form		M8 × 1, female straight				
Rated insulation voltage (EN 50178)		100 V				
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		< 5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		NBR				
Cable construction	3 × 0.25mm ² (32 × 0.1)		4 × 0.25mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation		PVC coloured				
Cable diameter		4.4 mm				
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.05	0.14	0.27	0.07	0.16	0.32
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M8		490090		DM-SET M8		1

Actuator sensor interface · M8 – cables

**Female M8 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible**

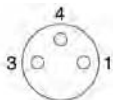


Dimensions

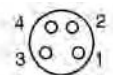


PIN assignment

458302, 458305, 458310

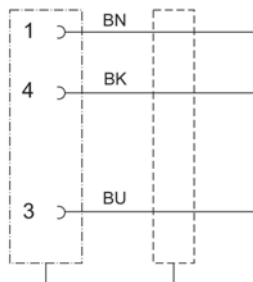


458402, 458405, 458410

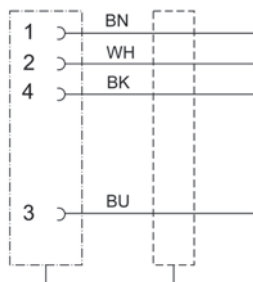


Circuit diagram

458302, 458305, 458310



458402, 458405, 458410



Description		Part-No.	Type	PU
3-pole				
Cable length	2.0	458302	KUG3-M8 (C) 2M-PUR	10
	5.0	458305	KUG3-M8 (C) 5M-PUR	10
	10.0	458310	KUG3-M8 (C) 10M-PUR	10
4-pole				
Cable length	2.0	458402	KUG4-M8 (C) 2M-PUR	10
	5.0	458405	KUG4-M8 (C) 5M-PUR	10
	10.0	458410	KUG4-M8 (C) 10M-PUR	10

Technical data	3-pole	4-pole
Nominal voltage	AC/DC 24 V	
Nominal voltage range	max. 30 V	
Rated current	3 A	
Number of terminations	3	4
Cable length	2.0 5.0 10.0	2.0 5.0 10.0
Status Indication	-	
Current Consumption per LED	-	
Coding	-	
Shielding	360°	

General

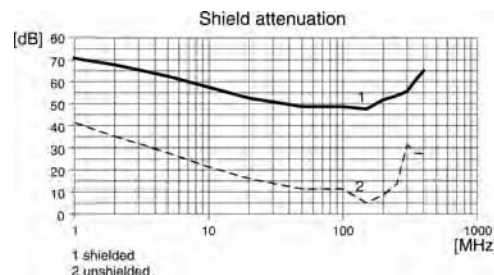
Form	M8 × 1, female straight					
Rated insulation voltage (EN 50178)	100 V					
Test voltage	1.5 kV					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	< 5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 67, in screwed condition					
Housing material	TPU black					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	NBR					
Cable construction	3 × 0.25mm ² (32 × 0.1)		4 × 0.25mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	5.0 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life	–					
Weight (kg/piece)	0.08	0.19	0.38	0.09	0.21	0.42

Approvals

cULus

Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M8	490090	DM-SET M8	5

Action chart

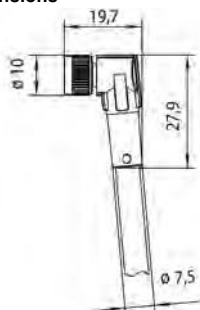


Actuator sensor interface · M8 – cables

Female M8 angled with PUR cable, open end
self-locking screwed connection
c-track compatible

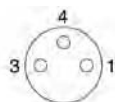


Dimensions

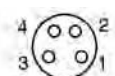


PIN assignment

474020, 474050, 474100

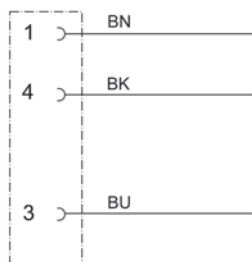


416020, 416050, 416100



Circuit diagram

474020, 474050, 474100



416020, 416050, 416100



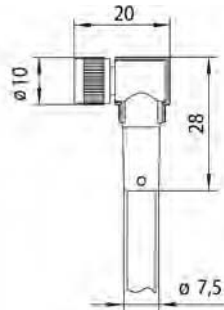
Description	Part-No.			Type			PU
3-pole							
Cable length	2.0	474020	KUW3-M8 2M-PUR			10	
	5.0	474050	KUW3-M8 5M-PUR			10	
	10.0	474100	KUW3-M8 10M-PUR			10	
4-pole							
Cable length	2.0	416020	KUW4-M8 2M-PUR			10	
	5.0	416050	KUW4-M8 5M-PUR			10	
	10.0	416100	KUW4-M8 10M-PUR			10	
Technical data		3-pole		4-pole			
Nominal voltage				AC/DC 24 V			
Nominal voltage range				max. 30 V			
Rated current				3 A			
Number of terminations		3				4	
Cable length	2.0	5.0	10.0	2.0	5.0	10.0	
Status Indication				–			
Current Consumption per LED				–			
Coding				–			
Shielding				–			
General							
Form				M8 × 1, female angled			
Rated insulation voltage (EN 50178)				100 V			
Test voltage				1.5 kV			
Pollution degree				3			
Insulation resistance				>10 ⁹ Ω			
Contact resistance				< 5 mΩ			
Class of flammability according to UL 94				V0			
Protection class				IP 67, in screwed condition			
Housing material				TPU black			
Contact material				CuSn, gold plated nickel			
Thread material				CuSn nickel plated			
Gasket				NBR			
Cable construction	3 × 0.25mm ² (32 × 0.1)			4 × 0.25mm ² (32 × 0.1)			
Cable jacket				PUR, RAL 9001 black			
Conductor insulation				PVC coloured			
Cable diameter				4.4 mm			
Bending radius				15 x cable diameter			
Storage temperature range				-30 °C – 90 °C			
Temperature range connector				-25 °C – 90 °C			
Temperature range cable fixed				-25 °C – 80 °C			
Temperature range cable moving				-5 °C – 80 °C			
Mechanical service life				–			
Weight (kg/piece)	0.05	0.14	0.26	0.06	0.16	0.31	
Approvals				cULus			
Accessories		Article number		Type		PU	
Cable markers 4×23mm		499988		LB M8/M12		5	
Torque setting tool M8		490090		DM-SET M8		1	

Actuator sensor interface · M8 – cables

Female M8 angled with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible

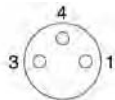


Dimensions

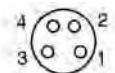


PIN assignment

458502, 458505, 458510

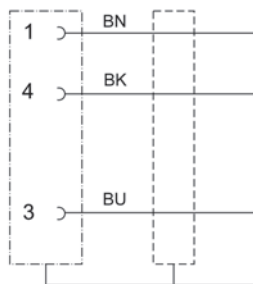


458602, 458605, 458610

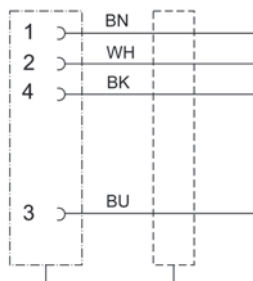


Circuit diagram

458502, 458505, 458510

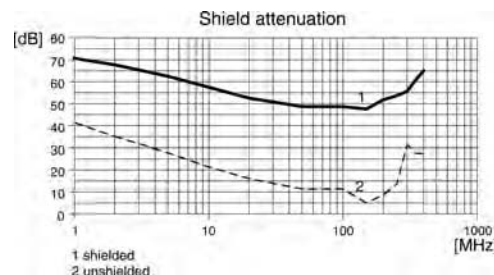


458602, 458605, 458610



Description	Part-No.		Type		PU
3-pole					
Cable length	2.0	458502	KUW3-M8 (C) 2M-PUR		10
	5.0	458505	KUW3-M8 (C) 5M-PUR		10
	10.0	458510	KUW3-M8 (C) 10M-PUR		10
4-pole					
Cable length	2.0	458602	KUW4-M8 (C) 2M-PUR		10
	5.0	458605	KUW4-M8 (C) 5M-PUR		10
	10.0	458610	KUW4-M8 (C) 10M-PUR		10
Technical data		3-pole		4-pole	
Nominal voltage		AC/DC 24 V			
Nominal voltage range		max. 30 V			
Rated current		3 A			
Number of terminations		3		4	
Cable length	2.0	5.0	10.0	2.0	5.0 10.0
Status Indication		–			
Current Consumption per LED		–			
Coding		–			
Shielding		360°			
General					
Form		M8 × 1, female angled			
Rated insulation voltage (EN 50178)		100 V			
Test voltage		1.5 kV			
Pollution degree		3			
Insulation resistance		>10 ⁹ Ω			
Contact resistance		< 5 mΩ			
Class of flammability according to UL 94		V0			
Protection class		IP 67, in screwed condition			
Housing material		TPU black			
Contact material		CuSn, gold plated nickel			
Thread material		CuSn nickel plated			
Gasket		NBR			
Cable construction		3 × 0.25mm ² (32 × 0.1)		4 × 0.25mm ² (32 × 0.1)	
Cable jacket		PUR, RAL 9001 black			
Conductor insulation		PVC coloured			
Cable diameter		5.0 mm			
Bending radius		15 x cable diameter			
Storage temperature range		-30 °C – 90 °C			
Temperature range connector		-25 °C – 90 °C			
Temperature range cable fixed		-25 °C – 80 °C			
Temperature range cable moving		-5 °C – 80 °C			
Mechanical service life		–			
Weight (kg/piece)	0.08	0.20	0.39	0.09	0.21 0.40
Approvals		cULus			
Accessories		Article number		Type	PU
Cable markers 4×23mm		499988		LB M8/M12	5
Torque setting tool M8		490090		DM-SET M8	1

Action chart

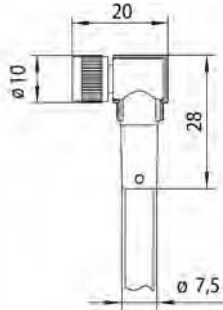


Actuator sensor interface · M8 – cables

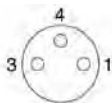
Female M8 angled with 2 LED's and PUR cable, open end
self-locking screwed connection
c-track compatible



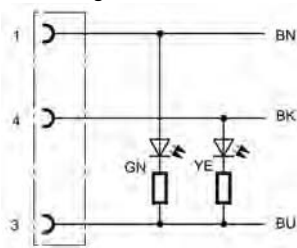
Dimensions



PIN assignment



Circuit diagram



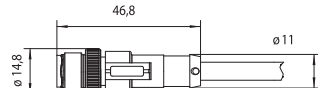
Description	Part-No.	Type	PU	
3-pole				
Cable length	2.0	476020	KUW/LED A-M8 2M-PUR	10
	5.0	476050	KUW/LED A-M8 5M-PUR	10
	10.0	476100	KUW/LED A-M8 10M-PUR	10
Technical data		3-pole		
Nominal voltage	DC 24 V			
Nominal voltage range	DC 10 - 30 V			
Rated current	3 A			
Number of terminations	3			
Cable length	2.0	5.0	10.0	
Status Indication	Operating voltage: LED green; I/O:LED yellow			
Current Consumption per LED	< 10 mA / LED			
Coding	–			
Shielding	–			
General				
Form	M8 × 1, female angled, with 2 LEDs			
Rated insulation voltage (EN 50178)	32 V			
Test voltage	–			
Pollution degree	3			
Insulation resistance	>10 ⁹ Ω			
Contact resistance	< 5 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 67, in screwed condition			
Housing material	TPU black			
Contact material	CuSn, gold plated nickel			
Thread material	CuSn nickel plated			
Gasket	NBR			
Cable construction	3 × 0.25mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black			
Conductor insulation	PVC coloured			
Cable diameter	4.4 mm			
Bending radius	15 x cable diameter			
Storage temperature range	-30 °C – 90 °C			
Temperature range connector	-25 °C – 90 °C			
Temperature range cable fixed	-25 °C – 80 °C			
Temperature range cable moving	-5 °C – 80 °C			
Mechanical service life	–			
Weight (kg/piece)	0.05	0.14	0.27	
Approvals	cULus			
Accessories		Article number	Type	PU
Cable markers 4×23mm		499988	LB M8/M12	5
Torque setting tool M8		490090	DM-SET M8	1

Actuator sensor interface · M12 – cables

**Male M12 straight with PUR cable, open end
self-locking screwed connection
c-track compatible**



Dimensions



PIN assignment

471020, 471050, 471100

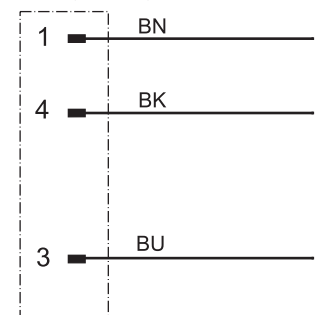


472020, 472050, 472100

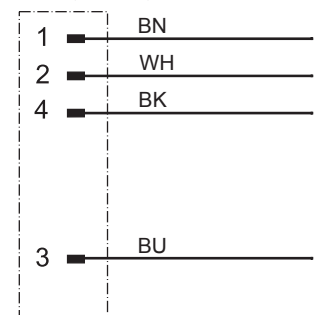


Circuit diagram

471020, 471050, 471100



472020, 472050, 472100



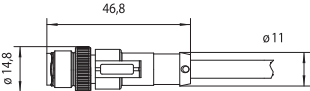
Description	Part-No.			Type		PU
3-pole						
Cable length	2.0	471020	STG3-M12 2M-PUR		10	
	5.0	471050	STG3-M12 5M-PUR		10	
	10.0	471100	STG3-M12 10M-PUR		10	
4-pole						
Cable length	2.0	472020	STG4-M12 2M-PUR		10	
	5.0	472050	STG4-M12 5M-PUR		10	
	10.0	472100	STG4-M12 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 250 V				
Rated current		4 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		A				
Shielding		–				
General						
Form		M12 × 1, male straight				
Rated insulation voltage (EN 50178)		250 V				
Test voltage		2.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		–				
Cable construction	3 × 0.34 mm ² (42 × 0.1)		4 × 0.34 mm ² (42 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	4.4 mm		4.7 mm			
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life		–				
Weight (kg/piece)	0.090	0.190	0.380	0.100	0.200	0.400
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

Actuator sensor interface · M12 – cables

Male M12 straight with PUR cable, open end
self-locking screwed connection
c-track compatible



Dimensions

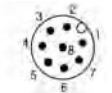


PIN assignment

473020, 473050, 473100

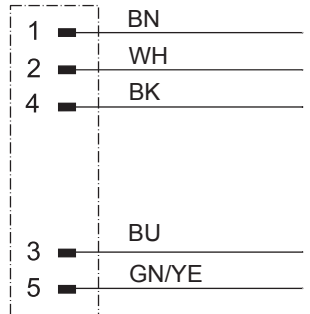


482020, 482050, 482100

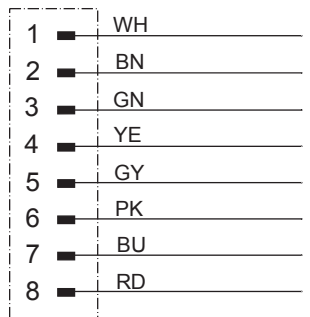


Circuit diagram

473020, 473050, 473100



482020, 482050, 482100



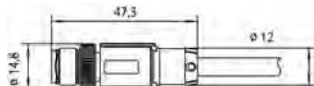
Description	Part-No.			Type		PU
5-pole						
Cable length	2.0	473020	STG5-M12 2M-PUR		10	
	5.0	473050	STG5-M12 5M-PUR		10	
	10.0	473100	STG5-M12 10M-PUR		10	
8-pole						
Cable length	2.0	482020	STG8-M12 2M-PUR		10	
	5.0	482050	STG8-M12 5M-PUR		10	
	10.0	482100	STG8-M12 10M-PUR		10	
Technical data		5-pole		8-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 60 V		max. 30 V		
Rated current		max. 4 A per contact		max. 2 A per contact		
Number of terminations		5		8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form			M12 × 1, male straight			
Rated insulation voltage (EN 50178)		63 V		36 V		
Test voltage			1.5 kV			
Pollution degree			3			
Insulation resistance			>10 ⁹ Ω			
Contact resistance			<5 mΩ			
Class of flammability according to UL 94			V0			
Protection class			IP 67, in screwed condition			
Housing material			TPU black			
Contact material			CuSn, gold plated nickel			
Thread material			CuSn nickel plated			
Gasket			–			
Cable construction	5 × 0.34 mm ² (42 × 0.1)			8 × 0.25 mm ² (32 × 0.1)		
Cable jacket	PUR, RAL 9001 black					
Conductor insulation			PVC coloured			
Cable diameter	5.0 mm			5.9 mm		
Bending radius			15 x cable diameter			
Storage temperature range			-30 °C – 90 °C			
Temperature range connector			-25 °C – 90 °C			
Temperature range cable fixed			-25 °C – 80 °C			
Temperature range cable moving			-5 °C – 80 °C			
Mechanical service life			–			
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals			cULus			
Accessories			Article number		Type	PU
Cable markers 4×23mm			499988		LB M8/M12	5
Torque setting tool M12			490091		DM-SET M12	1

Actuator sensor interface · M12 – cables

Male M12 straight with PUR cable, shielded 360°, open end self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

456002, 456005, 456010

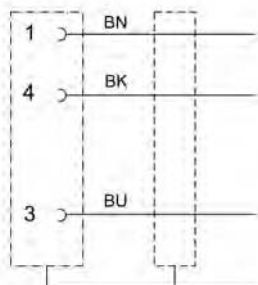


456102, 456105, 456110

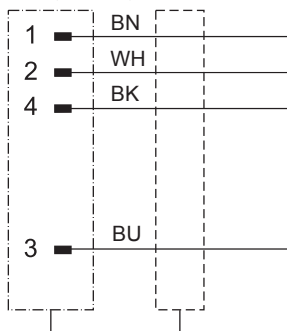


Circuit diagram

456002, 456005, 456010



456102, 456105, 456110

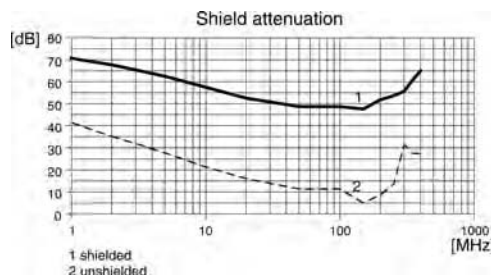


Description		Part-No.	Type	PU
3-pole				
Cable length	2.0	456002	STG3-M12 (C) 2M-PUR	10
	5.0	456005	STG3-M12 (C) 5M-PUR	10
	10.0	456010	STG3-M12 (C) 10M-PUR	10
4-pole				
Cable length	2.0	456102	STG4-M12 (C) 2M-PUR	10
	5.0	456105	STG4-M12 (C) 5M-PUR	10
	10.0	456110	STG4-M12 (C) 10M-PUR	10

Technical data	3-pole			4-pole		
Nominal voltage				AC/DC 24 V		
Nominal voltage range				max. 250 V		
Rated current				4 A		
Number of terminations	3			4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form				M12 × 1, male straight		
Rated insulation voltage (EN 50178)				250 V		
Test voltage				2.5 kV		
Pollution degree				3		
Insulation resistance				>10 ⁹ Ω		
Contact resistance				<5 mΩ		
Class of flammability according to UL 94				V0		
Protection class				IP 67, in screwed condition		
Housing material				TPU black		
Contact material				CuSn, gold plated nickel		
Thread material				CuSn nickel plated		
Gasket				–		
Cable construction	3 × 0.34 mm ² (42 × 0.1)			4 × 0.34 mm ² (42 × 0.1)		
Cable jacket				PUR, RAL 9001 black		
Conductor insulation				PVC coloured		
Cable diameter				5.9 mm		
Bending radius				15 x cable diameter		
Storage temperature range				-30 °C – 90 °C		
Temperature range connector				-25 °C – 90 °C		
Temperature range cable fixed				-25 °C – 80 °C		
Temperature range cable moving				-5 °C – 80 °C		
Mechanical service life				–		
Weight (kg/piece)	0.115	0.225	0.420	0.125	0.275	0.520

Approvals	cULus		
Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Action chart

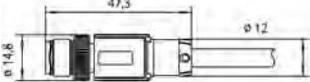


Actuator sensor interface · M12 – cables

Male M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible



Dimensions

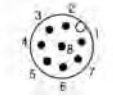


PIN assignment

456202, 456205, 456210

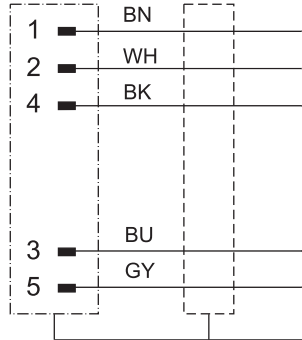


458702, 458705, 458710

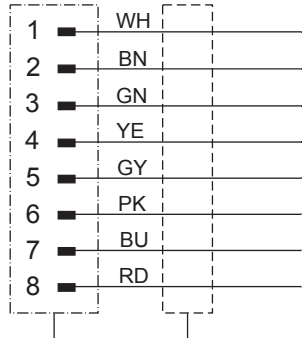


Circuit diagram

456202, 456205, 456210

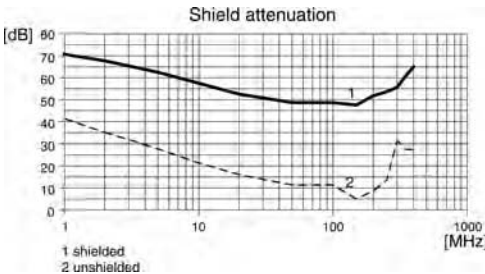


458702, 458705, 458710



Description	Part-No.			Type		PU
5-pole						
Cable length	2.0	456202	STG5-M12 (C) 2M-PUR		10	
	5.0	456205	STG5-M12 (C) 5M-PUR		10	
	10.0	456210	STG5-M12 (C) 10M-PUR		10	
8-pole						
Cable length	2.0	458702	STG8-M12 (C) 2M-PUR		10	
	5.0	458705	STG8-M12 (C) 5M-PUR		10	
	10.0	458710	STG8-M12 (C) 10M-PUR		10	
Technical data		5-pole		8-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 60 V		max. 30 V		
Rated current		max. 4 A per contact		max. 2 A per contact		
Number of terminations		5		8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form			M12 × 1, male straight			
Rated insulation voltage (EN 50178)		63 V		36 V		
Test voltage			1.5 kV			
Pollution degree			3			
Insulation resistance			>10 ⁹ Ω			
Contact resistance			<5 mΩ			
Class of flammability according to UL 94			V0			
Protection class			IP 67, in screwed condition			
Housing material			TPU black			
Contact material			CuSn, gold plated nickel			
Thread material			CuSn nickel plated			
Gasket			–			
Cable construction	5 × 0.34 mm ² (42 × 0.1)		8 × 0.25 mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation			PVC coloured			
Cable diameter			5.9 mm			
Bending radius			cable diameter			
Storage temperature range			-30 °C – 90 °C			
Temperature range connector			-25 °C – 90 °C			
Temperature range cable fixed			-25 °C – 80 °C			
Temperature range cable moving			-5 °C – 80 °C			
Mechanical service life			–			
Weight (kg/piece)	0.150	0.300	0.565	0.155	0.305	0.570
Approvals			cULus			
Accessories			Article number		Type	PU
Cable markers 4×23mm			499988		LB M8/M12	5
Torque setting tool M12			490091		DM-SET M12	1

Action chart

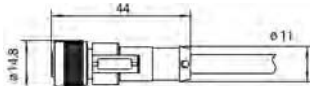


Actuator sensor interface · M12 – cables

**Female M12 straight with PUR cable, open end
self-locking screwed connection
c-track compatible**



Dimensions

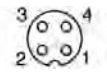


PIN assignment

465020, 465050, 465100

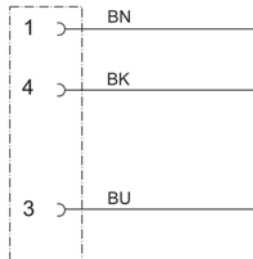


466020, 466050, 466100

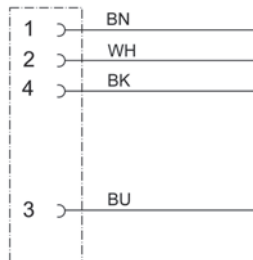


Circuit diagram

465020, 465050, 465100



466020, 466050, 466100



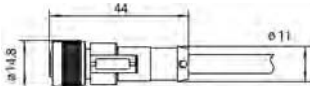
Description	Part-No.		Type		PU	
3-pole						
Cable length	2.0	465020	KUG3-M12 2M-PUR		10	
	5.0	465050	KUG3-M12 5M-PUR		10	
	10.0	465100	KUG3-M12 10M-PUR		10	
4-pole						
Cable length	2.0	466020	KUG4-M12 2M-PUR		10	
	5.0	466050	KUG4-M12 5M-PUR		10	
	10.0	466100	KUG4-M12 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage				AC/DC 24 V		
Nominal voltage range				max. 250 V		
Rated current				4 A		
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form		M12 × 1, female straight				
Rated insulation voltage (EN 50178)		250 V				
Test voltage		2.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		–				
Cable construction	3 × 0.34 mm ² (42 × 0.1)		4 × 0.34 mm ² (42 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation		PVC coloured				
Cable diameter	4.4 mm		4.7 mm			
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.090	0.190	0.380	0.100	0.200	0.400
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

Actuator sensor interface · M12 – cables

Female M12 straight with PUR cable, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

477020, 477050, 477100

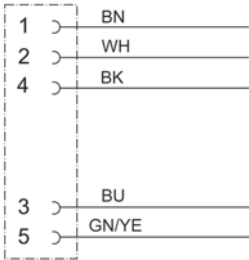


478020, 478050, 478100

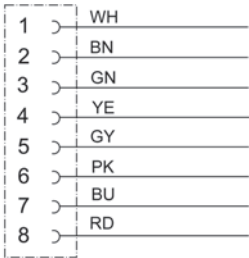


Circuit diagram

477020, 477050, 477100



478020, 478050, 478100



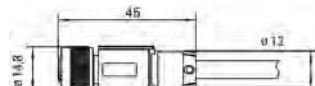
Description	Part-No.			Type		PU
5-pole						
Cable length	2.0	477020	KUG5-M12 2M-PUR		10	
	5.0	477050	KUG5-M12 5M-PUR		10	
	10.0	477100	KUG5-M12 10M-PUR		10	
8-pole						
Cable length	2.0	478020	KUG8-M12 2M-PUR		10	
	5.0	478050	KUG8-M12 5M-PUR		10	
	10.0	478100	KUG8-M12 10M-PUR		10	
Technical data		5-pole		8-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 60 V		max. 30 V		
Rated current		max. 4 A per contact		max. 2 A per contact		
Number of terminations		5		8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form		M12 × 1, female straight				
Rated insulation voltage (EN 50178)		63 V		36 V		
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		–				
Cable construction		5 × 0.34 mm ² (42 × 0.1)		8 × 0.25 mm ² (32 × 0.1)		
Cable jacket		PUR, RAL 9001 black				
Conductor insulation		PVC coloured				
Cable diameter		5.0 mm		5.9 mm		
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals		cULus				
Accessories			Article number		Type	PU
Cable markers 4×23mm			499988		LB M8/M12	5
Torque setting tool M12			490091		DM-SET M12	1

Actuator sensor interface · M12 – cables

**Female M12 straight with PUR cable, shielded 360°, open end self-locking screwed connection
c-track compatible**



Dimensions



PIN assignment

456302, 456305, 456310

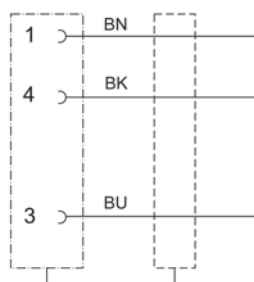


456402, 456405, 456410

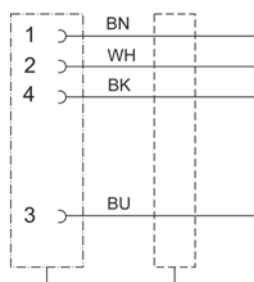


Circuit diagram

456302, 456305, 456310



456402, 456405, 456410

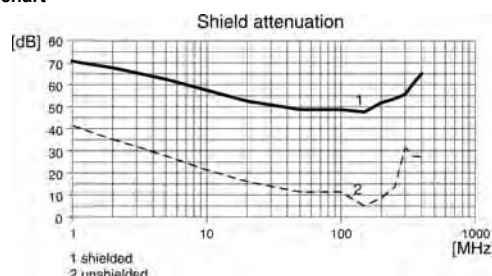


Description		Part-No.	Type	PU
3-pole				
Cable length	2.0	456302	KUG3-M12 (C) 2M-PUR	10
	5.0	456305	KUG3-M12 (C) 5M-PUR	10
	10.0	456310	KUG3-M12 (C) 10M-PUR	10
4-pole				
Cable length	2.0	456402	KUG4-M12 (C) 2M-PUR	10
	5.0	456405	KUG4-M12 (C) 5M-PUR	10
	10.0	456410	KUG4-M12 (C) 10M-PUR	10

Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 250 V				
Rated current		4 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication	–					
Current Consumption per LED	–					
Coding	A					
Shielding	–					
General						
Form	M12 × 1, female straight					
Rated insulation voltage (EN 50178)	250 V					
Test voltage	2.5 kV					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	<5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 65, in screwed condition					
Housing material	TPU black					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	–					
Cable construction	3 × 0.34 mm ² (42 × 0.1)			4 × 0.34 mm ² (42 × 0.1)		
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	5.9 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life	–					
Weight (kg/piece)	0.115	0.225	0.420	0.125	0.275	0.520

Approvals	cULus		
Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Action chart

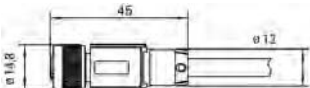


Actuator sensor interface · M12 – cables

Female M12 straight with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

456502, 456505, 456510

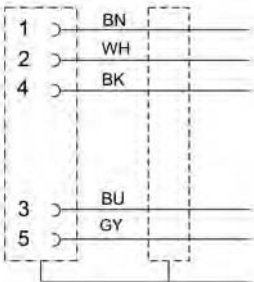


458802, 458805, 458810

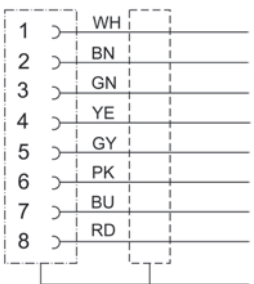


Circuit diagram

456502, 456505, 456510

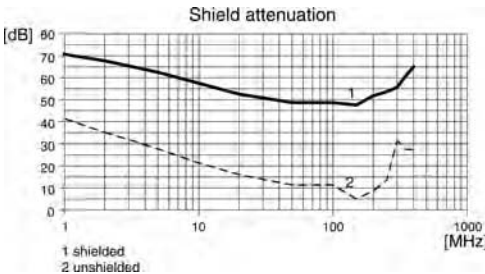


458802, 458805, 458810



Description	Part-No.			Type			PU
5-pole							
Cable length	2.0	456502	KUG5-M12 (C) 2M-PUR			10	
	5.0	456505	KUG5-M12 (C) 5M-PUR			10	
	10.0	456510	KUG5-M12 (C) 10M-PUR			10	
8-pole							
Cable length	2.0	458802	KUG8-M12 (C) 2M-PUR			10	
	5.0	458805	KUG8-M12 (C) 5M-PUR			10	
	10.0	458810	KUG8-M12 (C) 10M-PUR			10	
Technical data		5-pole			8-pole		
Nominal voltage		AC/DC 24 V					
Nominal voltage range		max. 60 V			max. 30 V		
Rated current		max. 4 A per contact			max. 2 A per contact		
Number of terminations		5			8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0	
Status Indication				–			
Current Consumption per LED				–			
Coding				A			
Shielding				–			
General							
Form		M12 × 1, female straight					
Rated insulation voltage (EN 50178)		63 V			36 V		
Test voltage		1.5 kV					
Pollution degree		3					
Insulation resistance		>10 ⁹ Ω					
Contact resistance		<5 mΩ					
Class of flammability according to UL 94		V0					
Protection class		IP 67, in screwed condition					
Housing material		TPU black					
Contact material		CuSn, gold plated nickel					
Thread material		CuSn nickel plated					
Gasket		–					
Cable construction		5 × 0.34 mm ² (42 × 0.1)			8 × 0.25 mm ² (32 × 0.1)		
Cable jacket		PUR, RAL 9001 black					
Conductor insulation		PVC coloured					
Cable diameter		5.9 mm					
Bending radius		15 x cable diameter					
Storage temperature range		-30 °C – 90 °C					
Temperature range connector		-25 °C – 90 °C					
Temperature range cable fixed		-25 °C – 80 °C					
Temperature range cable moving		-5 °C – 80 °C					
Mechanical service life		–					
Weight (kg/piece)	0.150	0.300	0.565	0.150	0.305	0.570	
Approvals		cULus					
Accessories			Article number		Type		PU
Cable markers 4×23mm			499988		LB M8/M12		5
Torque setting tool M12			490091		DM-SET M12		1

Action chart

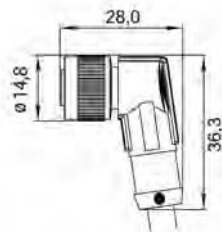


Actuator sensor interface · M12 – cables

**Female M12 angled with PUR cable, open end
self-locking screwed connection
c-track compatible**



Dimensions



PIN assignment

462020, 462050, 462100

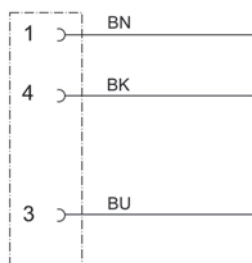


464020, 464050, 464100



Circuit diagram

462020, 462050, 462100



464020, 464050, 464100



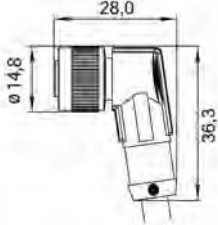
Description	Part-No.		Type		PU	
3-pole						
Cable length	2.0	462020	KUW3-M12 2M-PUR		10	
	5.0	462050	KUW3-M12 5M-PUR		10	
	10.0	462100	KUW3-M12 10M-PUR		10	
4-pole						
Cable length	2.0	464020	KUW4-M12 2M-PUR		10	
	5.0	464050	KUW4-M12 5M-PUR		10	
	10.0	464100	KUW4-M12 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage				AC/DC 24 V		
Nominal voltage range				max. 250 V		
Rated current				4 A		
Number of terminations		3				4
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form		M12 × 1, female angled				
Rated insulation voltage (EN 50178)		250 V				
Test voltage		2.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		NBR				
Cable construction	3 × 0.34 mm ² (42 × 0.1)		4 × 0.34 mm ² (42 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation		PVC coloured				
Cable diameter	4.4 mm		4.7 mm			
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.090	0.190	0.380	0.100	0.200	0.400
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

Actuator sensor interface · M12 – cables

Female M12 angled with PUR cable, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

443020, 443050, 443100

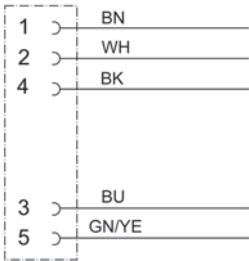


479020, 479050, 479100



Circuit diagram

443020, 443050, 443100



479020, 479050, 479100



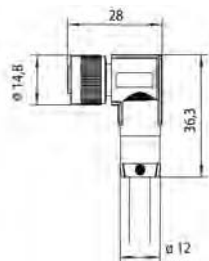
Description	Part-No.			Type		PU
5-pole						
Cable length	2.0	443020	KUW5-M12 2M-PUR		10	
	5.0	443050	KUW5-M12 5M-PUR		10	
	10.0	443100	KUW5-M12 10M-PUR		10	
8-pole						
Cable length	2.0	479020	KUW8-M12 2M-PUR		10	
	5.0	479050	KUW8-M12 5M-PUR		10	
	10.0	479100	KUW8-M12 10M-PUR		10	
Technical data		5-pole		8-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 60 V		max. 30 V		
Rated current		max. 4 A per contact		max. 2 A per contact		
Number of terminations		5		8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication				–		
Current Consumption per LED				–		
Coding				A		
Shielding				–		
General						
Form		M12 × 1, female angled				
Rated insulation voltage (EN 50178)		63 V		36 V		
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		NBR				
Cable construction		5 × 0.34 mm ² (42 × 0.1)		8 × 0.25 mm ² (32 × 0.1)		
Cable jacket		PUR, RAL 9001 black				
Conductor insulation		PVC coloured				
Cable diameter		5.0 mm		5.9 mm		
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.100	0.250	0.480	0.110	0.260	0.525
Approvals		cULus				
Accessories			Article number		Type	PU
Cable markers 4×23mm			499988		LB M8/M12	5
Torque setting tool M12			490091		DM-SET M12	1

Actuator sensor interface · M12 – cables

Female M12 angled with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

456602, 456605, 456610

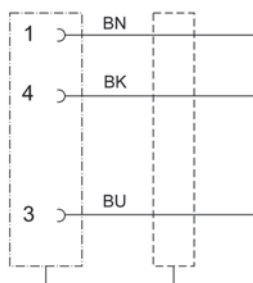


456702, 456705, 456710

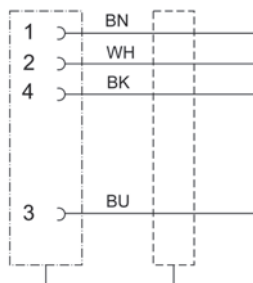


Circuit diagram

456602, 456605, 456610

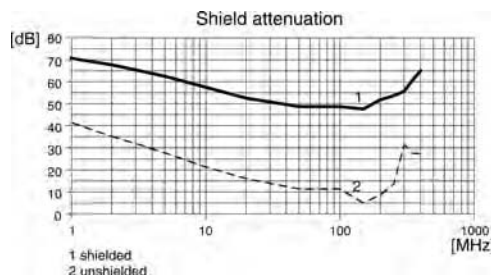


456702, 456705, 456710



Description	Part-No.			Type		PU
3-pole						
Cable length	2.0	456602	KUW3-M12 (C) 2M-PUR		10	
	5.0	456605	KUW3-M12 (C) 5M-PUR		10	
	10.0	456610	KUW3-M12 (C) 10M-PUR		10	
4-pole						
Cable length	2.0	456702	KUW4-M12 (C) 2M-PUR		10	
	5.0	456705	KUW4-M12 (C) 5M-PUR		10	
	10.0	456710	KUW4-M12 (C) 10M-PUR		10	
Technical data		3-pole		4-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 250 V				
Rated current		4 A				
Number of terminations		3		4		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		A				
Shielding		360°				
General						
Form		M12 × 1, female angled				
Rated insulation voltage (EN 50178)		250 V				
Test voltage		2.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		NBR				
Cable construction	3 × 0.34 mm ² (42 × 0.1)		4 × 0.34 mm ² (42 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation		PVC coloured				
Cable diameter		5.9 mm				
Bending radius		15 x cable diameter				
Storage temperature range		-30 °C – 90 °C				
Temperature range connector		-25 °C – 90 °C				
Temperature range cable fixed		-25 °C – 80 °C				
Temperature range cable moving		-5 °C – 80 °C				
Mechanical service life		–				
Weight (kg/piece)	0.115	0.225	0.420	0.125	0.275	0.520
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

Action chart

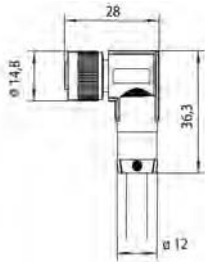


Actuator sensor interface · M12 – cables

Female M12 angled with PUR cable, shielded 360°, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

456802, 456805, 456810

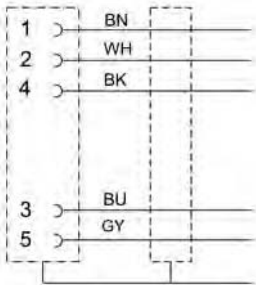


458902, 458905, 458910

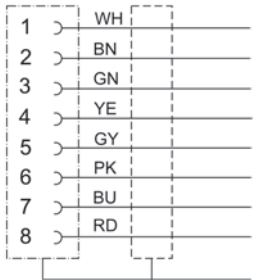


Circuit diagram

456802, 456805, 456810

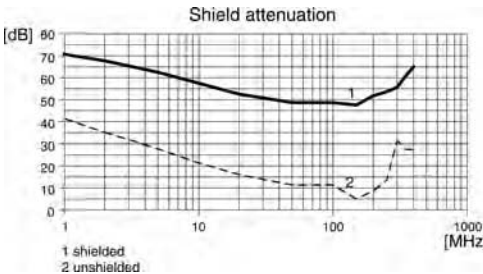


458902, 458905, 458910



Description	Part-No.			Type		PU
5-pole						
Cable length	2.0	456802	KUW5-M12 (C) 2M-PUR		10	
	5.0	456805	KUW5-M12 (C) 5M-PUR		10	
	10.0	456810	KUW5-M12 (C) 10M-PUR		10	
8-pole						
Cable length	2.0	458902	KUW8-M12 (C) 2M-PUR		10	
	5.0	458905	KUW8-M12 (C) 5M-PUR		10	
	10.0	458910	KUW8-M12 (C) 10M-PUR		10	
Technical data		5-pole		8-pole		
Nominal voltage		AC/DC 24 V				
Nominal voltage range		max. 60 V		max. 30 V		
Rated current		max. 4 A per contact		max. 2 A per contact		
Number of terminations		5		8		
Cable length	2.0	5.0	10.0	2.0	5.0	10.0
Status Indication		–				
Current Consumption per LED		–				
Coding		A				
Shielding		360°				
General						
Form		M12 × 1, female angled				
Rated insulation voltage (EN 50178)		63 V		36 V		
Test voltage		1.5 kV				
Pollution degree		3				
Insulation resistance		>10 ⁹ Ω				
Contact resistance		<5 mΩ				
Class of flammability according to UL 94		V0				
Protection class		IP 67, in screwed condition				
Housing material		TPU black				
Contact material		CuSn, gold plated nickel				
Thread material		CuSn nickel plated				
Gasket		NBR				
Cable construction	5 × 0.34 mm ² (42 × 0.1)		8 × 0.25 mm ² (32 × 0.1)			
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	5.9 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life	–					
Weight (kg/piece)	0.150	0.300	0.565	0.155	0.305	0.570
Approvals		cULus				
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

Action chart

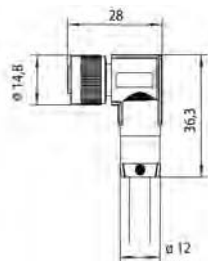


Actuator sensor interface · M12 – cables

Female M12 angled, with LEDs and PUR cable, open end
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment

468020, 468050, 468100

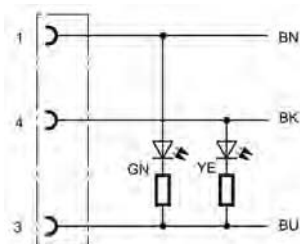


469020, 469050, 469100

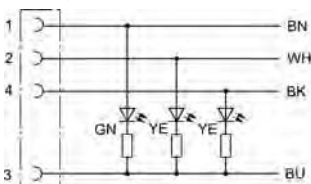


Circuit diagram

468020, 468050, 468100



469020, 469050, 469100



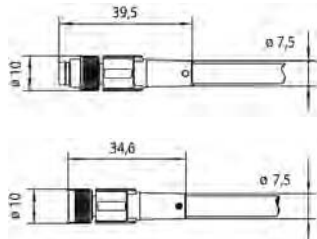
Description		Part-No.	Type	PU			
3-pole							
Cable length	2.0	468020	KUW/LED A-M12 2M-PUR	10			
	5.0	468050	KUW/LED A-M12 5M-PUR	10			
	10.0	468100	KUW/LED A-M12 10M-PUR	10			
4-pole							
Cable length	2.0	469020	KUW/LED P-M12 2M-PUR	10			
	5.0	469050	KUW/LED P-M12 5M-PUR	10			
	10.0	469100	KUW/LED P-M12 10M-PUR	10			
Technical data		3-pole		4-pole			
Nominal voltage		AC/DC 24 V					
Nominal voltage range		DC 10 - 30 V					
Rated current		4 A					
Number of terminations		3		4			
Cable length	2.0	5.0	10.0	2.0	5.0	10.0	
Status Indication		Operating voltage: LED green, I/O: LED yellow					
Current Consumption per LED		<10 mA / LED					
Coding		A					
Shielding		–					
General							
Form		M12 × 1, female angled, with LEDs					
Rated insulation voltage (EN 50178)		32 V					
Test voltage		–					
Pollution degree		3					
Insulation resistance		>10 ⁹ Ω					
Contact resistance		<5 mΩ					
Class of flammability according to UL 94		V0					
Protection class		IP 67, in screwed condition					
Housing material		TPU black					
Contact material		CuSn, gold plated nickel					
Thread material		CuSn nickel plated					
Gasket		NBR					
Cable construction		3 × 0.34 mm ² (42 × 0.1)		4 × 0.34 mm ² (42 × 0.1)			
Cable jacket		PUR, RAL 9001 black					
Conductor insulation		PVC coloured					
Cable diameter		4.4 mm		4.7 mm			
Bending radius		15 x cable diameter					
Storage temperature range		-30 °C – 90 °C					
Temperature range connector		-25 °C – 90 °C					
Temperature range cable fixed		-25 °C – 80 °C					
Temperature range cable moving		-5 °C – 80 °C					
Mechanical service life		–					
Weight (kg/piece)		0.095	0.190	0.370	0.100	0.200	0.390
Approvals		cULus					
Accessories		Article number		Type		PU	
Cable markers 4×23mm		499988		LB M8/M12		5	
Torque setting tool M12		490091		DM-SET M12		1	

Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 straight with PUR cable
self-locking screwed connection
c-track compatible

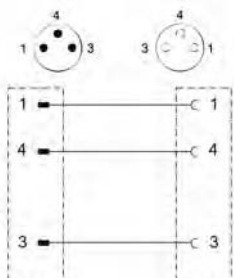


Dimensions

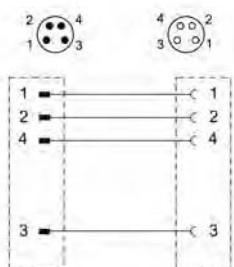


PIN assignment

487003, 487006, 487010, 487015,
487020, 487050



410003, 410006, 410010, 410015,
410020, 410050



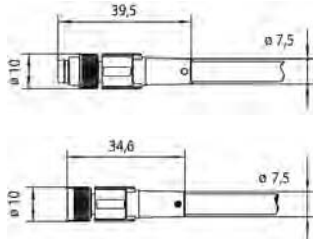
Description	Part-No.					Type					PU	
3-pole												
Cable length	0.3	487003					STG3-M8/KUG3-M8 0,3M-PUR					10
	0.6	487006					STG3-M8/KUG3-M8 0,6M-PUR					10
	1.0	487010					STG3-M8/KUG3-M8 1,0M-PUR					10
	1.5	487015					STG3-M8/KUG3-M8 1,5M-PUR					10
	2.0	487020					STG3-M8/KUG3-M8 2,0M-PUR					10
	5.0	487050					STG3-M8/KUG3-M8 5,0M-PUR					10
4-pole												
Cable length	0.3	410003					STG4-M8/KUG4-M8 0,3M-PUR					10
	0.6	410006					STG4-M8/KUG4-M8 0,6M-PUR					10
	1.0	410010					STG4-M8/KUG4-M8 1,0M-PUR					10
	1.5	410015					STG4-M8/KUG4-M8 1,5M-PUR					10
	2.0	410020					STG4-M8/KUG4-M8 2,0M-PUR					10
	5.0	410050					STG4-M8/KUG4-M8 5,0M-PUR					10
Technical data		3-pole					4-pole					
Nominal voltage		AC/DC 24 V										
Nominal voltage range		max. 60 V					max. 30 V					
Rated current		3 A										
Number of terminations		3					4					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0
Status Indication	–											
Current Consumption per LED	–											
Coding	–											
Shielding	–											
General												
Form	M8 × 1, male straight / M8 × 1, female straight											
Rated insulation voltage (EN 50178)	100 V											
Test voltage	1.5 kV											
Pollution degree	3											
Insulation resistance	>10 ⁹ Ω											
Contact resistance	<5 mΩ											
Class of flammability according to UL 94	V0											
Protection class	IP 67, in screwed condition											
Housing material	TPU black											
Contact material	CuSn, gold plated nickel											
Thread material	CuSn nickel plated											
Gasket	NBR											
Cable construction	3 × 0.25 mm ² (32 × 0.1)					4 × 0.25 mm ² (32 × 0.1)						
Cable jacket	PUR, RAL 9001 black											
Conductor insulation	PVC coloured											
Cable diameter	4.4 mm											
Bending radius	15 x cable diameter											
Storage temperature range	-30 °C – 90 °C											
Temperature range connector	-25 °C – 90 °C											
Temperature range cable fixed	-25 °C – 80 °C											
Temperature range cable moving	-5 °C – 80 °C											
Mechanical service life	–											
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16	0.05	0.06	0.08	0.10	0.13	0.31
Approvals	cULus											
Accessories					Article number				Type			PU
Cable markers 4×23mm					499988				LB M8/M12			5
Torque setting tool M8					490090				DM-SET M8			1

Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 straight with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

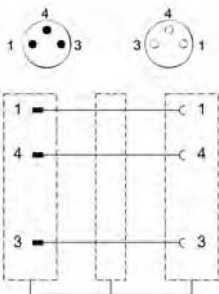


Dimensions

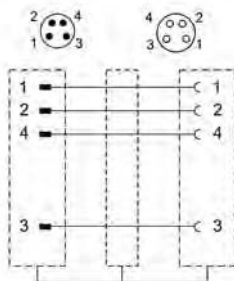


PIN assignment

457603, 457606, 457610, 457615,
457620, 457650



457703, 457706, 457710, 457715,
457720, 457750

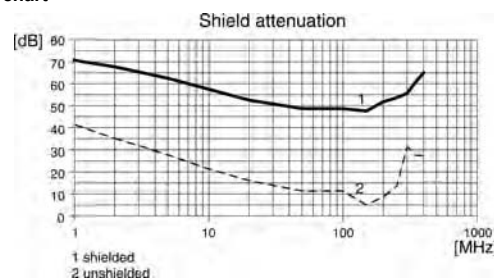


Description	Part-No.	Type	PU
3-pole			
Cable length	0.3	457603	STG3-M8/KUG3-M8 (C) 0,3M-PUR 10
	0.6	457606	STG3-M8/KUG3-M8 (C) 0,6M-PUR 10
	1.0	457610	STG3-M8/KUG3-M8 (C) 1,0M-PUR 10
	1.5	457615	STG3-M8/KUG3-M8 (C) 1,5M-PUR 10
	2.0	457620	STG3-M8/KUG3-M8 (C) 2,0M-PUR 10
	5.0	457650	STG3-M8/KUG3-M8 (C) 5,0M-PUR 10
4-pole			
Cable length	0.3	457703	STG4-M8/KUG4-M8 (C) 0,3M-PUR 10
	0.6	457706	STG4-M8/KUG4-M8 (C) 0,6M-PUR 10
	1.0	457710	STG4-M8/KUG4-M8 (C) 1,0M-PUR 10
	1.5	457715	STG4-M8/KUG4-M8 (C) 1,5M-PUR 10
	2.0	457720	STG4-M8/KUG4-M8 (C) 2,0M-PUR 10
	5.0	457750	STG4-M8/KUG4-M8 (C) 5,0M-PUR 10

Technical data		3-pole	4-pole
Nominal voltage		AC/DC 24 V	
Nominal voltage range		max. 60 V	max. 30 V
Rated current		3 A	
Number of terminations		3	4
Cable length	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status Indication		—	
Current Consumption per LED		—	
Coding		—	
Shielding		360°	

General		M8 × 1, male straight / M8 × 1, female straight	
Form		M8 × 1, male straight / M8 × 1, female straight	
Rated insulation voltage (EN 50178)		100 V	
Test voltage		1.5 kV	
Pollution degree		3	
Insulation resistance		>10 ⁹ Ω	
Contact resistance		<5 mΩ	
Class of flammability according to UL 94		V0	
Protection class		IP 67, in screwed condition	
Housing material		TPU black	
Contact material		CuSn, gold plated nickel	
Thread material		CuSn nickel plated	
Gasket		NBR	
Cable construction		3 × 0.25 mm ² (32 × 0.1)	4 × 0.25 mm ² (32 × 0.1)
Cable jacket		PUR, RAL 9001 black	
Conductor insulation		PVC coloured	
Cable diameter		5.0 mm	
Bending radius		15 x cable diameter	
Storage temperature range		-30 °C – 90 °C	
Temperature range connector		-25 °C – 90 °C	
Temperature range cable fixed		-25 °C – 80 °C	
Temperature range cable moving		-5 °C – 80 °C	
Mechanical service life		—	
Weight (kg/piece)	0.02 0.03 0.04 0.05 0.06 0.16	0.05 0.06 0.08 0.10 0.13 0.31	
Approvals		cULus	
Accessories		Article number	Type
Cable markers 4×23mm		499988	LB M8/M12
Torque setting tool M8		490090	DM-SET M8

Action chart

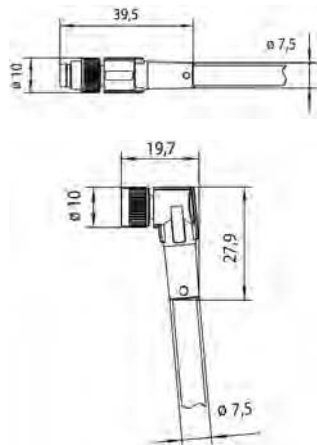


Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 angled with PUR cable
self-locking screwed connection
c-track compatible

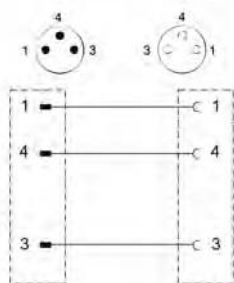


Dimensions

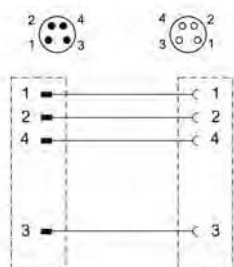


PIN assignment

488003, 488006, 488010, 488015,
488020, 488050



411003, 411006, 411010, 411015,
411020, 411050



Description		Part-No.	Type	PU
3-pole				
Cable length	0.3	488003	STG3-M8/KUW3-M8 0,3M-PUR	10
	0.6	488006	STG3-M8/KUW3-M8 0,6M-PUR	10
	1.0	488010	STG3-M8/KUW3-M8 1,0M-PUR	10
	1.5	488015	STG3-M8/KUW3-M8 1,5M-PUR	10
	2.0	488020	STG3-M8/KUW3-M8 2,0M-PUR	10
	5.0	488050	STG3-M8/KUW3-M8 5,0M-PUR	10

4-pole				
Cable length	0.3	411003	STG4-M8/KUW4-M8 0,3M-PUR	10
	0.6	411006	STG4-M8/KUW4-M8 0,6M-PUR	10
	1.0	411010	STG4-M8/KUW4-M8 1,0M-PUR	10
	1.5	411015	STG4-M8/KUW4-M8 1,5M-PUR	10
	2.0	411020	STG4-M8/KUW4-M8 2,0M-PUR	10
	5.0	411050	STG4-M8/KUW4-M8 5,0M-PUR	10

Technical data		3-pole	4-pole
Nominal voltage		AC/DC 24 V	
Nominal voltage range		max. 60 V	max. 30 V
Rated current		3 A	
Number of terminations		3	4
Cable length	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status Indication		-	
Current Consumption per LED		-	
Coding		-	
Shielding		-	

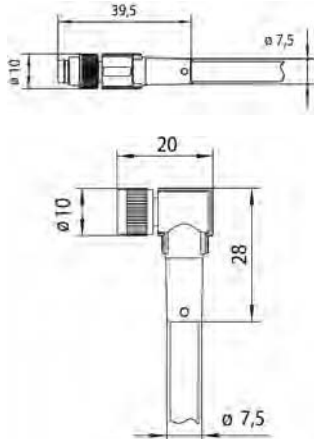
General												
Form	M8 × 1, male straight / M8 × 1, female angled											
Rated insulation voltage (EN 50178)	100 V											
Test voltage	1.5 kV											
Pollution degree	3											
Insulation resistance	>10 ⁹ Ω											
Contact resistance	<5 mΩ											
Class of flammability according to UL 94	V0											
Protection class	IP 67, in screwed condition											
Housing material	TPU black											
Contact material	CuSn, gold plated nickel											
Thread material	CuSn nickel plated											
Gasket	NBR											
Cable construction	3 × 0.25 mm ² (32 × 0.1)				4 × 0.25 mm ² (32 × 0.1)							
Cable jacket	PUR, RAL 9001 black											
Conductor insulation	PVC coloured											
Cable diameter	4.4 mm											
Bending radius	15 x cable diameter											
Storage temperature range	-30 °C – 90 °C											
Temperature range connector	-25 °C – 90 °C											
Temperature range cable fixed	-25 °C – 80 °C											
Temperature range cable moving	-5 °C – 80 °C											
Mechanical service life	—											
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16	0.05	0.06	0.08	0.10	0.13	0.31
Approvals	cULus											
Accessories	Article number					Type					PU	
Cable Markers 4×23mm	499988					LB M8/M12					5	
Torque setting tool M8	490090					DM-SET M8					1	

Actuator sensor interface · M8 / M8 – cables

Male M8 straight to female M8 angled with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

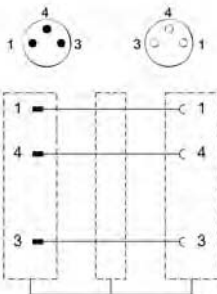


Dimensions

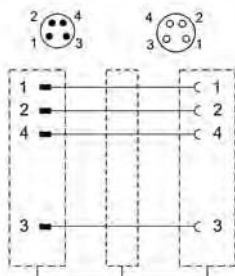


PIN assignment

457803, 457806, 457810, 457815,
457820, 457850



457903, 457906, 457910, 457915,
457920, 457950



Description		Part-No.	Type	PU
3-pole				
Cable length	0.3	457803	STG3-M8/KUW3-M8 (C) 0,3M-PUR	10
	0.6	457806	STG3-M8/KUW3-M8 (C) 0,6M-PUR	10
	1.0	457810	STG3-M8/KUW3-M8 (C) 1,0M-PUR	10
	1.5	457815	STG3-M8/KUW3-M8 (C) 1,5M-PUR	10
	2.0	457820	STG3-M8/KUW3-M8 (C) 2,0M-PUR	10
	5.0	457850	STG3-M8/KUW3-M8 (C) 5,0M-PUR	10

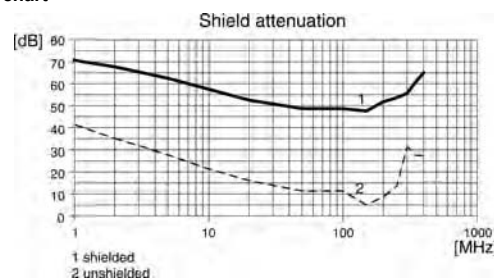
4-pole				
Cable length	0.3	457903	STG4-M8/KUW4-M8 (C) 0,3M-PUR	10
	0.6	457906	STG4-M8/KUW4-M8 (C) 0,6M-PUR	10
	1.0	457910	STG4-M8/KUW4-M8 (C) 1,0M-PUR	10
	1.5	457915	STG4-M8/KUW4-M8 (C) 1,5M-PUR	10
	2.0	457920	STG4-M8/KUW4-M8 (C) 2,0M-PUR	10
	5.0	457950	STG4-M8/KUW4-M8 (C) 5,0M-PUR	10

Technical data	3-pole	4-pole
Nominal voltage	AC/DC 24 V	
Nominal voltage range	max. 60 V	max. 30 V
Rated current	3 A	
Number of terminations	3	4
Cable length	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status Indication	—	
Current Consumption per LED	—	
Coding	—	
Shielding	360°	

General	
Form	M8 × 1, male straight / M8 × 1, female angled
Rated insulation voltage (EN 50178)	100 V
Test voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 ⁹ Ω
Contact resistance	<5 mΩ
Class of flammability according to UL 94	V0
Protection class	IP 67, in screwed condition
Housing material	TPU black
Contact material	CuSn, gold plated nickel
Thread material	CuSn nickel plated
Gasket	NBR
Cable construction	3 × 0.25 mm ² (32 × 0.1) 4 × 0.25 mm ² (32 × 0.1)
Cable jacket	PUR, RAL 9001 black
Conductor insulation	PVC coloured
Cable diameter	5.0 mm
Bending radius	15 x cable diameter
Storage temperature range	-30 °C – 90 °C
Temperature range connector	-25 °C – 90 °C
Temperature range cable fixed	-25 °C – 80 °C
Temperature range cable moving	-5 °C – 80 °C
Mechanical service life	—
Weight (kg/piece)	0.02 0.03 0.04 0.05 0.06 0.16 0.05 0.06 0.08 0.10 0.13 0.31

Approvals	cULus		
Accessories	Article number	Type	PU
Cable Markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M8	490090	DM-SET M8	1

Action chart

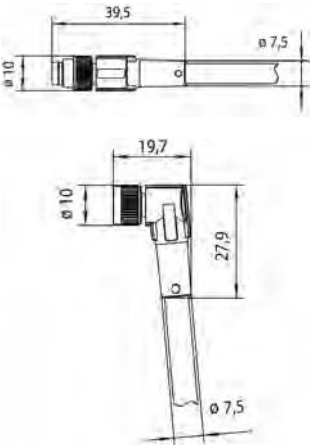


Actuator sensor interface · M8 / M8 – cables

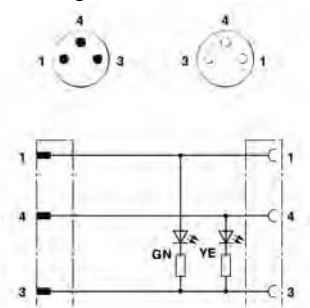
Male M8 straight to female 8 pin angled with LEDs and PUR cable
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment



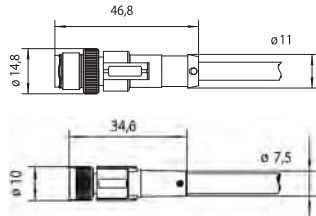
Description		Part-No.		Type			PU
3-pole							
Cable length	0.3	489003	STG3-M8/KUW3-M8 LED A 0,3M-PUR			10	
	0.6	489006	STG3-M8/KUW3-M8 LED A 0,6M-PUR			10	
	1.0	489010	STG3-M8/KUW3-M8 LED A 1,0M-PUR			10	
	1.5	489015	STG3-M8/KUW3-M8 LED A 1,5M-PUR			10	
	2.0	489020	STG3-M8/KUW3-M8 LED A 2,0M-PUR			10	
	5.0	489050	STG3-M8/KUW3-M8 LED A 5,0M-PUR			10	
Technical data				3-pole			
Nominal voltage		DC 24 V					
Nominal voltage range		DC 10 - 30 V					
Rated current		3 A					
Number of terminations		3					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication		–					
Current Consumption per LED		< 10 mA / LED					
Coding		–					
Shielding		–					
General							
Form		M8 × 1, male straight / M8 × 1, female angled with LEDs					
Rated insulation voltage (EN 50178)		100 V					
Test voltage		1.5 kV					
Pollution degree		3					
Insulation resistance		>10 ⁹ Ω					
Contact resistance		<5 mΩ					
Class of flammability according to UL 94		V0					
Protection class		IP 67, in screwed condition					
Housing material		TPU black					
Contact material		CuSn, gold plated nickel					
Thread material		CuSn nickel plated					
Gasket		NBR					
Cable construction		3 × 0.25 mm ² (32 × 0.1)					
Cable jacket		PUR, RAL 9001 black					
Conductor insulation		PVC coloured					
Cable diameter		4.4 mm					
Bending radius		15 x cable diameter					
Storage temperature range		-30 °C – 90 °C					
Temperature range connector		-25 °C – 90 °C					
Temperature range cable fixed		-25 °C – 80 °C					
Temperature range cable moving		-5 °C – 80 °C					
Mechanical service life		–					
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16	
Approvals		cULus					
Accessories		Article number		Type		PU	
Cable Markers 4×23mm		499988		LB M8/M12		5	
Torque setting tool M8		490090		DM-SET M8		1	

Actuator sensor interface · M12 / M8 – cables

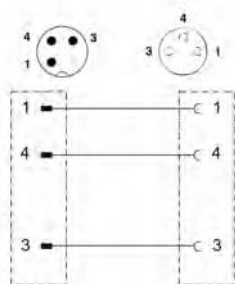
Male M12 straight to female M8 straight with PUR cable
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment



Description		Part-No.	Type	PU
3-pole				
Cable length	0.3	422003	STG3-M12/KUG3-M8 0,3M-PUR	10
	0.6	422006	STG3-M12/KUG3-M8 0,6M-PUR	10
	1.0	422010	STG3-M12/KUG3-M8 1,0M-PUR	10
	1.5	422015	STG3-M12/KUG3-M8 1,5M-PUR	10
	2.0	422020	STG3-M12/KUG3-M8 2,0M-PUR	10
	5.0	422050	STG3-M12/KUG3-M8 5,0M-PUR	10

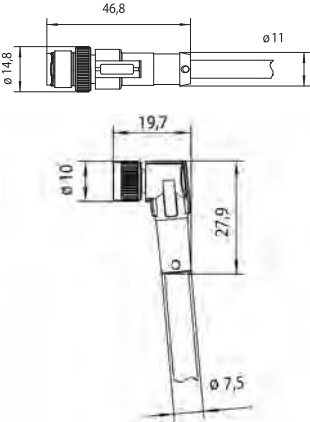
Technical data				3-pole		
Nominal voltage				AC/DC 24 V		
Nominal voltage range				max. 60 V		
Rated current				3 A		
Number of terminations				3		
Cable length	0.3	0.6	1.0	1.5	2.0	5.0
Status Indication	–					
Current Consumption per LED	–					
Coding	A (M12)					
Shielding	–					
General						
Form	M12 × 1, male straight / M8 × 1, female straight					
Rated insulation voltage (EN 50178)	100 V					
Test voltage	1.5 kV					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	<5 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 67, in screwed condition					
Housing material	TPU black					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	NBR					
Cable construction	3 × 0.25 mm ² (32 × 0.1)					
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	PVC coloured					
Cable diameter	4.4 mm					
Bending radius	cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 80 °C					
Mechanical service life	–					
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16
Approvals	cULus					
Accessories			Article number		Type	PU
Cable markers 4×23mm			499988		LB M8/M12	5
Torque setting tool M8			490090		DM-SET M8	1
Torque setting tool M12			490091		DM-SET M12	1

Actuator sensor interface · M12 / M8 – cables

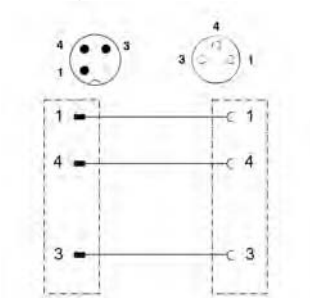
Male M12 straight to female 8 pin angled with PUR cable
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment



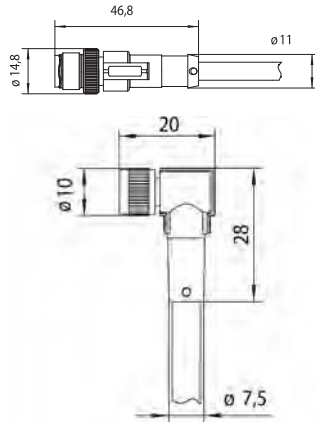
Description		Part-No.		Type			PU
3-pole							
Cable length	0.3	427003	STG3-M12/KUW3-M8 0,3M-PUR			10	
	0.6	427006	STG3-M12/KUW3-M8 0,6M-PUR			10	
	1.0	427010	STG3-M12/KUW3-M8 1,0M-PUR			10	
	1.5	427015	STG3-M12/KUW3-M8 1,5M-PUR			10	
	2.0	427020	STG3-M12/KUW3-M8 2,0M-PUR			10	
	5.0	427050	STG3-M12/KUW3-M8 5,0M-PUR			10	
Technical data				3-pole			
Nominal voltage		AC/DC 24 V					
Nominal voltage range		max. 60 V					
Rated current		3 A					
Number of terminations		3					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication		–					
Current Consumption per LED		–					
Coding		A (M12)					
Shielding		–					
General							
Form		M12 × 1, male straight / M8 × 1, female angled					
Rated insulation voltage (EN 50178)		100 V					
Test voltage		1.5 kV					
Pollution degree		3					
Insulation resistance		>10 ⁹ Ω					
Contact resistance		<5 mΩ					
Class of flammability according to UL 94		V0					
Protection class		IP 67, in screwed condition					
Housing material		TPU black					
Contact material		CuSn, gold plated nickel					
Thread material		CuSn nickel plated					
Gasket		NBR					
Cable construction		3 × 0.25 mm ² (32 × 0.1)					
Cable jacket		PUR, RAL 9001 black					
Conductor insulation		PVC coloured					
Cable diameter		4.4 mm					
Bending radius		15 x cable diameter					
Storage temperature range		-30 °C – 90 °C					
Temperature range connector		-25 °C – 90 °C					
Temperature range cable fixed		-25 °C – 80 °C					
Temperature range cable moving		-5 °C – 80 °C					
Mechanical service life		–					
Weight (kg/piece)	0.02	0.03	0.04	0.05	0.06	0.16	
Approvals		cULus					
Accessories		Article number		Type		PU	
Cable markers 4×23mm		499988		LB M8/M12		5	
Torque setting tool M8		490090		DM-SET M8		1	
Torque setting tool M12		490091		DM-SET M12		1	

Actuator sensor interface · M12 / M8 – cables

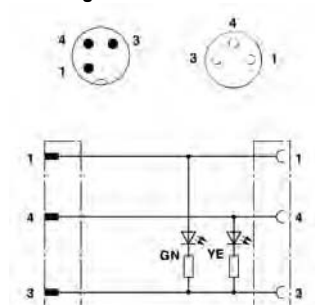
Male M12 straight to female 8 pin angled with LEDs and PUR cable
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment



Description	Part-No.	Type	PU
3-pole			
Cable length	0.3	426003	STG3-M12/KUW3-M8 LED A 0,3M-PUR 10
	0.6	426006	STG3-M12/KUW3-M8 LED A 0,6M-PUR 10
	1.0	426010	STG3-M12/KUW3-M8 LED A 1,0M-PUR 10
	1.5	426015	STG3-M12/KUW3-M8 LED A 1,5M-PUR 10
	2.0	426020	STG3-M12/KUW3-M8 LED A 2,0M-PUR 10
	5.0	426050	STG3-M12/KUW3-M8 LED A 5,0M-PUR 10

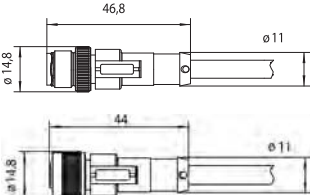
Technical data				3-pole			
Nominal voltage				DC 24 V			
Nominal voltage range				DC 10 – 30V			
Rated current				3 A			
Number of terminations				3			
Cable length		0.3	0.6	1.0	1.5	2.0	5.0
Status Indication				Operating voltage: LED green, I/O: LED yellow			
Current Consumption per LED				<10 mA / LED			
Coding				A (M12)			
Shielding				–			
General							
Form		M12 × 1, male straight / M8 × 1, female angled with LEDs					
Rated insulation voltage (EN 50178)				32 V			
Test voltage				–			
Pollution degree				3			
Insulation resistance				>10 ⁹ Ω			
Contact resistance				<5 mΩ			
Class of flammability according to UL 94				V0			
Protection class				IP 67, in screwed condition			
Housing material				TPU black			
Contact material				CuSn, gold plated nickel			
Thread material				CuSn nickel plated			
Gasket				NBR			
Cable construction				3 × 0.25 mm ² (32 × 0.1)			
Cable jacket				PUR, RAL 9001 black			
Conductor insulation				PVC coloured			
Cable diameter				4.4 mm			
Bending radius				15 x cable diameter			
Storage temperature range				-30 °C – 90 °C			
Temperature range connector				-25 °C – 90 °C			
Temperature range cable fixed				-25 °C – 80 °C			
Temperature range cable moving				-5 °C – 80 °C			
Mechanical service life				–			
Weight (kg/piece)		0.02	0.03	0.04	0.05	0.06	0.16
Approvals				cULus			
Accessories				Article number		Type	PU
Cable markers 4×23mm				499988		LB M8/M12	5
Torque setting tool M8				490090		DM-SET M8	1
Torque setting tool M12				490091		DM-SET M12	1

Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12, straight with PUR cable
self-locking screwed connection
c-track compatible

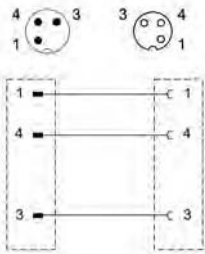


Dimensions

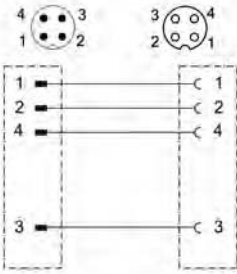


PIN assignment

428003, 428006, 428010, 428015,
428020, 428050



429003, 429006, 429010, 429015,
429020, 429050



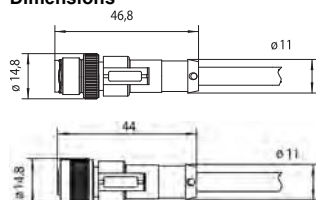
Description	Part-No.					Type					PU	
3-pole												
Cable length	0.3	428003		STG3-M12/KUG3-M12 0,3M-PUR					10			
	0.6	428006		STG3-M12/KUG3-M12 0,6M-PUR					10			
	1.0	428010		STG3-M12/KUG3-M12 1,0M-PUR					10			
	1.5	428015		STG3-M12/KUG3-M12 1,5M-PUR					10			
	2.0	428020		STG3-M12/KUG3-M12 2,0M-PUR					10			
	5.0	428050		STG3-M12/KUG3-M12 5,0M-PUR					10			
4-pole												
Cable length	0.3	429003		STG4-M12/KUG4-M12 0,3M-PUR					10			
	0.6	429006		STG4-M12/KUG4-M12 0,6M-PUR					10			
	1.0	429010		STG4-M12/KUG4-M12 1,0M-PUR					10			
	1.5	429015		STG4-M12/KUG4-M12 1,5M-PUR					10			
	2.0	429020		STG4-M12/KUG4-M12 2,0M-PUR					10			
	5.0	429050		STG4-M12/KUG4-M12 5,0M-PUR					10			
Technical data		3-pole					4-pole					
Nominal voltage							AC/DC 24 V					
Nominal voltage range							max. 250 V					
Rated current							4 A					
Number of terminations		3					4					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0
Status Indication							–					
Current Consumption per LED							–					
Coding							A					
Shielding							–					
General												
Form	M12 × 1, male straight / M12 × 1, female straight											
Rated insulation voltage (EN 50178)							320 V					
Test voltage							2.5 kV					
Pollution degree							3					
Insulation resistance							>10 ⁹ Ω					
Contact resistance							<5 mΩ					
Class of flammability according to UL 94							V0					
Protection class							IP 67, in screwed condition					
Housing material							TPU black					
Contact material							CuSn, gold plated nickel					
Thread material							CuSn nickel plated					
Gasket							NBR					
Cable construction	3 × 0.34 mm ² (42 × 0.1)						4 × 0.34 mm ² (42 × 0.1)					
Cable jacket							PUR, RAL 9001 black					
Conductor insulation							PVC coloured					
Cable diameter	4.4 mm						4.7 mm					
Bending radius							15 x cable diameter					
Storage temperature range							-30 °C – 90 °C					
Temperature range connector							-25 °C – 90 °C					
Temperature range cable fixed							-25 °C – 80 °C					
Temperature range cable moving							-5 °C – 80 °C					
Mechanical service life							–					
Weight (kg/piece)	0.04	0.06	0.08	0.10	0.13	0.24	0.05	0.07	0.09	0.11	0.14	0.26
Approvals							cULus					
Accessories		Article number					Type					PU
Cable markers 4×23mm		499988					LB M8/M12					5
Torque setting tool M12		490091					DM-SET M12					1

Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 straight with PUR cable
self-locking screwed connection
c-track compatible

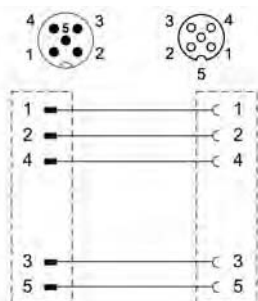


Dimensions

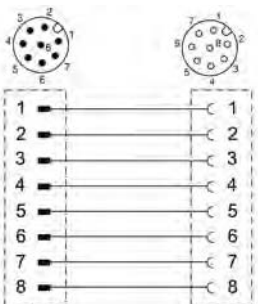


PIN assignment

442003, 442006, 442010, 442015,
442020, 442050



420003, 420006, 420010, 420015,
420020, 420050



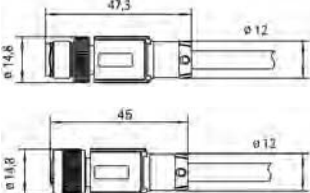
Description	Part-No.					Type					PU		
5-pole													
Cable length	0.3	442003					STG5-M12/KUG5-M12 0,3M-PUR					10	
	0.6	442006					STG5-M12/KUG5-M12 0,6M-PUR					10	
	1.0	442010					STG5-M12/KUG5-M12 1,0M-PUR					10	
	1.5	442015					STG5-M12/KUG5-M12 1,5M-PUR					10	
	2.0	442020					STG5-M12/KUG5-M12 2,0M-PUR					10	
	5.0	442050					STG5-M12/KUG5-M12 5,0M-PUR					10	
8-pole													
Cable length	0.3	420003					STG8-M12/KUG8-M12 0,3M-PUR					10	
	0.6	420006					STG8-M12/KUG8-M12 0,6M-PUR					10	
	1.0	420010					STG8-M12/KUG8-M12 1,0M-PUR					10	
	1.5	420015					STG8-M12/KUG8-M12 1,5M-PUR					10	
	2.0	420020					STG8-M12/KUG8-M12 2,0M-PUR					10	
	5.0	420050					STG8-M12/KUG8-M12 5,0M-PUR					10	
Technical data		5-pole					8-pole						
Nominal voltage							AC/DC 24 V						
Nominal voltage range							max. 30 V						
Rated current		4 A					2 A						
Number of terminations		5					8						
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication							–						
Current Consumption per LED							–						
Coding							A						
Shielding							–						
General													
Form	M12 × 1, male straight / M12 × 1, female straight												
Rated insulation voltage (EN 50178)	63 V					36 V							
Test voltage						1.5 kV							
Pollution degree						3							
Insulation resistance						>10 ⁹ Ω							
Contact resistance						<5 mΩ							
Class of flammability according to UL 94						V0							
Protection class						IP 67, in screwed condition							
Housing material						TPU black							
Contact material						CuSn, gold plated nickel							
Thread material						CuSn nickel plated							
Gasket						NBR							
Cable construction	5 × 0.34 mm ² (42 × 0.1)					8 × 0.25 mm ² (32 × 0.1)							
Cable jacket						PUR, RAL 9001 black							
Conductor insulation						PVC coloured							
Cable diameter	5.0 mm					5.9 mm							
Bending radius						15 x cable diameter							
Storage temperature range						-30 °C – 90 °C							
Temperature range connector						-25 °C – 90 °C							
Temperature range cable fixed						-25 °C – 80 °C							
Temperature range cable moving						-5 °C – 80 °C							
Mechanical service life						–							
Weight (kg/piece)	0.05	0.06	0.09	0.11	0.14	0.30	0.05	0.06	0.09	0.11	0.14	0.30	
Approvals	cULus												
Accessories					Article number				Type				PU
Cable markers 4×23mm					499988				LB M8/M12				5
Torque setting tool M12					490091				DM-SET M12				1

Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 straight with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

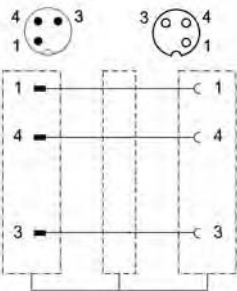


Dimensions

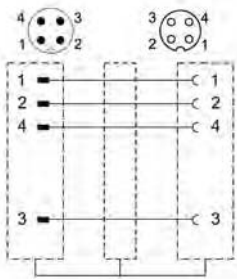


PIN assignment

457003, 457006, 457010, 457015,
457020, 457050

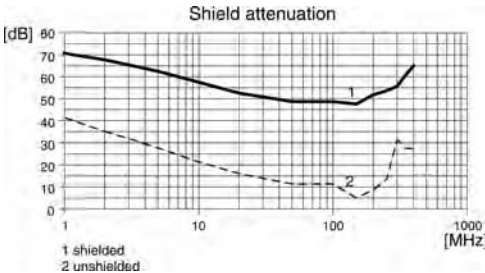


457103, 457106, 457110, 457115,
457120, 457150



Description	Part-No.					Type					PU		
3-pole													
Cable length	0.3	457003					STG3-M12/KUG3-M12 (C) 0,3M-PUR					10	
	0.6	457006					STG3-M12/KUG3-M12 (C) 0,6M-PUR					10	
	1.0	457010					STG3-M12/KUG3-M12 (C) 1,0M-PUR					10	
	1.5	457015					STG3-M12/KUG3-M12 (C) 1,5M-PUR					10	
	2.0	457020					STG3-M12/KUG3-M12 (C) 2,0M-PUR					10	
	5.0	457050					STG3-M12/KUG3-M12 (C) 5,0M-PUR					10	
4-pole													
Cable length	0.3	457103					STG4-M12/KUG4-M12 (C) 0,3M-PUR					10	
	0.6	457106					STG4-M12/KUG4-M12 (C) 0,6M-PUR					10	
	1.0	457110					STG4-M12/KUG4-M12 (C) 1,0M-PUR					10	
	1.5	457115					STG4-M12/KUG4-M12 (C) 1,5M-PUR					10	
	2.0	457120					STG4-M12/KUG4-M12 (C) 2,0M-PUR					10	
	5.0	457150					STG4-M12/KUG4-M12 (C) 5,0M-PUR					10	
Technical data				3-pole				4-pole					
Nominal voltage								AC/DC 24 V					
Nominal voltage range								max. 250 V					
Rated current								4 A					
Number of terminations				3				4					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication							—						
Current Consumption per LED							—						
Coding							A						
Shielding							360°						
General													
Form	M12 × 1, male straight / M12 × 1, female straight												
Rated insulation voltage (EN 50178)							320 V						
Test voltage							2.5 kV						
Pollution degree							3						
Insulation resistance							>10 ⁹ Ω						
Contact resistance							<5 mΩ						
Class of flammability according to UL 94							V0						
Protection class							IP 67, in screwed condition						
Housing material							TPU black						
Contact material							CuSn, gold plated nickel						
Thread material							CuSn nickel plated						
Gasket							NBR						
Cable construction	3 × 0.34 mm ² (42 × 0.1)						4 × 0.34 mm ² (42 × 0.1)						
Cable jacket							PUR, RAL 9001 black						
Conductor insulation							PVC coloured						
Cable diameter							5.9 mm						
Bending radius							15 x cable diameter						
Storage temperature range							-30 °C – 90 °C						
Temperature range connector							-25 °C – 90 °C						
Temperature range cable fixed							-25 °C – 80 °C						
Temperature range cable moving							-5 °C – 80 °C						
Mechanical service life							—						
Weight (kg/piece)	0.05	0.08	0.10	0.12	0.15	0.25	0.06	0.09	0.11	0.13	0.16	0.31	
Approvals							cULus						
Accessories						Article number				Type			PU
Cable markers 4×23mm						499988				LB M8/M12			5
Torque setting tool M12						490091				DM-SET M12			1

Action chart

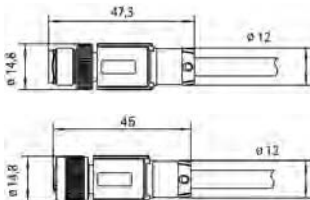


Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 straight with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

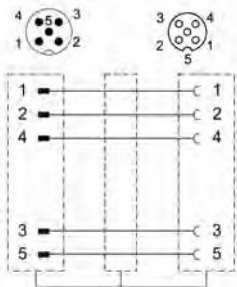


Dimensions

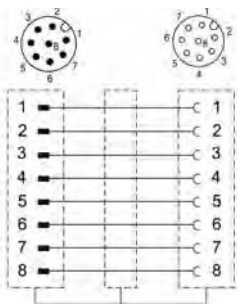


PIN assignment

457203, 457206, 457210, 457215,
457220, 457250



459103, 459106, 459110, 459115,
459120, 459150

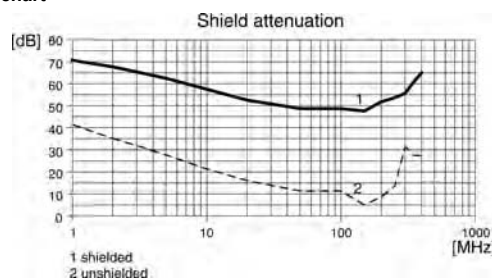


Description		Part-No.	Type	PU
5-pole				
Cable length	0.3	457203	STG5-M12/KUG5-M12(C)0,3M PUR	10
	0.6	457206	STG5-M12/KUG5-M12(C)0,6M PUR	10
	1.0	457210	STG5-M12/KUG5-M12(C)1,0M PUR	10
	1.5	457215	STG5-M12/KUG5-M12(C)1,5M PUR	10
	2.0	457220	STG5-M12/KUG5-M12(C)2,0M PUR	10
	5.0	457250	STG5-M12/KUG5-M12(C)5,0M PUR	10
8-pole				
Cable length	0.3	459103	STG8-M12/KUG8-M12(C)0,3M PUR	10
	0.6	459106	STG8-M12/KUG8-M12(C)0,6M PUR	10
	1.0	459110	STG8-M12/KUG8-M12(C)1,0M PUR	10
	1.5	459115	STG8-M12/KUG8-M12(C)1,5M PUR	10
	2.0	459120	STG8-M12/KUG8-M12(C)2,0M PUR	10
	5.0	459150	STG8-M12/KUG8-M12(C)5,0M PUR	10

Technical data		5-pole	8-pole
Nominal voltage		AC/DC 24 V	
Nominal voltage range		max. 30 V	
Rated current		4 A	2 A
Number of terminations		5	8
Cable length	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status Indication		—	
Current Consumption per LED		—	
Coding		A	
Shielding		360°	

General														
Form	M12 × 1, male straight / M12 × 1, female straight													
Rated insulation voltage (EN 50178)	63 V					36 V								
Test voltage						1.5 kV								
Pollution degree						3								
Insulation resistance						>10 ⁹ Ω								
Contact resistance						<5 mΩ								
Class of flammability according to UL 94						V0								
Protection class						IP 67, in screwed condition								
Housing material						TPU black								
Contact material						CuSn, gold plated nickel								
Thread material						CuSn nickel plated								
Gasket						NBR								
Cable construction	5 × 0.34 mm ² (42 × 0.1)					8 × 0.25 mm ² (32 × 0.1)								
Cable jacket						PUR, RAL 9001 black								
Conductor insulation						PVC coloured								
Cable diameter						5.9 mm								
Bending radius						15 x cable diameter								
Storage temperature range						-30 °C – 90 °C								
Temperature range connector						-25 °C – 90 °C								
Temperature range cable fixed						-25 °C – 80 °C								
Temperature range cable moving						-5 °C – 80 °C								
Mechanical service life						–								
Weight (kg/piece)	0.06	0.08	0.11	0.13	0.16	0.32	0.05	0.07	0.09	0.11	0.14	0.30		
Approvals						cULus								
Accessories						Article number				Type				PU
Cable markers 4×23mm						499988				LB M8/M12				5
Torque setting tool M12						490091				DM-SET M12				1

Action chart

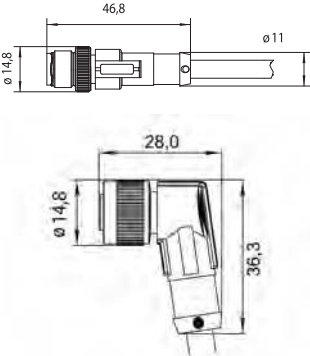


Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 angled with PUR cable
self-locking screwed connection
c-track compatible

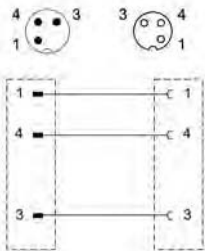


Dimensions

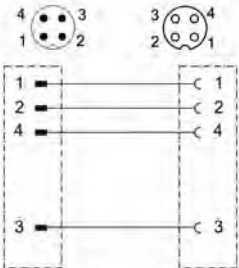


PIN assignment

467003, 467006, 467010, 467015,
467020, 467050



418003, 418006, 418010, 418015,
418020, 418050



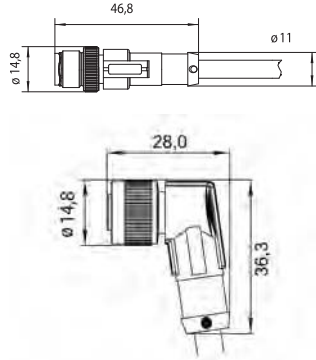
Description	Part-No.					Type					PU		
3-pole													
Cable length	0.3	467003					STG3-M12/KUW3-M12 0,3M-PUR					10	
	0.6	467006					STG3-M12/KUW3-M12 0,6M-PUR					10	
	1.0	467010					STG3-M12/KUW3-M12 1,0M-PUR					10	
	1.5	467015					STG3-M12/KUW3-M12 1,5M-PUR					10	
	2.0	467020					STG3-M12/KUW3-M12 2,0M-PUR					10	
	5.0	467050					STG3-M12/KUW3-M12 5,0M-PUR					10	
4-pole													
Cable length	0.3	418003					STG4-M12/KUW4-M12 0,3M-PUR					10	
	0.6	418006					STG4-M12/KUW4-M12 0,6M-PUR					10	
	1.0	418010					STG4-M12/KUW4-M12 1,0M-PUR					10	
	1.5	418015					STG4-M12/KUW4-M12 1,5M-PUR					10	
	2.0	418020					STG4-M12/KUW4-M12 2,0M-PUR					10	
	5.0	418050					STG4-M12/KUW4-M12 5,0M-PUR					10	
Technical data				3-pole				4-pole					
Nominal voltage								AC/DC 24 V					
Nominal voltage range								max. 250 V					
Rated current								4 A					
Number of terminations				3				4					
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication							–						
Current Consumption per LED							–						
Coding							A						
Shielding							–						
General													
Form	M12 × 1, male straight / M12 × 1, female angled												
Rated insulation voltage (EN 50178)							320 V						
Test voltage							2.5 kV						
Pollution degree							3						
Insulation resistance							>10 ⁹ Ω						
Contact resistance							<5 mΩ						
Class of flammability according to UL 94							V0						
Protection class							IP 67, in screwed condition						
Housing material							TPU black						
Contact material							CuSn, gold plated nickel						
Thread material							CuSn nickel plated						
Gasket							NBR						
Cable construction	3 × 0.34 mm ² (42 × 0.1)						4 × 0.34 mm ² (42 × 0.1)						
Cable jacket							PUR, RAL 9001 black						
Conductor insulation							PVC coloured						
Cable diameter	4.4 mm						4.7 mm						
Bending radius							15 x cable diameter						
Storage temperature range							-30 °C – 90 °C						
Temperature range connector							-25 °C – 90 °C						
Temperature range cable fixed							-25 °C – 80 °C						
Temperature range cable moving							-5 °C – 80 °C						
Mechanical service life							–						
Weight (kg/piece)	0.03	0.04	0.06	0.08	0.10	0.22	0.05	0.06	0.08	0.10	0.13	0.24	
Approvals							cULus						
Accessories				Article number				Type				PU	
Cable markers 4×23mm				499988				LB M8/M12				5	
Torque setting tool M12				490091				DM-SET M12				1	

Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 angled with PUR cable
self-locking screwed connection
c-track compatible

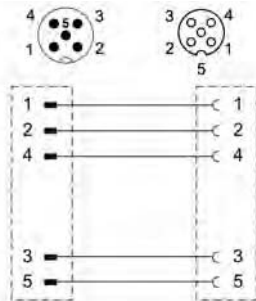


Dimensions

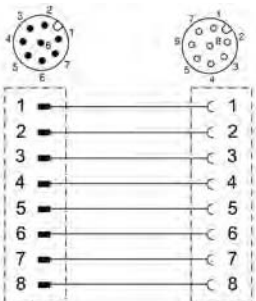


PIN assignment

440003, 440006, 440015, 440010,
440020, 440050



424003, 424006, 424010, 424015,
424020, 424050



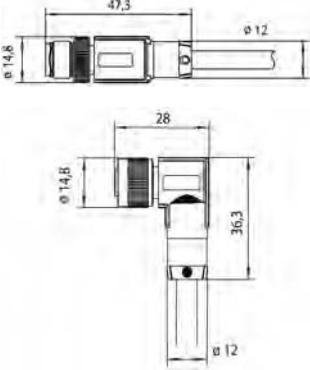
Description	Part-No.					Type					PU		
5-pole													
Cable length	0.3	440003					STG5-M12/KUW5-M12 0,3M-PUR					10	
	0.6	440006					STG5-M12/KUW5-M12 0,6M-PUR					10	
	1.5	440015					STG5-M12/KUW5-M12 1,5M-PUR					10	
	1.0	440010					STG5-M12/KUW5-M12 1,0M-PUR					10	
	2.0	440020					STG5-M12/KUW5-M12 2,0M-PUR					10	
	5.0	440050					STG5-M12/KUW5-M12 5,0M-PUR					10	
8-pole													
Cable length	0.3	424003					STG8-M12/KUW8-M12 0,3M-PUR					10	
	0.6	424006					STG8-M12/KUW8-M12 0,6M-PUR					10	
	1.0	424010					STG8-M12/KUW8-M12 1,0M-PUR					10	
	1.5	424015					STG8-M12/KUW8-M12 1,5M-PUR					10	
	2.0	424020					STG8-M12/KUW8-M12 2,0M-PUR					10	
	5.0	424050					STG8-M12/KUW8-M12 5,0M-PUR					10	
Technical data		5-pole					8-pole						
Nominal voltage		AC/DC 24 V											
Nominal voltage range		max. 30 V											
Rated current		max. 4 A per contact					max. 2 A per contact						
Number of terminations		5					8						
Cable length	0.3	0.6	1.5	1.0	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication		–											
Current Consumption per LED		–											
Coding		A											
Shielding		–											
General													
Form		M12 × 1, male straight / M12 × 1, female straight											
Rated insulation voltage (EN 50178)		63 V					36 V						
Test voltage		1.5 kV											
Pollution degree		3											
Insulation resistance		>10 ⁹ Ω											
Contact resistance		<5 mΩ											
Class of flammability according to UL 94		V0											
Protection class		IP 67, in screwed condition											
Housing material		TPU black											
Contact material		CuSn, gold plated nickel											
Thread material		CuSn nickel plated											
Gasket		NBR											
Cable construction		5 × 0.34 mm ² (42 × 0.1)					8 × 0.25 mm ² (32 × 0.1)						
Cable jacket		PUR, RAL 9001 black											
Conductor insulation		PVC coloured											
Cable diameter		5.0 mm					5.9 mm						
Bending radius		15 x cable diameter											
Storage temperature range		-30 °C – 90 °C											
Temperature range connector		-25 °C – 90 °C											
Temperature range cable fixed		-25 °C – 80 °C											
Temperature range cable moving		-5 °C – 80 °C											
Mechanical service life		–											
Weight (kg/piece)		0.05	0.06	0.13	0.08	0.11	0.22	0.05	0.06	0.08	0.11	0.13	0.22
Approvals		cULus											
Accessories		Article number					Type					PU	
Cable markers 4×23mm		499988					LB M8/M12					5	
Torque setting tool M12		490091					DM-SET M12					1	

Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 angled with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

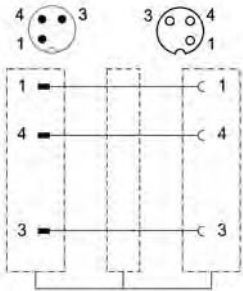


Dimensions

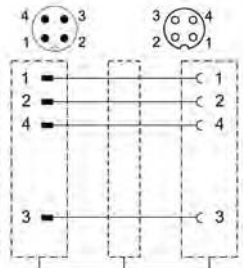


PIN assignment

457303, 457306, 457310, 457315,
457320, 457350

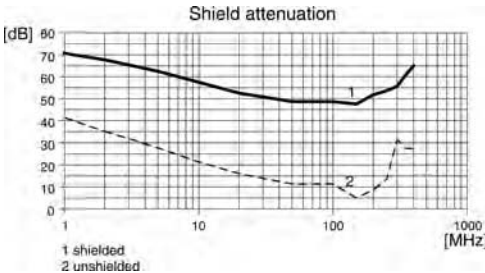


457403, 457406, 457410, 457415,
457420, 457450



Description	Part-No.					Type					PU		
3-pole													
Cable length	0.3	457303					STG3-M12/KUW3-M12 (C) 0,3M-PUR					10	
	0.6	457306					STG3-M12/KUW3-M12 (C) 0,6M-PUR					10	
	1.0	457310					STG3-M12/KUW3-M12 (C) 1,0M-PUR					10	
	1.5	457315					STG3-M12/KUW3-M12 (C) 1,5M-PUR					10	
	2.0	457320					STG3-M12/KUW3-M12 (C) 2,0M-PUR					10	
	5.0	457350					STG3-M12/KUW3-M12 (C) 5,0M-PUR					10	
4-pole													
Cable length	0.3	457403					STG4-M12/KUW4-M12 (C) 0,3M-PUR					10	
	0.6	457406					STG4-M12/KUW4-M12 (C) 0,6M-PUR					10	
	1.0	457410					STG4-M12/KUW4-M12 (C) 1,0M-PUR					10	
	1.5	457415					STG4-M12/KUW4-M12 (C) 1,5M-PUR					10	
	2.0	457420					STG4-M12/KUW4-M12 (C) 2,0M-PUR					10	
	5.0	457450					STG4-M12/KUW4-M12 (C) 5,0M-PUR					10	
Technical data		3-pole					4-pole						
Nominal voltage							AC/DC 24 V						
Nominal voltage range							max. 250 V						
Rated current							4 A						
Number of terminations		3					4						
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0	
Status Indication							—						
Current Consumption per LED							—						
Coding							A						
Shielding							360°						
General													
Form	M12 × 1, male straight / M12 × 1, female angled												
Rated insulation voltage (EN 50178)							320 V						
Test voltage							2.5 kV						
Pollution degree							3						
Insulation resistance							>10 ⁹ Ω						
Contact resistance							<5 mΩ						
Class of flammability according to UL 94							V0						
Protection class							IP 67, in screwed condition						
Housing material							TPU black						
Contact material							CuSn, gold plated nickel						
Thread material							CuSn nickel plated						
Gasket							NBR						
Cable construction	3 × 0.34 mm ² (42 × 0.1)						4 × 0.34 mm ² (42 × 0.1)						
Cable jacket							PUR, RAL 9001 black						
Conductor insulation							PVC coloured						
Cable diameter							5.9 mm						
Bending radius							15 x cable diameter						
Storage temperature range							-30 °C – 90 °C						
Temperature range connector							-25 °C – 90 °C						
Temperature range cable fixed							-25 °C – 80 °C						
Temperature range cable moving							-5 °C – 80 °C						
Mechanical service life							—						
Weight (kg/piece)	0.06	0.08	0.10	0.12	0.15	0.25	0.06	0.09	0.11	0.12	0.16	0.31	
Approvals							cULus						
Accessories		Article number					Type					PU	
Cable markers 4×23mm		499988					LB M8/M12					5	
Torque setting tool M12		490091					DM-SET M12					1	

Action chart

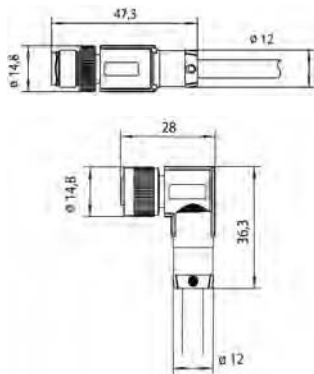


Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 angled with PUR cable and 360° shielding
self-locking screwed connection
c-track compatible

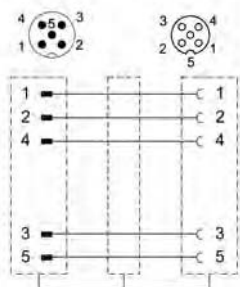


Dimensions

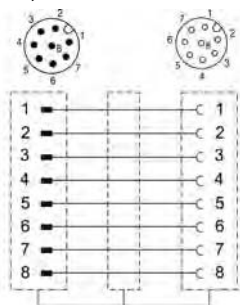


PIN assignment

457503, 457506, 457510, 457515,
457520, 457550



459203, 459206, 459210, 459215,
459220, 459250



Description	Part-No.	Type	PU
5-pole			
Cable length	0.3	457503	STG5-M12/KUW5-M12 (C) 0,3M-PUR 10
	0.6	457506	STG5-M12/KUW5-M12 (C) 0,6M-PUR 10
	1.0	457510	STG5-M12/KUW5-M12 (C) 1,0M-PUR 10
	1.5	457515	STG5-M12/KUW5-M12 (C) 1,5M-PUR 10
	2.0	457520	STG5-M12/KUW5-M12 (C) 2,0M-PUR 10
	5.0	457550	STG5-M12/KUW5-M12 (C) 5,0M-PUR 10

8-pole			
Cable length	0.3	459203	STG8-M12/KUW8-M12 (C) 0,3M-PUR 10
	0.6	459206	STG8-M12/KUW8-M12 (C) 0,6M-PUR 10
	1.0	459210	STG8-M12/KUW8-M12 (C) 1,0M-PUR 10
	1.5	459215	STG8-M12/KUW8-M12 (C) 1,5M-PUR 10
	2.0	459220	STG8-M12/KUW8-M12 (C) 2,0M-PUR 10
	5.0	459250	STG8-M12/KUW8-M12 (C) 5,0M-PUR 10

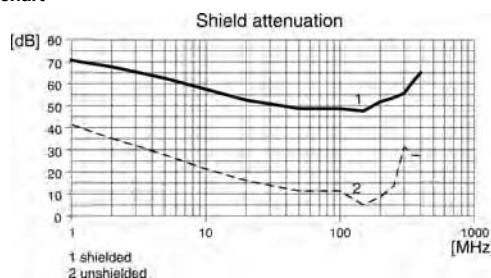
Technical data		5-pole	8-pole
Nominal voltage		AC/DC 24 V	
Nominal voltage range		max. 30 V	
Rated current		4 A	2 A
Number of terminations		5	8
Cable length	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0	0.3 0.6 1.0 1.5 2.0 5.0
Status Indication		—	
Current Consumption per LED		—	
Coding		A	
Shielding		360°	

General	
Form	M12 × 1, male straight / M12 × 1, female straight
Rated insulation voltage (EN 50178)	63 V 36 V
Test voltage	1.5 kV
Pollution degree	3
Insulation resistance	>10 ⁹ Ω
Contact resistance	<5 mΩ
Class of flammability according to UL 94	V0
Protection class	IP 67, in screwed condition
Housing material	TPU black
Contact material	CuSn, gold plated nickel
Thread material	CuSn nickel plated
Gasket	NBR
Cable construction	5 × 0.34 mm ² (42 × 0.1) 8 × 0.25 mm ² (32 × 0.1)
Cable jacket	PUR, RAL 9001 black
Conductor insulation	PVC coloured
Cable diameter	5.9 mm
Bending radius	15 x cable diameter
Storage temperature range	-30 °C – 90 °C
Temperature range connector	-25 °C – 90 °C
Temperature range cable fixed	-25 °C – 80 °C
Temperature range cable moving	-5 °C – 80 °C
Mechanical service life	—

Weight (kg/piece)	0.06 0.08 0.11 0.13 0.17 0.33 0.05 0.06 0.08 0.11 0.13 0.22
Approvals	cULus

Accessories	Article number	Type	PU
Cable markers 4×23mm	499988	LB M8/M12	5
Torque setting tool M12	490091	DM-SET M12	1

Action chart

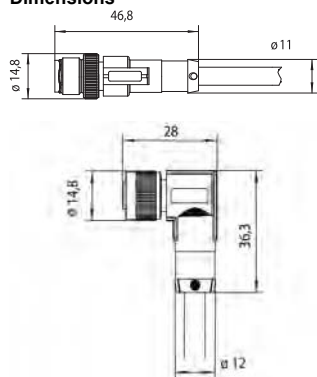


Actuator sensor interface · M12 / M12 – cables

Male M12 straight to female M12 angled with LEDs and PUR cable
self-locking screwed connection
c-track compatible

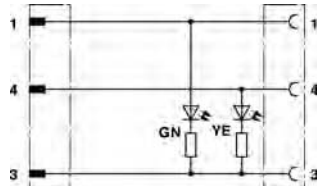


Dimensions

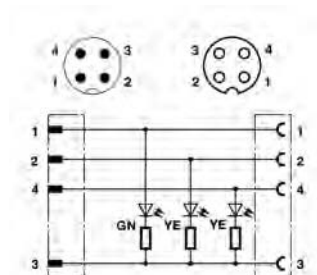


PIN assignment

430003, 430006, 430010, 430015,
430020, 430050, 431003



431006, 431010, 431015, 431020,
431050



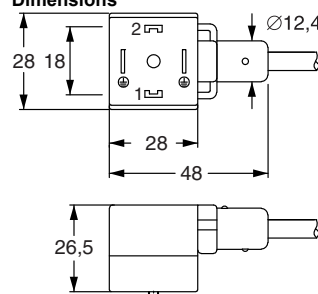
Description			Part-No.				Type				PU				
3-pole															
Cable length	0.3		430003				STG3-M12/KUW3-M12 LED A 0,3M-PUR				10				
	0.6		430006				STG3-M12/KUW3-M12 LED A 0,6M-PUR				10				
	1.0		430010				STG3-M12/KUW3-M12 LED A 1,0M-PUR				10				
	1.5		430015				STG3-M12/KUW3-M12 LED A 1,5M-PUR				10				
	2.0		430020				STG3-M12/KUW3-M12 LED A 2,0M-PUR				10				
	5.0		430050				STG3-M12/KUW3-M12 LED A 5,0M-PUR				10				
4-pole															
Cable length	0.3		431003				STG4-M12/KUW4-M12 LED P 0,3M-PUR				10				
	0.6		431006				STG4-M12/KUW4-M12 LED P 0,6M-PUR				10				
	1.0		431010				STG4-M12/KUW4-M12 LED P 1,0M-PUR				10				
	1.5		431015				STG4-M12/KUW4-M12 LED P 1,5M-PUR				10				
	2.0		431020				STG4-M12/KUW4-M12 LED P 2,0M-PUR				10				
	5.0		431050				STG4-M12/KUW4-M12 LED P 5,0M-PUR				10				
Technical data			3-pole					4-pole							
Nominal voltage								DC 24 V							
Nominal voltage range								DC 10 - 30 V							
Rated current								4 A							
Number of terminations			3					4							
Cable length	0.3	0.6	1.0	1.5	2.0	5.0	0.3	0.6	1.0	1.5	2.0	5.0			
Status Indication			Operating voltage: LED green, I/O: LED yellow												
Current Consumption per LED			<10 mA												
Coding			A												
Shielding			–												
General															
Form			M12 × 1, male straight / M12 × 1, female angled with LEDs												
Rated insulation voltage (EN 50178)			32 V												
Test voltage			–												
Pollution degree			3												
Insulation resistance			>10 ⁹ Ω												
Contact resistance			<5 mΩ												
Class of flammability according to UL 94			V0												
Protection class			IP 67, in screwed condition												
Housing material			TPU black												
Contact material			CuSn, gold plated nickel												
Thread material			CuSn nickel plated												
Gasket			NBR												
Cable construction		3 × 0.34 mm ² (42 × 0.1)					4 × 0.34 mm ² (42 × 0.1)								
Cable jacket		PUR, RAL 9001 black													
Conductor insulation		PVC coloured													
Cable diameter		4.4 mm					4.7 mm								
Bending radius		15 x cable diameter													
Storage temperature range		-30 °C – 90 °C													
Temperature range connector		-25 °C – 90 °C													
Temperature range cable fixed		-25 °C – 80 °C													
Temperature range cable moving		-5 °C – 80 °C													
Mechanical service life		–													
Weight (kg/piece)		0.03	0.04	0.06	0.08	0.10	0.22	0.05	0.06	0.08	0.10	0.13	0.24		
Approvals		cULus													
Accessories					Article number					Type					PU
Cable markers 4×23mm					499988					LB M8/M12					5
Torque setting tool M12					490091					DM-SET M12					1

Actuator sensor interface · M12 / valve suppressor

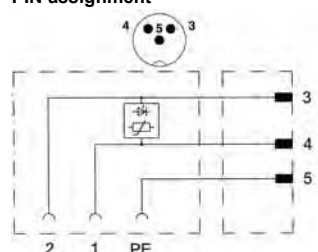
Male M12 straight to valve connector form A self-locking screwed connection c-track compatible



Dimensions



PIN assignment



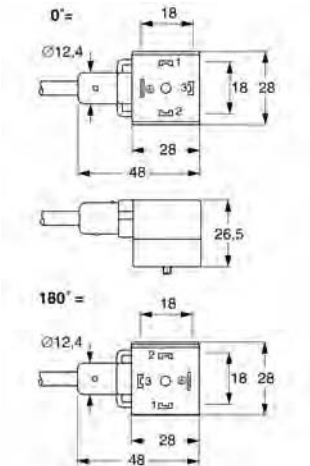
Description	Part-No.		Type		PU
Design A + varistor					
Cable length	0.3	435003	STG3 M12/LV-A 0,3m PUR		10
	0.6	435006	STG3 M12/A		10
	1.0	435010	STG3 M12/LV-A 1,0m PUR		10
	1.5	435015	STG3 M12/LV-A 1,5m PUR		10
	2.0	435020	STG3 M12/LV-A 2,0m PUR		10
Technical data		Design A + varistor			
Nominal voltage		AC/DC 24 V			
Nominal voltage range		max. 30 V			
Rated current		4 A			
Rated frequency		50–60 Hz			
Protection device		Varistor + LED			
Number of terminations		3			
Cable length	0.3	0.6	1.0	1.5	2.0
Status Indication		LED yellow			
Current Consumption per LED		4mA / LED			
Shut-off points		≥ 52V			
Holding Capacity		≤ 100VA			
General					
Form		M12×1, male straight / Form A, contact clearance 18 mm, 0°			
Rated insulation voltage (EN 50178)		32 V			
Test voltage		–			
Pollution degree		3			
Insulation resistance		>10 ⁹ Ω			
Contact resistance		> 5mΩ			
Class of flammability according to UL 94		V0			
Protection class		IP 67, in screwed condition			
Housing material		TPU black / transparent			
Contact material		CuSn, gold plated nickel			
Thread material		CuSn nickel plated			
Gasket		–			
Cable construction		3 × 0.5 mm ²			
Cable jacket		PUR, RAL 9001 black			
Conductor insulation		–			
Cable diameter		5.5 mm			
Bending radius		15 x cable diameter			
Storage temperature range		-30 °C – 90 °C			
Temperature range connector		-25 °C – 90 °C			
Temperature range cable fixed		-25 °C – 80 °C			
Temperature range cable moving		-5 °C – 70 °C			
Mechanical service life		–			
Weight (kg/piece)	0.054	0.066	0.084	0.108	0.126
Standards		EN 175301-803			
Approvals		–			
Accessories		Article number		Type	PU
Cable markers 4×23mm		499988		LB M8/M12	5
Torque setting tool M12		490091		DM-SET M12	1

Actuator sensor interface · M12 / valve suppressor

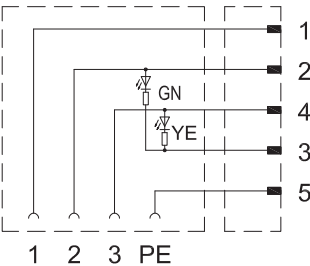
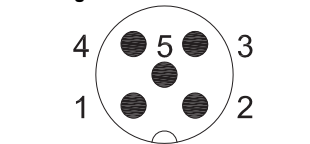
Male M12 straight to valve connector form A for pressure switch
self-locking screwed connection
c-track compatible



Dimensions



PIN assignment



Description	Part-No.		Type			PU
Design A for Pressure switch						
Cable length	0.3	445003	STG5 M12/LDS-A 0° 0,3m PUR			10
	0.6	445006	STG5 M12/LDS-A 0° 0,6m PUR			10
	1.0	445010	STG5 M12/LDS-A 0° 1,0m PUR			10
	1.5	445015	STG5 M12/LDS-A 0° 1,5m PUR			10
	2.0	445020	STG5 M12/LDS-A 0° 2,0m PUR			10
Technical data		Design A for Pressure switch				
Nominal voltage		DC 24 V				
Nominal voltage range		DC 10 V – 30 V				
Rated current		4 A				
Rated frequency		–				
Protection device		–				
Number of terminations		5				
Cable length	0.3	0.6	1.0	1.5	2.0	
Status Indication	LED yellow/green					
Current Consumption per LED	4mA / LED					
Shut-off points	–					
Holding Capacity	–					
General						
Form	M12×1, male straight / Form A, contact clearance 18 mm, 0°					
Rated insulation voltage (EN 50178)	32 V					
Test voltage	–					
Pollution degree	3					
Insulation resistance	>10 ⁹ Ω					
Contact resistance	> 5mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 67, in screwed condition					
Housing material	TPU black / transparent					
Contact material	CuSn, gold plated nickel					
Thread material	CuSn nickel plated					
Gasket	–					
Cable construction	5 × 0.5 mm ²					
Cable jacket	PUR, RAL 9001 black					
Conductor insulation	–					
Cable diameter	6.0 mm					
Bending radius	15 x cable diameter					
Storage temperature range	-30 °C – 90 °C					
Temperature range connector	-25 °C – 90 °C					
Temperature range cable fixed	-25 °C – 80 °C					
Temperature range cable moving	-5 °C – 70 °C					
Mechanical service life	–					
Weight (kg/piece)	0.064	0.078	0.096	0.119	0.142	
Standards	EN 175301-803					
Approvals	–					
Accessories		Article number		Type		PU
Cable markers 4×23mm		499988		LB M8/M12		5
Torque setting tool M12		490091		DM-SET M12		1

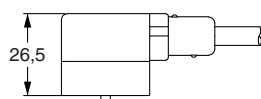
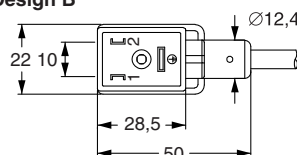
Actuator sensor interface · M12 / valve suppressor

**Male M12 straight to valve suppressor form B / form BI
self-locking screwed connection
c-track compatible**

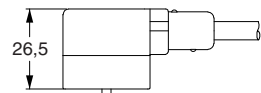
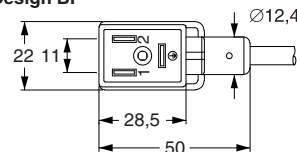


Dimensions

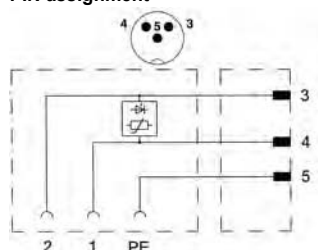
Design B



Design BI



PIN assignment



Description		Part-No.	Type	PU
Design B + varistor				
Cable length	0.3	436003	STG3 M12/LV-B 0° 0,3m PUR	10
	0.6	436006	STG3 M12/LV-B 0° 0,6m PUR	10
	1.0	436010	STG3 M12/LV-B 0° 1,0m PUR	10
	1.5	436015	STG3 M12/LV-B 0° 1,5m PUR	10
	2.0	436020	STG3 M12/LV-B 0° 2,0m PUR	10
Design BI + varistor				
Cable length	0.3	439003	STG3 M12/LV-BI 0° 0,3m PUR	10
	0.6	439006	STG3 M12/LV-BI 0° 0,6m PUR	10
	1.0	439010	STG3 M12/LV-BI 0° 1,0m PUR	10
	1.5	439015	STG3 M12/LV-BI 0° 1,5m PUR	10
	2.0	439020	STG3 M12/LV-BI 0° 2,0m PUR	10

Technical data		Design B + varistor					Design BI + varistor				
Nominal voltage							AC/DC 24 V				
Nominal voltage range							max. 30 V				
Rated current							4 A				
Rated frequency							50–60 Hz				
Protection device							Varistor + LED				
Number of terminations							3				
Cable length		0.3	0.6	1.0	1.5	2.0	0.3	0.6	1.0	1.5	2.0
Status Indication							LED yellow				
Current Consumption per LED							4mA / LED				
Shut-off points							≥ 52V				
Holding Capacity							≤ 100VA				

General

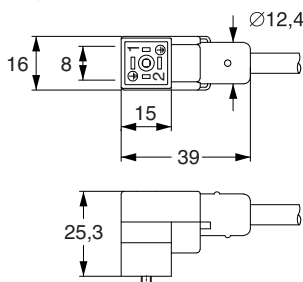
Form	M12×1, male straight / Form B					M12×1, male straight / Form BI				
Rated insulation voltage (EN 50178)						32 V				
Test voltage						—				
Pollution degree						3				
Insulation resistance						>10 ⁹ Ω				
Contact resistance						> 5mΩ				
Class of flammability according to UL 94						V0				
Protection class						IP 67, in screwed condition				
Housing material						TPU black / transparent				
Contact material						CuSn, gold plated nickel				
Thread material						CuSn nickel plated				
Gasket						—				
Cable construction						3 × 0.5 mm ²				
Cable jacket						PUR, RAL 9001 black				
Conductor insulation						—				
Cable diameter						5.5 mm				
Bending radius						15 x cable diameter				
Storage temperature range						-30 °C – 90 °C				
Temperature range connector						-25 °C – 90 °C				
Temperature range cable fixed						-25 °C – 80 °C				
Temperature range cable moving						-5 °C – 70 °C				
Mechanical service life						—				
Weight (kg/piece)	0.064	0.078	0.096	0.119	0.142	0.064	0.078	0.096	0.119	0.142
Standards	EN 175301-803					—				
Approvals						—				
Accessories		Article number		Type		PU				
Cable markers 4×23mm		499988		LB M8/M12		5				
Torque setting tool M12		490091		DM-SET M12		1				

Actuator sensor interface · M12 / valve suppressor

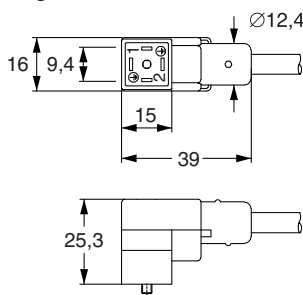
Male M12 straight to valve suppressor form C / form CI
self-locking screwed connection
c-track compatible



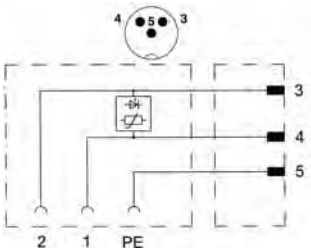
Dimensions
Design C



Design CI



PIN assignment



Description		Part-No.	Type	PU
Design C + varistor				
Cable length	0.3	438003	STG3 M12/LV-C 0,3m PUR	10
	0.6	438006	STG3 M12/LV-C 0,6m PUR	10
	1.0	438010	STG3 M12/LV-C 1,0m PUR	10
	1.5	438015	STG3 M12/LV-C 1,5m PUR	10
	2.0	438020	STG3 M12/LV-C 2,0m PUR	10
Design CI + varistor				
Cable length	0.3	441003	STG3 M12/LV-CI 0,3m PUR	10
	0.6	441006	STG3 M12/LV-CI 0,6m PUR	10
	1.0	441010	STG3 M12/LV-CI 1,0m PUR	10
	1.5	441015	STG3 M12/LV-CI 1,5m PUR	10
	2.0	441020	STG3 M12/LV-CI 2,0m PUR	10

Technical data		Design C + varistor					Design CI + varistor				
Nominal voltage							AC/DC 24 V				
Nominal voltage range							10 – 30 V				
Rated current							3 A				
Rated frequency							50–60 Hz				
Protection device							Varistor + LED				
Number of terminations							3				
Cable length	0.3	0.6	1.0	1.5	2.0	0.3	0.6	1.0	1.5	2.0	
Status Indication							LED yellow				
Current Consumption per LED							4mA / LED				
Shut-off points							≥ 52V				
Holding Capacity							≤ 100VA				

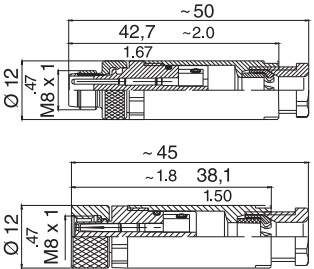
General		M12×1, male straight / Form C					M12×1, male straight / Form CI				
Form		M12×1, male straight / Form C					M12×1, male straight / Form CI				
Rated insulation voltage (EN 50178)		32 V									
Test voltage		–									
Pollution degree		3									
Insulation resistance		>10 ⁹ Ω									
Contact resistance		> 5mΩ									
Class of flammability according to UL 94		V0									
Protection class		IP 67, in screwed condition									
Housing material		TPU black / transparent									
Contact material		CuSn, gold plated nickel									
Thread material		CuSn nickel plated									
Gasket		–									
Cable construction		3 × 0.5 mm ²									
Cable jacket		PUR, RAL 9001 black									
Conductor insulation		–									
Cable diameter		5.5 mm									
Bending radius		15 x cable diameter									
Storage temperature range		-30 °C – 90 °C									
Temperature range connector		-25 °C – 90 °C									
Temperature range cable fixed		-25 °C – 80 °C									
Temperature range cable moving		-5 °C – 70 °C									
Mechanical service life		–									
Weight (kg/piece)		0.064	0.078	0.096	0.119	0.142	0.064	0.078	0.096	0.119	0.142
Standards		EN 175301-803					–				
Approvals		–									
Accessories		Article number					Type				
Cable markers 4×23mm		499988					LB M8/M12				
Torque setting tool M12		490091					DM-SET M12				
Cable markers 4×11mm		681313					BZT 0411				
							PU				

Actuator sensor interface · M8 - connector

field wireable connector, M8 straight
Male / female
Screw terminal

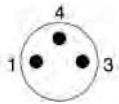


Dimensions



PIN assignment

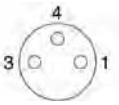
490035



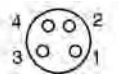
490057



490037



490059



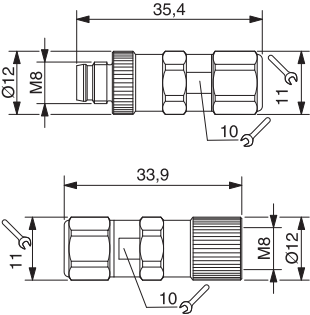
Description	Part-No.		Type		PU
Male					
Number of terminations	3	490035	STGK-M8 3POL SK		1
	4	490057	STGK-M8 4POL SK		1
Female					
Number of terminations	3	490037	KUGK-M8 3POL SK		1
	4	490059	KUGK-M8 4POL SK		1
Technical data		Male		Female	
Nominal voltage		AC/DC 24 V			
Nominal voltage range		max. 60 V			
Rated current		4 A			
Number of terminations	3	4	3	4	
Cable length		—			
Status Indication		—			
Current Consumption per LED		—			
Coding		—			
Shielding		—			
General					
Termination		Screw terminal 0.14 – 0.5 mm ²			
Form	M8 × 1, male		M8 × 1, female		
Contact material		CuZn, gold-plated			
Gasket	—		NBR		
Test voltage		1.5 kV			
Pollution degree		3			
Insulation resistance		>10 ¹⁰ Ω			
Contact resistance		<3 mΩ			
Class of flammability according to UL 94		V0			
Protection class		IP 67, in screwed condition			
Housing material		PBT black			
Thread material		CuSn nickel plated			
Cable construction		—			
Cable jacket		—			
Conductor insulation		—			
Cable diameter		3.5 – 5 mm			
Bending radius		—			
Storage temperature range		-40 °C – 90 °C			
Temperature range connector		-25 °C – 85 °C			
Mechanical service life		>100 insertion cycles			
Weight (kg/piece)		0.040			
Approvals		—			

Actuator sensor interface · M8 - connector

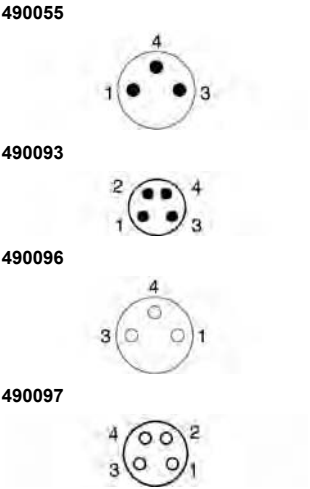
field wireable connector, M8 straight
Male / female
Fast connection method



Dimensions



PIN assignment



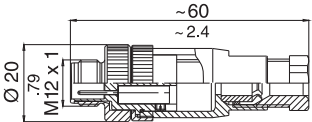
Description	Part-No.		Type	PU
Male				
Number of terminations	3	490055	STGK-M8 3POL PCON	1
	4	490093	STGK-M8 4POL PCON	1
Female				
Number of terminations	3	490096	KUGK-M8 3POL PCON	1
	4	490097	KUGK-M8 4POL PCON	1
Technical data		Male	Female	
Nominal voltage		AC/DC 24 V		
Nominal voltage range	max. 30 V	max. 60 V	max. 30 V	max. 60 V
Rated current	4 A			
Number of terminations	3	4	3	4
Cable length	–			
Status Indication	–			
Current Consumption per LED	–			
Coding	–			
Shielding	–			
General				
Termination	0.14 – 0.34 mm ² ; AWG 22/26			
Form	M8 × 1, male		M8 × 1, female	
Contact material	CuZn, gold-plated			
Gasket	–		NBR	
Test voltage	1.2 kV			
Pollution degree	3			
Insulation resistance	≥100 MΩ			
Contact resistance	≤ 3 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 68, in screwed condition			
Housing material	PA 66 black			
Thread material	CuSn nickel plated			
Cable construction	–			
Cable jacket	–			
Conductor insulation	–			
Cable diameter	3 – 5 mm			
Bending radius	–			
Storage temperature range	–40 °C – 90 °C			
Temperature range connector	–25 °C – 90 °C			
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.140			
Approvals	–			

Actuator sensor interface · M12 - connector

field wireable connector, M12 straight
Male - A coded
Screw terminal

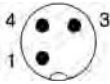


Dimensions



PIN assignment

490016



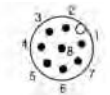
490017



490018



490070



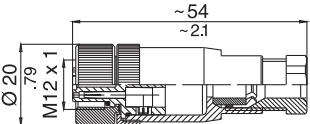
Description	Part-No.		Type	PU
Male				
Number of terminations	3	490016	STGK-M12 3POL SK	1
	4	490017	STGK-M12 4POL SK	1
	5	490018	STGK-M12 5POL SK	1
	8	490070	STGK-M12 8POL SK	1
Technical data		Male		
Nominal voltage	AC/DC 24 V			
Nominal voltage range	250 V		125 V	60 V
Rated current	4 A		2 A	
Number of terminations	3	4	5	8
Cable length	—			
Status Indication	—			
Current Consumption per LED	—			
Coding	A			
Shielding	—			
General				
Form	M12 × 1, male			
Test voltage	2.95 kV	1.75 kV	910 V	
Pollution degree	3			
Insulation resistance	>10 ¹⁰ Ω			
Contact resistance	<3 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 67, in screwed condition			
Housing material	PBT black			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	—			
Cable construction	—			
Cable jacket	—			
Conductor insulation	—			
Cable diameter	4 – 6 mm		6 – 8 mm	
Bending radius	—			
Storage temperature range	-40 °C – 90 °C			
Temperature range connector	-25 °C – 85 °C			
Termination	Screw terminal			
Gauge	max. 0.75 mm ²		max. 0.5 mm ²	
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.040			
Approvals	—			

Actuator sensor interface · M12 - connector

field wireable connector, M12 straight
Female - A coded
Screw terminal



Dimensions

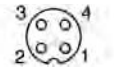


PIN assignment

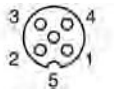
490010



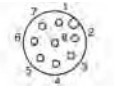
490011



490012



490071



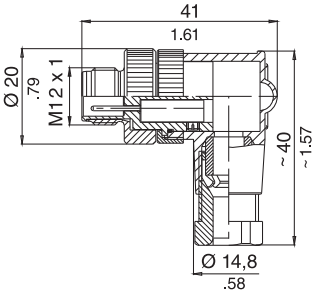
Description	Part-No.		Type	PU
Female				
Number of terminations	3	490010	KUGK-M12 3POL SK	1
	4	490011	KUGK-M12 4POL SK	1
	5	490012	KUGK-M12 5POL SK	1
	8	490071	KUGK-M12 8POL SK	1
Technical data				
Female				
Nominal voltage	AC/DC 24 V			
Nominal voltage range	250 V		125 V	60 V
Rated current		4 A		2 A
Number of terminations	3	4	5	8
Cable length	—			
Status Indication	—			
Current Consumption per LED	—			
Coding	A			
Shielding	—			
General				
Form	M12 × 1, female			
Test voltage	2.95 kV		1.75 kV	910 V
Pollution degree	3			
Insulation resistance	>10 ¹⁰ Ω			
Contact resistance	<3 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 67, in screwed condition			
Housing material	PBT black			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	—			
Cable construction	—			
Cable jacket	—			
Conductor insulation	—			
Cable diameter	4 – 6 mm			6 – 8 mm
Bending radius	—			
Storage temperature range	-40 °C – 90 °C			
Temperature range connector	-25 °C – 85 °C			
Termination	Screw terminal			
Gauge	max. 0.75 mm ²			max. 0.5 mm ²
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.040			
Approvals	—			

Actuator sensor interface · M12 - connector

field wireable connector, M12 angled
Male - A coded
Screw terminal

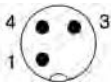


Dimensions



PIN assignment

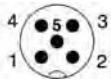
490019



490020



490021



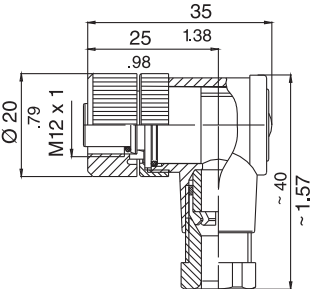
Description		Part-No.	Type	PU
Male				
Number of terminations	3	490019	STWK-M12 3POL SK	1
	4	490020	STWK-M12 4POL SK	1
	5	490021	STWK-M12 5POL SK	1
Technical data				
		Male		
Nominal voltage		AC/DC 24 V		
Nominal voltage range		250 V		60 V
Rated current			4 A	
Number of terminations	3		4	5
Cable length			—	
Status Indication			—	
Current Consumption per LED			—	
Coding			A	
Shielding			—	
General				
Form		M12 × 1, male, angled		
Test voltage	2.5 kV		2.95 kV	1.75 kV
Pollution degree			3	
Insulation resistance			>10 ¹⁰ Ω	
Contact resistance			<3 mΩ	
Class of flammability according to UL 94			V0	
Protection class		IP 67, in screwed condition		
Housing material		PBT black		
Contact material		CuZn, gold-plated		
Thread material		CuSn nickel plated		
Gasket		—		
Cable construction		—		
Cable jacket		—		
Conductor insulation		—		
Cable diameter		4 – 6 mm		
Bending radius		—		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 85 °C		
Termination		Screw terminal		
Gauge		max. 0.75 mm ²		
Mechanical service life		>100 insertion cycles		
Weight (kg/piece)		0.040		
Approvals		—		

Actuator sensor interface · M12 - connector

field wireable connector, M12 angled
Female - A coded
Screw terminal



Dimensions



PIN assignment

490013



490014



490015



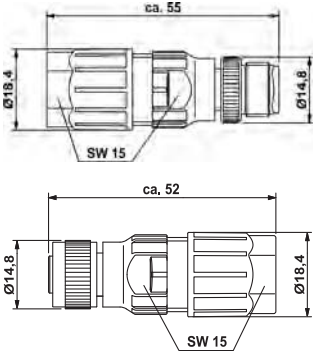
Description		Part-No.	Type	PU
Female				
Number of terminations	3	490013	KUWK-M12 3POL SK	0
	4	490014	KUWK-M12 4POL SK	0
	5	490015	KUWK-M12 5POL SK	0
Technical data				
		Female		
Nominal voltage		AC/DC 24 V		
Nominal voltage range		250 V		60 V
Rated current			4 A	
Number of terminations	3		4	5
Cable length			–	
Status Indication			–	
Current Consumption per LED			–	
Coding			A	
Shielding			–	
General				
Form		M12 × 1, female angled		
Test voltage	2.5 kV		2.95 kV	1.75 kV
Pollution degree			3	
Insulation resistance			>10 ¹⁰ Ω	
Contact resistance			<3 mΩ	
Class of flammability according to UL 94			V0	
Protection class		IP 67, in screwed condition		
Housing material		PBT black		
Contact material		CuZn, gold-plated		
Thread material		CuSn nickel plated		
Gasket		NBR		
Cable construction		–		
Cable jacket		–		
Conductor insulation		–		
Cable diameter		4 – 6 mm		
Bending radius		–		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 85 °C		
Termination		Screw terminal		
Gauge		max. 0.75 mm ²		
Mechanical service life		>100 insertion cycles		
Weight (kg/piece)		0.040		
Approvals		–		

Actuator sensor interface · M12 - connector

field wireable connector, M12 straight
Male / female - A coded
Fast connection method; IDC method of termination



Dimensions



PIN assignment

490028



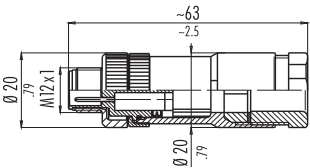
490029



Description		Part-No.	Type	PU
Male				
Number of terminations	4	490028	STGK-M12 4POL SNK	1
Female				
Number of terminations	4	490029	KUGK-M12 4POL SNK	1
Technical data				
		Male	Female	
Nominal voltage			AC/DC 24 V	
Nominal voltage range			250 V	
Rated current			4 A	
Number of terminations			4	
Cable length			—	
Status Indication			—	
Current Consumption per LED			—	
Coding			A	
Shielding			—	
General				
Form		M12 × 1, male	M12 × 1, female	
Test voltage			2.5 kV	
Pollution degree			3	
Insulation resistance			>10 ⁹ Ω	
Contact resistance			<5 mΩ	
Class of flammability according to UL 94			V0	
Protection class			IP 67, in screwed condition	
Housing material			PBT black	
Contact material			CuZn, gold-plated	
Thread material			CuSn nickel plated	
Gasket		—	NBR	
Cable construction			—	
Cable jacket			—	
Conductor insulation			—	
Cable diameter			4 – 7.5 mm	
Bending radius			—	
Storage temperature range			-40 °C – 90 °C	
Temperature range connector			-25 °C – 80 °C	
Termination			IDC method of termination	
Gauge			0.34–0.75 mm ²	
Mechanical service life			>100 insertion cycles	
Weight (kg/piece)			0.030	
Approvals			—	

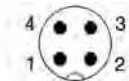
Actuator sensor interface

Duo-plug M12 4-pole / 5-pole Screw terminal blocks

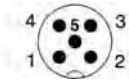


PIN assignment

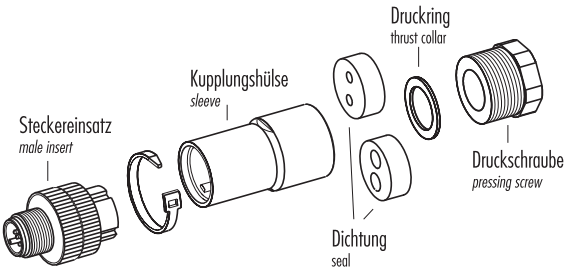
490047



490048



Description		Part-No.	Type	PU
Number of terminations	4	490047	STGD4 - M 12	10
	5	490048	STGD5 - M 12	10
Technical data				
Nominal voltage		AC/DC 24 V		
Nominal voltage range		250 V	125 V	
Rated current		4 A		
Number of terminations		4	5	
Coding		A		
General				
Form		M12 × 1, male		
Test voltage		2.95 kV	1.75 kV	
Pollution degree		3		
Insulation resistance		≥10 ¹⁰ Ω		
Contact resistance		≤8 mΩ		
Class of flammability according to UL 94		HB		
Protection class		IP 67		
Housing material		PA 66 black		
Contact material		CuZn		
Thread material		CuSn nickel plated		
Gasket		—		
Cable diameter		2 × 2.1 – 3 mm or 4 – 5 mm		
Storage temperature range		-40 – 90 °C		
Operation temperature range		-25 – 85 °C		
Termination		Screw terminal		
Gauge		max. 0.75 mm ²		
Mechanical service life		>50 insertion cycles		
Weight (kg/piece)		0.0400	0.0420	
Approvals		—		
Mounting diagram				

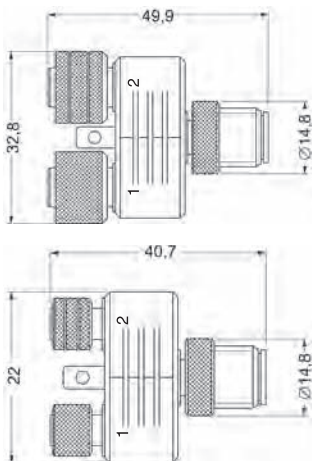


Actuator sensor interface

T piece

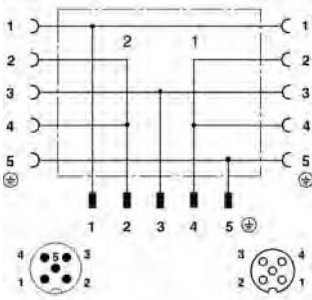
Plug M12 to 2x socket M12, 3-pole distributor PIN 2+4 used +PE

Plug M12 to 2x socket M8, 3-pole distributor

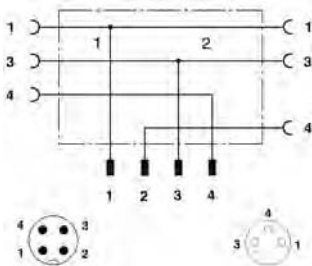


PIN assignment

490026



490038



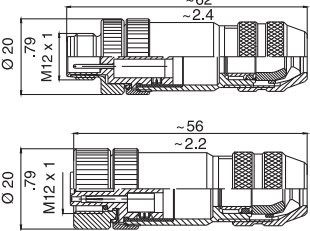
Description		Part-No.	Type	PU
Number of terminations	5	490026	AST M 12/2xM 12	10
	3	490038	AST M 12/2xM 8	10
Technical data		490026	490038	
Nominal voltage		AC/DC 24 V		
Nominal voltage		DC 60V	DC 30V	
Rated current		4 A	3 A	
Number of terminations		5	3	
Coding		A		
General				
Termination		M12		
Rated insulation voltage (EN 50178)		100 V		
Test voltage		1.5 kV		
Pollution degree		3		
Insulation resistance		≥ 10GΩ		
Resistor		≤ 5mΩ		
Class of flammability according to UL 94		HB		
Protection class		IP 65/ IP 67		
Housing material		TPU black		
Contact material		CuZn		
Thread material		CuSn nickel plated		
Gasket		NBR		
Storage temperature range		-25 – 90 °C		
Operation temperature range		-25 – 90 °C		
Weight (kg/piece)		0.0290	0.0140	
Approvals		–		
Accessories		Article number	Type	PU
Dynamometric key M12		490091	DM-SET M12	1

Actuator sensor interface · M12 - connector

field wireable connector, M12 straight shielded
Male / female - A coded (CAN)
Screw terminal



Dimensions

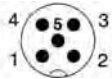


PIN assignment

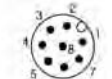
490050



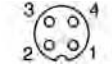
490051



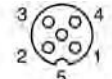
490054



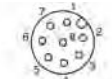
490052



490053



490077



Description		Part-No.	Type	PU		
Male						
Number of terminations	4	490050	STGK4-M12 (C)-A	1		
	5	490051	STGK5-M12 (C)-A	1		
	8	490054	STGK8-M12 (C)-A	1		
Female						
Number of terminations	4	490052	KUGK4-M12 (C)-A	1		
	5	490053	KUGK5-M12 (C)-A	1		
	8	490077	KUGK8-M12 (C)-A	1		
Technical data						
		Male	Female			
Nominal voltage			AC/DC 24 V			
Nominal voltage range	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A		2 A	4 A		2 A
Number of terminations	4	5	8	4	5	8
Cable length	—					
Status Indication	—					
Current Consumption per LED	—					
Coding	A					
Shielding	360°					
General						
Form	M12 × 1, male			M12 × 1, female		
Test voltage	2.5 kV	1.5 kV	800 V	2.5 kV	1.5 kV	800 V
Pollution degree	3					
Insulation resistance	>10 ¹⁰ Ω					
Contact resistance	<3 mΩ					
Class of flammability according to UL 94	V0					
Protection class	IP 67, in screwed condition					
Housing material	zinc diecast, nickel plated					
Contact material	CuZn, gold-plated					
Thread material	CuSn nickel plated					
Gasket	—			NBR		
Cable construction	—					
Cable jacket	—					
Conductor insulation	—					
Cable diameter	6 – 8 mm					
Bending radius	—					
Storage temperature range	-40 °C – 90 °C					
Temperature range connector	-25 °C – 85 °C					
Termination	Screw terminal					
Gauge	max. 0.75 mm ²		max. 0.5 mm ²	max. 0.75 mm ²		max. 0.5 mm ²
Mechanical service life	>100 insertion cycles					
Weight (kg/piece)	0.050					
Approvals	—					

Comments

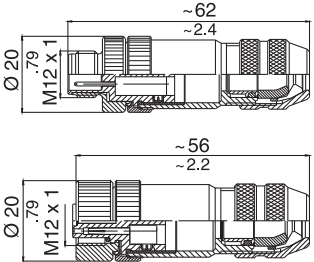
5-pole variant for device - network suitable

Actuator sensor interface · M12 - connector

field wireable connector, M12 straight shielded
Male / female - B coded (Profibus, Interbus)
Screw terminal

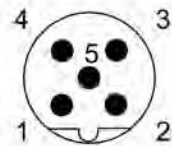


Dimensions

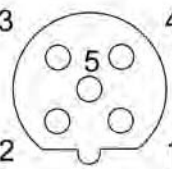


PIN assignment

490072



490073



Description		Part-No.	Type	PU
Male				
Number of terminations	5	490072	STGK5-M12 (C)-B	1
Female				
Number of terminations	5	490073	KUGK5-M12 (C)-B	1
Technical data		Male	Female	
Nominal voltage			AC/DC 24 V	
Nominal voltage range			max. 60 V	
Rated current			4 A	
Number of terminations			5	
Cable length			—	
Status Indication			—	
Current Consumption per LED			—	
Coding			B	
Shielding			360°	
General				
Form		M12 × 1, male	M12 × 1, female	
Test voltage			1.5 kV	
Pollution degree			3	
Insulation resistance			>10 ¹⁰ Ω	
Contact resistance			<3 mΩ	
Class of flammability according to UL 94			V0	
Protection class			IP 67, in screwed condition	
Housing material			Zinc diecast, nickel plated	
Contact material		CuZn, gold-plated	CuSn, gold-plated	
Thread material			CuSn nickel plated	
Gasket			—	
Cable construction			—	
Cable jacket			—	
Conductor insulation			—	
Cable diameter			6 – 8 mm	
Bending radius			—	
Storage temperature range			-40 °C – 90 °C	
Temperature range connector			-25 °C – 85 °C	
Termination			Screw terminal	
Gauge			max. 0.75 mm ²	
Mechanical service life			>100 insertion cycles	
Weight (kg/piece)			0.040	
Approvals			—	

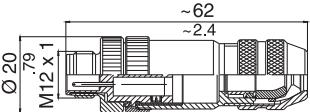
Comments
suitable for Profibus and Interbus.

Actuator sensor interface · M12 - connector

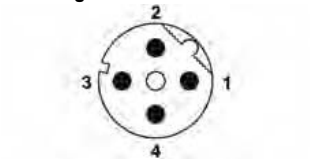
field wireable connector, M12 straight shielded
Male / female - D coded (Ethernet)
Screw terminal



Dimensions



PIN assignment



Description	Part-No.	Type	PU	
Male				
Number of terminations	4	490074	STGK4-M12 (C)-D	1
Technical data		Male		
Nominal voltage	AC/DC 24 V			
Nominal voltage range	max. 60 V			
Rated current	4 A			
Number of terminations	4			
Cable length	–			
Status Indication	–			
Current Consumption per LED	–			
Coding	D			
Shielding	360°			
General				
Form	M12 × 1, male			
Test voltage	2.95 kV			
Pollution degree	3			
Insulation resistance	>10 ¹⁰ Ω			
Contact resistance	<3 mΩ			
Class of flammability according to UL 94	V0			
Protection class	IP 67, in screwed condition			
Housing material	zinc diecast, nickel plated			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	–			
Cable construction	–			
Cable jacket	–			
Conductor insulation	–			
Cable diameter	6 – 8 mm			
Bending radius	–			
Storage temperature range	-40 °C – 90 °C			
Temperature range connector	-25 °C – 85 °C			
Termination	Screw terminal			
Gauge	0.14–0.75 mm ²			
Mechanical service life	>100 insertion cycles			
Weight (kg/piece)	0.050			
Approvals	–			

Comments
Ethernet suitable

Actuator sensor interface · M12 panel jack

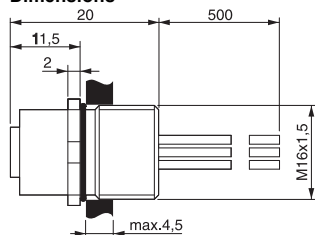
M12 connectors panel mounted using M16 thread

Male / female - A coded

0.5 m TPE wire



Dimensions

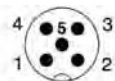


PIN assignment

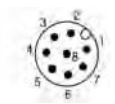
490067



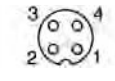
490068



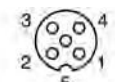
490069



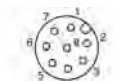
490064



490065



490066



Description		Part-No.	Type	PU
Male				
Number of terminations	4	490067	STGE4-M12 0,5m	1
	5	490068	STGE5-M12 0,5m	1
	8	490069	STGE8-M12 0,5m	1

Female				
Number of terminations	4	490064	KUGE4-M12 0,5m	1
	5	490065	KUGE5-M12 0,5m	1
	8	490066	KUGE8-M12 0,5m	1

Technical data	Male			Female		
Nominal voltage	AC/DC 24 V					
Nominal voltage range	max. 250 V	max. 60 V	max. 30 V	max. 250 V	max. 60 V	max. 30 V
Rated current	4 A		2 A	4 A		2 A
Number of terminations	4	5	8	4	5	8
Cable length	0.5					
Status Indication	–					
Current Consumption per LED	–					
Coding	A					
Shielding	–					

General					
Form	M12 × 1, male			M12 × 1, female	
Test voltage	2.5 kV	1.5 kV	800 V	2.5 kV	800 V
Pollution degree	3				
Insulation resistance	>10 ¹⁰ Ω				
Contact resistance	<3 mΩ				

Class of flammability according to UL 94		V0					
--	--	----	--	--	--	--	--

Protection class		IP 67, in screwed condition					
Housing material		Zinc diecast, nickel plated					
Contact material		CuZn, gold-plated					
Thread material		CuSn nickel plated					

Gasket		-				NBR	
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Cable construction		4×0.34 mm ²	5×0.34 mm ²	8×0.25 mm ²	4×0.34 mm ²	5×0.34 mm ²	8×0.25 mm ²
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Cable jacket		-					
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Conductor insulation		TPE-wire, coloured					
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Cable diameter		-					
----------------	--	---	--	--	--	--	--

Bending radius		-					
----------------	--	---	--	--	--	--	--

Storage temperature range		-40 °C – 90 °C					
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Temperature range connector		-25 °C – 85 °C					
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Termination		Thread M16					
-------------	--	------------	--	--	--	--	--

Gauge		0.5 mm ²					
-------	--	---------------------	--	--	--	--	--

Mechanical service life		>100 insertion cycles					
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Weight (kg/piece)		0.022	0.023	0.025	0.022	0.023	0.025
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Approvals		-					
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Accessories	Article number	Type	PU
Counter nut M16	600361	GMS M 16 × 1.5	100

Comments

Connection assignment

Pole / wire color:

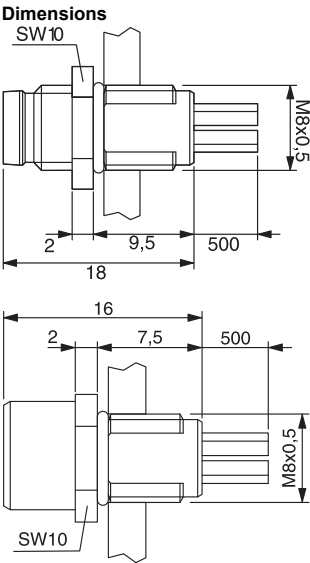
- 1/ BN (brown)
- 2/ WH (white)
- 3/ BU (blue)
- 4/ BK (black)

- 1/ BN (brown)
- 2/ WH (white)
- 3/ BU (blue)
- 4/ BK (black)
- 5/ GY (grey)

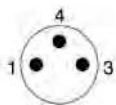
- 1/ WH (white)
- 2/ BN (brown)
- 3/ GN (green)
- 4/ YE (yellow)
- 5/ GY (grey)
- 6/ PK (pink)
- 7/ BU (blue)
- 8/ RD (red)

Actuator sensor interface · M8 panel jack

M8 panel connectors using M8 thread
Male / female
0,5M TPE wire



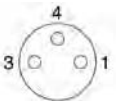
PIN assignment
490062



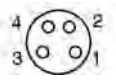
490063



490060



490061



Description		Part-No.	Type	PU
Male				
Number of terminations	3	490062	STGE3-M8 0,5m	1
	4	490063	STGE4-M8 0,5m	1
Female				
Number of terminations	3	490060	KUGE3-M8 0,5m	1
	4	490061	KUGE4-M8 0,5m	1
Technical data		Male	Female	
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		3 A		
Number of terminations	3	4	3	4
Cable length		0.5		
Status Indication		—		
Current Consumption per LED		—		
Coding		—		
Shielding		—		
General				
Form		M8 × 1, male		M8 × 1, female
Test voltage	1.5 kV	0.8 kV	1.5 kV	0.8 kV
Pollution degree		3		
Insulation resistance		>10 ¹⁰ Ω		
Contact resistance		<3 mΩ		
Class of flammability according to UL 94		HB		
Protection class		IP 67, in screwed condition		
Housing material		zinc diecast, nickel plated		
Contact material		CuZn, gold-plated		
Thread material		CuSn nickel plated		
Gasket		—	NBR	
Cable construction	3×0.25 mm ²	4×0.25 mm ²	3×0.25 mm ²	4×0.25 mm ²
Cable jacket		—		
Conductor insulation		TPE-wire, coloured		
Cable diameter		—		
Bending radius		—		
Storage temperature range		-40 °C – 90 °C		
Temperature range connector		-25 °C – 85 °C		
Termination		Thread M8		
Gauge		0.5 mm ²		
Mechanical service life		>100 insertion cycles		
Weight (kg/piece)	0.012	0.014	0.012	0.014
Approvals		—		

Comments
Included in scope of delivery: M8 lock nut

Connection assignment
Pole / wire colour:
1/ BN (brown)
3/ BU (blue)
4/ BK (black)

1/ BN (brown)
2/ WH (white)
3/ BU (blue)
4/ BK (black)

Actuator sensor interface · M12 - panel jack ETHERNET

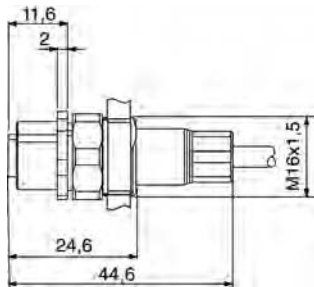
M12 panel connector using M16 thread Including Ethernet Cable

Female - Ethernet D coded

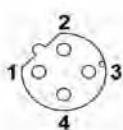
Dial cable, shielded



Dimensions



PIN assignment



Description		Part-No.	Type	PU
Female				
Cable length	0.5	490082	KUGE4-M12 /ET 0,5m PUR	10
	1.0	490083	KUGE4-M12 /ET 1,0m PUR	10
	2.0	490084	KUGE4-M12 /ET 2,0m PUR	10
	5.0	490085	KUGE4-M12 /ET 5,0m PUR	10

Technical data		Female		
Nominal voltage		AC/DC 24 V		
Nominal voltage range		max. 30 V		
Rated current		4 A		
Number of terminations		4		
Cable length	0.5	1.0	2.0	5.0
Status Indication	–			
Current Consumption per LED	–			
Coding	D			
Shielding	360°			
General				
Form	M12 × 1, female			
Test voltage	2.5 kV			
Pollution degree	3			
Insulation resistance	>10 ¹⁰ Ω			
Contact resistance	<3 mΩ			
Class of flammability according to UL 94	HB			
Protection class	IP 67, in screwed condition			
Housing material	Zinc diecast, nickel plated			
Contact material	CuZn, gold-plated			
Thread material	CuSn nickel plated			
Gasket	NBR			
Cable construction	2 × 2 × AWG 26/7			
Cable jacket	–			
Conductor insulation	Ethernet–cable			
Cable diameter	6.7 mm			
Bending radius	15 x cable diameter			
Storage temperature range	-40 °C – 80 °C			
Temperature range connector	-25 °C – 80 °C			
Temperature range cable fixed				
Temperature range cable moving				
Weight (kg/piece)	0.055	0.078	0.133	0.281
Approvals	–			
Accessories	Article number		Type	PU
Counter nut M16	600361		GMS M 16 × 1.5	100
Comments				

Connection assignment

Pole / wire colour:

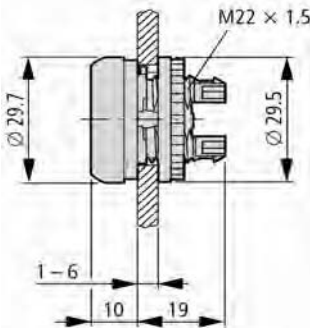
- 1/ YE (yellow)
- 2/ WH (white)
- 3/ OG (orange)
- 4/ BU (blue)

Actuator sensor interface · USB-panel connector

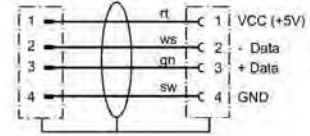
USB-panel connector for front installation with M22 thread
USB connector Typ A on straight USB plug Type A with PVC cable
Type: UBS-2.0 A/A



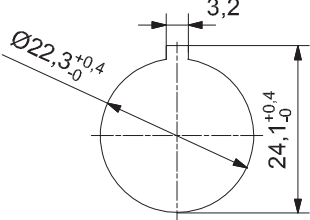
Dimensions



PIN assignment



Mounting diagram



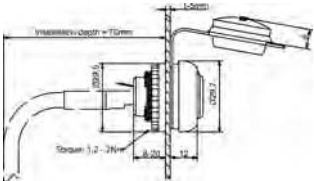
Description		Part-No.		Type			PU
USB							
Cable length	0.3	499991		USB-2.0 A/A 0,3m PVC			10
	0.6	499992		USB-2.0 A/A 0,6m PVC			10
	0.8	490076		USB-2.0 A/A 0,8m PVC			10
	1.5	490078		USB-2.0 A/A 1,5m PVC			10
	2.0	490079		USB-2.0 A/A 2,0m PVC			10
	3.0	490080		USB-2.0 A/A 3,0m PVC			10
	5.0	490081		USB-2.0 A/A 5,0m PVC			10
Technical data				USB			
Nominal voltage				AC/DC 5 V			
Nominal voltage range				max. 30 V			
Rated current				500 mA			
Number of terminations				4			
Cable length	0.3	0.6	0.8	1.5	2.0	3.0	5.0
Transfer rate				max. 480 mbit/s			
USB standard				2.0			
Contact type				1 : 1			
Shielding				yes			
General							
Form				USB-A			
Test voltage				–			
Pollution degree				3			
Insulation resistance				>10 ¹⁰ Ω			
Contact resistance				<30 mΩ			
Class of flammability according to UL 94				V0			
Protection class		IP 65 in closed and IP 20 in inserted condition					
Housing material		Connector: PA; plug: PBT, cover: TPU					
Contact material		CuSn, gold-plated					
Field installation		Front plate cutout D=22.5mm					
Cable construction		Supply: 2×AWG24; Data: 2×AWG28					
Cable jacket		PVC					
Cable diameter		4.4 mm					
Bending radius		20 x cable diameter					
Storage temperature range		-25 °C – 80 °C					
Operation temperature range		0 °C – 70 °C					
Temperature range connector		–					
Mechanical service life		>100 insertion cycles					
Dimension		(D×T) 29.5 × 29 mm, installation depth appr. 70 mm					
Weight (kg/piece)	0.035	0.040	0.055	0.060	0.065	0.090	0.110
Approvals		–					
Comments							
Included in the delivery: captive safety cap							

Actuator sensor interface · RJ45 panel connector

RJ45 panel connector for front installation 22.5 mm
female/female 1:1
Category 5e/6

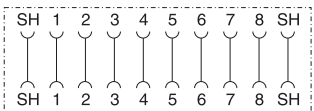


Dimensions

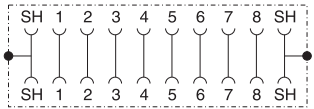


Circuit diagram

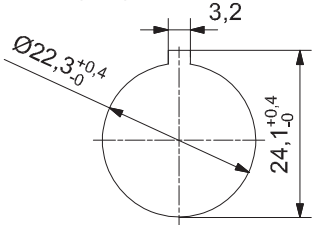
492075



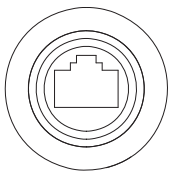
491075



Mounting diagram



front view:



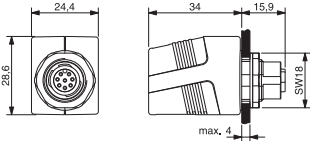
Description	Part-No.	Type	PU	
Category				
	Cat. 5e	492075	RJ45 F/F 8/8 Cat.5e	1
	Cat 6	491075	RJ45 F/F 8/8 Cat.6	1
Technical data	492075	491075		
Nominal voltage		AC 24 V		
Nominal voltage range		AC 150 V		
Rated current		1.5 A		
Number of terminations		8		
Cable length		–		
Transmission frequency	100 MHz	250 MHz		
Category	5e	6		
USB standard		–		
Contact type		1 : 1		
Shielding	shield connected through	360° shielding		
General				
Form		RJ45		
Test voltage		–		
Pollution degree		3		
Insulation resistance		>500 MΩ		
Contact resistance		< 30 mΩ		
Class of flammability according to UL 94		V0		
Protection class	IP 65 in closed and IP 20 in inserted condition			
Housing material	PA-GF25; PBT Gf20; cover TPU			
Contact material	CuSn			
Field installation	Front plate cutout D=22.5mm			
Cable construction	8 (4-pair)			
Cable jacket	–			
Cable diameter	–			
Bending radius	–			
Storage temperature range	-25 °C – 85 °C			
Operation temperature range	-25 °C – 70 °C			
Temperature range connector	–			
Mechanical service life	<750 insertion cycles			
Dimension	(D×T) 29.5 × 29 mm, installation depth appr. 70 mm			
Weight (kg/piece)	0.022			
Approvals	–			

Actuator sensor interface · RJ45 panel connector

Control cabinet bushing M12 - RJ45
female/female 1:1
Category 5e

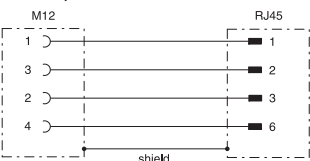


Dimensions

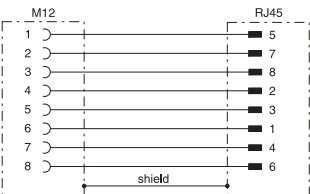


Circuit diagram

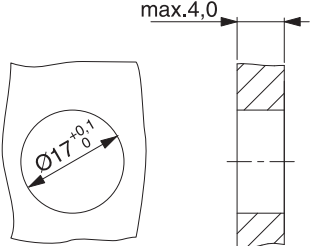
490105, 490106



490107, 490108



Mounting diagram



Description	Part-No.	Type	PU	
4 pole 90°	490105	M12-R45 F/F 90° 4/4 Cat.5e PROFINET	1	
4 pole 180°	490106	M12-R45 F/F 180° 4/4 Cat.5e PROFINET	1	
8 pole 90°	490107	M12-R45 F/F 90° 8/8 Cat.5e	1	
8 pole 180°	490108	M12-R45 F/F 180° 8/8 Cat.5e	1	
Technical data	490105	490106	490107	490108
Nominal voltage			24 V	
Nominal voltage range			50 V	
Rated current		max. 1 A per contact		
Number of terminations	4		8	
Cable length		–		
Transfer rate	100 Mbit/s		1 Gbit/s	
Category		5e		
USB standard		–		
Contact type		1 : 1		
Shielding		360° shielding		
General				
Form		RJ45 / M12 x 1		
Test voltage		–		
Pollution degree		3		
Insulation resistance		>500 MΩ		
Contact resistance		< 30 mΩ		
Class of flammability according to UL 94		V0		
Protection class		IP 67 in screwed condition		
Housing material		PA		
Contact material		Phosphor bronze, gold-plated		
Field installation		–		
Cable construction		–		
Cable jacket		–		
Cable diameter		–		
Bending radius		–		
Storage temperature range		-25 °C – 85 °C		
Operation temperature range		-25 °C – 85 °C		
Temperature range connector		–		
Mechanical service life		≥ 750 insertion cycles		
Dimension		(∅×D) 29.5 × 29 mm		
Weight (kg/piece)		0.037		
Approvals		–		
Standards	PROFINET		–	
Accessories		Article number	Type	PU
Protective cover M12		499994	SK M12	50

Actuator sensor interface

Protective cover
M8, M12
Colour: black



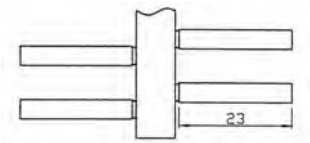
Description		Part-No.	Type	PU
Colour	black	499989	SK M 8	50
	black	499994	SK M 12	50
General		499989	499994	
Housing material			PVC	
Colour			black	
Class of flammability according to UL 94			V0	
Surface			–	
Termination		M8 × 1	M12 × 1	
Storage temperature range			-20 – 80 °C	
Operation temperature range			-20 – 80 °C	
Dimensions (w × h × d)				
Weight (kg/piece)			0.0020	
Wire			–	

Actuator sensor interface

Designation unit for M8, M12 cables
Designation plate, designation sleeve
Colour: white, transparent



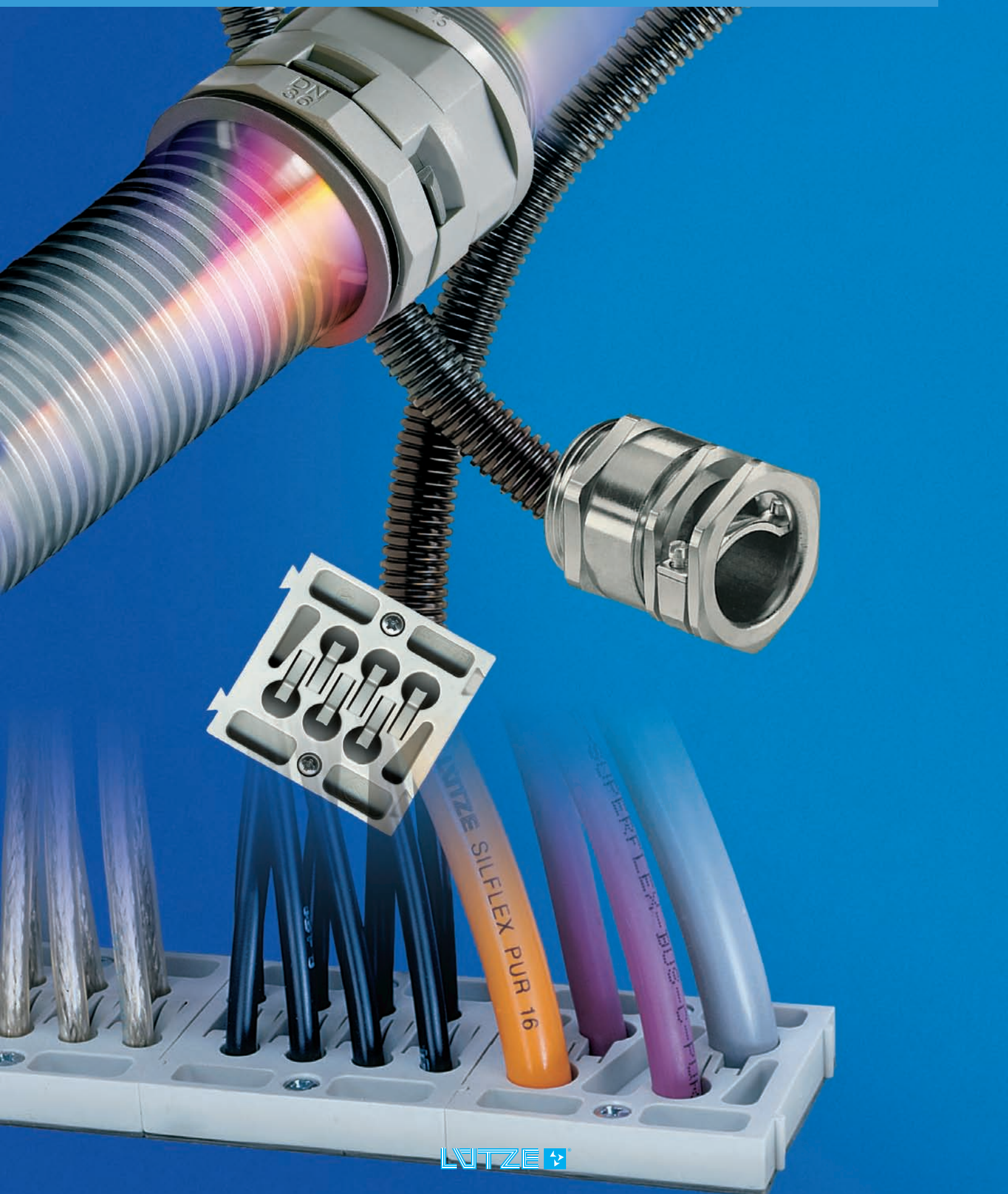
Dimensions



Description		Part-No.	Type	PU
Colour	white	499988	LB M 8//M12 4×23 mm	200
	transparent	499993	LBT M 8//M12 D/2-4 mm	500
	transparent	499995	LBT M 8//M12 D/4-7 mm	500
General		499988	499993	499995
Housing material	Ultradur B4520		PVC	
Colour	white		transparent	
Class of flammability according to UL 94	V2		V0	
Surface			smooth	
Termination			–	
Storage temperature range			-50 – 80 °C	
Operation temperature range			-50 – 80 °C	
Dimensions (w × h × d)	4.0 × 23.0 mm		8.0 × 23.5 × 13.0 mm	
Weight (kg/piece)	0.0050		0.0030	
Wire	–		Ø 2-4mm	Ø 4-7mm

14. Cable fittings and accessories

Cable conduits and conduit fitting



Cable fittings and accessories - General

Materials

Turning parts:	MS58, nickel-plated
Cast parts:	Zinc die-cast DIN 1743 (elbow fitting/flange elbow to PG 16), aluminum chill casting (flange elbow after PG 21)
Plastics:	Polystyrol or polyamide 6 GF 30
Clamp rings:	Neoprene, oil and benzine resistant, temperature-resistant from – 30 °C to + 120 °C
Clamping rings:	Steel, glossy zinc plated
O-Rings:	Perbunan®, oil- and benzine-resistant

Short term DIN 7728	Chem. Term	Trade names (manufacturer)	Gross density DIN 53457 g/cm³	Fuel DIN Benzine/ Super	Fuel DIN Diesel	Benzene	Mineral oil	Animal and plant oils	Weak Bases	Strong Bases	Weak Acids	Strong Acids	Solubility
SB	Polystyrene shock-resistant Styrol-Butadien Copoly-mers	Polystyrol C (BASF) Vestylon (casing) Hostyren (Hoechst)	1.05	-	-	-	O	O	+	+	+	O	Benzene
PA 6	Polyamide 6	Ultramid® B (BASF) Durethan® B (Bayer)	1.14	+	+	O	+	O	+	+	+	O	(concentrated formic acid)
PA 6 GF 30	Polyamide 6 glass fiber reinforced	Ultramid® B (BASF) Durethan® B (Bayer)	1.35	+	+	O	+	O	+	+	+	O	(concentrated formic acid)
PA	Polyamide amorph	Trogamid® amorph (Dynamite Nobel)	1.12	+	+	+	+	+	+	O	+	-	(concentrated formic acid)
Symbols stability:		+ = resistant O = conditionally resistant – = unstable											

Protection type

Example for the specification of a protection type	IP Code letter	5 First code number	5 Second code number
--	----------------	---------------------	----------------------

First code number Degrees of protection for protection against contact and foreign substances

5	Protection against harmful dust accumulation. The infiltration of dust is not completely prevented but the dust may not enter in such quantities that the functioning of the equipment is impaired (Dust-proof). Full protection against contact.
6	Protection against the infiltration of dust (dust-tight). Full protection against contact.

Second code number Degree of protection for water protection

5	Protection against a stream of water from a tube that is aimed at the equipment (enclosure) from all directions. It may not have a damaging effect (streaming water).
6	Protection against heavy sea-water or strong water stream. Water may not penetrate (flooding) in damaging amounts into the equipment (enclosure).
7	Protection against water, if the equipment (enclosure) is submerged in water for defined pressure and time conditions. Water may not penetrate in damaging amounts (submerging).
8	The equipment is suitable for continuous submersion in water for conditions that are described by the manufacturer (submersion).

Metric cable fitting for electrical installations:

The transitional period for the known construction norms up to now for PG thread according to DIN 46255 to 46259, DIN 46320 section 1 to 4, as well as DIN 40430, expired at the end of 1999. The distinctive feature with the metric fittings is the expanded termination area. Instead of the 10 PG sizes, there are now only 8 metric fittings sizes.

Anywhere where you are currently in the planning or new construction of machines, systems, components and devices in connection with cable fittings, conversion to the new metric cable fittings should be done now.

For specific requirements, we also still have the current PG fittings in the program for you.

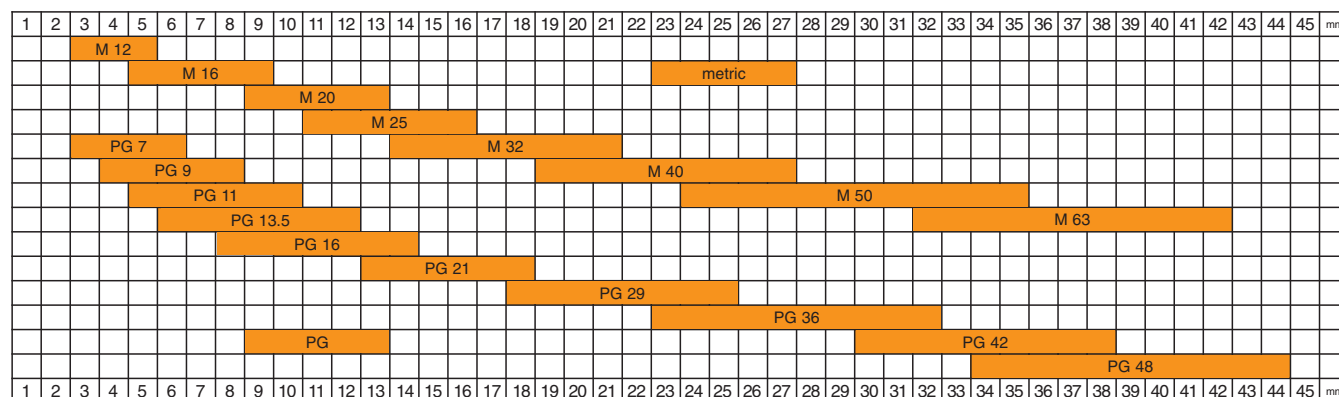
Metric thread sizes

Term	Pitch	Outer diameter of the fitting thread in mm	Thread sizes	Diameter of the mounting hole in mm (+ 0.2 - 0.4)
M 12	1.5	12	12	12.5
M 16	1.5	16	16	16.5
M 20	1.5	20	20	20.5
M 25	1.5	25	25	25.5
M 32	1.5	32	32	32.5
M 40	1.5	40	40	40.5
M 50	1.5	50	50	50.5
M 63	1.5	63	63	63.5
M 75	1.5	75	75	75.5

Thread sizes PG

Term	Pitch	Outer diameter in mm	Core diameter in mm	Through boring in mm
PG 7	1.27	12.5	11.28	12.7
PG 9	1.41	15.2	13.86	15.4
PG 11	1.41	18.6	17.26	18.8
PG 13.5	1.41	20.4	19.06	20.7
PG 16	1.41	22.5	21.16	22.8
PG 21	1.588	28.3	26.78	28.6
PG 29	1.588	37.0	36.48	37.4
PG 36	1.588	47.0	45.58	47.5
PG 42	1.588	54.0	52.48	54.5
PG 48	1.588	59.3	57.78	59.8

Comparison of the termination area metric / PG for TOP-T PG and TOP-T M



Cable fittings and accessories

Cablefix Vario

Feed-through for all prefabricated cables and wires with connectors



Application

- Electrotechnology, pneumatics, hydraulics, robotics, general machine and plant construction

Properties

- Feed through and terminal frames from high-quality solid
- Aluminium or polyamide GF30 with additional inner brass reinforcement
- High flexibility in the application
- Additional mounting to existing installation easily possible
- Even pressure effect on the feed through round material yields good strain relief and sealing
- Unused holes in the module can simply sealed with blank plugs
- Compact design i.e. space-saving
- 2 module sizes with slot and suspension principle
- Very good weathering resistance
- Resistant to UV radiation, ozone, oils, fuels, acids, bases, solvents and sea water

Part-No.	Type	Termination area mm	Number of holes	Diameter mm	Length mm	suitable for Part- No.	PU piece
Rubber module, material TPE							
606150	VK0	Solid material	0				5
606151	VK4	4–4.5	14				5
606152	VK5	4.5–5.5	8				5
606153	VK6	5.5–6.5	8				5
606154	VK7	6.5–7.5	5				5
606155	VK8	7.5–8.5	5				5
606156	VK9	8.5–9.5	3				5
606157	VK10	9.5–10.5	3				5
606158	VK12	10.5–12.5	2				5
606159	VK14	12.5–14.5	2				5
606160	VK16	14.5–16.5	2				5
606200	VG0	Solid material	0				3
606201	VG18	16.5–18.5	2				3
606202	VG20	18.5–20.5	1				3
606203	VG22	20.5–22.5	1				3
606204	VG24	22.5–24.5	1				3
606205	VG26	24.5–26.5	1				3
606206	VG28	26.5–28.5	1				3
606207	VG30	28.5–30.5	1				3
606208	VG32	30.5–32.5	1				3
606209	VG34	32.5–34.5	1				3
Matching blank plug, PA6 GF15							
606250	BL4			4	30	606151	50
606251	BL5			5	30	606152	50
606252	BL6			6	30	606153	50
606253	BL7			7	30	606154	50
606254	BL8			8	30	606155	50
606255	BL9			9	30	606156	50
606256	BL10			10	30	606157	50
606257	BL12			12	30	606158	50
606258	BL14			14	30	606159	50
606259	BL16			16	30	606160	50
606260	BL18			18	30	606201	50

Cable fittings and accessories

Cablefix Vario

Feed-through for all prefabricated cables and wires with connectors



Technical data

Temperature range	-40 °C to +135 °C
Burning behaviour	Flame-retardant
Module type	VG=40×43.5 VK=40×22.9 for cable and wire diameters from 4 mm to 34.5 mm, see ordering information
Protection class	IP 65

Design

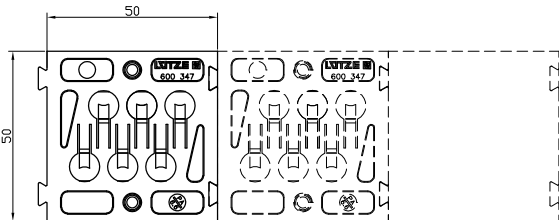
- Frame AKLR from smooth ground aluminum
- Frame KKLR from polyamide reinforced with brass bars 6.6 GF30
- Modules slotted to the right from the borings

Part-No.	Type	Dimension (L×H×T)	Unit VK/VG	PU piece	With flat seal and drilling template	Comments
Terminal frame as feed-through system with strain relief						
606050	KKLR 1	136 × 71 × 30	4/2	3	Yes	Master gauge for holes HAN 16 B attachment housing
606051	KKLR 2	164 × 71 × 30	6/3	2	Yes	Master gauge for holes HAN 24 B attachment housing
Aluminium smooth-ground, also available as anodised						
606038	AKLR0	68 × 68 × 30	2/1	1	Yes	Hole ø 6.5 hole dimensions 30 × 55 with flat seal
606001	AKLR 1	108 × 68 × 30	4/2	1	Yes	
606002	AKLR 2	148 × 68 × 30	6/3	1	Yes	
606003	AKLR 3	148 × 88 × 30	9/3+3	1	Yes	
606004	AKLR 4	148 × 108 × 30	12/6	1	Yes	
606005	AKLR 5	188 × 78 × 30	8/4	1	Yes	
606006	AKLR 6	188 × 98 × 30	12/4+4	1	Yes	
606007	AKLR 7	188 × 118 × 30	16/8	1	Yes	
606040	AKLW 2	148 × 68 × 30	6/3	1	Yes	Master gauge for holes HAN 24 B attachment housing

Unit corresponds to the number of required rubber modules type VK or VG

Cable fittings and accessories

Cablefix Control cable flange (ST)



Application
Cablefix flanges are used to introduce cables and wires into a housing. They are used in light to medium-weight machine and plant construction.

- Properties**
- The Cablefix flanges can be mounted side by side using the dovetail guides. This makes it possible to implement various individual combinations of flanges to suit the specific requirements.
 - The integrated strain relief closes automatically when the cables and wires are pushed through.
 - An integrated formed rubber part seals off the cables and wires by means of sealing lips.
 - For troubleshooting, maintenance or retrofitting, the individual cables can be easily loosened from the spring clamp using a screwdriver and replaced.
 - Unused inputs can be closed off using the plugs supplied with the product.
 - Resistant to fuels, mineral oils, greases, alkalis
 - Halogen- and silicone-free

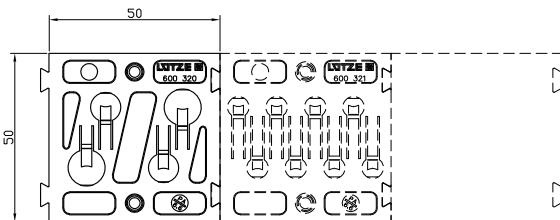
Technical data	
Protection class	IP 55 (mounting orientation from below)
Temperature range	-30 °C to +70 °C
Burning behaviour	Flange UL 94 V2
max. metal gauge	3 mm
Breakthrough with standard sheet metal hole punch	46 × 46mm

Part-No.	Type	Dimensions (w × h × d) mm	Cut-out W × H mm	Number of cables × ca- ble diameter	Material	PU piece
Cablefix Control cable flange (ST)						
600347	1×ST	50.0 × 50.0 × 11.5	46 × 46	6 × 6.3 – 8.9	Flange: PA 6.6 Seal: TPE Plugs: PA 6 Retaining plates and screws: galvanised steel	5

Note:
50 mm must be allotted for each flange mounted side by side.
e.g. a combination of 3 flanges results in hole dimensions of 46 mm × 46 mm plus 2 × 50 mm = 46 mm × 146 mm.

Cable fittings and accessories

Cablefix Bus flange (B/V) + Sensor/Actuator flange (S/A)



Application
Cablefix flanges are used to introduce cables and wires into a housing. They are used in light to medium-weight machine and plant construction.

- Properties**
- The Cablefix flanges can be mounted side by side using the dovetail guides. This makes it possible to implement various individual combinations of flanges to suit the specific requirements.
 - The integrated strain relief closes automatically when the cables and wires are pushed through.
 - An integrated formed rubber part seals off the cables and wires by means of sealing lips.
 - For troubleshooting, maintenance or retrofitting, the individual cables can be easily loosened from the spring clamp using a screwdriver and replaced.
 - Unused inputs can be closed off using the plugs supplied with the product.
 - Resistant to fuels, mineral oils, greases, alkalis
 - Halogen- and silicone-free

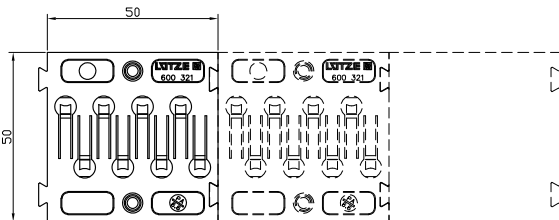
Technical data	
Protection class	IP 55 (mounting orientation from below)
Temperature range	-30 °C to +70 °C
Burning behaviour	Flange UL 94 V2
max. metal gauge	3 mm
Breakthrough with standard sheet metal hole punch	46 × 46mm

Part-No.	Type	Dimensions (w × h × d) mm	Cut-out W × H mm	Number of cables × cable diameter	Material	PU piece
Cablefix Bus flange (B/V) + Sensor/Actuator flange (S/A)						
600320	1×B/V	50.0 × 50.0 × 11.5	46 × 46	2 × 6.1 - 8.8 + 2 × 7.8 - 10.7 mm	Flange: PA 6.6 Seal: TPE Plugs: PA 6 Retaining plates and screws: galvanised steel	5

Note:
50 mm must be allotted for each flange mounted side by side.
e.g. a combination of 3 flanges results in hole dimensions of 46 mm × 46 mm plus 2 × 50 mm = 46 mm × 146 mm.

Cable fittings and accessories

Cablefix Sensor/Actuator flange (S/A)



Application
Cablefix flanges are used to introduce cables and wires into a housing. They are used in light to medium-weight machine and plant construction.

- Properties**
- The Cablefix flanges can be mounted side by side using the dovetail guides. This makes it possible to implement various individual combinations of flanges to suit the specific requirements.
 - The integrated strain relief closes automatically when the cables and wires are pushed through.
 - An integrated formed rubber part seals off the cables and wires by means of sealing lips.
 - For troubleshooting, maintenance or retrofitting, the individual cables can be easily loosened from the spring clamp using a screwdriver and replaced.
 - Unused inputs can be closed off using the plugs supplied with the product.
 - Resistant to fuels, mineral oils, greases, alkalis
 - Halogen- and silicone-free

Technical data

Protection class	IP 55 (mounting orientation from below)
Temperature range	-30 °C to +70 °C
Burning behaviour	Flange UL 94 V2
max. metal gauge	3 mm
Breakthrough with standard sheet metal hole punch	46 × 46mm

Part-No.	Type	Dimensions (w × h × d) mm	Cut-out W × H mm	Number of cables × ca- ble diameter	Material	PU piece
Cablefix Sensor/Actuator flange (S/A)						
600321	1×S/A	50.0 × 50.0 × 11.5	46 × 46	8 × 3.8 - 6.3 mm	Flange: PA 6.6 Seal: TPE Plugs: PA 6 Retaining plates and screws: galvanised steel	5

Note:
50 mm must be allotted for each flange mounted side by side.
e.g. a combination of 3 flanges results in hole dimensions of 46 mm × 46 mm plus 2 × 50 mm = 46 mm × 146 mm.

Cable fittings and accessories

Plastic fittings TOP-T-P metric



Properties

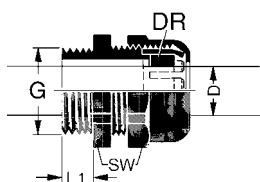
- – metric –
- Cable fitting with hexagon base
- Strain relief and seal

Technical data

Protection class	IP 68 to 5 bar
Approvals	on request

Design

- Material Polyamide PA 6.6-V-2
- Colour grey RAL 7001
black RAL 9005
- Gasket Neoprene



Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-T-P metric grey RAL 7001							
600790	TOP-T-P M 12×1.5	M 12	2.0 – 6.5	15	8.0	0.32	100
600680	TOP-T-P M 16×1.5	M 16	4.0 – 10.0	20	8.0	0.57	100
600681	TOP-T-P M 20×1.5	M 20	6.0 – 12.0	24	9.0	0.96	100
600682	TOP-T-P M 25×1.5	M 25	9.0 – 16.0	28	11.0	1.55	50
600683	TOP-T-P M 32×1.5	M 32	10.0 – 21.0	36	11.0	2.65	25
600791	TOP-T-P M 40×1.5	M 40	16.0 – 28.0	46	11.0	4.34	10
600792	TOP-T-P M 50×1.5	M 50	21.0 – 34.5	53	13.0	7.37	5
600684	TOP-T-P M 63×1.5	M 63	30.0 – 44.5	65	14.0	10.26	5
TOP-T-P metric black RAL 9005							
600840	TOP-T-P M 12×1.5	M 12	2.0 – 6.5	15	8.0	0.32	100
600841	TOP-T-P M 16×1.5	M 16	4.0 – 10.0	20	8.0	0.57	100
600842	TOP-T-P M 20×1.5	M 20	6.0 – 12.0	24	9.0	0.96	100
600843	TOP-T-P M 25×1.5	M 25	9.0 – 16.0	28	11.0	1.55	50
600844	TOP-T-P M 32×1.5	M 32	10.0 – 21.0	36	11.0	2.65	25
600845	TOP-T-P M 40×1.5	M 40	16.0 – 28.0	46	11.0	4.40	10
600846	TOP-T-P M 50×1.5	M 50	21.0 – 34.5	53	13.0	7.37	5
600847	TOP-T-P M 63×1.5	M 63	30.0 – 44.5	65	14.0	10.26	5

Cable fittings and accessories

Plastic fittings TOP-T-P



Properties

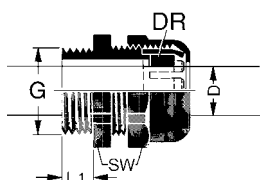
- Cable fitting with hexagon base
- Strain relief and seal

Technical data

Protection class IP 68 to 5 bar
Approvals on request

Design

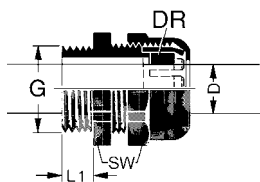
- Material polyamide PA 6.6-V-2
- Colour grey RAL 7001
black RAL 9005
- Gasket Neoprene



Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-T-P PG grey RAL 7001							
600660	TOP-T-P PG 7	PG 7	3.0 – 6.5	15	8.0	0.33	100
600661	TOP-T-P PG 9	PG 9	4.0 – 8.0	19	8.0	0.52	100
600662	TOP-T-P PG 11	PG 11	5.0 – 10.0	22	8.0	0.87	100
600663	TOP-T-P PG 13.5	PG 13	6.0 – 12.0	24	9.0	0.96	100
600664	TOP-T-P PG 16	PG 16	10.0 – 14.0	27	10.0	1.37	50
600665	TOP-T-P PG 21	PG 21	13.0 – 18.0	33	11.0	2.04	50
600666	TOP-T-P PG 29	PG 29	18.0 – 25.0	42	11.0	3.88	25
600667	TOP-T-P PG 36	PG 36	22.0 – 34.0	53	13.0	6.90	10
600668	TOP-T-P PG 42	PG 42	30.0 – 38.0	53	13.0	8.80	5
600669	TOP-T-P PG 48	PG 48	30.0 – 44.5	65	14.0	9.79	5
TOP-T-P PG black RAL 7005							
600860	TOP-T-P PG 7	PG 7	3.0 – 6.5	15	8.0	0.33	100
600861	TOP-T-P PG 9	PG 9	4.0 – 8.0	19	8.0	0.52	50
600862	TOP-T-P PG 11	PG 11	5.0 – 10.0	22	8.0	0.87	100
600863	TOP-T-P PG 13.5	PG 13.5	6.0 – 12.0	24	9.0	0.96	50
600864	TOP-T-P PG 16	PG 16	10.0 – 14.0	27	10.0	1.37	50
600865	TOP-T-P GP 21	PG 21	13.0 – 18.0	33	11.0	2.04	50
600866	TOP-T-P PG 29	PG 29	18.0 – 25.0	42	11.0	3.98	25
600867	TOP-T-P PG 36	PG 36	22.0 – 34.0	53	13.0	6.90	10
600868	TOP-T-P PG 42	PG 42	30.0 – 38.0	60	13.0	8.80	5
600869	TOP-T-P PG 48	PG 48	30.0 – 44.5	65	14.0	9.79	5

Cable fittings and accessories

Plastic fitting TOP-TR-P



Properties

- Cable fitting with hexagon base
- Strain relief and gasket
- Reduced sealing insert

Technical data

Protection class	IP 68 to 5 bar
Approvals	on request

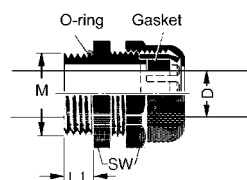
Design

- Material Polyamide PA 6-V-2
- Colour grey RAL 7001
other colours upon request
- Gasket NBR

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-TR-P metric							
600690	TOP-TR-P M 16 × 1.5	M 16	2.0 – 7.0	20	8.0	0.62	100
600691	TOP-TR-P M 20 × 1.5	M 20	4.0 – 10.0	24	8.0	1.34	100
600692	TOP-TR-P M 25 × 1.5	M 25	5.0 – 14.0	29	8.0	1.63	50
600693	TOP-TR-P M 32 × 1.5	M 32	8.0 – 18.0	36	10.0	2.72	25
600991	TOP-TR-P M 20 × 1.5	M 20	4.0 – 10.0	24	8.0	1.34	100
TOP-T-R PG							
600670	TOP-TR-P PG 7	PG 7	2.0 – 5.0	15	8.0	0.70	100
600671	TOP-TR-P PG 9	PG 9	2.0 – 6.0	19	8.0	1.10	100
600672	TOP-TR-P PG 11	PG 11	3.0 – 7.0	22	8.0	1.40	100
600673	TOP-TR-P PG 13.5	PG 13.5	5.0 – 9.0	24	9.0	1.80	100
600674	TOP-TR-P PG 16	PG 16	7.0 – 12.0	27	10.0	1.75	50
600675	TOP-TR-P PG 21	PG 21	9.0 – 16.0	33	11.0	3.05	50
600676	TOP-TR-P PG 29	PG 29	12.0 – 20.0	42	11.0	4.10	25
600677	TOP-TR-P PG 36	PG 36	20.0 – 26.0	53	13.0	7.30	10
600678	TOP-TR-P PG 42	PG 42	25.0 – 31.0	60	14.0	11.10	5
600679	TOP-TR-P PG 48	PG 48	29.0 – 35.0	65	14.0	11.60	5

Cable fittings and accessories

Plastic fitting TOP-K EEx metric



Properties

- Ex cable fitting with hexagon base
- Strain relief, gasket and O-Ring
- For explosion risk areas
- Installation-friendly
- Suitable for the fixed running of cables
- (ignition) protection class EExe: increased safety (see technical information)
- (ignition) protection class EExi: intrinsic safety (see technical information)
- Category / Zone: 2G and 2D / 1, 2, 21, 22

Technical data

Protection class IP 66

Design

- Material Polyamide for explosion risk areas according to EN 50014
- Colour blue/black RAL 5015/RAL 9005; black/black RAL 9005
- Gasket Neoprene
- O-ring (OR) Perbunan®

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-K EEx metric cap nut, colour blue, suitable for labelling for protection class EExi							
600720	TOP-K EEx M 12 × 1.5	M 12	4.0 – 7.0	15	8.0	0.33	100
600721	TOP-K EEx M 16 × 1.5	M 16	5.5 – 10.0	20	8.0	0.64	100
600722	TOP-K EEx M 20 × 1.5	M 20	5.5 – 13.0	24	8.0	0.92	100
600723	TOP-K EEx M 25 × 1.5	M 25	8.0 – 17.0	29	8.0	1.56	50
600724	TOP-K EEx M 32 × 1.5	M 32	12.0 – 21.0	36	10.0	2.56	25
600725	TOP-K EEx M 40 × 1.5	M 40	17.0 – 28.0	46	10.0	4.40	10
600726	TOP-K EEx M 50 × 1.5	M 50	22.0 – 35.0	55	12.0	6.80	5
600727	TOP-K EEx M 63 × 1.5	M 63	27.0 – 48.0	68	12.0	9.60	5
TOP-K EEx metric cap nut, colour black							
601720	TOP-K EEx M 12 × 1.5	M 12	4.0 – 7.0	15	8.0	0.33	100
601721	TOP-K EEx M 16 × 1.5	M 16	5.5 – 10.0	20	8.0	0.64	100
601722	TOP-K EEx M 20 × 1.5	M 20	5.5 – 13.0	24	8.0	0.92	100
601723	TOP-K EEx M 25 × 1.5	M 25	8.0 – 17.0	29	8.0	1.56	50
601724	TOP-K EEx M 32 × 1.5	M 32	12.0 – 21.0	36	10.0	2.56	25
601725	TOP-K EEx M 40 × 1.5	M 40	17.0 – 28.0	46	10.0	4.40	10
601726	TOP-K EEx M 50 × 1.5	M 50	22.0 – 35.0	55	12.0	6.80	5
601727	TOP-K EEx M 63 × 1.5	M 63	27.0 – 48.0	68	12.0	9.60	5

Cable fittings and accessories

Plastic fitting TOP-T-KS metric



Properties

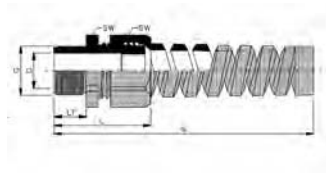
- – metric –
- Cable fitting with hexagon base
- Kink protection spiral
- Strain relief and seal

Technical data

Protection class IP 68 to 5 bar

Design

- Material Polyamide 6-V-2
- Colour grey RAL 7035
black RAL 9005
other colour upon request
- Gasket CR / NBR



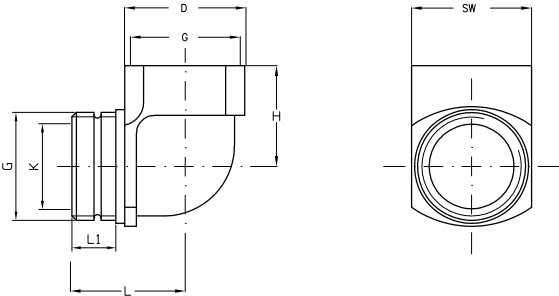
Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-T-KS metric grey RAL 7035							
600900	TOP-T-KS M 12	M 12	3.0 – 6.5	15	8.0	0.50	100
600901	TOP-T-KS M 16	M 16	5.0 – 10.0	22	15.0	1.30	100
600902	TOP-T-KS M 20	M 20	10.0 – 14.0	27	15.0	2.30	50
600903	TOP-T-KS M 25	M 25	13.0 – 18.0	33	15.0	4.10	50
TOP-T-KS metric black RAL 9005							
600905	TOP-T-KS M 12	M 12	3.0 – 6.5	15	8.0	0.50	100
600906	TOP-T-KS M 16	M 16	5.0 – 10.0	22	15.0	1.30	100
600907	TOP-T-KS M 20	M 20	10.0 – 14.0	27	15.0	2.30	50
600908	TOP-T-KS M 25	M 25	13.0 – 18.0	33	15.0	4.10	50

Cable fittings and accessories

Plastic elbow fitting AW-P



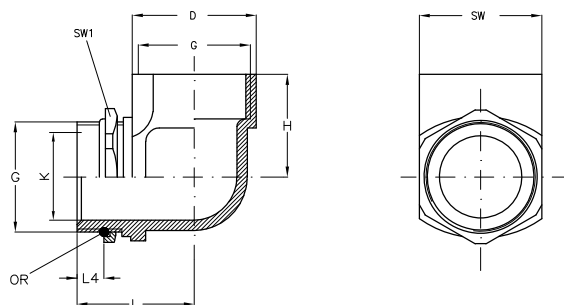
- Properties**
- Elbow fitting
- Design**
- Material Polyamide 6 GF 30
 - Colour grey



Part-No.	Type	G	D mm	K mm	SW mm	L mm	L 1 mm	H mm	weight ap- prox. kg/100 pi- ece	PU piece
AW-P metric										
601071	AW-P M 16	M 16	19.0	11.0	19	24.0	13.0	21.0	0.83	1
601072	AW-P M 20	M 20	25.0	15.0	25	29.0	15.0	24.0	1.48	1
601073	AW-P M 25	M 25	30.0	20.0	30	33.0	16.0	28.0	2.25	1
601074	AW-P M 32	M 32	36.0	26.0	36	38.0	17.0	31.0	3.32	1

Cable fittings and accessories

Plastic elbow fitting AWK-P



Properties

- Elbow fitting with O-Ring seal and additional locking nut
- Direction of reduction continuously adjustable

Technical data

Protection class IP 65

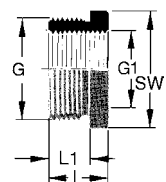
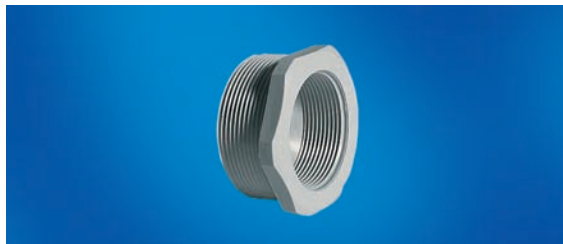
Design

- Material Polyamide 6 GF 30
- Colour grey
- O-ring (OR) Neoprene
- Locking nut Polyamide 6 GF 30

Part-No.	Type	G	D mm	K mm	SW mm	SW 1 = across flats mm	L mm	L 4 mm	H mm	weight ap- prox. kg/100 pi- ece	PU piece
AWK-P metric											
601091	AWK-P M 16	M 16	19.0	10.0	19	21	23.0	7	21.0	0.96	1
601092	AWK-P M 20	M 20	22.0	13.0	22	27	25.0	8	21.5	1.67	1
601093	AWK-P M 25	M 25	24.0	14.0	24	30	27.0	7	24.0	2.31	1
601094	AWK-P M 32	M 32	27.0	17.0	27	32	29.5	8	25.0	1.72	1

Cable fittings and accessories

Plastic accessory RR Form 1, metric



Properties

- - metric -
- - **Form 1** -
- Reducing ring from plastic with large outer thread and small inner thread

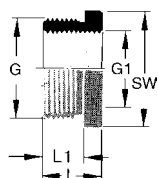
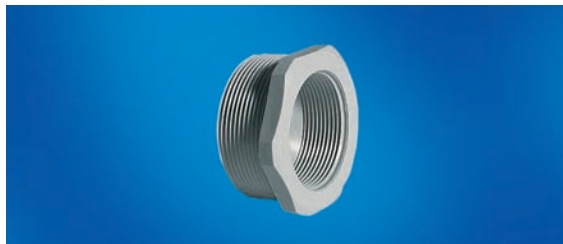
Design

- Material Polyamide PA 6 GF 30
- Colour Grey RAL 7035
- other colours upon request

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
RR-PA metric								
600550	RR-PA M 20/12	M 20	M 12	24	12.0	8.0	0.39	100
600551	RR-PA M 20/16	M 20	M 16	24	12.0	8.0	0.26	100
600552	RR-PA M 25/12	M 25	M 12	32	14.0	8.0	0.70	100
600553	RR-PA M 25/16	M 25	M 16	32	14.0	8.0	0.67	100
600554	RR-PA M 25/20	M 25	M 20	32	14.0	8.0	0.50	50
600555	RR-PA M 32/12	M 32	M 12	36	16.0	10.0	1.06	50
600556	RR-PA M 32/16	M 32	M 16	36	16.0	10.0	1.06	50
600557	RR-PA M 32/20	M 32	M 20	36	16.0	10.0	1.20	50
600558	RR-PA M 32/25	M 32	M 25	36	16.0	10.0	0.88	50
600559	RR-PA M 40/16	M 40	M 16	46	16.0	10.0	1.59	50
600560	RR-PA M 40/20	M 40	M 20	46	16.0	10.0	1.68	50
600561	RR-PA M 40/25	M 40	M 25	46	16.0	10.0	1.36	50
600562	RR-PA M 40/32	M 40	M 32	46	16.0	10.0	1.35	50
600563	RR-PA M 50/20	M 50	M 20	55	18.0	12.0	2.15	25
600564	RR-PA M 50/25	M 50	M 25	55	18.0	12.0	2.16	25
600565	RR-PA M 50/32	M 50	M 32	55	18.0	12.0	2.06	25
600566	RR-PA M 50/40	M 50	M 40	55	18.0	12.0	1.97	25
600567	RR-PA M 63/25	M 63	M 25	68	18.0	12.0	2.65	25
600568	RR-PA M 63/32	M 63	M 32	68	18.0	12.0	2.95	25
600569	RR-PA M 63/40	M 63	M 40	68	18.0	12.0	3.08	25
600570	RR-PA M 63/50	M 63	M 50	68	18.0	12.0	3.05	25

Cable fittings and accessories

Plastic accessories RR Form 1 PG



Properties

- - **Form 1** -
- Reducing ring from plastic with large outer thread and small inner thread

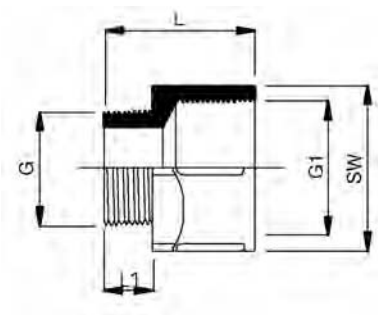
Design

- Material PolyamidePA 6 GF 30
- Colour grey RAL 7035
- other colours upon request

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
RR-PA PG Form 1								
600607	RR-PA PG 13/9	PG 13.5	PG 9	24	9.0	6.0	0.60	100
600604	RR-PA PG 21/16	PG 21	PG 16	32	16.0	11.0	0.99	100
600605	RR-PA PG 29/21	PG 29	PG 21	39	18.0	12.0	1.11	50
600606	RR-PA PG 36/29	PG 36	PG 29	50	24.0	18.0	2.50	50

Cable fittings and accessories

Plastic accessories RR Form 2



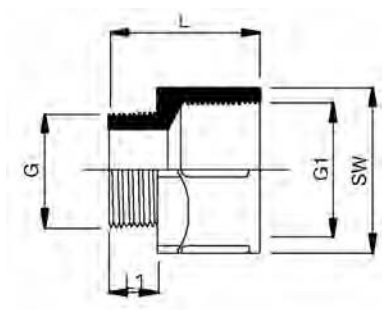
- Properties**
- - Form 2 -
 - Reducing ring from plastic with large outer thread and small inner thread
- Design**
- Material PolyamidePA 6 GF 30
 - Colour grey RAL 7035
 - other colours upon request

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	d1 mm	weight ap- prox. kg/100 piece	PU piece
RR-PA PG Form 2									
600600	RR-PA PG 9/7	PG 9	PG 7	19	20.5	8.0	10.0	0.36	100
600601	RR-PA PG 11/9	PG 11	PG 9	22	22.5	8.0	12.5	0.55	100
600602	RR-PA PG 13.5/11	PG 13.5	11	24	24.0	9.0	15.0	0.60	100
600603	RR-PA PG 16/13.5	PG 16	PG 13.5	27	27.0	10.0	16.0	0.83	100

d1 = smallest internal diameter

Cable fittings and accessories

Plastic accessory EW



Properties

- Plastic extension, from polyamide, fibre glass reinforced with small outer thread and large inner thread.

Design

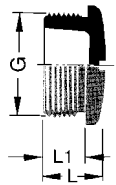
- Material PolyamidePA 6 GF 30
- Colour grey RAL 7035
- other colours upon request

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	d1 mm	weight ap- prox. kg/100 piece	PU piece
EW-PA PG									
600351	EW-PA PG 7/9	PG 7	PG 9	19	20.5	8.0	8.5	0.27	100
600352	EW-PA PG 9/11	PG 9	PG 11	22	22.5	8.0	10.0	0.43	100
600353	EW-PA PG 11/13.5	PG 11	PG 13.5	24	24.0	8.0	12.5	0.54	100
600354	EW-PA PG 11/16	PG 11	PG 16	26	24.0	8.0	12.5	0.62	100
600355	EW-PA PG 13.5/16	PG 13.5	PG 16	27	27.0	9.0	15.0	0.68	100
600356	EW-PA PG 16/21	PG 16	PG 21	33	29.0	9.0	16.0	1.12	100
600357	EW-PA PG 21/29	PG 21	PG 29	43	33.0	10.0	22.5	1.43	50
600358	EW-PA PG 29/36	PG 29	PG 36	50	38.0	10.0	30.5	3.42	25
600359	EW-PA PG 36/42	PG 36	PG 42	60	40.0	12.5	39.5	3.68	10
600360	EW-PA PG 42/48	PG 42	PG 48	65	42.0	13.0	45.5	4.04	10

d1 = smallest internal diameter

Cable fittings and accessories

Plastic accessory BL

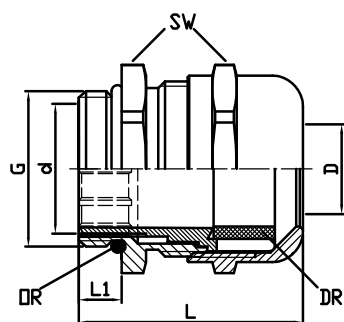


- Properties**
- Blank plug according to DIN 46320
- Design**
- Material Polyamide PA 6 or polystyrene SB
 - Colour grey RAL 7035
 - other colours upon request

Part-No.	Type	G	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
BL metric PA						
600870	BL M 12	M 12	8.0	6.0	0.05	100
600871	BL M 16	M 16	9.0	6.0	0.09	100
600872	BL M 20	M 20	9.0	6.0	0.19	100
600873	BL M 25	M 25	10.5	7.0	0.20	100
600874	BL M 32	M 32	12.0	8.0	0.48	100
600875	BL M 40	M 40	13.0	9.0	0.66	50
600876	BL M 50	M 50	14.0	10.0	1.57	25
600877	BL M 63	M 63	17.0	12.0	2.26	25
BL PG PA						
601490	BL PG 7	PG 7	8.0	6.0	0.07	100
601491	BL PG 9	PG 9	9.0	6.0	0.13	100
601492	BL PG 11	PG 11	9.0	6.0	0.16	100
601493	BL PG 13.5	PG 13.5	9.5	6.0	0.20	100
601494	BL PG 16	PG 16	9.5	6.0	0.25	100
601495	BL PG 21	PG 21	11.0	8.0	0.38	100
601496	BL PG 29	PG 29	12.0	8.0	0.72	50
601497	BL PG 36	PG 36	15.0	10.0	1.15	25
BL PG SB						
600490	BL PG 7	PG 7	8.0	6.0	0.06	100
600491	BL PG 9	PG 9	9.0	6.0	0.12	100
600492	BL PG 11	PG 11	9.0	6.0	0.14	100
600493	BL PG 13.5	PG 13.5	9.5	6.0	0.19	100
600494	BL PG 16	PG 16	9.5	6.0	0.20	100
600495	BL PG 21	PG 21	11.0	8.0	0.34	100
600496	BL PG 29	PG 29	12.0	8.0	0.58	50
600497	BL PG 36	PG 36	15.0	10.0	1.15	25

Cable fittings and accessories

Metal fitting TOP-T



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket and O-Ring

Technical data

Protection class IP 68 to 5 bar

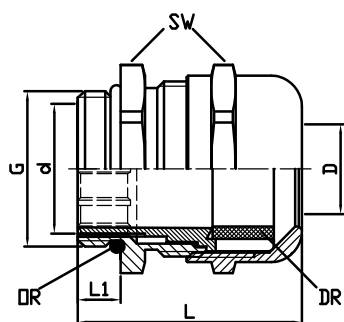
Design

- Material Brass nickel-plated
- Gasket Neoprene
- O-ring (OR) Perbunan®

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	L mm	weight approx. kg/100 piece	PU piece
TOP-T metric								
600701	TOP-T M 12 × 1.5	M 12	3.0 – 6.5	14	5.0	25.0	1.12	100
600760	TOP-T M 16 × 1.5	M 16	5.5 – 10.0	17	5.5	28.0	1.46	100
600761	TOP-T M 20 × 1.5	M 20	8.0 – 13.0	22	6.0	31.0	2.63	100
600762	TOP-T M 25 × 1.5	M 25	11.0 – 18.0	30	7.0	36.0	5.43	50
600763	TOP-T M 32 × 1.5	M 32	15.0 – 21.0	34	8.0	39.0	7.12	10
600702	TOP-T M 40 × 1.5	M 40	19.0 – 27.0	44	8.0	45.0	15.90	10
600703	TOP-T M 50 × 1.5	M 50	26.0 – 35.0	55	9.0	54.0	27.21	5
600704	TOP-T M 63 × 1.5	M 63	39.0 – 48.0	66	10.0	57.0	31.78	5
TOP-T PG								
600710	TOP-T PG 7	PG 7	3.0 – 6.5	14	5.0	25.0	1.13	100
600711	TOP-T PG 9	PG 9	5.5 – 10.0	17	6.0	28.0	1.51	100
600712	TOP-T PG 11	PG 11	5.5 – 10.0	20	6.0	28.5	3.12	50
600713	TOP-T PG 13.5	PG 13.5	8.0 – 13.0	22	6.5	31.0	2.86	50
600714	TOP-T PG 16	PG 16	8.0 – 14.0	24	6.5	32.0	3.34	50
600715	TOP-T PG 21	PG 21	11.0 – 18.0	30	7.0	36.0	6.40	50
600716	TOP-T PG 29	PG 29	19.0 – 27.0	40	8.0	46.0	11.20	25
600717	TOP-T PG 36	PG 36	26.0 – 35.0	50	9.0	55.0	18.82	10
600718	TOP-T PG 42	PG 42	26.0 – 35.0	57	10.0	55.0	31.58	5
600719	TOP-T PG 48	PG 48	39.0 – 48.0	66	10.0	57.0	37.00	5

Cable fittings and accessories

Metal fitting TOP-TR



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket and O-Ring
- With reduced sealing insert

Technical data

Protection class IP 68 to 5 bar

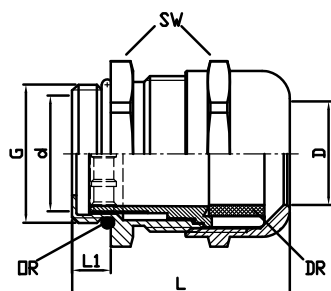
Design

- Material Brass nickel-plated
- Gasket Neoprene
- O-ring (OR) Perbunan®

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	L mm	weight approx. kg/100 piece	PU piece
TOP-TR metric								
600705	TOP-TR M 12 × 1.5	M 12	2.0 – 5.0	14	5.0	25.0	1.07	100
600780	TOP-TR M 16 × 1.5	M 16	3.0 – 8.0	17	5.5	28.0	1.50	100
600781	TOP-TR M 20 × 1.5	M 20	6.0 – 12.0	22	6.0	31.0	2.73	50
600782	TOP-TR M 25 × 1.5	M 25	8.0 – 15.0	30	7.0	36.0	5.55	25
600783	TOP-TR M 32 × 1.5	M 32	13.0 – 19.0	34	8.0	39.0	7.40	10
600706	TOP-TR M 40 × 1.5	M 40	16.0 – 23.0	44	8.0	45.0	16.72	10
600707	TOP-TR M 50 × 1.5	M 50	21.0 – 29.0	55	9.0	54.0	27.95	5
600708	TOP-TR M 63 × 1.5	M 63	27.0 – 38.0	66	10.0	57.0	34.48	5
TOP-TR PG								
600730	TOP-TR PG 7	PG 7	2.0 – 5.0	14	5.0	25.0	1.15	100
600731	TOP-TR PG 9	PG 9	3.0 – 8.0	17	6.0	28.0	1.53	100
600732	TOP-TR PG 11	PG 11	3.0 – 8.0	20	6.0	28.5	3.20	50
600733	TOP-TR PG 13.5	PG 13.5	6.0 – 12.0	22	6.5	31.0	2.94	50
600734	TOP-TR PG 16	PG 16	6.0 – 12.0	24	6.5	32.0	3.42	50
600735	TOP-TR PG 21	PG 21	8.0 – 15.0	30	7.0	36.0	6.45	25
600736	TOP-TR PG 29	PG 29	12.0 – 18.0	40	8.0	46.0	11.50	25
600737	TOP-TR PG 36	PG 36	21.0 – 29.0	50	9.0	55.0	20.42	10
600738	TOP-TR PG 42	PG 42	21.0 – 29.0	57	10.0	55.0	32.38	5
600739	TOP-TR PG 48	PG 48	27.0 – 38.0	66	10.0	57.0	37.50	5

Cable fittings and accessories

Metal fitting with shield termination TOP-T-S-EMV



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket
- O-Ring and EMC compliant shield termination
- Simple installation - the shield braiding with plastic insert is pressed against fitting base

Technical data

Protection class IP 68 to 5 bar

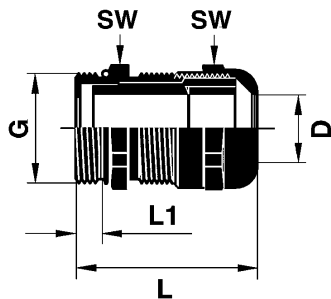
Design

- Material Brass nickel-plated
- Gasket Neoprene
- O-ring (OR) Perbunan®

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	d mm	weight approx. kg/100 piece	PU piece
TOP-T-S-EMV metric								
600170	TOP-T-S-EMV M 12 × 1.5	M 12	3.0 – 6.5	14	5.0	5.2	1.21	100
600171	TOP-T-S-EMV M 16 × 1.5	M 16	5.5 – 10.0	17	5.5	8.2	1.67	100
600172	TOP-T-S-EMV M 20 × 1.5	M 20	8.0 – 13.0	22	6.0	11.5	2.88	100
600173	TOP-T-S-EMV M 25 × 1.5	M 25	11.0 – 18.0	30	7.0	15.2	6.03	25
600174	TOP-T-S-EMV M 32 × 1.5	M 32	15.0 – 21.0	34	8.0	18.0	7.86	25
600175	TOP-T-S-EMV M 40 × 1.5	M 40	19.0 – 27.0	44	8.0	23.0	17.57	10
600176	TOP-T-S-EMV M 50 × 1.5	M 50	26.0 – 35.0	55	9.0	31.0	28.82	5
600177	TOP-T-S-EMV M 63 × 1.5	M 63	39.0 – 48.0	66	10.0	31.0	35.88	5
600163	TOP-T-S-EMV M 25 × 1.5	M 25	8.0 – 14.0	30	7.0	15.2	6.03	25
TOP-T-S-EMV PG								
600520	TOP-T-S-EMV PG 7	PG 7	3.0 – 6.5	14	5.0	5.0	1.20	100
600521	TOP-T-S-EMV PG 9	PG 9	5.5 – 10.0	17	6.0	7.5	1.70	100
600522	TOP-T-S-EMV PG 11	PG 11	5.5 – 10.0	20	6.0	9.5	3.37	50
600523	TOP-T-S-EMV PG 13.5	PG 13.5	8.0 – 13.0	22	6.5	11.5	3.52	50
600524	TOP-T-S-EMV PG 16	PG 16	8.0 – 14.0	24	6.5	12.0	3.64	50
600525	TOP-T-S-EMV PG 21	PG 21	11.0 – 18.0	30	7.0	17.5	7.10	25
600526	TOP-T-S-EMV PG 29	PG 29	19.0 – 27.0	40	8.0	25.0	12.20	25
600527	TOP-T-S-EMV PG 36	PG 36	24.0 – 32.0	50	9.0	31.5	15.10	10
600528	TOP-T-S-EMV PG 42	PG 42	30.0 – 38.0	57	10.0	37.5	21.10	5
600529	TOP-T-S-EMV PG 48	PG 48	34.0 – 44.0	64	10.0	43.5	30.00	5

Cable fittings and accessories

Metal fittings TOP-M EExe



Application

- For explosion risk areas

Properties

- Ex cable fitting with hexagon base
- Strain relief and gasket

Technical data

Protection class IP 68 to 5 bar

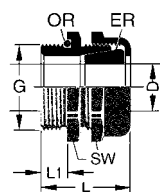
Design

- Material Brass nickle-plated for explosion risk areas according to EN 50014
- Gasket Neoprene
- O-ring (OR) Perbunan®

Part-No.	Type	G	Clamping range D mm	SW mm	L 1 mm	weight approx. kg/100 piece	PU piece
TOP-M EExe metric							
600920	TOP-M EExe M 12 × 1.5	M 12	3.0 – 6.5	14	5.0	1.20	100
600921	TOP-M EExe M 16 × 1.5	M 16	5.0 – 9.0	17	5.0	1.64	100
600922	TOP-M EExe M 20 × 1.5	M 20	6.0 – 12.0	22	6.0	3.14	100
600923	TOP-M EExe M 25 × 1.5	M 25	11.0 – 16.0	27	7.0	4.26	50
600924	TOP-M EExe M 32 × 1.5	M 32	14.0 – 21.0	34	8.0	7.16	25
600925	TOP-M EExe M 40 × 1.5	M 40	19.0 – 27.0	43	8.0	12.24	10
600926	TOP-M EExe M 50 × 1.5	M 50	24.0 – 35.0	55	9.0	22.70	5
600927	TOP-M EExe M 63 × 1.5	M 63	32.0 – 42.0	65	5.0	31.50	5
TOP-M EExe PG							
600910	TOP-M EExe PG 7	PG 7	3.0 – 6.5	14	5.0	1.17	100
600911	TOP-M EExe PG 9	PG 9	4.0 – 8.0	17	6.0	1.77	100
600912	TOP-M EExe PG 11	PG 11	5.0 – 10.0	20	6.0	2.45	50
600913	TOP-M EExe PG 13.5	PG 13.5	6.0 – 12.0	22	6.5	2.82	50
600914	TOP-M EExe PG 16	PG 16	10.0 – 14.0	24	6.5	3.14	50
600915	TOP-M EExe PG 21	PG 21	13.0 – 18.0	30	7.0	5.40	50
600916	TOP-M EExe PG 29	PG 29	18.0 – 25.0	40	8.0	9.85	25
600917	TOP-M EExe PG 36	PG 36	24.0 – 32.0	50	9.0	15.60	10
600918	TOP-M EExe PG 42	PG 42	30.0 – 38.0	57	10.0	20.70	5
600919	TOP-M EExe PG 48	PG 48	34.0 – 44.0	64	10.0	29.70	5

Cable fittings and accessories

Metal fittings WD



Properties

- **Compact design**
- Compact fitting with hexagon base
- Strain relief
- Clamp ring and O-Ring

Technical data

Protection class IP 68

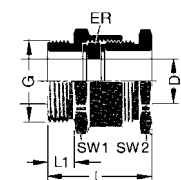
Design

- Material Brass nickel-plated
- Clamp ring (ER) Neoprene
- O-ring (OR) Perbunan®
- Low profile

Part-No.	Type	G	Clamping range D mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
WD metric								
601050	WD M 12 × 1.5	M 12	3.5 – 6.0	17	20.0	6.0	1.50	100
601051	WD M 16 × 1.5	M 16	5.0 – 9.0	21	20.0	6.0	2.21	100
601052	WD M 20 × 1.5	M 20	9.0 – 13.0	24	26.0	6.5	3.40	100
601053	WD M 25 × 1.5	M 25	13.0 – 17.0	32	33.0	8.0	7.20	50
601054	WD M 32 × 1.5	M 32	16.0 – 23.0	40	38.0	8.0	12.80	25
WD PG								
600100	WD PG 7	PG 7	4.0 – 6.0	17	20.0	6.0	1.48	100
600101	WD PG 9	PG 9	6.0 – 9.0	17	20.0	6.0	1.52	100
600102	WD PG 11	PG 11	7.0 – 12.0	21	23.0	6.5	2.32	100
600103	WD PG 13.5	PG 13.5	8.0 – 13.0	24	24.0	6.5	2.98	100
600104	WD PG 16	PG 16	10.0 – 15.0	24	26.0	6.5	3.36	100
600105	WD PG 21	PG 21	12.0 – 19.0	32	33.0	8.0	7.90	50
600106	WD PG 29	PG 29	16.0 – 27.0	40	38.0	8.0	12.28	25

Cable fittings and accessories

Metal fitting 6KM



Properties

- Fitting according to DIN 46320 with hexagon base and clamp ring.

Technical data

Protection class IP 55

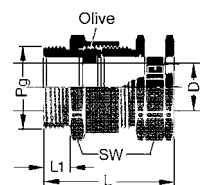
Design

- Material Brass nickel-plated
- Clamp ring (ER) Neoprene

Part-No.	Type	G	Clamping range D mm	SW 1 = across flats mm	SW 2 = across flats mm	L mm	L 1 mm	weight ap-prox. kg/100 piece	PU piece
6KM metric									
601080	6KM M 12 × 1.5	M 12	5.0 – 7.0	14	13	20.0	5.0	1.00	100
601081	6KM M 16 × 1.5	M 16	4.0 – 10.0	17	15	22.0	6.0	1.50	100
601082	6KM M 20 × 1.5	M 20	6.5 – 12.0	20	18	23.0	6.0	2.40	50
601083	6KM M 20 × 1.5	M 20	6.5 – 12.5	22	20	25.0	6.5	2.60	50
601084	6KM M 20 × 1.5	M 20	6.5 – 15.0	24	22	27.0	6.5	3.10	50
601085	6KM M 25 × 1.5	M 25	9.0 – 19.0	30	28	30.0	7.0	4.90	50
601086	6KM M 32 × 1.5	M 32	17.0 – 27.0	40	37	32.0	8.0	8.80	25
601087	6KM M 40 × 1.5	M 40	23.0 – 33.0	50	47	38.0	9.0	14.40	10
601088	6KM M 50 × 1.5	M 50	29.0 – 39.0	57	54	42.0	10.0	19.80	5
601089	6KM M 63 × 1.5	M 63	35.0 – 45.0	64	60	45.0	10.0	24.00	5
6KM PG									
600050	6KM PG 7	PG 7	4.0 – 6.0	14	13	20.0	5.0	0.82	100
600051	6KM PG 9	PG 9	8.0 – 10.0	17	15	22.0	6.0	1.30	100
600052	6KM PG 11	PG 11	8.0 – 10.0	20	18	23.0	6.0	1.91	50
600053	6KM PG 13.5	PG 13.5	10.0 – 12.0	22	20	25.0	6.5	2.60	100
600054	6KM PG 16	PG 16	8.0 – 14.0	24	22	27.0	6.5	2.96	50
600055	6KM PG 21	PG 21	17.0 – 19.0	30	28	30.0	7.0	4.64	50
600056	6KM PG 29	PG 29	26.0 – 28.0	40	37	32.0	8.0	8.80	50
600057	6KM PG 36	PG 36	33.0 – 35.0	50	47	38.0	9.0	13.40	20
600058	6KM PG 42	PG 42	39.0 – 41.0	57	54	42.0	10.0	18.90	5
600059	6KM PG 48	PG 48	43.0 – 45.0	64	60	45.0	10.0	23.48	10

Cable fittings and accessories

Metal fittings ZEV



Properties

- Fitting according to DIN 46320 with hexagon base and clamp ring
- Clamping buckle included as loose part

Technical data

Protection class IP 55

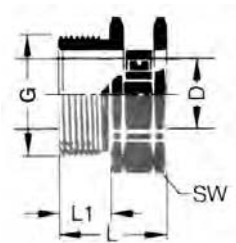
Design

- Material Brass nickel-plated
- Clamp ring (ER) Neoprene

Part-No.	Type	G	Clamping range D mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
ZEV metric								
600020	ZEV M 16	M 16	6.0 – 10.0	17	28.0	5.5	2.70	50
600021	ZEV M 20	M 20	10.0 – 15.0	24	32.0	6.5	5.00	50
600022	ZEV M 25	M 25	13.0 – 20.0	30	35.0	7.0	7.50	25
600023	ZEV M 32	M 32	18.0 – 27.0	40	38.0	8.5	14.96	25
ZEV PG								
600001	ZEV PG 9	PG 9	6.0 – 9.0	17	28.0	5.5	2.50	50
600002	ZEV PG 11	PG 11	8.0 – 12.0	20	30.0	6.0	3.64	50
600003	ZEV PG 13.5	PG 13.5	10.0 – 14.0	22	31.0	6.5	4.40	50
600004	ZEV PG 16	PG 16	10.0 – 16.0	24	32.0	6.5	5.13	50
600005	ZEV PG21	PG 21	14.0 – 21.0	30	35.0	7.0	7.70	25
600006	ZEV PG 29	PG 29	20.0 – 30.0	40	38.0	8.5	14.44	25

Cable fittings and accessories

Metal fittings ZED



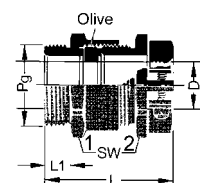
- Properties**
 - Pressure relief pressure screw
 - Clamping buckle included as loose part
- Technical data**

Protection class
 IP 55
- Design**
 - Material Brass nickel-plated

Part-No.	Type	G	Clamping range D mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
ZED PG								
600011	ZED PG 9	PG 9	5.8 – 10.0	17	17.0	5.0	1.60	100
600012	ZED PG 11	PG 11	8.0 – 12.0	20	18.5	6.5	2.40	50
600013	ZED PG 13	PG 13	10.0 – 14.0	22	24.0	7.5	2.80	50
600014	ZED PG 16	PG 16	11.7 – 16.0	24	19.0	6.0	3.20	50
600015	ZED PG 21	PG 21	12.1 – 21.0	30	20.0	7.0	5.00	25
600016	ZED PG 29	PG 29	20.1 – 30.0	40	23.0	8.0	8.00	10

Cable fittings and accessories

Metal fitting ZEV2



Properties

- Centring strain relief fitting with hexagon base and clamp ring
- Clamping buckle included as loose part

Technical data

Protection class IP 55

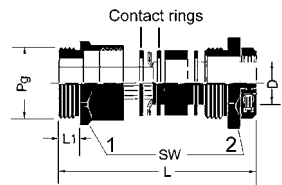
Design

- Material Brass nickel-plated
- Clamp ring (ER) Neoprene

Part-No.	Type	G	Clamping range D mm	SW 1 = across flats mm	SW 2 = across flats mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
ZEV2 metric									
600290	ZEV2 M 12	M 12	5.0 – 8.0	9	16	26.0	5.0	1.30	50
600291	ZEV2 M 16	M 16	7.0 – 10.0	17	19	26.0	6.0	2.80	50
600292	ZEV2 M 20	M 20	11.0 – 15.0	24	27	35.0	6.5	5.60	50
600293	ZEV2 M 25	M 25	12.0 – 20.0	30	34	37.0	7.0	13.10	25
600294	ZEV2 M 32	M 32	19.0 – 27.0	40	42	39.0	8.0	16.40	25
600295	ZEV2 M 40	M 40	25.5 – 34.0	55	55	50.0	9.0	22.00	10
600296	ZEV2 M 50	M 50	31.0 – 43.0	60	62	54.0	10.0	26.50	5
600297	ZEV2 M 63	M 63	35.0 – 48.0	64	64	54.0	10.0	35.50	5
ZEV2 PG									
600089	ZEV2 PG 7	PG 7	5.0 – 8.0	9	16	26.0	5.0	1.85	50
600080	ZEV2 PG 9	PG 9	7.0 – 10.0	17	19	26.0	6.0	2.28	50
600081	ZEV2 PG 11	PG 11	7.5 – 12.0	20	22	28.0	6.0	4.20	50
600082	ZEV2 PG 13.5	PG 13.5	7.5 – 12.0	22	24	32.0	6.5	4.90	50
600083	ZEV2 PG 16	PG 16	11.0 – 15.0	24	27	35.0	6.5	5.74	50
600084	ZEV2 PG 21	PG 21	12.0 – 20.0	30	34	37.0	7.0	9.30	25
600085	ZEV2 PG 29	PG 29	19.0 – 27.0	40	42	39.0	8.0	15.35	25
600086	ZEV2 PG 36	PG 36	26.5 – 34.0	55	55	50.0	9.0	26.60	10
600087	ZEV2 PG 42	PG 42	31.0 – 42.0	60	62	54.0	10.0	34.85	5
600088	ZEV2 PG 48	PG 48	35.0 – 48.0	64	64	54.0	10.0	42.40	5

Cable fittings and accessories

Metal fitting with shield termination ZEV2-S



Properties

- Centring strain relief fitting with hexagon base
- Gasket and shield termination
- Pressure screw with two clamping buckles

Technical data

Protection class IP 55

Design

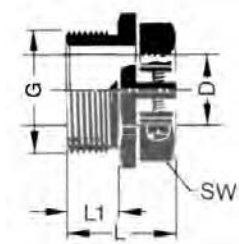
- Material Brass nickel-plated
- Gasket Neoprene
- Contact ring (KR) Brass tins

Part-No.	Type	G	Clamping range D mm	SW 1 = across flats mm	SW 2 = across flats mm	L mm	L 1 mm	K inner mm	weight approx. kg/100 piece	PU piece
ZEV2-S metric										
600611	ZEV2-S M 20	M 20	11.0 – 15.0	24	27	35.0	6.0	15	5.10	50
600612	ZEV2-S M 25	M 25	12.0 – 20.0	30	34	37.0	7.0	13	8.00	25
600613	ZEV2-S M 32	M 32	19.0 – 27.0	40	42	39.0	8.0	27	14.10	25
600614	ZEV2-S M 40	M 40	25.5 – 34.0	50	52	50.0	8.0	33	29.00	10
600615	ZEV2-S M 50	M 50	31.0 – 43.0	57	59	54.0	9.0	39	35.00	5
600616	ZEV2-S M 63	M 63	35.0 – 48.0	66	64	54.0	10.0	45	42.60	5
ZEV2-S PG										
600800	ZEV2-S PG 11	PG 11	7.0 – 12.0	20	22	28.0	6.0	10	4.12	50
600801	ZEV2-S PG 13.5	PG 13.5	7.0 – 12.0	22	24	32.0	6.5	10	5.13	50
600802	ZEV2-S PG 16	PG 16	7.0 – 15.0	24	27	35.0	6.5	10	5.80	50
600803	ZEV2-S PG 16	PG 16	7.0 – 15.0	24	27	35.0	6.5	15	5.60	50
600804	ZEV2-S PG 21	PG 21	10.0 – 19.0	30	34	37.0	7.0	13	9.60	25
600805	ZEV2-S PG 21	PG 21	10.0 – 19.0	30	34	37.0	7.0	19	9.40	25
600806	ZEV2-S PG 29	PG 29	18.0 – 27.0	40	42	39.0	8.0	21	15.70	25
600807	ZEV2-S PG 29	PG 29	18.0 – 27.0	40	42	39.0	8.0	27	15.40	25
600808	ZEV2-S PG 36	PG 36	24.0 – 33.0	55	55	50.0	9.0	33	27.50	10
600809	ZEV2-S PG 42	PG 42	30.0 – 39.0	60	62	54.0	10.0	39	37.50	10
600799	ZEV2-S PG 48	PG 48	36.0 – 45.0	65	68	54.0	10.0	45	46.60	5

Contact ring inner diameter in mm = K

Cable fittings and accessories

Metal fitting ZED2



Properties

- Centring pressure relief pressure screw
- Pressure screw with two clamping buckles

Technical data

Protection class IP 55

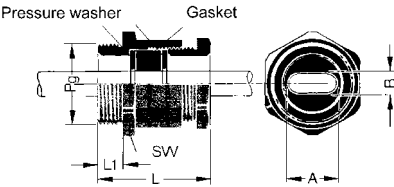
Design

- Material Brass nickel-plated

Part-No.	Type	G	Clamping range D mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
ZED2 PG								
600028	ZED2 PG 7	PG 7	5.0 – 8.0	16	15.0	5.0	1.31	100
600060	ZED2 PG 9	PG 9	7.0 – 10.0	19	16.0	6.0	1.84	100
600061	ZED2 PG 11	PG 11	7.0 – 12.0	22	17.5	6.0	2.75	50
600062	ZED2 PG 13.5	PG 13.5	7.0 – 12.0	24	17.8	6.5	3.45	50
600063	ZED2 PG 16	PG 16	11.0 – 15.0	27	18.3	6.5	3.67	50
600064	ZED2 PG 21	PG 21	12.0 – 20.0	34	20.8	7.0	6.24	25
600065	ZED2 PG 29	PG 29	19.0 – 27.0	42	21.8	8.0	9.20	20
600066	ZED2 PG 36	PG 36	25.5 – 34.0	55	25.3	9.0	29.00	10
600067	ZED2 PG 42	PG 42	31.0 – 43.0	62	26.3	10.0	22.00	10

Cable fittings and accessories

Metal fitting FKV

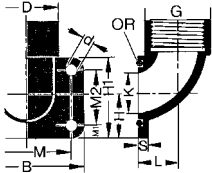


- Properties**
- Flat cable fitting with special seal and two pressure disks.
- Technical data**
- Protection class IP 55
- Design**
- Material Brass nickel-plated
 - Gasket Neoprene

Part-No.	Type	G	A mm	B mm	SW mm	L mm	L 1 mm	Gasket	Pressure disk	weight approx. kg/100 piece	PU piece
FKV PG											
600741	FKV PG 16	PG 16	15.0	5.0	24	26.0	6.5	5.0 × 15	6.0 × 16	3.05	1
600742	FKV PG 21	PG 21	18.0	6.0	30	29.0	6.5	6.0 × 18	8.5 × 20	4.80	1
600748	FKV PG 21	PG 21	19.0	7.5	30	30.0	7.0	7.5 × 19	8.5 × 20	4.85	1
600743	FKV PG 29	PG 29	28.0	6.0	40	33.0	8.0	6.0 × 28	8.0 × 30	9.65	1
600749	FKV PG 29	PG 29	22.0	8.0	40	33.0	8.0	8.0 × 22	10.0 × 24	9.60	1
600744	FKV PG 36	PG 36	35.0	6.0	50	33.0	8.0	6.0 × 35	8.0 × 38	16.75	1
600751	FKV PG 36	PG 36	32.0	6.0	50	37.0	9.0	6.0 × 32	8.0 × 34	16.70	1
600753	FKV PG 36	PG 36	37.0	12.5	50	39.0	9.0	12.5 × 37	14.5 × 38	15.15	1
600752	FKV PG 36	PG 36	38.0	7.0	50	38.0	9.0	7.0 × 38	9.0 × 40	16.50	1
600745	FKV PG 42	PG 42	41.0	13.5	58	38.0	9.0	13.5 × 41	14.5 × 41	24.00	1
600746	FKV PG 48	PG 48	44.0	14.0	65	44.0	10.0	14.0 × 44	16.0 × 46	33.25	1

Cable fittings and accessories

Metal flange elbow FW Form 1 after PG 16



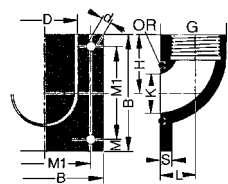
- Properties**
 - Flange elbow, waterproof
 - O-Ring seal
- Technical data**

Protection class	IP 65
Flange connection plate	46×32 mm (H1×B)
- Design**
 - Material Zinc die-casting
 - O-ring (OR) Neoprene

Part-No.	Type	G	D mm	K mm	H mm	L mm	S mm	M mm	M1 mm	M2 mm	d mm	weight approx. kg/100 piece	PU piece
FW PG Form 1													
270089	FW PG 11	PG 11	26.0	16.0	18.0	15.0	3.0	36	5.0	22.0	4.5	12.00	1
270090	FW PG 13.5	PG 13.5	26.0	16.0	18.0	15.0	3.0	36	5.0	22.0	4.5	13.00	1
270091	FW PG 16	PG 16	26.0	16.0	18.0	15.0	3.0	36	5.0	22.0	4.5	14.00	1

Cable fittings and accessories

Metal flange elbow FW Form 2 after PG 21



- Properties**
- Flange elbow, waterproof
 - O-Ring seal

Technical data

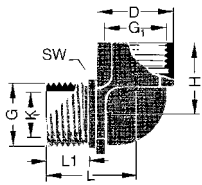
Protection class IP 65

- Design**
- Material Aluminium chill casting
 - O-ring (OR) Neoprene

Part-No.	Type	G	D mm	K mm	B mm	H mm	L mm	S mm	M mm	M1 mm	d mm	weight approx. kg/100 piece	PU piece
FW metric Form 2													
270194	FW M 32	M 32	37.0	23.0	70.0	35.0	21.0	7.0	7,5	55.0	5.5	16.00	1
270195	FW M 40	M 40	46.0	32.0	80.0	40.0	26.0	7.0	7,5	65.0	5.5	25.00	1
270196	FW M 50	M 50	63.0	46.0	100.0	50.0	37.0	9.0	7,5	85.0	6.5	46.00	1
270197	FW M 63	M 63	68.0	54.0	110.0	55.0	39.0	9.0	11,5	87.0	6.5	70.00	1
FW PG Form 2													
270092	FW PG 21	PG 21	37.0	23.0	70.0	35.0	21.0	7.0	7,5	55.0	5.5	16.00	1
270093	FW PG 29	PG 29	46.0	32.0	80.0	40.0	26.0	7.0	7,5	65.0	5.5	25.00	1
270094	FW PG 36	PG 36	56.0	42.0	95.0	47.5	32.0	9.0	7,5	80.0	5.5	46.00	1
270095	FW PG 42	PG 42	63.0	48.0	100.0	50.0	36.0	9.0	7,5	85.0	6.5	55.00	1
270096	FW PG 48	PG 48	68.0	54.0	110.0	55.0	39.0	9.0	11,5	87.0	6.5	70.00	1

Cable fittings and accessories

Metal connection elbow AW



Properties

- Elbow fitting, waterproof

Technical data

Protection class IP 55

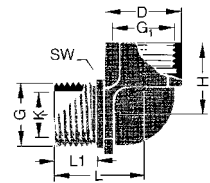
Design

- Material Zinc die-casting

Part-No.	Type	G	G1	D mm	K mm	SW mm	L mm	L 1 mm	H mm	weight approx. kg/100 piece	PU piece
AW PG											
600241	AW PG 9	PG 9	PG 9	19.0	10.0	19	23.0	11.0	21.0	3.18	50
600242	AW PG 9/11	PG 9	PG 11	22.0	10.0	22	25.0	11.0	21.5	4.00	50
600243	AW PG 11	PG 11	PG 11	22.0	13.0	22	25.0	12.0	21.5	4.05	50
600244	AW PG 11/16	PG 11	PG 16	27.0	13.0	27	28.5	12.0	16.3	7.00	50
600245	AW PG 13.5	PG 13.5	PG 13.5	24.0	14.0	24	27.0	12.0	24.0	5.26	50
600246	AW PG 16	PG 16	PG 16	27.0	17.0	27	29.5	13.0	25.0	6.60	50
600248	AW PG 21	PG 21	PG 21	32.0	22.0	32	34.5	15.0	30.0	9.80	25
600249	AW PG 29	PG 29	PG 29	41.0	29.0	41	38.5	15.0	34.5	1.67	1

Cable fittings and accessories

Metal connection elbow AWK

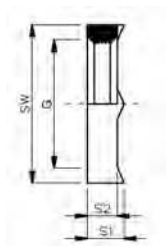


- Properties**
- Elbow fitting, waterproof
 - Direction of reduction continuously adjustable
- Technical data**
- Protection class IP 65
- Design**
- Material Zinc die-casting
 - O-ring (OR) Perbunan®
 - Locking nut Brass

Part-No.	Type	G	D mm	K mm	SW mm	SW 1 = across flats mm	L mm	L 4 mm	H mm	weight approx. kg/100 piece	PU piece
AWK PG											
600261	AWK PG 9	PG 9	19.0	10.0	19	19	23.0	7	21.0	3.66	50
600263	AWK PG 11	PG 11	22.0	13.0	22	22	25.0	8	21.5	4.48	50
600265	AWK PG 13.5	PG 13.5	24.0	14.0	24	24	27.0	7	24.0	5.74	50
600266	AWK PG 16	PG 16	27.0	17.0	27	27	29.5	8	25.0	7.20	50
600268	AWK PG 21	PG 21	32.0	22.0	32	32	34.5	9	30.0	12.20	50
600269	AWK PG 29	PG 29	41.0	29.0	41	41	38.5	9	34.5	18.00	1

Cable fittings and accessories

Metal accessory GMS EMV



Properties

- Hexagonal nut for potential equalisation
- With cutting edges for cutting through layers of paint or power coating for optimal contact

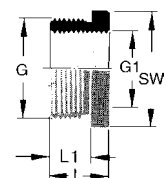
Design

- Material Brass nickel-plated

Part-No.	Type	G	SW mm	S1 mm	S2 mm	weight approx. kg/100 piece	PU piece
GMS EMV metric							
600460	GMS EMV M 12 × 1.5	M 12	15	4.5	3.5	0.26	100
600461	GMS EMV M 16 × 1.5	M 16	19	4.5	3.5	0.37	100
600462	GMS EMV M 20 × 1.5	M 20	24	5.5	4.5	0.65	100
600463	GMS EMV M 25 × 1.5	M 25	30	5.5	4.5	1.06	50
600464	GMS EMV M 32 × 1.5	M 32	36	5.5	4.5	1.35	100
600465	GMS EMV M 40 × 1.5	M 40	46	6.0	5.0	2.85	50
600466	GMS EMV M 50 × 1.5	M 50	60	6.0	5.0	5.46	50
600467	GMS EMV M 63 × 1.5	M 63	70	7.0	6.0	5.92	10
GMS EMV PG							
600530	GMS EMV PG 7	PG 7	15	4.7	3.7	0.25	100
600531	GMS EMV PG 9	PG 9	18	4.7	3.7	0.33	100
600532	GMS EMV PG 11	PG 11	21	4.7	3.7	0.38	100
600533	GMS EMV PG 13.5	PG 13.5	23	4.7	3.7	0.45	100
600534	GMS EMV PG 16	PG 16	26	4.7	3.7	0.63	100
600535	GMS EMV PG 21	PG 21	32	5.2	4.2	0.98	50
600536	GMS EMV PG 29	PG 29	41	5.7	4.7	1.58	50
600537	GMS EMV PG 36	PG 36	51	6.5	5.5	2.58	50
600538	GMS EMV PG 42	PG 42	60	6.0	5.0	3.12	50
600539	GMS EMC PG 48	PG 48	64	6.5	5.5	3.74	50

Cable fittings and accessories

Metal accessory RR metric to PG



Properties

- Reducing ring from **metric** to **metric**
- Or **PG** to **PG** with large outer threads and small inner threads

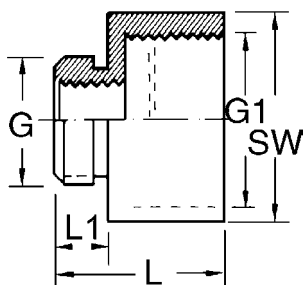
Design

- Material Brass nickel-plated

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
RR metric metric/metric								
600220	RR M 16/M 12	M 16	M 12	18	8.5	6.0	0.64	100
600221	RR M 20/M 12	M 20	M 12	24	9.0	6.5	1.57	100
600222	RR M 20/M 16	M 20	M 16	24	9.0	6.5	0.95	100
600223	RR M 25/M 16	M 25	M 16	28	10.0	7.0	2.70	100
600224	RR M 25/M 20	M 25	M 20	28	10.0	7.0	1.81	100
600225	RR M 32/M 20	M 32	M 20	34	11.5	8.0	4.62	50
600226	RR M 32/M 25	M 32	M 25	34	11.5	8.0	3.00	50
600227	RR M 40/M 25	M 40	M 25	45	11.5	8.0	7.60	25
600228	RR M 40/M 32	M 40	M 32	45	11.5	8.0	4.50	50
600229	RR M 50/M 32	M 50	M 32	55	14.0	10.0	13.00	10
600230	RR M 50/M 40	M 50	M 40	55	14.0	10.0	7.50	10
600231	RR M 63/M 40	M 63	M 40	64	14.0	10.0	21.50	5
600232	RR M 63/M 50	M 63	M 50	64	14.0	10.0	12.50	10
RR PG PG/PG								
600400	RR PG 9/PG 7	PG 9	PG 7	17	8.5	6.0	0.45	100
600411	RR PG 11/PG 7	PG 11	PG 7	20	8.5	6.0	1.20	100
600401	RR PG 11/PG 9	PG 11	PG 9	20	8.5	6.0	0.65	100
600408	RR PG 13.5/PG 9	PG 13.5	PG 9	22	9.0	6.5	1.01	100
600402	RR PG 13.5/PG 11	PG 13.5	PG 11	22	9.0	6.5	0.47	100
600409	RR PG 16/PG 9	PG 16	PG 9	24	9.5	6.5	0.85	100
600410	RR PG 16/PG 11	PG 16	PG 11	24	9.5	6.5	1.01	100
600403	RR PG 16/PG 13.5	PG 16	PG 13.5	24	9.5	6.5	0.59	100
600413	RR PG 21/PG 11	PG 21	PG 11	30	10.0	7.0	2.90	50
600414	RR PG 21/PG 13.5	PG 21	PG 13.5	30	10.0	7.0	1.23	50
600404	RR PG 21/PG 16	PG 21	PG 16	30	10.0	7.0	1.95	50
600407	RR PG 29/PG 16	PG 29	PG 16	39	11.5	8.0	6.42	50
600405	RR PG 29/PG 21	PG 29	PG 21	39	11.5	8.0	4.34	50
600412	RR PG 36/PG 21	PG 36	PG 21	50	21.5	9.0	11.40	25
600406	RR PG 36/PG 29	PG 36	PG 29	50	12.5	9.0	3.42	25
600416	RR PG 42/PG 36	PG 42	PG 36	57	14.0	10.0	7.00	10
600417	RR PG 48/PG 36	PG 48	PG 36	64	14.0	10.0	12.80	25
600415	RR PG 48/PG 42	PG 48	PG 42	64	14.0	10.0	6.40	10

Cable fittings and accessories

Metal accessory EW



Properties

- Expansion from **metric to metric**
- Or **PG to PG** with small outer thread and large inner thread

Design

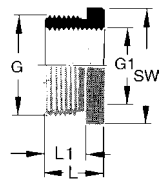
- Material Brass nickel-plated

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	d1 mm	weight ap- prox. kg/100 piece	PU piece
EW metric metric/metric									
600280	EW M 12/M 16	M 12	M 16	18	18.0	9.0	8.0	0.93	100
600281	EW M 16/M 20	M 16/20	M 12	22	33.0	10.0	12.0	1.39	100
600282	EW M 20/M 25	M 20	M 25	27	17.5	6.0	15.0	2.14	100
600283	EW M 25/M 32	M 25	M 32	34	19.5	7.0	20.0	3.10	100
600284	EW M 32/M 40	M 32	M 40	42	22.5	8.0	26.0	13.00	50
600285	EW M 40/M 50	M 40	M 50	52	27.5	8.0	34.0	16.30	50
600286	EW M 50/M 63	M 50	M 63	65	31.0	9.0	44.0	12.15	25
EW PG PG/PG									
600500	EW PG 7/PG 9	PG 7	PG 9	17	15.0	3.0	10.0	0.68	100
600501	EW PG 9/PG 11	PG 9	PG 11	20	16.5	6.0	12.0	0.84	100
600502	EW PG 11/PG 13.5	PG 9	PG 13.5	22	17.5	6.0	12.0	1.02	100
600503	EW PG 11/PG 13.5	PG 11	PG 13.5	22	17.5	6.0	15.0	1.18	100
600504	EW PG 11/PG 16	PG 11	PG 16	24	18.5	6.0	15.0	1.30	100
600506	EW PG 13.5/PG 16	PG 13.5	PG 16	24	19.0	6.5	17.0	1.34	100
600507	EW PG 13.5/PG 12	PG 13.5	PG 12	30	21.0	6.5	17.0	2.15	50
600508	EW PG 16/PG 21	PG 16	PG 21	30	21.0	6.5	18.5	2.44	50
600510	EW PG 21/PG 29	PG 21	PG 29	39	23.0	7.0	24.0	3.60	50
600511	EW PG 29/PG 36	PG 29	PG 36	50	27.5	8.0	32.0	7.44	50
600512	EW PG 36/PG 42	PG 36	PG 42	57	31.0	9.0	42.0	9.20	10
600513	EW PG 42/PG 48	PG 42	PG 48	64	33.0	10.0	48.0	14.40	10

d1 = smallest internal diameter

Cable fittings and accessories

Metal accessory RR

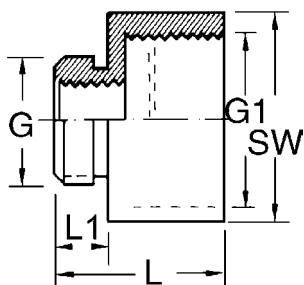


- Properties**
- **Metric to PG**
 - Reducing ring with large metric outer thread and small PG inner thread
- Design**
- Material Brass nickel-plated

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
RR M/PG metric/PG								
601000	RR M 16/PG 7	M 16	PG 7	18	8.5	6.0	0.53	100
601001	RR M 20/PG 9	M 20	PG 9	24	8.5	6.0	1.06	50
601002	RR M 25/PG 11	M 25	PG 11	28	10.0	7.0	1.98	50
601003	RR M 25/PG 13	M 25	PG 13	28	10.0	7.0	1.51	50
601004	RR M 25/PG 16	M 25	PG 16	28	10.0	7.0	0.80	50
601005	RR M 32/PG 16	M 32	PG 16	34	11.5	8.0	3.82	25
601006	RR M 32/PG 21	M 32	PG 21	45	11.5	8.0	1.62	25
601007	RR M 40/PG 21	M 40	PG 21	45	11.5	8.0	6.55	25
601008	RR M 50/PG 29	M 50	PG 29	55	12.5	9.0	9.45	10
601010	RR M 63/PG 42	M 63	PG 42	68	14.0	10.0	8.70	5

Cable fittings and accessories

Metal accessory EW metric to PG



Properties

- **Metric to PG**
- Expansion with small metric outer thread and large PG inner thread

Design

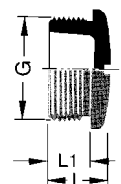
- Material Brass nickel-plated

Part-No.	Type	G	G1	SW mm	L mm	L 1 mm	d1 mm	weight ap- prox. kg/100 piece	PU piece
EW M/PG metric/PG									
601021	EW M 12/PG 9	M 12	PG 9	17	15.0	5.0	8.2	0.82	100
601022	EW M 16/PG 11	M 16	PG 11	20	16.5	6.0	12.0	0.86	100
601023	EW M 20/PG 16	M 20	PG 16	24	19.0	6.5	15.0	1.55	100
601024	EW M 25/PG 21	M 25	PG 21	30	21.0	6.5	21.0	2.52	50
601025	EW M 32/PG 29	M 32	PG 29	39	23.0	7.0	27.5	4.24	50
601026	EW M 40/PG 36	M 40	PG 36	50	27.5	8.0	32.0	8.40	50
601027	EW M 50/PG 42	M 50	PG 42	57	31.0	9.0	44.0	14.90	25
601028	EW M 50/PG 48	M 50	PG 48	64	32.0	9.0	44.0	15.90	25

d1 = smallest internal diameter

Cable fittings and accessories

Metal accessory BLMS



Properties

- Blank plug according to DIN 46320

Design

- Material Brass nickel-plated

Part-No.	Type	G	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
BLMS metric						
600090	BLMS M 12	M 12	8.0	5.0	0.38	100
600091	BLMS M 16	M 16	9.0	6.0	0.55	100
600092	BLMS M 20	M 20	9.5	6.5	0.91	100
600093	BLMS M 25	M 25	11.0	7.0	1.56	100
600094	BLMS M 32	M 32	12.0	8.0	2.50	50
600095	BLMS M 40	M 40	12.0	8.0	3.96	50
600096	BLMS M 50	M 50	15.0	9.0	7.90	25
600097	BLMS M 63	M 63	16.0	10.0	10.19	10
BLMS metr. with O ring						
600201	BLMS M 12	M 12	7.5	5.0	0.32	100
600202	BLMS M 16	M 16	8.0	5.0	0.82	100
600203	BLMS M 20	M 20	9.5	6.0	0.87	100
600204	BLMS M 25	M 25	11.0	7.0	1.57	100
600205	BLMS M 32	M 32	12.0	8.0	2.42	50
600206	BLMS M 40	M 40	13.0	8.0	3.90	50
600207	BLMS M 50	M 50	15.0	9.0	7.25	25
600208	BLMS M 63	M 63	16.0	10.0	12.03	10
BLMS PG						
600590	BLMS PG 7	PG 7	8.0	5.0	0.34	100
600591	BLMS PG 9	PG 9	9.0	6.0	0.53	100
600592	BLMS PG 11	PG 11	9.0	6.0	0.73	100
600593	BLMS PG 13.5	PG 13.5	9.5	6.5	0.86	100
600594	BLMS PG 16	PG 16	9.5	6.5	1.13	100
600595	BLMS PG 21	PG 21	11.0	7.0	2.06	50
600596	BLMS PG 29	PG 29	12.0	8.0	3.78	25
600597	BLMS PG 36	PG 36	15.0	9.0	8.10	25

Cable fittings and accessories

Plastic and metal accessories MFDE



Application

- For retroactive installation in our cable fittings Type Top T in plastic and brass, if necessary these are to be drilled yourself depending on needs
- PG 11 suitable for M 16
PG 13.5 suitable for M 20
PG 16 suitable for M 25
PG 21 suitable for M 32

Properties

- Multiple sealing insert for two or more cables in a fitting

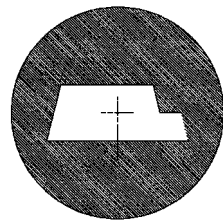
Design

- Material TPE

Part-No.	Type	Outer-Ø mm	Number of cables × Ø mm	weight approx. kg/100 piece	PU piece
MFDE PG					
600626	MFDE PG 9	10.0	2 × 3.0	0.57	100
600627	MFDE PG 9	10.0	4 × 3.0	0.46	100
600541	MFDE PG 9	10.0	0 × 0.0	0.70	100
600628	MFDE PG 11	13.0	2 × 4.0	1.00	100
600629	MFDE PG 11	13.0	2 × 4.5	0.80	100
600635	MFDE PG 11	13.0	3 × 4.0	0.10	100
600636	MFDE PG 11	13.0	3 × 5.0	0.70	100
600542	MFDE PG 11	13.0	0 × 0.0	0.11	100
600638	MFDE PG 13.5	15.0	2 × 4.5	1.32	100
600639	MFDE PG 13.5	15.0	2 × 5.0	1.20	100
600640	MFDE PG 13.5	15.0	2 × 6.0	1.20	100
600637	MFDE PG 13.5	15.0	3 × 4.0	1.40	100
600630	MFDE PG 13.5	15.0	3 × 5.0	1.20	100
600543	MFDE PG 13.5	15.0	0 × 0.0	1.60	100
600641	MFDE PG 16	17.0	2 × 4.0	2.00	100
600644	MFDE PG 16	17.0	2 × 6.0	1.78	100
600631	MFDE PG 16	17.0	3 × 4.0	1.92	100
600643	MFDE PG 16	17.0	3 × 5.0	1.60	100
600646	MFDE PG 16	17.0	4 × 6.0	1.20	100
600633	MFDE PG 16	17.0	5 × 4.0	1.62	100
600544	MFDE PG 16	17.0	0 × 0.0	2.30	100
600645	MFDE PG 16	17.0	3 × 6.0	1.00	100
600647	MFDE PG 16	17.0	3 × 6.5	1.20	100
600642	MFDE PG 16	17.0	4 × 4.0	1.73	100
600632	MFDE PG 16	17.0	4 × 5.0	1.20	100
600648	MFDE PG 21	22.0	2 × 7.0	3.60	100
600651	MFDE PG 21	22.0	2 × 8.0	3.20	100
600653	MFDE PG 21	22.0	2 × 9.0	3.20	100
600649	MFDE PG 21	22.0	3 × 7.0	3.00	100
600652	MFDE PG 21	22.0	3 × 8.0	2.65	100
600634	MFDE PG 21	22.0	4 × 7.0	2.60	100
600545	MFDE PG 21	22.0	0 × 0.0	5.60	100
600656	MFDE PG 29	29.5	5 × 8.5	6.00	100
600654	MFDE PG 29	29.5	6 × 5.0	7.70	100
600655	MFDE PG 29	29.5	8 × 5.0	7.40	100
600546	MFDE PG 29	29.5	0 × 0.0	9.80	100

Cable fittings and accessories

Plastic and metal accessories ASI DE



- Application**
- For retroactive installation of our cable fittings
 - **Cable dimensions:** 4.0 mm × 10.0 mm +/- 0.2 mm
 - **Suitable for installation with the following types:**
TOP TP PG 13.5
TOP TP M 20
TOP T PG 13.5
TOP T M 20
- Properties**
- Seal insert for ASI bus cables
- Design**
- Material TPE

Part-No.	Type	Outer-Ø mm	weight approx. kg/100 piece	PU piece
ASI DE				
600120	ASI DE PG 13.5	14.8	0.15	1

Cable conduit - Technical data

General

The cable connections between fixed and moving parts are the weak points in machine and plant engineering and construction. They are (among others) supports, boring carriages, spreader bars, lifting carriages and grippers. The tightly-sitting single conductors have no freedom of movement whatsoever when the cable bends. They are subject to high and strong alternating tensile loading – especially for multiple-conductor control cables and conductor breakage is inevitable at the peripheral equipment. The results are costly standstill periods, expensive repairs and production downtimes for the user as well as a loss of image for the machine manufacturer. Because the machines are only as reliable as the supply cables, security should be planned for in advance: with LÜTZE cable conduits and the matching fittings.

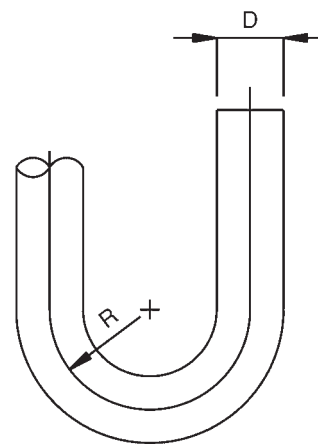
Advantages of cable conduit compared with cables

- The single conductors have enough play. They can move freely against each other. This prevents strong alternating tensile loading when bending.
- The flexible conduit is populated with conductors according to requirements– in the required quantity with the necessary cross section.
- It can be retrofitted without difficulties.
- The connections offer secure protection against fluids and are can handle tension loads.

LÜTZE cable conduits from soft PVC and LÜTZE fittings have been proven thousands of times in machine and device construction. With their added reinforcement (hard PVC spiral, steel wire braiding), they are suitable for practically all conditions and every application case. The combination of LÜTZE cable conduits and LÜTZE fittings guarantees extremely simple and time-saving installation.

Technical data for cable conduit	
CONDUFLEX	PVC
CONDUFIX	Polyamide
Breaking elongation at 20 °C	350 %
Tensile strength	2500 N/cm ²
Dielectric constant	approx. 3
Dielectric strength: approx.	20 kV/mm

Technical data for fittings and accessories	
Turning parts:	MS 58, nickel-plated
Fitting CFK:	Ultramid®, grey, oil- and benzine-resistant, shock-resistant, temperature-resistant from – 20 °C to + 110 °C
Chuck cone:	Makrolon, grey
Hose connection:	shock-resistant, temperature-resistant from – 30 °C to + 130 °C
O-Rings	Perbunan®, oil- and benzine-resistant



Dimension diagram for the specification of the smallest bending radius

CONDUFIX

An innovative patented system for the protection and routing of electrical cables and lead wires - provides a solution for almost any installation problem.

High mechanical strength and patented special profile:
Flexible, corrugated conduit in specially modified polyamide 6

High flexibility due to special profile:
maintains its shape and roundness even when bent. This prevents kinks within the minimum bend radius and protects cables and lead wires.

Releasing ring

12-sided polygon for easy tightening with a wrench

Holder cams are located all around inside the conduit fitting:
impossible to pull apart due to the mechanical lock. The stronger you pull, the tighter the grip.

Description of nominal width

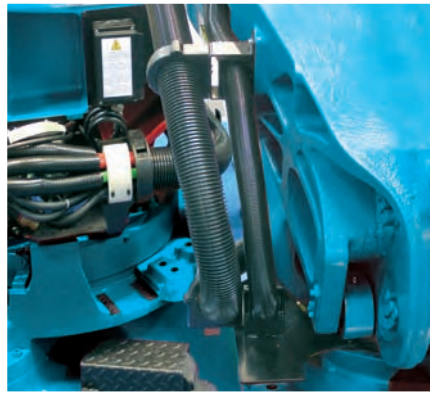
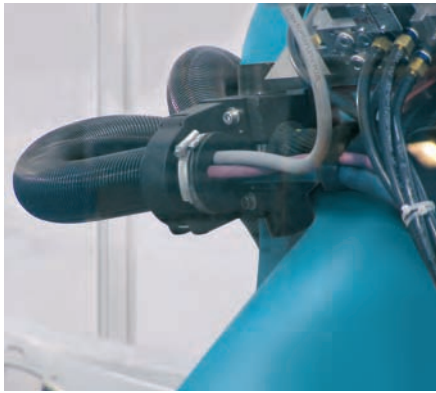
Hexagon wrench area

Tapered conduit socket for protection class IP66 without O-ring

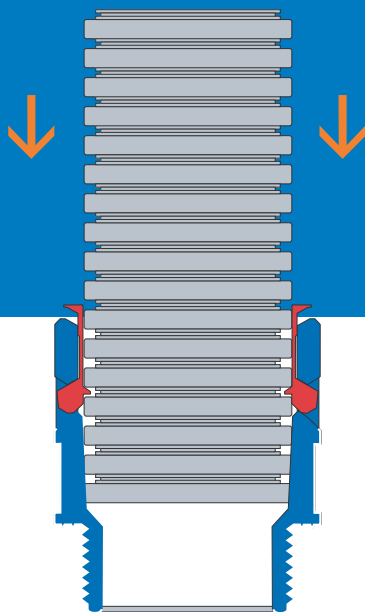
Thread type and size

Use of standard O-rings for protection class IP68

Wide contact area with integrated sealing lips



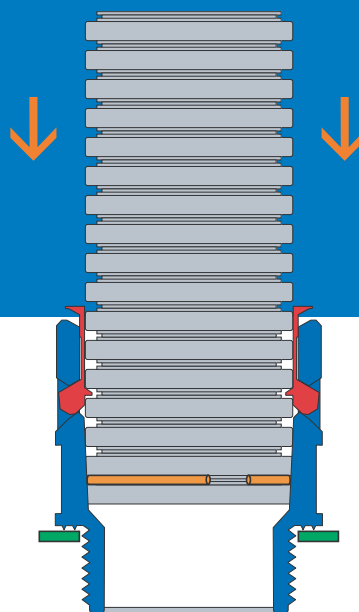
IP66



Extremely simple and very quick assembly:

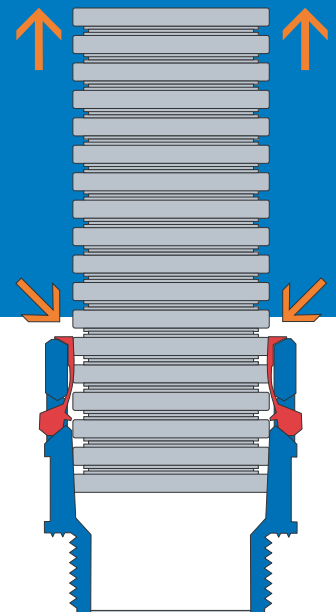
Simply push the protective conduit firmly into the conduit fitting as far as it will go - that's all there is to it! Protection class IP 66 is provided without O-ring.

IP68



IP 68/IP69K

The simple insertion of an O-ring into the last groove (insert side) on the patented profile of the protective conduit and the insertion of a flat gasket on the thread side of the cable gland increases the protection to class IP 68 and for cleaning purposes to IP 69K at 100 bar water jet pressure

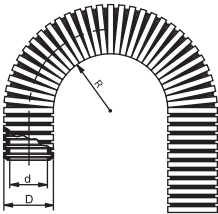


Simple disconnect:

1. Press conduit further into the conduit fitting, thus allowing the holder cams to loosen.
2. Simultaneously press the releasing ring firmly against conduit fitting to fully release the holder cams.
3. Turn conduit slightly and pull apart.

Cable conduits and conduit fittings

Cable protective conduit Condufix OL PA, light weight type



Application

- Light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets and moving machine parts.

Properties

- Flexible protective conduit, parallel corrugation, special shape for inclusion of an O-ring for high degree of protection in conjunction with Condufix fittings
- Heat stabilized, no flame propagation
- Free from halogen, phosphorus, cadmium
- Resistant to fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/2, 14434066(7)-21-
- UL file No.:E 22 59 13

Technical data

Temperature range	-25 °C to 105 °C
Filament control	850 °C IEC 60695
Oxygen index	>25% EN ISO 4589
Burning behaviour	V2 UL94

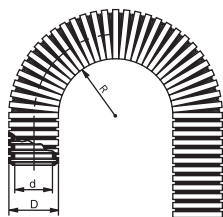
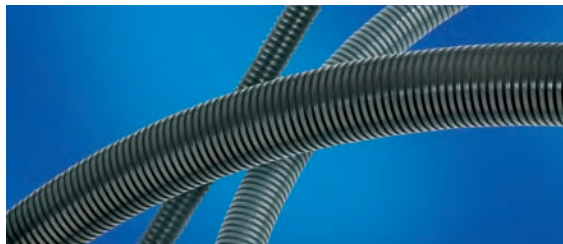
Design

- Polyamid 6, especially modified

Part-No.	Colour	Approvals	NW	d mm	D mm	Minimum ben- ding radius (fixed)	Weight kg/100 m	PU M
grey								
272100	grey		7	6.3	10.0	10	1.81	50
272101	grey	2	10	9.7	13.0	14	2.48	50
272102	grey	2	12	12.2	15.8	22	3.32	50
272103	grey	2	17	16.8	21.2	30	5.59	50
272104	grey	2	23	22.6	28.5	41	9.02	50
272105	grey	2	29	28.3	34.5	48	12.24	50
272106	grey	2	36	36.3	42.5	59	15.23	30
272107	grey	2	48	47.4	54.5	68	21.18	30
272108	grey	2	70	69.1	80.7	160	42.33	10
272109	grey	2	95	91.7	106.0	212	66.04	10
black								
272120	black		7	6.3	10.0	10	1.81	50
272121	black	2	10	9.7	13.0	14	2.48	50
272122	black	2	12	12.2	15.8	22	3.32	50
272123	black	2	17	16.8	21.2	30	5.59	50
272124	black	2	23	22.6	28.5	41	9.02	50
272125	black	2	29	28.3	34.5	48	12.24	50
272126	black	2	36	36.3	42.5	59	15.23	30
272127	black	2	48	47.4	54.5	68	21.18	30
272128	black	2	70	69.1	80.7	160	42.33	10
272129	black	2	95	91.7	106.0	212	66.04	10

Cable conduits and conduit fittings

Cable conduit Condufix OS PA, standard style



Application

- Light up to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets and moving machine parts.

Properties

- Flexible protective conduit, parallel corrugation, special shape for inclusion of an O-ring for high degree of protection in conjunction with Condufix fittings
- Heat stabilized, no flame propagation
- Free from halogen, phosphorus, cadmium
- Resistant to fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, 24434066(7)-21-
- UL file No.: E 22 59 13

Technical data

Temperature range	-40°C to +105°C temporary 150°C
Filament control	850 °C IEC 60695
Oxygen index	>25% EN ISO 4589
Burning behaviour	V2 UL94

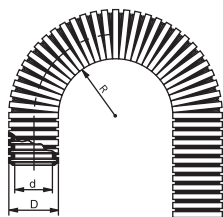
Design

- Polyamid 6, especially modified

Part-No.	Colour	Approvals	NW	d mm	D mm	Minimum ben- ding radius (fixed)	Weight kg/100 m	PU M
grey								
272140	grey		7	6.2	10.0	15	2.05	50
272141	grey	2	10	9.6	13.0	19	2.80	50
272142	grey	2	12	12.0	15.8	27	3.68	50
272143	grey	2	17	16.5	21.2	39	6.21	30
272144	grey	2	23	22.3	28.5	46	10.03	30
272145	grey	2	29	28.2	34.5	53	13.48	30
272146	grey	2	36	36.0	42.5	64	16.48	10
272147	grey	2	48	47.1	54.5	73	23.52	10
black								
272160	black		7	6.2	10.0	15	2.05	50
272161	black	2	10	9.6	13.0	19	2.80	50
272162	black	2	12	12.0	15.8	27	3.68	50
272163	black	2	17	16.5	21.2	39	6.21	30
272164	black	2	23	22.3	28.5	46	10.03	30
272165	black	2	29	28.2	34.5	53	13.48	30
272166	black	2	36	36.0	42.5	64	16.48	10
272167	black	2	48	47.1	54.5	73	23.52	10

Cable conduits and conduit fittings

Cable conduit Condufix OV PA, reinforced style



Application

- Medium up to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets and moving machine parts

Properties

- Flexible protective conduit, parallel corrugation, special shape for inclusion of an O-ring for high degree of protection in conjunction with Condufix fittings
- Heat stabilized, no flame propagation
- Free from halogen, phosphorus, cadmium
- Resistant to fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, 25434066(7)-31-

Technical data

Temperature range	-40°C to +105°C temporary 150°C
Filament control	960 °C IEC 60695
Oxygen index	>27% EN ISO 4589
Burning behaviour	V2 UL94

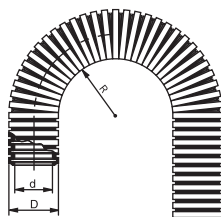
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	d mm	D mm	Minimum bending radius (fixed)	Weight kg/100 m	PU M
grey							
272171	grey	10	9.0	13.0	24	3.61	50
272172	grey	12	11.6	15.8	32	4.68	50
272173	grey	17	14.5	21.2	44	9.03	30
272174	grey	23	21.0	28.5	51	14.02	30
272175	grey	29	26.5	34.5	58	18.04	30
272176	grey	36	35.1	42.5	69	22.99	10
272177	grey	48	46.4	54.5	83	32.03	10
black							
272181	black	10	9.0	13.0	24	3.61	50
272182	black	12	11.6	15.8	32	4.68	50
272183	black	17	14.5	21.2	44	9.03	30
272184	black	23	21.0	28.5	51	14.02	30
272185	black	29	26.5	34.5	58	18.04	30
272186	black	36	35.1	42.5	69	22.99	10
272187	black	48	46.4	54.5	83	32.03	10

Cable conduits and conduit fittings

Cable conduit Condufix OR PA, robot style



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Shipbuilding and railroad construction / rail transportation technology, vehicle manufacturing as well as control cabinets and especially flexible machine parts

Properties

- Flexible protective conduit, parallel corrugation, special shape for inclusion of an O-ring for high degree of protection in conjunction with Condufix fittings
- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, 14524066(7)-21-

Technical data

Temperature range	-45°C to +90°C temporary 110°C
Filament control	750 °C IEC 60695
Oxygen index	>24% EN ISO 4589
Burning behaviour	HB UL94

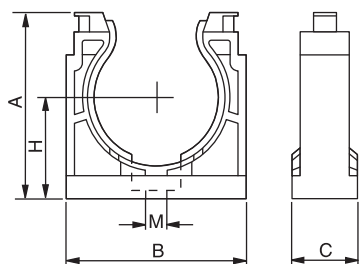
Design

- Polyamid 12, especially modified

Part-No.	Colour	NW	d mm	D mm	Minimum bending radius (fixed)	Minimum bending radius (moving)	Weight kg/100 m	PU M
grey								
272200	grey	7	6.5	10.0	20	45	2.23	50
272201	grey	10	9.5	13.0	29	59	2.81	50
272202	grey	12	12.0	15.8	32	72	3.79	50
272203	grey	17	16.4	21.2	40	89	6.18	30
272204	grey	23	22.6	28.5	50	116	10.03	30
272205	grey	29	28.1	34.5	68	138	13.52	30
272206	grey	36	36.0	42.5	79	199	16.78	10
272207	grey	48	47.5	54.5	98	228	12.53	10
272208	grey	70	67.2	80.0	190	390	46.04	10
272209	grey	95	91.3	106.0	222	497	75.03	10
black								
272210	black	7	6.5	10.0	20	45	2.23	50
272211	black	10	9.5	13.0	29	59	2.81	50
272212	black	12	12.0	15.8	32	72	3.79	50
272213	black	17	16.4	21.2	40	89	6.18	30
272214	black	23	22.6	28.5	50	116	10.03	30
272215	black	29	28.1	34.5	68	138	13.52	30
272216	black	36	36.0	42.5	79	199	16.78	10
272217	black	48	47.5	54.5	98	228	12.53	10
272218	black	70	67.2	80.0	190	390	46.04	10
272219	black	95	91.3	106.0	222	497	75.03	10

Cable conduits and cable fittings

Cable conduit-retainer Condufix OH PA



Application

- For fast and secure mounting of Condufix protective conduit

Properties

- The integrated bar fixes the protective conduit axially, thus allowing the protective conduit to rotate within its own axis within the holder
- With collet for cable ties for heavy suspended load
- Impact-resistant, no flame propagation
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies

Technical data

Temperature range	-30°C to +105°C temporary 150°C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

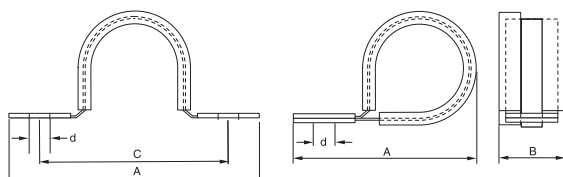
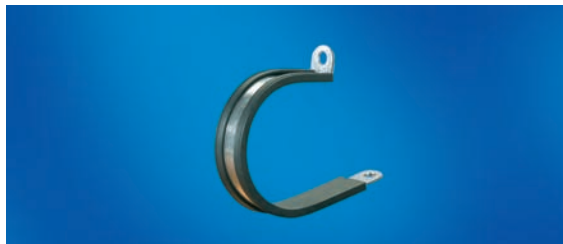
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	A mm	B mm	C mm	H mm	M mm	weight approx. kg/100 piece	PU piece	Cable tie Article number
grey										
272230	grey	7	20.0	17.0	20.0	12.0	M 4	0.22	100	680105
272231	grey	10	23.0	21.0	20.0	14.0	M 5	0.28	100	680105
272232	grey	12	26.0	25.0	20.0	15.0	M 5	0.36	100	680105
272233	grey	17	32.0	32.0	20.0	18.0	M 5	0.58	100	680105
272234	grey	23	41.0	40.0	20.0	23.0	M 6	0.94	50	680108
272235	grey	29	47.0	46.0	20.0	26.0	M 6	1.08	30	680108
272236	grey	36	57.0	56.0	20.0	32.0	M 6	1.54	20	680108
272237	grey	48	70.0	70.0	20.0	39.0	M 6	2.10	10	680108
black										
272240	black	7	20.0	17.0	20.0	12.0	M 4	0.22	100	680105
272241	black	10	23.0	21.0	20.0	14.0	M 5	0.28	100	680105
272242	black	12	26.0	25.0	20.0	15.0	M 5	0.36	100	680105
272243	black	17	32.0	32.0	20.0	18.0	M 5	0.58	100	680105
272244	black	23	41.0	40.0	20.0	23.0	M 6	0.94	50	680108
272245	black	29	47.0	46.0	20.0	26.0	M 6	1.08	30	680108
272246	black	36	57.0	56.0	20.0	32.0	M 6	1.54	20	680108
272247	black	48	70.0	70.0	20.0	39.0	M 6	2.10	10	680108

Cable conduits and cable fittings

Cable conduit-retainer Condufix OH St



Application

- For fast and secure mounting of Condufix protective conduit

Properties

- The integrated rubber profile protects and holds the conduit axially
- Impact-proof, highly flame-resistant
- Resistant to against fuels, mineral oils, greases, alkalies
- Rubber profile Shore hardness A 70 ±5

Technical data

Temperature range -35°C to +100°C
temporary 130°C

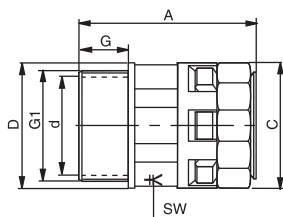
Design

- Zinc-plated, strong reinforced strip ends
- Elastomer profile

Part-No.	NW	d mm	A mm	B mm	C mm	weight approx. kg/100 piece	PU piece
Elastomer profile black							
272250	7	5.3	25.0	15.0		0.40	100
272251	10	5.3	27.0	15.0		0.45	100
272252	12	5.3	30.0	15.0		0.40	100
272253	17	5.3	40.0	15.0		0.95	100
272254	23	5.3	48.0	15.0		1.25	50
272255	29	5.3	60.0	15.0		2.30	30
272256	36	5.3	74.0	15.0		2.80	20
272257	48	5.3	86.0	15.0		3.30	20
272258	70	8.4	128.0	25.0	109.00	6.50	1
272259	95	8.4	140.0	25.0	120.00	8.30	1

Cable conduits and conduit fittings

Protective conduit fitting Condufix OG PA Straight design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost

- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/2, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

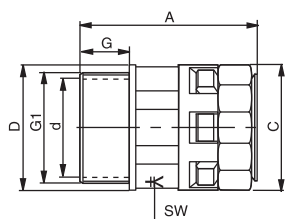
Design

- Polyamid 6, especially modified

Part-No.	Colour	Approvals	NW	G1	d mm	A mm	C mm	D mm	SW mm	G mm	weight approx. kg/100 piece	PU piece
metric												
272260	grey		7	M 12×1.5	6.5	35.0	19.0	17.0	15	11	0.46	100
272261	grey	2	10	M 16×1.5	10.0	37.0	21.0	21.0	18	11	0.60	100
272262	grey	2	12	M 16×1.5	10.0	37.0	26.0	25.0	20	11	0.76	100
272263	grey	2	12	M 20×1.5	14.0	37.0	26.0	25.0	20	11	0.78	100
272264	grey	2	17	M 20×1.5	14.5	44.0	31.0	30.0	27	11	1.24	100
272265	grey	2	17	M 25×1.5	18.5	45.0	31.0	34.0	27	12	1.35	100
272266	grey	2	23	M 25×1.5	18.5	48.0	37.0	37.0	34	12	1.75	50
272267	grey	2	23	M 32×1.5	25.5	51.0	37.0	42.0	34	15	1.96	50
272268	grey	2	29	M 32×1.5	25.5	52.0	46.0	46.0	42	15	2.86	30
272269	grey	2	29	M 40×1.5	32.0	56.0	46.0	52.0	42	19	3.24	30
272270	grey	2	36	M 40×1.5	32.0	60.0	54.0	54.0	50	19	4.22	20
272271	grey	2	36	M 50×1.5	42.0	60.0	54.0	62.0	50	19	4.59	20
272272	grey	2	48	M 50×1.5	42.0	61.0	69.0	69.0	66	19	6.69	10
272273	grey	2	48	M 63×1.5	54.0	61.0	69.0	75.0	66	19	7.27	10
metric												
272280	black		7	M 12×1.5	6.5	35.0	19.0	17.0	15	11	0.46	100
272281	black	2	10	M 16×1.5	10.0	37.0	21.0	21.0	18	11	0.60	100
272282	black	2	12	M 16×1.5	10.0	37.0	26.0	25.0	20	11	0.76	100
272283	black	2	12	M 20×1.5	14.0	37.0	26.0	25.0	20	11	0.78	100
272284	black	2	17	M 20×1.5	14.5	44.0	31.0	30.0	27	11	1.24	100
272285	black	2	17	M 25×1.5	18.5	45.0	31.0	34.0	27	12	1.35	100
272286	black	2	23	M 25×1.5	18.5	48.0	37.0	37.0	34	12	1.75	50
272287	black	2	23	M 32×1.5	25.5	51.0	37.0	42.0	34	15	1.96	50
272288	black	2	29	M 32×1.5	25.5	52.0	46.0	46.0	42	15	2.86	30
272289	black	2	29	M 40×1.5	32.0	56.0	46.0	52.0	42	19	3.24	30
272290	black	2	36	M 40×1.5	32.0	60.0	54.0	54.0	50	19	4.22	20
272291	black	2	36	M 50×1.5	42.0	60.0	54.0	62.0	50	19	4.59	20
272292	black	2	48	M 50×1.5	42.0	61.0	69.0	69.0	66	19	6.69	10
272293	black	2	48	M 63×1.5	54.0	61.0	69.0	75.0	66	19	7.27	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OG PA Straight design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost

- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/2, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

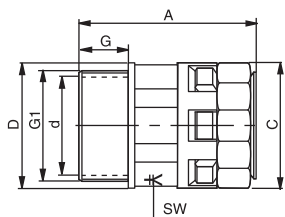
Design

- Polyamid 6, especially modified

Part-No.	Colour	Approvals	NW	G1	d mm	A mm	C mm	D mm	SW mm	G mm	weight approx. kg/100 piece	PU piece
PG												
272300	grey		7	PG 7	8.0	35.0	19.0	17.0	15	11	0.47	100
272301	grey	2	10	PG 7	8.0	37.0	21.0	21.0	18	11	0.56	50
272302	grey	2	10	PG 9	10.3	37.0	21.0	21.0	18	11	0.58	100
272303	grey	2	12	PG 9	10.3	37.0	26.0	25.0	20	11	0.75	50
272304	grey	2	12	PG 11	14.0	37.0	26.0	25.0	20	11	0.75	100
272305	grey	2	12	PG 13.5	14.0	37.0	26.0	25.0	20	11	0.81	50
272306	grey	2	17	PG 13.5	14.0	44.0	31.0	28.0	27	11	1.27	100
272307	grey	2	17	PG 16	17.0	44.0	31.0	29.0	27	11,5	1.25	100
272308	grey	2	23	PG 21	22.0	48.0	37.0	36.0	34	12,5	1.79	50
272309	grey	2	29	PG 29	30.0	49.0	46.0	46.0	42	12,5	2.89	30
272310	grey	2	36	PG 36	37.5	55.0	54.0	56.0	50	14	4.29	30
272311	grey	2	48	PG 48	50.0	56.0	69.0	69.0	66	14	6.74	10
PG												
272320	black		7	PG 7	8.0	35.0	19.0	17.0	15	11	0.47	100
272321	black	2	10	PG 7	8.0	37.0	21.0	21.0	18	11	0.56	50
272322	black	2	10	PG 9	10.3	37.0	21.0	21.0	18	11	0.58	100
272323	black	2	12	PG 9	10.3	37.0	26.0	25.0	20	11	0.75	50
272324	black	2	12	PG 11	14.0	37.0	26.0	25.0	20	11	0.75	100
272325	black	2	12	PG 13.5	14.0	37.0	26.0	25.0	20	11	0.81	50
272326	black	2	17	PG 13.5	14.0	44.0	31.0	28.0	27	11	1.27	100
272327	black	2	17	PG 16	17.0	44.0	31.0	29.0	27	11,5	1.25	100
272328	black	2	23	PG 21	22.0	48.0	37.0	36.0	34	12,5	1.79	50
272329	black	2	29	PG 29	30.0	49.0	46.0	46.0	42	12,5	2.89	30
272330	black	2	36	PG 36	37.5	55.0	54.0	56.0	50	14	4.29	20
272331	black	2	48	PG 48	50.0	56.0	69.0	69.0	66	14	6.74	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OG PM Straight design with metal threads



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost

- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

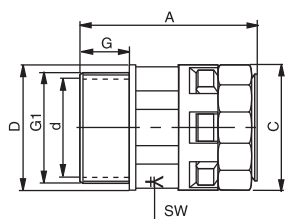
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	G1	d mm	A mm	C mm	D mm	SW mm	G mm	weight approx. kg/100 piece	PU piece
metric											
272700	grey	7	M 12×1.5	6.6	43.0	18.0	20.0	15	10	1.50	50
272701	grey	10	M 16×1.5	10.3	43.0	21.0	24.0	18	10	1.98	50
272702	grey	12	M 16×1.5	10.3	43.0	25.0	25.0	20	10	2.14	50
272703	grey	12	M 20×1.5	14.5	43.0	25.0	29.0	20	10	2.53	50
272704	grey	17	M 20×1.5	14.5	47.0	30.0	29.0	27	10	2.88	30
272705	grey	17	M 25×1.5	18.8	49.0	30.0	35.0	27	11	3.70	30
272706	grey	23	M 25×1.5	18.8	55.0	36.0	35.0	34	11	4.08	30
272707	grey	23	M 32×1.5	25.8	57.0	36.0	43.0	34	13	5.30	30
272708	grey	29	M 32×1.5	25.8	56.0	44.0	43.0	42	13	6.06	20
272709	grey	29	M 40×1.5	32.5	56.0	44.0	54.0	42	13	9.00	20
272710	grey	36	M 40×1.5	32.5	61.0	52.0	55.0	50	13	10.33	10
272711	grey	36	M 50×1.5	41.1	64.0	52.0	67.0	50	14	13.60	10
272712	grey	48	M 50×1.5	42.0	62.0	69.0	67.0	66	14	15.92	10
272713	grey	48	M 63×1.5	53.4	62.0	69.0	76.0	66	14	17.18	10
metric											
272720	black	7	M 12×1.5	6.6	43.0	18.0	20.0	15	10	1.50	50
272721	black	10	M 16×1.5	10.3	43.0	21.0	24.0	18	10	1.98	50
272722	black	12	M 16×1.5	10.3	43.0	25.0	25.0	20	10	2.14	50
272723	black	12	M 20×1.5	14.5	43.0	25.0	29.0	20	10	2.53	50
272724	black	17	M 20×1.5	14.5	47.0	30.0	29.0	27	10	2.88	30
272725	black	17	M 25×1.5	18.8	49.0	30.0	35.0	27	11	3.70	30
272726	black	23	M 25×1.5	18.8	55.0	36.0	35.0	34	11	4.08	30
272727	black	23	M 32×1.5	25.8	57.0	36.0	43.0	34	13	5.30	30
272728	black	29	M 32×1.5	25.8	56.0	44.0	43.0	42	13	6.06	20
272729	black	29	M 40×1.5	32.5	56.0	44.0	54.0	42	13	9.00	20
272730	black	36	M 40×1.5	32.5	61.0	52.0	55.0	50	13	10.33	10
272731	black	36	M 50×1.5	41.1	64.0	52.0	67.0	50	14	13.60	10
272732	black	48	M 50×1.5	42.0	62.0	69.0	67.0	66	14	15.92	10
272733	black	48	M 63×1.5	53.4	62.0	69.0	76.0	66	14	17.18	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OG PM Straight design with metal threads



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost

- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

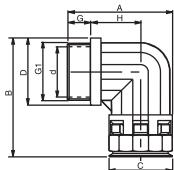
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	G1	d mm	A mm	C mm	D mm	SW mm	G mm	weight approx. kg/100 piece	PU piece
PG											
272742	grey	12	PG 11	13.1	45.0	25.0	29.0	20	12	2.52	50
272744	grey	17	PG 16	17.0	50.0	30.0	34.0	27	13	3.60	30
272745	grey	23	PG 21	22.2	58.0	36.0	40.0	34	14	4.60	30
272746	grey	29	PG 29	30.2	59.0	46.0	52.0	42	14	8.72	20
272747	grey	36	PG 36	37.6	67.0	54.0	63.0	50	17	13.72	10
272748	grey	48	PG 48	50.1	68.0	69.0	73.0	66	17	16.76	5
PG											
272752	black	12	PG 11	13.1	45.0	25.0	29.0	20	12	2.52	50
272754	black	17	PG 16	17.0	50.0	30.0	34.0	27	13	3.60	30
272755	black	23	PG 21	22.2	58.0	36.0	40.0	34	14	4.60	30
272756	black	29	PG 29	30.2	59.0	46.0	52.0	42	14	8.72	20
272757	black	36	PG 36	37.6	67.0	54.0	63.0	50	17	13.72	10
272758	black	48	PG 48	50.1	68.0	69.0	73.0	66	17	16.76	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OW PA 90°-angle design



- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

Design

- Polyamid 6, especially modified

Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

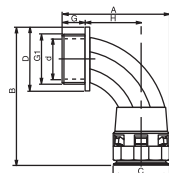
Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost
- Heat stabilized
- Free from halogen, phosphorus, cadmium

Part-No.	Colour	NW	G1	d mm	A mm	B mm	C mm	D mm	H mm	G mm	weight approx. kg/100 piece	PU piece
metric												
272360	grey	10	M 16×1.5	10.0	35.0	42.0	21.0	21.0	11.0	11	0.89	50
272361	grey	12	M 16×1.5	10.5	39.0	44.0	25.0	23.0	15.0	11	1.37	50
272362	grey	12	M 20×1.5	12.3	39.0	45.0	25.0	26.0	15.0	11	1.33	50
272363	grey	17	M 20×1.5	14.5	45.0	58.0	30.0	30.0	18.0	11	2.24	50
272364	grey	23	M 25×1.5	18.5	53.0	66.0	36.0	37.0	23.0	12	3.42	30
272365	grey	29	M 32×1.5	25.5	66.0	76.0	45.0	46.0	27.0	15	5.70	20
272366	grey	36	M 40×1.5	32.0	79.0	89.0	54.0	55.0	33.0	19	9.30	10
272367	grey	48	M 50×1.5	42.0	92.0	103.0	68.0	69.0	39.0	19	15.32	10
metric												
272370	black	10	M 16×1.5	10.0	35.0	42.0	21.0	21.0	11.0	11	0.89	50
272371	black	12	M 16×1.5	10.5	39.0	44.0	25.0	23.0	15.0	11	1.37	50
272372	black	12	M 20×1.5	12.3	39.0	45.0	25.0	26.0	15.0	11	1.33	50
272373	black	17	M 20×1.5	14.5	45.0	58.0	30.0	30.0	18.0	11	2.24	50
272374	black	23	M 25×1.5	18.5	53.0	66.0	36.0	37.0	23.0	12	3.42	30
272375	black	29	M 32×1.5	25.5	66.0	76.0	45.0	46.0	27.0	15	5.70	20
272376	black	36	M 40×1.5	32.0	79.0	89.0	54.0	55.0	33.0	19	9.30	10
272377	black	48	M 50×1.5	42.0	92.0	103.0	68.0	69.0	39.0	19	15.32	10
PG												
272380	grey	10	PG 9	10.3	35.0	42.0	21.0	21.0	11.0	11,5	0.87	50
272381	grey	12	PG 11	14.0	39.0	45.0	25.0	25.0	15.0	11,5	1.22	50
272382	grey	17	PG 13.5	14.0	45.0	56.0	30.0	27.0	18.0	11,5	2.42	50
272383	grey	17	PG 16	17.0	45.0	57.0	30.0	29.0	18.0	11,5	2.21	50
272384	grey	23	PG 21	22.0	53.0	65.0	37.0	36.0	23.0	12,5	3.17	30
272385	grey	29	PG 29	30.0	65.0	76.0	45.0	46.0	28.0	12,5	5.16	20
272386	grey	36	PG 36	37.5	79.0	89.0	54.0	56.0	33.0	14	8.25	10
272387	grey	48	PG 48	50.0	92.0	103.0	68.0	69.0	39.0	14	12.26	10
PG												
272390	black	10	PG 9	10.3	35.0	42.0	21.0	21.0	11.0	11,5	0.87	50
272391	black	12	PG 11	14.0	39.0	45.0	25.0	25.0	15.0	11,5	1.22	50
272392	black	17	PG 13.5	14.0	45.0	56.0	30.0	27.0	18.0	11,5	2.42	50
272393	black	17	PG 16	17.0	45.0	57.0	30.0	29.0	18.0	11,5	2.21	50
272394	black	23	PG 21	22.0	53.0	65.0	37.0	36.0	23.0	12,5	3.17	30
272395	black	29	PG 29	30.0	65.0	76.0	45.0	46.0	28.0	12,5	5.16	20
272396	black	36	PG 36	37.5	79.0	89.0	54.0	56.0	33.0	14	8.25	10
272397	black	48	PG 48	50.0	92.0	103.0	68.0	69.0	39.0	14	12.26	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OB PA 90°-arc angle design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost
- Heat stabilized
- Free from halogen, phosphorus, cadmium

- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

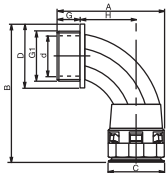
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	G1	d mm	A mm	B mm	C mm	D mm	H mm	G mm	weight approx. kg/100 piece	PU piece
metric												
272414	grey	17	M 25×1.5	17.5	52.0	75.0	28.0	34.0	26.0	12	1.88	50
272415	grey	23	M 32×1.5	25.7	69.0	89.0	36.0	40.0	36.0	15	3.25	30
272416	grey	29	M 40×1.5	32.3	81.0	101.0	43.0	50.0	40.0	19	5.14	10
272417	grey	36	M 50×1.5	40.0	98.0	124.0	51.0	60.0	53.0	19	8.53	10
272418	grey	48	M 63×1.5	53.6	106.0	141.0	66.0	75.0	54.0	19	12.86	5
metric												
272424	black	17	M 25×1.5	17.5	52.0	75.0	28.0	34.0	26.0	12	1.88	50
272425	black	23	M 32×1.5	25.7	69.0	89.0	36.0	40.0	36.0	15	3.25	30
272426	black	29	M 40×1.5	32.3	81.0	101.0	43.0	50.0	40.0	19	5.14	10
272427	black	36	M 50×1.5	40.0	98.0	124.0	51.0	60.0	53.0	19	8.53	10
272428	black	48	M 63×1.5	53.6	106.0	141.0	66.0	75.0	54.0	19	12.86	5
PG												
272434	grey	17	PG 16	14.7	51.0	72.0	28.0	30.0	25.5	11,5	1.74	50
272435	grey	23	PG 21	18.5	65.0	84.0	36.0	36.0	36.0	11	2.99	30
272436	grey	29	PG 29	25.5	75.0	99.0	43.0	46.0	39.5	13	4.76	10
272437	grey	36	PG 36	32.0	92.0	120.0	51.0	56.0	53.5	13	7.88	10
272438	grey	48	PG 48	42.0	102.0	135.0	66.0	69.0	56.0	13	11.96	5
PG												
272444	black	17	PG 16	14.7	51.0	72.0	28.0	30.0	25.5	11,5	1.74	50
272445	black	23	PG 21	18.5	65.0	84.0	36.0	36.0	36.0	11	2.99	30
272446	black	29	PG 29	25.5	75.0	99.0	43.0	46.0	39.5	13	4.76	10
272447	black	36	PG 36	32.0	92.0	120.0	51.0	56.0	53.5	13	7.88	10
272448	black	48	PG 48	42.0	102.0	135.0	66.0	69.0	56.0	13	11.96	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OB PM 90°-arch angle design with metal threads



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium

- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

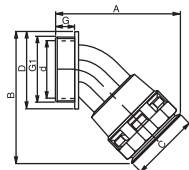
Design

- Polyamid 6, especially modified, thread MS58, nickel plated

Part-No.	Colour	NW	G1	d mm	A mm	B mm	C mm	D mm	H mm	G mm	weight approx. kg/100 piece	PU piece
metric												
272814	grey	17	M 25×1.5	16.3	56.0	76.0	28.0	35.0	30.0	11	4.34	50
272815	grey	23	M 32×1.5	23.0	72.0	88.0	36.0	44.0	41.0	13	6.80	30
272816	grey	29	M 40×1.5	30.5	81.0	104.0	43.0	55.0	46.0	13	11.20	10
272817	grey	36	M 50×1.5	37.3	100.0	127.0	51.0	67.0	59.0	14	18.40	10
272818	grey	48	M 63×1.5	52.1	110.0	141.0	66.0	76.0	63.0	14	23.00	5
metric												
272824	black	17	M 25×1.5	16.3	56.0	76.0	28.0	35.0	30.0	11	4.34	50
272825	black	23	M 32×1.5	23.0	72.0	88.0	36.0	44.0	41.0	13	6.80	30
272826	black	29	M 40×1.5	30.5	81.0	104.0	43.0	55.0	46.0	13	11.20	10
272827	black	36	M 50×1.5	37.3	100.0	127.0	51.0	67.0	59.0	14	18.40	10
272828	black	48	M 63×1.5	52.1	110.0	141.0	66.0	76.0	63.0	14	23.00	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OA PA 45°-angle design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium

- Resistant to against fuels, mineral oils, greases, alkalis
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

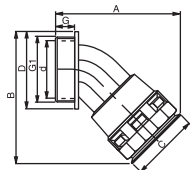
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	G1	d mm	A mm	B mm	C mm	D mm	G mm	weight approx. kg/100 piece	PU piece
metric											
272553	grey	12	M 16×1.5	10.5	50.0	45.0	24.0	23.0	11	0.85	50
272554	grey	17	M 20×1.5	11.5	60.0	56.0	29.0	27.0	11	1.42	50
272555	grey	23	M 25×1.5	18.5	70.0	67.0	37.0	34.0	12	2.14	30
272556	grey	29	M 32×1.5	25.7	80.0	76.0	45.0	41.0	15	3.52	10
272557	grey	36	M 40×1.5	32.0	96.0	90.0	53.0	50.0	15	5.33	10
272558	grey	48	M 50×1.5	42.0	109.0	106.0	67.0	60.0	19	7.98	5
metric											
272573	black	12	M 16×1.5	10.5	50.0	45.0	24.0	23.0	11	0.85	50
272574	black	17	M 20×1.5	11.5	60.0	56.0	29.0	27.0	11	1.42	50
272575	black	23	M 25×1.5	18.5	70.0	67.0	37.0	34.0	12	2.14	30
272576	black	29	M 32×1.5	25.7	80.0	76.0	45.0	41.0	15	3.52	10
272577	black	36	M 40×1.5	32.0	96.0	90.0	53.0	50.0	19	5.33	10
272578	black	48	M 50×1.5	42.0	109.0	106.0	67.0	60.0	19	7.98	5
PG											
272593	grey	12	PG 11	11.5	50.0	47.0	24.0	26.0	11	0.91	50
272594	grey	17	PG 16	14.7	60.0	58.0	29.0	30.0	11	1.49	50
272595	grey	23	PG 21	18.5	69.0	69.0	37.0	37.0	11	2.22	30
272596	grey	29	PG 29	25.5	78.0	79.0	45.0	46.0	12	3.65	10
272597	grey	36	PG 36	32.0	90.0	94.0	53.0	56.0	13	5.47	10
272598	grey	48	PG 48	42.0	102.0	112.0	67.0	69.0	13	8.56	5
PG											
272613	black	12	PG 11	11.5	50.0	47.0	24.0	26.0	11	0.91	50
272614	black	17	PG 16	14.7	60.0	58.0	29.0	30.0	11	1.49	50
272615	black	23	PG 21	18.5	69.0	69.0	37.0	37.0	11	2.22	30
272616	black	29	PG 29	25.5	78.0	79.0	45.0	46.0	12	3.65	10
272617	black	36	PG 36	32.0	90.0	94.0	53.0	56.0	13	5.47	10
272618	black	48	PG 48	42.0	102.0	112.0	67.0	69.0	13	8.56	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OA PM 45°-angle design with metal threads



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium

- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

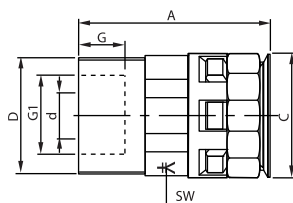
Design

- Polyamid 6, especially modified, thread MS58, nickel plated

Part-No.	Colour	NW	G1	d mm	A mm	B mm	C mm	D mm	G mm	weight approx. kg/100 piece	PU piece
metric											
272763	grey	12	M 16×1.5	10.5	53.0	45.0	24.0	24.0	10	2.16	50
272764	grey	17	M 20×1.5	11.5	63.0	57.0	29.0	29.0	10	3.02	50
272765	grey	23	M 25×1.5	18.5	74.0	67.0	37.0	35.0	11	4.44	30
272766	grey	29	M 32×1.5	25.7	82.0	72.0	45.0	43.0	13	6.78	10
272767	grey	36	M 40×1.5	32.0	97.0	93.0	53.0	56.0	13	11.08	10
272768	grey	48	M 50×1.5	42.0	111.0	110.0	67.0	67.0	14	17.56	5
metric											
272773	black	12	M 16×1.5	10.5	53.0	45.0	24.0	24.0	10	2.16	50
272774	black	17	M 20×1.5	11.5	63.0	57.0	29.0	29.0	10	3.02	50
272775	black	23	M 25×1.5	18.5	74.0	67.0	37.0	35.0	11	4.44	30
272776	black	29	M 32×1.5	25.7	82.0	72.0	45.0	43.0	13	6.78	10
272777	black	36	M 40×1.5	32.0	97.0	93.0	53.0	56.0	13	11.08	10
272778	black	48	M 50×1.5	42.0	111.0	110.0	67.0	67.0	14	17.56	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OI PM Straight design with internal thread out of metal



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost.
- Heat stabilized

- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

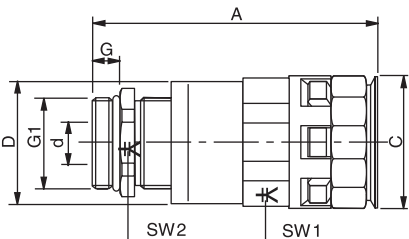
Design

- Polyamid 6, especially modified, thread MS58, nickel plated

Part-No.	Colour	NW	G1	d mm	A mm	C mm	D mm	SW mm	G mm	weight approx. kg/100 piece	PU piece
metric											
272912	grey	10	M 16×1.5	9.2	41.0	21.0	25.0	18	9	1.52	50
272913	grey	12	M 20×1.5	13.7	42.0	25.0	27.0	20	11,5	2.50	50
272914	grey	17	M 20×1.5	13.7	46.0	31.0	27.0	27	11,5	2.76	50
272911	grey	17	M 25×1.5	16.5	46.0	31.0	33.0	27	11,5	3.50	50
272919	grey	23	M 32×1.5	21.4	56.0	37.0	39.0	34	11,5	5.00	30
272920	grey	29	M 40×1.5	27.3	58.0	46.0	49.0	42	13	8.50	10
metric											
272922	black	10	M 16×1.5	9.2	41.0	21.0	25.0	18	9	1.52	50
272923	black	12	M 20×1.5	13.7	42.0	25.0	27.0	20	11,5	2.50	50
272924	black	17	M 20×1.5	13.7	46.0	31.0	27.0	27	11,5	2.76	50
272921	black	17	M 25×1.5	16.5	46.0	31.0	33.0	27	11,5	3.50	50
272929	black	23	M 32×1.5	21.4	56.0	37.0	39.0	34	11,5	5.00	30
272930	black	29	M 40×1.5	27.3	58.0	46.0	49.0	42	13	8.50	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OZ PM Straight design with integrated cable nontension out of metal



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple installation, the protective conduit is simply inserted into the fitting

- as far as it will go
- The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP Cable fitting IP 68
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

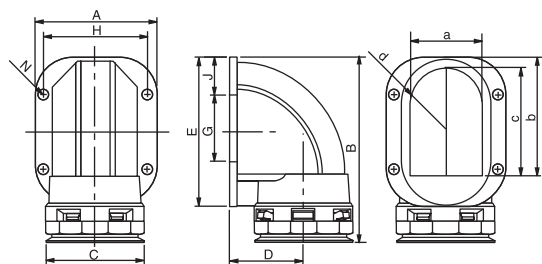
Design

- Polyamid 6, especially modified, thread MS58, nickel plated

Part-No.	Colour	NW	G1	d mm	Clamping range D mm	A mm	C mm	D mm	SW 1 = across flats mm	SW 2 = across flats mm	G mm	weight approx. kg/100 piece	PU piece
metric													
272962	grey	10	M 16×1.5	9.2	5.0 – 9.0	56.0	21.0	25.0	18	17	5	2.52	50
272958	grey	12	M 20×1.5	13.7	9.0 – 13.0	58.0	25.0	27.0	20	22	6	4.20	50
272963	grey	17	M 20×1.5	13.7	9.0 – 13.0	62.0	31.0	27.0	27	22	6	4.46	50
272959	grey	17	M 25×1.5	16.5	11.0 – 16.0	64.0	31.0	33.0	27	27	7	6.10	50
272960	grey	23	M 32×1.5	21.4	14.0 – 21.0	74.0	37.0	42.0	34	34	8	9.40	10
272961	grey	29	M 40×1.5	27.3	19.0 – 27.0	78.0	46.0	52.0	42	43	8	15.90	10
metric													
272972	black	10	M 16×1.5	9.2	5.0 – 9.0	56.0	21.0	25.0	18	17	5	2.52	50
272968	black	12	M 20×1.5	13.7	9.0 – 13.0	58.0	25.0	27.0	20	22	6	4.20	50
272973	black	17	M 20×1.5	13.7	9.0 – 13.0	62.0	31.0	27.0	27	22	6	4.46	50
272969	black	17	M 25×1.5	16.5	11.0 – 16.0	64.0	31.0	33.0	27	27	7	6.10	50
272970	black	23	M 32×1.5	21.4	14.0 – 21.0	74.0	37.0	42.0	34	34	8	9.40	10
272971	black	29	M 40×1.5	27.2	19.0 – 27.0	78.0	46.0	52.0	42	43	8	15.90	10

Cable conduits and conduit fittings

Protective conduit fitting Condufix OF PA 90°-flange angle design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- Fixes the ends of the protective conduit in the entering guides for cables on control cabinets, control units etc. Very fast and simple

- installation, the protective conduit is simply inserted into the fitting as far as it will go
- The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Filament control	960 °C IEC 60695
Temperature range	-25 °C to 105 °C
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

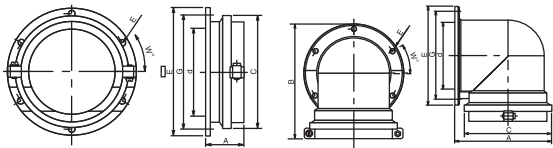
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	A mm	B mm	C mm	D mm	E mm	H mm	G mm	J mm	mm	B mm	c mm	d mm	N mm	weight ap- prox. kg/100 piece	PU piece
flange																	
272634	grey	17	44.0	67.0	29.0	24.0	48.4	34.3		24	17.0	33.0	25.0	8.0	5.5	1.82	50
272635	grey	23	53.0	81.0	37.0	42.0	27.0	43.2		21	24.0	42.0	37.0	12.0	5.5	2.76	30
272636	grey	29	60.0	87.0	45.0	32.0	66.0	48.2	24.0	21	30.0	49.0	45.0	15.0	6.5	4.76	10
272637	grey	36	70.0	103.0	53.0	39.0	75.6	57.2	30.0	24	36.5	60.0	54.0	18.0	6.5	6.90	10
272638	grey	48	80.0	107.0	67.0	45.0	81.0	68.2	54.1	12	47.0	61.0	55.0	24.0	6.5	11.10	5
flange																	
272644	black	17	44.0	67.0	29.0	24.0	48.4	34.3		24	17.0	33.0	25.0	8.0	5.5	1.82	50
272645	black	23	53.0	81.0	37.0	42.0	27.0	43.2		21	24.0	42.0	37.0	12.0	5.5	2.76	30
272646	black	29	60.0	87.0	45.0	32.0	66.0	48.2	24.0	21	30.0	49.0	45.0	15.0	6.5	4.76	10
272647	black	36	70.0	103.0	53.0	39.0	75.6	57.2	30.0	24	36.5	60.0	54.0	18.0	6.5	6.90	10
272648	black	48	80.0	107.0	67.0	45.0	81.0	68.2	54.1	12	47.0	61.0	55.0	24.0	6.5	11.10	5

Cable conduits and conduit fittings

Protective conduit fitting Condufix OF PA for NW 70 and NW 95 Straight and 90°-flange angle design



Protection class	IP IP 54
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

Design
• Polyamid 6, especially modified

- Application**
- Robotics, light to heavy machine and plant construction
 - Machines, apparatuses, devices
 - Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

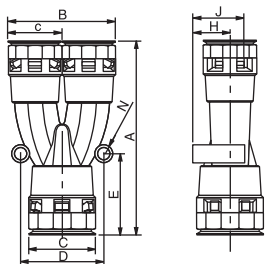
- Properties**
- Screw-type conduit to mount conduit onto cabinets, control devices, etc
 - Heat stabilized
 - Free from halogen, phosphorus, cadmium
 - Resistant to fuels, mineral oils, greases, alkaklies
 - Classification according EN 61386-1/23, -43-066(7)-31

Technical data

Part-No.	Colour	NW	d mm	A mm	B mm	C mm	E mm	G mm	W °	weight approx. kg/100 piece	PU piece
straight											
272276	grey	70	71.0	42.0		101.0	119	105	30	10.84	5
272277	grey	95	99.0	43.0		130.0	146	132	30	15.54	5
272278	black	70	71.0	42.0		101.0	119	105	30	10.84	5
272279	black	95	99.0	43.0		130.0	146	132	30	15.54	5
90° flange elbow											
272639	grey	70	71.0	111.0	142.0	101.0	119	105	30	19.50	5
272640	grey	95	99.0	143.0	99.0	130.0	146	132	30	33.50	5
272649	black	70	71.0	111.0	142.0	101.0	119	105	30	19.50	5
272650	black	95	99.0	143.0	99.0	130.0	146	132	30	33.50	5

Cable conduits and conduit fittings

Protective conduit splitter Condufix OY PA, Y design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- To reduce one protective conduit size into two small sizes
- Particularly rapid and safe assembly: the protective conduit is

simply pushed into the conduit splitter as far as it will go. The product has no parts that can get lost.

- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

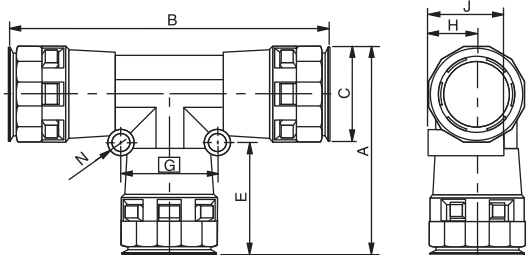
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	A mm	B mm	C mm	c mm	D mm	E mm	N mm	H mm	J mm	weight approx. kg/100 piece	PU piece
272674	grey	171212	89.0	47.0	18.00	14.0	34.0	37	5.0	9.0	24	2.70	20
272675	grey	231717	106.0	58.0	24.00	18.0	45.0	44	6.0	12.0	28	4.38	20
272676	grey	292323	118.0	74.0	30.00	24.0	52.0	45	6.0	15.0	35	6.86	10
272677	grey	362929	141.0	89.0	38.00	30.0	60.0	52	6.0	19.0	41	11.00	5
272678	grey	483636	153.0	106.0	49.00	38.0	76.0	54	7.0	25.0	50	16.76	5
272684	black	171212	89.0	47.0	18.00	14.0	34.0	37	5.0	9.0	24	2.70	20
272685	black	231717	106.0	58.0	24.00	18.0	45.0	44	6.0	12.0	28	4.38	20
272686	black	292323	118.0	74.0	30.00	24.0	52.0	45	6.0	15.0	35	6.86	10
272687	black	362929	141.0	89.0	38.00	30.0	60.0	52	6.0	19.0	41	11.00	5
272688	black	483636	153.0	106.0	49.00	38.0	76.0	54	7.0	25.0	50	16.76	5

Cable conduits and conduit fittings

Protective conduit splitter Condufix OT PA, T design



Application

- Robotics, light to heavy machine and plant construction
- Machines, apparatuses, devices
- Ship and railroad construction / rail transportation technology, vehicle construction as well as control cabinets

Properties

- To split one protective conduit size into two identical sizes
- Particularly rapid and safe assembly: the protective conduit is

- simply pushed into the conduit splitter as far as it will go. The product has no parts that can get lost.
- Heat stabilized
- Free from halogen, phosphorus, cadmium
- Resistant to against fuels, mineral oils, greases, alkalies
- Classification according to EN 61386-1/23, -43-066(7)-31

Technical data

Protection class	IP 66 (Standard) resp. IP 68 (20m water column) in conjunction with an O-ring in the protective conduit profile (insert area last groove) and flat seal at threads
Temperature range	-25 °C to 105 °C
Filament control	960 °C IEC 60695
Oxygen index	>30% EN ISO 4589
Burning behaviour	V2 UL94

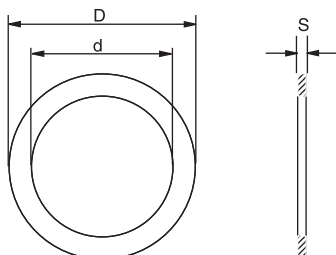
Design

- Polyamid 6, especially modified

Part-No.	Colour	NW	A mm	B mm	C mm	E mm	G mm	H mm	J mm	N mm	weight approx. kg/100 piece	PU piece
272651	grey	101010	46.0	72.0	20.00	27	19	10.0	18	5.0	1.44	20
272652	grey	121212	52.0	81.0	23.00	30	20	12.0	20	5.0	2.08	20
272653	grey	171717	63.0	96.0	29.00	35	28	14.0	25	6.0	3.37	20
272654	grey	232323	76.0	117.0	37.00	40	36	18.0	30	6.0	5.20	10
272655	grey	292929	85.0	128.0	45.00	41	41	22.0	36	6.0	8.42	5
272656	grey	363636	97.0	144.0	53.00	46	50	26.0	44	7.0	11.52	5
272661	black	101010	46.0	72.0	20.00	27	19	10.0	18	5.0	1.44	20
272662	black	121212	52.0	81.0	23.00	30	20	12.0	20	5.0	2.08	20
272663	black	171717	63.0	96.0	29.00	35	28	14.0	25	6.0	3.37	20
272664	black	232323	76.0	117.0	37.00	40	36	18.0	30	6.0	5.20	10
272665	black	292929	85.0	128.0	45.00	41	41	22.0	36	6.0	8.42	5
272666	black	363636	97.0	144.0	53.00	46	50	26.0	44	7.0	11.52	5

Cable conduits and conduit fittings

Flat seal for Condufix screw connections, FDNP



Application

- Seals for screw connections with outer thread

Properties

- Asbestos-free
- Resistant to against fuels, mineral oils, greases, alkalies

Technical data

Protection class	IP 68
Temperature range	-40 °C to +200 °C

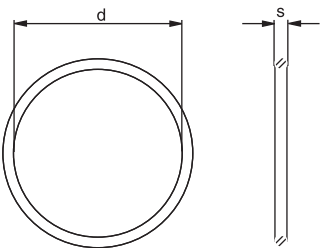
Design

- Aramid fibre composite

Part-No.	Thread	d mm	D mm	S mm	weight approx. kg/100 piece	PU piece
for metric threads						
274500	M 12×1.5	12.0	18.0	1.5	0.03	100
274501	M 16×1.5	16.0	22.0	1.5	0.04	100
274502	M 20×1.5	20.0	27.0	1.5	0.06	100
274503	M 25×1.5	25.0	35.0	1.5	0.13	50
274504	M 32×1.5	32.0	43.0	1.5	0.16	30
274505	M 40×1.5	40.0	55.0	1.5	0.29	20
274506	M 50×1.5	50.0	69.0	1.5	0.33	10
274507	M 63×1.5	63.0	82.0	1.5	0.47	10
for PG- threads						
274510	PG 7	12.4	18.0	1.5	0.04	100
274511	PG 9	15.2	21.0	1.5	0.04	100
274512	PG 11	18.6	26.0	1.5	0.06	100
274513	PG 13.5	20.4	29.0	1.5	0.07	100
274514	PG 16	22.5	33.0	1.5	0.12	100
274515	PG 21	28.3	39.0	1.5	0.12	50
274516	PG 29	37.0	49.0	1.5	0.16	30
274517	PG 36	47.0	59.0	1.5	0.22	20
274518	PG 48	59.3	71.0	1.5	0.26	10

Cable conduits and conduit fittings

O-rings for Condufix cable protective conduits and flange angle, OBNR and WNBR



- Application**
- Seals for mounting in the last groove of the protective conduit (insertion area) as well as for flange sealing
- Properties**
- Resistant to mineral oils, greases, water and glycols
- Technical data**
- | | |
|-------------------|------------------------------------|
| Protection class | IP 68 |
| Temperature range | -35°C to +100°C
temporary 130°C |
- Design**
- NBR 70

Part-No.	NW	d mm	S mm	weight approx. kg/100 piece	PU piece
for cable conduits; OBNR					
274520	7	6.4	1.3	0.01	100
274521	10	10.0	1.3	0.01	100
274522	12	11.5	1.5	0.01	100
274523	17	16.0	1.8	0.02	100
274524	23	22.0	2.0	0.03	50
274525	29	29.0	2.0	0.04	30
274526	36	34.0	2.3	0.06	20
274527	48	44.6	2.4	0.09	10
274528	70	70.0	4.0	0.37	5
274529	95	98.0	4.5	0.65	5
for flange angle; WNBR					
274533	17	32.0	2.5	0.07	50
274534	23	41.0	2.5	0.08	30
274535	29	51.0	2.5	0.10	10
274536	36	60.0	2.5	0.13	10
274537	48	66.0	2.5	0.14	5
274538	70	90.0	2.5	0.18	5
274539	95	117.0	2.5	0.22	5

Cable fittings and accessories

Plastic accessory GK metric

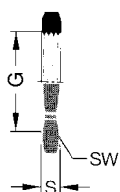


Properties

- – metric –
- Counter nut, hexagonal, with metric thread according to DIN 46320

Design

- Material Polyamide 6 GF 30
- Colour grey RAL 7001
- black RAL 9005
- other colour upon request



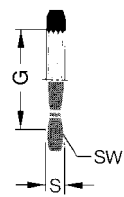
Part-No.	Type	G	SW mm	S mm	weight approx. kg/100 piece	PU piece
GK metric grey RAL 7001						
600398	GK M 12 × 1.5	M 12	17	5.0	0.10	100
600391	GK M 16 × 1.5	M 16	22	5.0	0.16	100
600392	GK M 20 × 1.5	M 20	26	6.0	0.23	100
600393	GK M 25 × 1.5	M 25	32	6.0	0.28	100
600394	GK M 32 × 1.5	M 32	41	7.0	0.41	100
600395	GK M 40 × 1.5	M 40	50	7.0	0.67	50
600396	GK M 50 × 1.5	M 50	60	8.0	1.14	50
600698	GK M 63 × 1.5	M 63	75	8.0	1.95	50
GK metric black RAL 9005						
600850	GK M 12 × 1.5	M 12	17	5.0	0.10	100
600851	GK M 16 × 1.5	M 16	22	5.0	0.14	100
600852	GK M 20 × 1.5	M 20	26	6.0	0.22	100
600853	GK M 25 × 1.5	M 25	32	6.0	0.26	100
600854	GK M 32 × 1.5	M 32	41	7.0	0.38	100
600855	GK M 40 × 1.5	M 40	50	7.0	0.63	50
600856	GK M 50 × 1.5	M 50	60	8.0	1.14	50
600857	GK M 63 × 1.5	M 63	75	8.0	1.78	50

Cable fittings and accessories

Plastic accessory GK



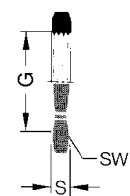
- Properties**
- Counter nut, hexagonal, with armour threads according to DIN 46320.
- Design**
- Material Polyamide 6 GF 30
 - Colour grey RAL 7001
 - black RAL 9005
 - other colors available on request



Part-No.	Type	G	SW mm	S mm	weight approx. kg/100 piece	PU piece
GK PG grey RAL 7001						
600430	GK PG 7	PG 7	19	5.0	0.13	100
600431	GK PG 9	PG 9	22	5.0	0.14	100
600432	GK PG 11	PG 11	24	5.0	0.15	100
600433	GK PG 13.5	PG 13.5	27	6.0	0.24	100
600434	GK PG 16	PG 16	30	6.0	0.31	100
600435	GK PG 21	PG 21	36	7.0	0.45	100
600436	GK PG 29	PG 29	46	7.5	0.68	50
600437	GK PG 36	PG 36	60	8.0	1.47	50
600438	GK PG 42	PG 42	65	8.0	1.53	50
600439	GK PG 48	PG 48	70	8.0	1.71	50
GK PG black RAL 9005						
600830	GK PG 7	PG 7	19	5.0	0.13	100
600831	GK PG 9	PG 9	22	5.0	0.14	100
600832	GK PG 11	PG 11	24	5.0	0.15	100
600833	GK PG 13.5	PG 13.5	27	6.0	0.24	100
600834	GK PG 16	PG 16	30	6.0	0.31	100
600835	GK PG 21	PG 21	36	7.0	0.45	100
600836	GK PG 29	PG 29	46	7.5	0.68	100
600837	GK PG 36	PG 36	60	8.0	1.47	50
600838	GK PG 42	PG 42	65	8.0	1.53	50
600839	GK PG 48	PG 48	70	8.0	1.71	50

Cable fittings and accessories

Metal accessory GMS



Properties

- Counter nut according to DIN 46320, hexagonal

Design

- Material Brass nickel-plated

Part-No.	Type	G	SW mm	S mm	weight approx. kg/100 piece	PU piece
GMS metric						
600368	GMS M 12 × 1.5	M 12	15	2.8	0.22	100
600361	GMS M 16 × 1.5	M 16	19	2.8	0.30	100
600362	GMS M 20 × 1.5	M 20	24	3.0	0.48	100
600363	GMS M 25 × 1.5	M 25	30	3.5	0.90	100
600364	GMS M 32 × 1.5	M 32	36	4.0	1.08	100
600365	GMS M 40 × 1.5	M 40	46	5.0	2.40	50
600366	GMS M 50 × 1.5	M 50	60	5.0	3.25	25
600367	GMS M 63 × 1.5	M 60	70	6.0	4.62	50
GMS PG						
600420	GMS PG 7	PG 7	15	2.8	0.18	100
600421	GMS PG 9	PG 9	18	2.8	0.23	100
600422	GMS PG 11	PG 11	21	3.0	0.30	100
600423	GMS PG 13.5	PG 13.5	23	3.0	0.36	100
600424	GMS PG 16	PG 16	26	3.0	0.50	100
600425	GMS PG 21	PG 21	32	3.5	0.79	100
600426	GMS PG 29	PG 29	41	4.0	1.30	50
600427	GMS PG 36	PG 36	51	5.0	2.10	50
600428	GMS PG 42	PG 42	60	5.0	3.45	25
600429	GMS PG 48	PG 48	64	5.5	3.50	50

Chemical resistance for polyamides

Substance	Resistance
Acetone	+
Ammonia	+
Arsenic acid, aqueous	+
Beer	+
Benzene	+
Benzine	+
Boracic acid, aqueous	O
Borax, aqueous	+
Butane, gaseous	+
Calcium chloride, aqueous	+
Carbon disulphide	+
Carbonic acid	+
Caustic potash solution	+
Caustic soda solution	+
Copper sulphate, aqueous	O
Dextrose, aqueous	+
Diesel oil	+
Ethyl acetate	+
Ethyl alcohol, aqueous	O
Ethyl ether	+
Fatty acids	O
Formic acid, aqueous	-
Fruit juices	+
Glycerine, aqueous	+
Heating oil	+
Hydraulic oils	+
Hydrogen	+
Hydrogen sulphide	+
Iron chloride, aqueous	O
Lactic acid, aqueous	O
Lead acetate, aqueous	O
Methyl acetate	+
Methyl alcohol	+
Methylethylketon	+
Mineral oils	+
Nitric acid, hydrochloric acid, aqueous	-
Nitrol	+
Oils and greases	
- mineral, without additives, at 20° C	+
- ASTM oil No. 1, 20° C	+
- ASTM oil No. 2, 20° C	+

Substance	Resistance
- ASTM oil No. 3, 20° C	+
- animal	+
- vegetable	+
- Transformer oils (pyranols)	+
- silicone-based	+
- Diesel oil	+
- Heating oil	+
- Hydraulic oils on	
- mineral-oil-based	+
- glycol-based	+
- phosphate-ester-based	+
- bore oil	+
- cutting oil	+
Ozone	O
Perchlorethylene	O
Petroleum	+
Phosphoric acid, aqueous	-
Potassium cyanide, aqueous	+
Propane, liquid	+
Saline solution	+
Seawater	+
Silica, aqueous	+
Skydrol	O
Soap solution	+
Sodium chloride	+
Spark erosion liquids	+
Starch, white	+
Stearic acid	+
Sulphuric acid, aqueous	-
Tallow	+
Tartaric acid, aqueous	-
Terpentine	+
Toluene	+
Transformer oil	+
Trichlorethylene	O
Urine	+
Vinegar and acetic acid, aqueous	+
Xylol	+
Zink sulphate, aqueous	O

Explanation of symbols: + = resistant / O = moderately resistant /
- = non-resistant

Properties of the protective pipes based on DIN EN 61 386-1

Code no.	Properties	OL PA	OS PA	OV PA	OR PA
1	Resistance to pressure	>250 N	>350N	>600N	>200N
2	Impact strength	6 J	6 J	6 J	6 J
3	Min. temperature resistance	-40°C	-40°C	-40°C	-50°C
4	Max. temperature resistance	+105°C	+105°C	+105°C	+90°C
5	Resistance to bending	>5000 cycles	>5000 cycles	>5000 cycles	>mio. cycles
6	Electrical characteristics	-	-	-	-
7	Resistance to solid bodies	IP 6X	IP 6X	IP 6X	IP 6X
8	Resistance to penetration by water	IP X6(7)	IP X6(7)	IP X6(7)	IP X6(7)
9	Resistance to corrosion	-	-	-	-
10	Tensile strength	>300N	>300N	>500N	>250N
11	Flame-spreading	Non-flame-spreading			
12	Bearing capacity for hanging loads	-	-	-	-

Cable conduits and conduit fittings

CONDUFLEX CONDUIT CF EL



Application

- The smooth inner wall fulfils the requirements in machine and plant construction

Properties

- Cable conduit from soft PVC
- With shrink-wrapped hard PVC spiral
- The hard PVC spiral is integrated into the conduit wall and thus gives the conduit a high degree of flexibility and form stability

Technical data

Smallest bending radius	1.5 × D
Temperature range	-20 °C to +60 °C
Burning behaviour	according to UL 94 V0

Design

- Colour grey

Part-No.	Type	suitable fitting Article number	Outer- mm	Inner- mm	Weight kg/100 m	shipment PU
CF EL grey						
270400	CF 8 EL	270500	12.1	8.0	5.0	30 m
270401	CF 12 EL	270501, 270551	16.4	12.0	7.5	30 m
270402	CF 16 EL	270552, 270502	20.7	16.0	10.0	30 m
270403	CF 20 EL	270503, 270553	25.0	20.0	12.5	30 m
270405	CF 28 EL	270505, 270555	33.8	28.0	21.0	30 m
270406	CF 35 EL	270506, 270556	41.0	35.0	24.0	30 m
270407	CF 40 EL	270507, 270557	46.4	40.0	34.0	30 m
270408	CF 50 EL	270508, 270558	57.2	50.0	45.0	30 m

Suitable conduit fitting:
Type CP EL, C EL and CPW

Cable conduits and conduit fittings

CONDUFIX CONDUIT CX PP



Application

- Vehicle and machine construction
- Electric and household appliance industries

Properties

- Two part conduit with circular, concentric and corrugated along the longitudinal axis
- Sealable slotted corrugated conduit, performs like a closed conduit
- Non-damaging and simple insertion of the cable through wide slotting
- Higher mechanical protection of the wires
- Filling degree up to 100% possible
- Emergence of individual conductors prevented even with the tightest bending radii
- Fire-protected
- Resistant to:
 - acids, bases, inorganic salts, fuels, mineral oils, greases as well as the most common solvents
- Conditionally resistant to: ether
- Unstable against:
 - halogenated, oxidising and aromatic bonds

Technical data

- | | |
|-------------------------|---|
| Smallest bending radius | 5.0 × D |
| Temperature range | -40 °C to +135 °C |
| Burning behaviour | according to UL 94 V2
according to FMVSS 302, self-extinguishing |

Design

- Colour black
- Material modified polypropylene with fire protection

Part-No.	Type	suitable fitting Article number	suitable conduit holder Article number	Outer-Ø mm	Inner-Ø mm	Weight kg/100 m	shipment PU
CX PP black							
271249	CX 12 PP	271248	270711	18.5	12.5	17.2	50 m
271250	CX 24 PP	271252	270713	30.8	23.4	11.8	50 m
271251	CX 31 PP	271253	270714	41.4	31.0	19.0	25 m
271254	CX 44 PP		270715	54.0	42.7	25.0	25 m

Cable conduits and conduit fittings

CONDUFLEX CONDUIT CF NM



Application

- For use as additional isolation of cables and wires for normal operational demands
- For protection against mechanical wear, moisture and contamination

Properties

- PVC protective conduit with smooth inner and outer surface.

Technical data

Smallest bending radius	2 × D
Temperature range	-5 °C to +80 °C
Shore hardness	75 D

Design

- Colour silver-grey

Part-No.	Type	suitable fitting Article number	Outer- mm	Inner- mm	Weight kg/100 m	shipment PU
CF NM						
271100	CF 5 NM		7.0	5.0	5.0	50 m
271101	CF 9 NM	270059	11.4	9.0	6.0	50 m
271102	CF 11 NM	270060	14.0	11.0	8.0	50 m
271103	CF 13 NM	270181, 270281, 270161	16.0	13.0	11.2	50 m
271104	CF 15 NM	270182, 270162	19.0	15.0	17.3	50 m
271105	CF 18 NM	270183, 270283, 270163, 270164	21.5	18.0	17.6	50 m
271106	CF 25 NM	270185, 270285, 270165	31.0	25.0	38.0	50 m
271107	CF 34 NM	270186, 270286	40.0	34.0	42.0	50 m

Cable conduits and conduit fittings

CONDUFLEX CONDUIT CF S



- Application**
- For use as additional isolation of cables and wires for normal operational demands
 - With additional hot-dipped galvanised steel braid for protection from glowing metal parts e.g. during welding

- Properties**
- PVC conduit with smooth inner and outer surface and additional hot-dipped galvanised steel braid

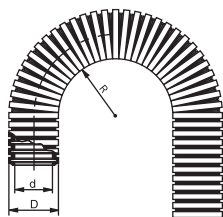
- Technical data**
- | | |
|-------------------------|-----------------|
| Smallest bending radius | 2 × D |
| Oil resistance | good |
| Temperature range | -5 °C to +80 °C |
| Shore hardness | 75 D |
| Steel braid | Wires Ø 22 mm |

- Design**
- Colour grey

Part-No.	Type	suitable fitting Article number	Outer-Ø mm	Inner-Ø mm	Weight kg/100 m	shipment PU
CF S						
270010	CF 9 S	270059	12.0	9.0	16.0	50 m
270011	CF 13 S	270181, 270281	17.0	13.0	22.0	50 m
270012	CF 15 S	270182	20.0	15.0	30.0	50 m
270013	CF 18 S	270183, 270283	22.0	18.0	34.0	50 m
270015	CF 25 S	270185, 270285	32.0	25.0	58.0	50 m

Cable conduits and conduit fittings

CONDUFLEX CONDUIT CF V



Application

- Light up to heavy machine and plant construction
- As additional isolation of cables and wires
- For kinking strains with tight bend radii
- For protection against mechanical wear, moisture and contamination

Properties

- Largely smooth inside and outside. Light and flexible, abrasion-resistant, Ozone-, UV-, cold- and oil-resistant.

Technical data

Temperature range	-20 °C to +60 °C
Protection class	IP 67

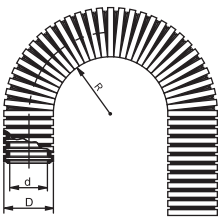
Design

- PVC-BUNA hose reinforced with hard PVC coil

Part-No.	NW	suitable fitting Article number	d mm	D mm	Minimum bending radius (fixed)	Weight kg/100 m	PU M
grey							
270030	9	270059,	9.0	13.0	33	8.5	50
270031	14	270181, 270281, 270161	14.0	18.6	62	14.0	50
270032	16	270182, 270533	16.0	20.6	62	15.0	50
270034	20	270184, 270574, 270163, 270164	20.0	24.8	68	20.5	50
270035	28	270185, 270285, 270165	28.0	33.2	104	27.5	50
270036	35	270186, 270286	35.0	41.0	140	33.5	50
270037	45	270067	45.0	51.4	215	51.0	50
270038	50	270068	50.0	56.6	242	59.0	50
270039	55	270069	55.0	62.0	290	65.0	50

Cable conduits and conduit fittings

CONDUFLEX CONDUIT CF VS



Application

- Light up to heavy machine and plant construction
- As additional isolation of cables and wires
- For kinking strains with tight bend radii
- The outer hot-dip galvanized steel wire braiding makes the hose particularly suitable for protection against hot metal particles, as well as mechanical wear, moisture and contamination.

Properties

- Largely smooth inside and outside. Light and flexible, abrasion-resistant, ozone-, UV-, cold- and oil-resistant.

Technical data

Temperature range	-20 °C to +60 °C
Protection class	IP 67

Design

- PVC-BUNA-hose with hard, reinforced-PVC-coil and with woven hot-dip galvanized steel wire.

Part-No.	suitable fitting Article number	NW	d mm	D mm	Minimum bending radius (fixed)	Weight kg/100 m	PU M
270050	270059,	9	9.0	14.0	33	16.5	50
270051	270181, 270281, 270161	14	14.0	19.6	62	24.0	50
270052	270182, 270533	16	16.0	21.6	62	27.0	50
270053	270184, 270574, 270163, 270164	20	20.0	25.8	68	34.5	50
270054	270185, 270285, 270165	28	28.0	34.2	104	28.5	50
270055	270186, 270286	35	35.0	42.0	140	91.0	50
270056	270067	45	45.0	52.4	215	105.0	50
270057	270068	50	50.0	57.6	242	124.0	50
270058	270069	55	55.0	63.0	290	183.0	50

Cable conduits and conduit fittings

WELLFLEX CONDUIT WF



Application

- Cabinet construction
- Suction line for gaseous media in the vacuum, ventilation and refrigeration industries.
- In swimming pool construction as well as in medical/chemical plant construction

Properties

- Circular, concentric and corrugated along the longitudinal axis
- High flexibility
- High restoring ability
- Resistant to: weak and organic acids, bases, inorganic salts, amines, alcohols and greases
- Conditionally resistant to: fuels and mineral oils
- Unstable against: strong acids, halogenated and oxidising connections, ketones, esters
- Smallest bending radius (neutral fibers) for a flattening of the outside $\leq 5\%$

Technical data

Oil resistance	good
Melting point	+90 °C – 100 °C
Temperature range	-40 °C to +55 °C

Design

- Colour grey
- Material Ethylene-vinyl acetate copolymer (EVA)

Part-No.	Type	NW	suitable conduit holder Article number	Outer- $\varnothing$ mm	Inner- $\varnothing$ mm	Smallest bending radius	Weight kg/100 m	shipment PU
WF								
270115	WF 23	23	270125, 272234	28.0	22.5	65	18.0	50 m
270116	WF 29	29	270126, 272235	33.8	28.5	80	28.0	25 m
270117	WF 36	36	270127, 272236	41.7	33.8	105	36.0	25 m
270118	WF 47	48	270128, 272237	53.1	45.0	140	50.0	25 m

Yield stress: DIN 53455; 10–20 N/mm²
 Elongation at break: DIN 53455; 700 – 800 %
 E-Module: DIN 53457; 75 – 105 N/mm²
 Impact resistance: DIN 53453; o.Br. mJ/mm²
 Notch impact strength DIN 53453; o-Br. mJ/mm²

Cable conduits and conduit fittings

Plastic conduit fitting Conduflex CP EL grey



- Properties**
- Plastic fitting consisting of fitting enclosure, clamp sealing ring and pressure screw , as well as Counter nut
 - Position the clamp sealing ring so that it extends from the fitting enclosure before applying the pressure screw. Pressure screw presses the conduit and sealing ring in the lower piece of the fitting and ensure a good clamping and sealing effect.

Technical data

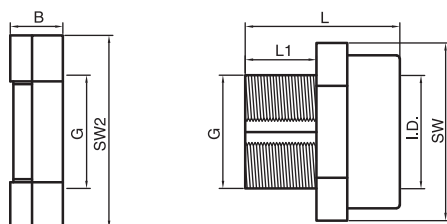
Temperature range	-20 °C to +60 °C
Burning behaviour	according to UL-94 V2
Protection class	IP 65

- Design**
- Material Polypropylene/polyamide
 - Colour grey

Part-No.	Type	Matching conduit Article number	I.D. mm	weight approx. kg/100 piece	PU piece
CP EL metric grey					
270551	CP 12 EL M 16 × 1.5	270401; 270411	12.0	1.00	50
270552	CP 16 EL M 20 × 1.5	270402; 270412	16.0	1.80	50
270553	CP 20 EL M 25 × 1.5	270403; 270413	20.0	2.20	25
270555	CP 28 EL M 32 × 1.5	270405; 270415	28.0	3.70	20
270556	CP 35 EL M 40 × 1.5	270406; 270419	35.0	4.50	20
270557	CP 40 EL M 50 × 1.5	270407; 270417	40.0	6.20	10
270558	CP 50 EL M 63 × 1.5	270408; 270418	50.0	7.20	20
CP EL PG grey					
270500	CP 8 EL PG 7	270400	8.0	0.50	50
270501	CP 12 EL PG 13.5	270401; 270411	12.0	0.90	50
270502	CP 16 EL PG 16	270402; 270412	16.0	1.70	50
270503	CP 20 EL PG 21	270403; 270413	20.0	2.10	50
270505	CP 28 EL PG 29	270405; 270415	28.0	3.60	20
270506	CP 35 EL PG 36	270406; 270419	35.0	4.50	50
270507	CP 40 EL PG 42	270407; 270417	40.0	6.10	20
270508	CP 50 EL PG 48	270408; 270418	50.0	7.10	10

Cable conduits and conduit fittings

CONDUFIX Plastic fitting CX VS



Application

- Buildings, plants, apparatuses
- Machines, control cabinets and vehicle construction applications

Properties

- Connection fitting from PA 6 for the fast mounting of corrugated pipes
- Problem-free post-installation possible
- Axially openable and reclosable connection fitting with integrally moulded holding bars
- Separable nut with safety catch against unintentional opening
- Strain relief of the holding conduit through holding bars
- Resistant against: fuels, minerals, greases, alkalis as well as the most common solvents
- Conditionally resistant to: bases, also in diluted form
- Unstable against: acids, halogen and oxidising connections

Technical data

Protection class IP 43

Design

- Material PA 6.6
- Colour black

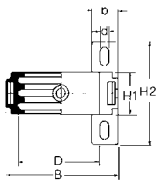
Part-No.	Type	Matching conduit Article number	G	I.D. mm	SW mm	SW 2 = across flats mm	L mm	L1 mm	B mm	weight approx. kg/100 piece	PU piece
CX VS											
271248	CX 12 VS	271249	PG 13.5	13.0	24	30	34.0	17	14.0	1.20	100
271252	CX 24 VS	271250	PG 29	24.0	41	46	42.0	21	17.0	1.30	50
271253	CX 31 VS	271251	PG 29	31.0	50	55	50.0	22	17.0	1.80	25

Cable conduits and conduit fittings

Plastic conduit holder WFH



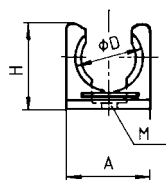
- Properties**
- – halogen-free –
 - Conduit holder
- Design**
- Material ABS
 - Colour grey



Part-No.	Type	Matching conduit Article number	Inner-∅ mm	d mm	B mm	b mm	H1 mm	H2 mm	weight approx. kg/100 piece	PU piece
WFH										
270125	WFH 23	270115	28.0	5.5	46.0	16.0	20.0	63.0	1.80	20
270126	WFH 29	270116	34.0	5.5	56.0	16.0	20.0	63.0	2.70	20
270127	WFH 36	270117	42.0	5.5	70.0	16.0	26.0	63.0	4.50	20
270128	WFH 47	270118	53.0	5.5	70.0	16.0	26.0	63.0	3.00	20

Cable conduits and conduit fittings

Plastic conduit holder SH



Application

- Suitable for all conduit types with corresponding outer diameter
- Secure attachment to e.g. floor, wall, ceiling, plates, housings and other machine parts
- Facilitates the running and/or retrofitting of wires/cables and reduces the installation time
- Installation of wires/cables in buildings, machines, switchgear, household appliances and motor vehicles

Properties

- A strain relief is achieved by an integrated serration in the clamp that also fixates the corrugated conduit in the axial direction
- Resistant to: fuels, mineral oils, greases, alkaklies as well as the most common solvents
- Conditionally resistant to: bases, also in diluted solution
- Unstable against: acids, halogen and oxidising connections

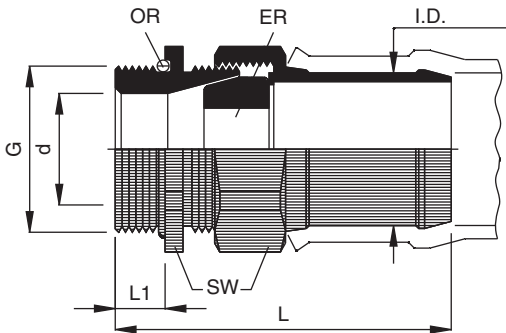
Design

- Colour black
- Material Polyamide 6, halogen-free, cadmium-free

Part-No.	Type	Matching conduit Article number	D mm	A mm	B mm	H mm	M mm	weight approx. kg/100 piece	PU piece
Holder for Condufix CX PP									
270711	SH 12 PP SW	271249	17.8	24.0	20.0	26.0	5	0.50	100
270713	SH 24 PP SW	271250	30.8	42.7	20.0	44.5	6	11.50	50
270714	SH 31 PP SW	271151	42.7	52.0	20.0	53.0	6	1.80	20
270715	SH 42 PP SW	271254	53.6	66.0	20.0	66.0	6	2.00	20

Cable conduits and conduit fittings

Metal conduit nipple CF WD



- Properties**
- Conduit nipple brass nickel-plated
 - Oil and water proof
 - WD hexagonal nut for additional sealing
 - O-Ring for sealed connection to enclosure

Technical data

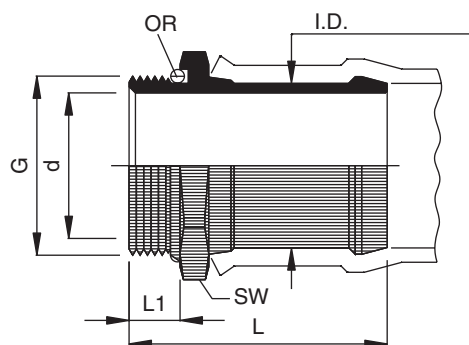
Protection class IP 65

- Design**
- Material MS 58 Brass nickel-plated

Part-No.	Type	Matching conduit Article number	I.D. mm	G	d mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
CF WD metric										
270281	CF WD M 16 × 1.5	271103, 270011, 270031, 270051	13.0	M 16	11.0	17	34.0	6.0	2.70	50
270283	CF WD M 20 × 1.5	271105, 270013, 270034, 270053	18.0	M 20	16.0	24	43.0	6.5	5.00	50
270285	CF WD M 25 × 1.5	271106, 270015, 270035, 270054	25.0	M 25	23.0	32	55.0	8.0	12.00	50
270286	CF WD M 32 × 1.5	271107, 270016, 270036, 270055	34.0	M 32	30.0	40	63.0	8.0	18.00	25

Cable conduits and conduit fittings

Metal conduit nipple CF



Properties

- Conduit nipple brass nickel-plated
- O-Ring for sealed connection to enclosure

Technical data

Protection class IP 65

Design

- Material MS 58 Brass nickel-plated

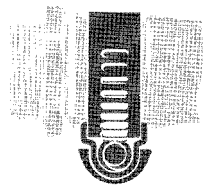
Part-No.	Type	Matching conduit Article number	I.D. mm	G	d mm	SW mm	L mm	L 1 mm	weight approx. kg/100 piece	PU piece
CF PG										
270059	CF PG 7	270010, 270030, 270050	9.0	PG 7	7.0	17	25.0	6.0	1.22	50
270061	CF PG 9	270011, 270031, 270051	13.0	PG 9	11.0	19	28.0	6.0	1.60	50
270060	CF PG 9/7	270010, 270030, 270050	9.0	PG 9/7	7.0	19	19.0	6.0	1.57	50
270062	CF PG 11	270012, 270032, 270052	15.0	PG 11	14.0	22	29.0	6.0	1.85	25
270063	CF PG 13.5	270013, 271034, 270053	18.0	PG 13.5	16.0	24	34.0	6.5	2.70	25
270064	CF PG 16	270014, 270034, 270053	18.0	PG 16	17.0	27	36.0	6.5	3.40	25
270065	CF PG 21	270015, 270035, 270054	25.0	PG 21	23.0	32	41.0	8.5	5.70	25
270066	CF PG 29	270016, 270036, 270055	34.0	PG 29	30.0	41	41.0	8.5	9.00	1
270067	CF PG 36	270037, 270056	45.0	PG 36	38.5	55	60.0	10.0	22.00	1
270068	CF PG 42	270038, 270057	50.0	PG 42	44.0	60	65.0	12.0	29.00	1
270069	CF PG 48	270039, 270058	55.0	PG 48	49.0	65	70.0	12.0	35.60	1
CF M										
270130	CF M 12	270010, 270030, 270050	9.0	M 12	7.0	17	25.0	6.0	1.22	50
270131	CF M 16	270011, 270031, 270051	13.0	M 16	11.0	19	28.0	6.0	1.60	50
270132	CF M 20	270013, 271034, 270053	18.0	M 20	16.0	24	34.0	6.5	2.70	25
270133	CF M 25	270014, 270034, 270053	18.0	M 25	17.0	27	36.0	6.5	3.40	25
270134	CF M 32	270015, 270035, 270054	25.0	M 32	23.0	32	41.0	8.5	5.70	25
270135	CF M 40	270016, 270036, 270055	34.0	M 40	30.0	41	41.0	8.5	9.00	1
270136	CF M 50	270037, 270056	45.0	M 50	38.5	55	60.0	10.0	22.00	1
270137	CF M 63	270039, 270058	55.0	M 63	49.0	65	70.0	12.0	35.60	1

Cable conduits and conduit fittings

Metal conduit clamp SL



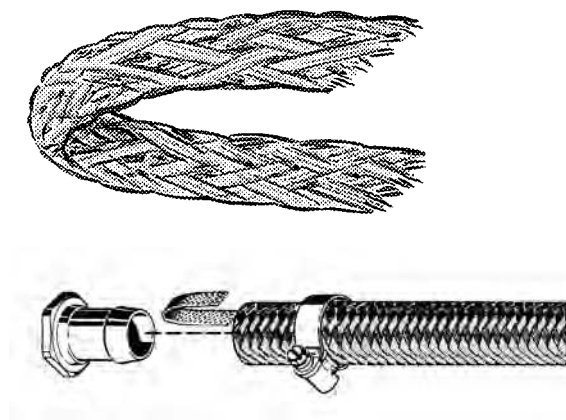
- Properties**
- Conduit clamp galvanised steel,
 - Self-locking worm screw



Part-No.	Type	Width mm	Clamping range D mm	weight approx. kg/100 piece	PU piece
SL					
270086	SL 15	9.2	10.0 – 16.0	1.00	100
270080	SL 19	9.2	12.0 – 20.0	1.30	100
270081	SL 26	9.2	16.0 – 27.0	1.80	100
270082	SL 32	9.2	20.0 – 32.0	2.00	100
270083	SL 47	9.2	32.0 – 50.0	2.50	100
270084	SL 57	9.2	40.0 – 60.0	2.80	100
270085	SL 70	9.2	50.0 – 70.0	3.50	50

Cable conduits and conduit fittings

Cu grounding strap



Application

- For use with steel wire encased conduit

Properties

- Copper band for ground

Part-No.	Type	Dimensions mm	weight approx. kg/100 piece	PU piece
Cu grounding strap				
270099	Copper grounding strap 1×2.5	5.8 × 1.0 mm = 2.5 mm ²	2.20	1

Mounting accessories and tools

Control panel installation



- Properties**
- The developed snap-fit socket with fully-protected wire connections and integrated snap connection enables a simple and quick installation in the control cabinet.

Part-No.	Type	Description	Nominal voltage range	Number of terminations	Voltage V	Colour	weight approx. kg/100 piece	PU piece
Socket ST 3/S								
680572	ST-3/S	Socket ST-3/S VDE approval	DC 10A / AC 16A	2	250	grey	6.20	10
680572S	ST-3/SO	Socket ST-3/SO VDE approval	DC 10A / AC 16A	2	250	grey	6.20	10
680576	ST-3/S	Socket ST-3/S VDE approval	DC 10A / AC 16A	2	250	yellow	6.20	10
Socket ST 3/A								
680571	ST-3/A	Socket ST-3/A with switch indicator (green glow lamp) VDE approval	DC 10A / AC 16A	2	250	grey	6.20	10
Socket ST 3/F								
680573	ST-3/F	Socket ST 3/F French design	DC 10A / AC 16A	2	250	grey	6.30	10
680575	ST-3/US	Socket ST-3/SO American design with switch indicator (green low lamp)	DC 10A / AC 16A	2	250	grey	6.20	10
Adapter								
680574	ST3/SEV TYP 13	Adapter ST3/SEV Type 13, suitable for ST-3/S, ST-3/A, ST-3/4.	DC 10A / AC 16A	2	250	grey	6.00	1
Socket 2× RJ45								
680500	2× RJ45	Socket 2× RJ45 Cat. 5, snap-fit	DC 10A / AC 16A	2×8		aluminium	15.00	5

Mounting accessories and tools

Control cabinet installation Neozed built-in fuse block ESS



Application

- Snap on connection to mounting rails according to DIN EN 50022.
- Suitable for amperages up to 63 amperes.
- Nominal voltage AC 380 V, DC 250 V.
- Through use of the comb rail KAS the wiring becomes more rational.
- It corresponds to DIN 49524 and VDE 0636.
- Protection against contact according to VGB 4.

Properties

- The ESS fuse block offers optimal protection against contact with current-carrying parts
- The closed box form enables secure wiring and operation of the socket
- Through the frame terminals, simple connection with flexible wires up to 25 mm² is possible
- Even under temperature fluctuations, the spring supported base contact creates a secure and constant connection
- Thus a self-loosening of the screw cap is prevented
- Through the use of the ESS fuse block, time and costs in machine and plant construction can be saved

Part-No.	Type	Width mm	Height mm	Depth mm	Nominal voltage range	Number of terminati- ons	Thread	max. con- nection mm ²	weight approx. kg/100 piece	PU piece
Neozed built-in fuse block ESS										
680581	ESS 316	81.0	80.0	60.0	16 A	3	E 14	25	38.40	3
680585	ESS 163	27.0	80.0	60.0	63 A	1	E 18	25	13.20	9
680586	ESS 363	81.0	80.0	60.0	63 A	3	E 18	25	39.60	3
680580	ESS 116	27.0	80.0	60.0	16 A	1	E 14	25	12.80	9
Screw cap ESS-SK										
680578	SK 16				16 A		E 14		1.00	20
680579	SK 63				63 A		E 18		1.40	20

Mounting accessories and tools

Control cabinet installation comb rails KAS



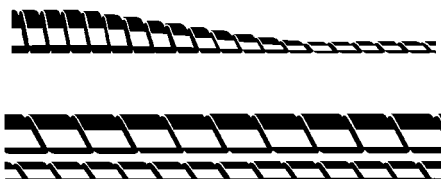
- Properties**
- Bar design 975 mm long, bar distance 27 mm, suitable for the contact-protected built-in fuse block ESS
- Technical data**
- | | |
|----------------|--|
| Amperage range | at 35°C ambient temperature and
centre supply:
with 10 mm approx. 80 A
with 16 mm approx. 120 A |
|----------------|--|

Part-No.	Type	Nominal voltage range	Connection	max. connection mm ²	Cu application weight kg/100 piece	weight approx. kg/100 piece	PU piece
Comb rail KAS							
680590	KAS 116	16 A	1	10	24	15.20	10
680591	KAS 163	63 A	1	16	32	17.40	10
680595	KAS 316	16 A	3	10	57	28.00	10
680596	KAS 363	63 A	3	16	78	32.00	10

Deliverable as 1-phase and 3-phase block

Mounting accessories and tools

Spiral band



Application

- - **halogen-free** -
- Spirflex spiral bands - for tying cables, wires and brains to cable trees
- The braids are protected from abrasion and can be branched off at any optional location

Properties

- Spirflex spiral bands have good chemical resistance and high abrasion resistance

Technical data

Temperature range -30 °C – +80 °C

Design

- Material PE
- Colour natural, black, yellow, white, orange

Part-No.	Type		Inner- mm	Outer- approx. mm	Strip width mm	bundling range from ... to mm	weight approx. kg/100 piece	shipment PU
Spiral band SP								
680150	SP 1	natural	1.4	3.0	5	2 – 12	0.50	100 m
680151	SP 2	natural	3.8	6.0	8	5 – 50	1.50	100 m
680153	SP 2 black	black	3.8	6.0	8	5 – 50	1.50	100 m
680158	SP 2 yellow	yellow	3.8	6.0	8	5 – 50	1.50	100 m
680152	SP 3	natural	10.0	12.7	11	10 – 100	4.00	50 m
680154	SP 3 black	black	10.0	12.7	11	10 – 100	4.00	50 m
spiral band SPF								
680156	SPF 2	white	3.8	6.0	8	5 – 50	1.50	100 m
680157	SPF 3	white	10.0	12.7	11	10 – 100	4.00	50 m
680159	SPF 3	orange	3.8	6.0	8	5 – 10	1.50	100 m

Mounting accessories and tools

Cable tie



- Application**
- Cable ties – fast and simple installation
 - For the bundling, binding and attaching of cables, conductors, braids, wires and conduit. **Non-detachable!**

Technical data
Temperature range -10 °C – +85 °C

- Design**
- Material Polyamide KSN = mold-resistant; KSS = UV-resistant
 - Colour natural, black

Part-No.	Type	Width mm	bundling range to approx. ... mm Ø	weight approx. kg/100 piece	PU piece
cable tie KSN					
680100	KSN 1	2.4	18	0.30	1000
680101	KSN 2	4.5	44	1.00	1000
680102	KSN 3	5.0	102	3.00	1000
Cable tie KSS					
680105	KSS 1	2.5	18	0.40	1000
680106	KSS 2	5.0	44	1.20	1000
680107	KSS 3	5.0	102	5.50	1000
680108	KSS 4	2.5	55	0.80	1000

Mounting accessories and tools

Ribbon tie FCM



- Application**
- Redetachable ribbon tie FCM, self-adhesive or screw-on
- Design**
- Material Polyamide
 - Colour grey

Part-No.	Type	weight approx. kg/100 piece	PU piece
Ribbon tie FCM			
680112	FCM 2	0.11	100
680113	FCM 3	0.17	50

FCM 2: for cable widths up to 2"
FCM 3: for cable widths up to 3"

Mounting accessories and tools

Tools



Application

- Tools for preparing cables

Part-No.	Type	Description	Weight (kg/piece) (kg/piece)	PU piece
Wire stripper AZ 1				
680018	AZ 1	The cutters in the wire stripper AZ 1 are automatically adjusted to the respective conductor gauge. An adjuster mechanism allows for adapting to different insulation thicknesses and hardnesses. For cable diameters from 0.08 – 1.0 mm²	0.250	1
Wire stripper AZ 2				
680017	AZ 2	The cutters in the wire stripper AZ 2 are automatically adjusted to the respective conductor gauge. An adjuster mechanism allows for adapting to different insulation thicknesses and hardnesses. For cable diameters from 0.5 – 4.0 mm²	0.150	1
Cable jacket stripper AS 1				
680005	AS 1	For easy stripping and cutting of wires and conduit. Especially suitable for shielded cables and conduit.	0.090	1
Ribbon cable stripper FCS				
680004	FCS	Crimp-free cutting of ribbon cables up to 81.5 mm width. The cutting plate is equipped with a stop bracket for right angle cutting. – Knee-lever transmission of power – Handles and blade holder from high-strength steel, bronzed – Plastic-coated handles, blue – Replaceable cutting surface from fibre glass reinforced plastic – Replaceable blade from hardened special steel	0.850	1
Shears GS 85				
680021	GS 85	For trimming of plastic parts. This is the indispensable, lightweight, easy-to-use shears for daily work with the LSC system. Precise trimming of comb profiles KP 300, KP 301, wiring profile LV 78, covers of all sizes KD 50, KD 51, adaptor profile, perforated rubber strips, labelling strips etc. – burr -free – easy, non-tiring work with proven cutting principle.	0.750	1
Cable cutter KS 16				
680020	KS 16	The special blade shape of the cable cutter KS 16 produces a pulling cut and is suitable for wires up to 16 mm outer diameter.	0.130	1
cable slitting knife KM 1				
680000	KM 1	The ideal knife for removing cable jackets and stripping insulation from multi-strand wires or cables with large cross sections. Automatic conversion of the cutting blade from round to longitudinal cut. Cutting depth of the blade is fully adjustable using the screw in the handle end. Replacement blades in handle. Accessible by loosening the three screws in the handle. Suitable for wires and cables from 8 – 25 mm outer diameter	0.090	1

Labelling system

Multimark marking collars, halogen-free/Multimark marker



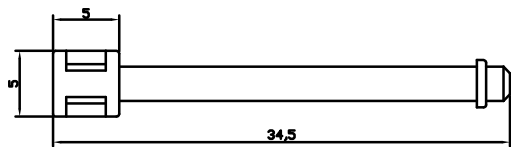
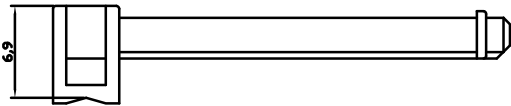
Application

- For the labelling of wires of the most different cable diameters

Part-No.	Length mm	Description	Colour	PU piece
Multimark, marking sleeves, halogen-free				
681110	18.00	The Multimark marking collars serve for the labelling of wires. A collar size for cable diameters 1.8 – 4.0 mm. The labelling is done on the Multimark marker which is inserted into the collar.	transparent	2200
681111	18.00	The Multimark marking collars serve for the labelling of wires. A collar size for cable diameters 3.5 – 8.0 mm. The labelling is done on the Multimark marker which is inserted into the collar.	transparent	1100
681112	18.00	The Multimark marking collars serve for the labelling of wires. A collar size for cable diameters 7.5 – 11.0 mm. The labelling is done on the Multimark marker which is inserted into the collar.	transparent	550
681113	18.00	The Multimark marking collars serve for the labelling of wires. A collar size for cable diameters 8.5 – 17.0 mm. The labelling is done on the Multimark marker which is inserted into the collar.	transparent	550
Multimark, marker				
681014	18.00	The Multimark marker is supplied on endless release paper and can be easily applied to the marking collars through the perforation.	white	6.600

Labelling system

Wire and cable marking



- Application**
- This versatile system offers you solutions all of your labelling needs for wires and cables.
 - The system consists of marker holders, cable ties and symbols. Eight labelling rings can be snapped onto every label holder
 - The non-detachable label with the LÜTZE wire and cable marking system is suitable for individual wires and cables with a diameter of 2 mm to approx. 20 mm, and with our cable ties KSS4
 - Available as special accessory, up to a diameter of 55 mm
- Properties**
- The label holder is supplied with cable ties

Part-No.	Type	PU piece
marker holder		
681090	KZT 2	500 pieces/pack.

Labelling system

Wire and cable marking



Application

- Modifications are possible at any time, quickly, easily and without rewiring
- Even labelling closely lying conductors and cables is no problem

Properties

- The labelling rings are made of soft plastic with indelible black deep embossing

Part-No.	Type	PU piece
Labelling ring for wires with a diameter of 1.9 to 2.65 mm		
681300	KR 03 0	300 Markers on 10 rods per package
681301	KR 03 1	300 Markers on 10 rods per package
681302	KR 03 2	300 Markers on 10 rods per package
681303	KR 03 3	300 Markers on 10 rods per package
681304	KR 03 4	300 Markers on 10 rods per package
681305	KR 03 5	300 Markers on 10 rods per package
681306	KR 03 6	300 Markers on 10 rods per package
681307	KR 03 7	300 Markers on 10 rods per package
681308	KR 03 8	300 Markers on 10 rods per package
681309	KR 03 9	300 Markers on 10 rods per package
681336	KR 03 +	300 Markers on 10 rods per package
681337	KR 03 -	300 Markers on 10 rods per package
681338	KR 03 /	300 Markers on 10 rods per package
681339	KR 03 ÷	300 Markers on 10 rods per package
681330	KR 03 U	300 Markers on 10 rods per package
681331	KR 03 V	300 Markers on 10 rods per package
681332	KR 03 W	300 Markers on 10 rods per package
681323	KR 03 N	300 Markers on 10 rods per package
Labelling ring for the label holder and conductors with a diameter from 2.6 to 3.5 mm		
681400	KR 06 0	300 Markers on 10 rods per package
681401	KR 06 1	300 Markers on 10 rods per package
681402	KR 06 2	300 Markers on 10 rods per package
681403	KR 06 3	300 Markers on 10 rods per package
681404	KR 06 4	300 Markers on 10 rods per package
681405	KR 06 5	300 Markers on 10 rods per package
681406	KR 06 6	300 Markers on 10 rods per package
681407	KR 06 7	300 Markers on 10 rods per package
681408	KR 06 8	300 Markers on 10 rods per package
681409	KR 06 9	300 Markers on 10 rods per package
681410	KR 06 A	300 Markers on 10 rods per package
681411	KR 06 B	300 Markers on 10 rods per package
681412	KR 06 C	300 Markers on 10 rods per package
681413	KR 06 D	300 Markers on 10 rods per package
681414	KR 06 E	300 Markers on 10 rods per package
681415	KR 06 F	300 Markers on 10 rods per package
681416	KR 06 G	300 Markers on 10 rods per package
681417	KR 06 H	300 Markers on 10 rods per package
681418	KR 06 I	300 Markers on 10 rods per package
681419	KR 06 J	300 Markers on 10 rods per package
681420	KR 06 K	300 Markers on 10 rods per package
681421	KR 06 L	300 Markers on 10 rods per package
681422	KR 06 M	300 Markers on 10 rods per package
681423	KR 06 N	300 Markers on 10 rods per package
681425	KR 06 P	300 Markers on 10 rods per package
681426	KR 06 Q	300 Markers on 10 rods per package
681427	KR 06 R	300 Markers on 10 rods per package
681428	KR 06 S	300 Markers on 10 rods per package
681429	KR 06 T	300 Markers on 10 rods per package
681430	KR 06 U	300 Markers on 10 rods per package
681431	KR 06 V	300 Markers on 10 rods per package
681432	KR 06 W	300 Markers on 10 rods per package
681433	KR 06 X	300 Markers on 10 rods per package
681434	KR 06 Y	300 Markers on 10 rods per package
681435	KR 06 Z	300 Markers on 10 rods per package
681436	KR 06 +	300 Markers on 10 rods per package
681437	KR 06 -	300 Markers on 10 rods per package
681438	KR 06 /	300 Markers on 10 rods per package
681439	KR 06 ÷	300 Markers on 10 rods per package
681441	KR 06 :	300 Markers on 10 rods per package

Labelling system

Wire and cable marking



Application

- Modifications are possible at any time, quickly, easily and without rewiring
- Even labelling closely lying conductors and cables is no problem

Properties

- The labelling rings are made of soft plastic with indelible black deep embossing

Part-No.	Type	PU piece
Labelling ring for wires with a diameter of 3.25 to 4.5 mm		
681500	KR 09 0	300 Markers on 10 rods per package
681501	KR 09 1	300 Markers on 10 rods per package
681502	KR 09 2	300 Markers on 10 rods per package
681503	KR 09 3	300 Markers on 10 rods per package
681504	KR 09 4	300 Markers on 10 rods per package
681505	KR 09 5	300 Markers on 10 rods per package
681506	KR 09 6	300 Markers on 10 rods per package
681507	KR 09 7	300 Markers on 10 rods per package
681508	KR 09 8	300 Markers on 10 rods per package
681509	KR 09 0	300 Markers on 10 rods per package
681536	KR 09 +	300 Markers on 10 rods per package
681537	KR 09 -	300 Markers on 10 rods per package
681538	KR 09 /	300 Markers on 10 rods per package
681539	KR 09 ÷	300 Markers on 10 rods per package
681530	KR 09 U	300 Markers on 10 rods per package
681531	KR 09 V	300 Markers on 10 rods per package
681532	KR 09 W	300 Markers on 10 rods per package
681523	KR 09 N	300 Markers on 10 rods per package

Labelling system

Rail for marker holders/marker holder



- Properties**
- System for manual labelling



Part-No.	Type	Description	Dimensions mm	PU piece
rail for marker holders BTS				
681314	BTS 301	The rail for marker holders BTS serve as non-detachable marking of the devices. The markers lock in place in the rail for marker holders and are exchangeable. To attach the BTS, peel off the protective foil from the underside adhesive side of the BTS and press on firmly Material: Hard PVC Colour: grey Burning behaviour: UL-94 V2 Rail for marker holders for the marker holder BZT 0920 Examples from our product range: Rail for marker holders Part-No. 330 035 Rail for marker holders Part-No. 681 314 MICROCOMPACT Valve plug DIOFACE DIOPLEX Actuator sensor boxes	10×1000 (W×L)	1
Marker holder BZT				
681311	BZT 0720	Suitable for our MICROCOMPACT modules Type series 12.5 mm and Siemens control unit SIRIUS 3 R.	7×20 (W×L)	100
681312	BZT 0420	Suitable for our MICROCOMPACT modules Model range 6.2 mm 4-pole enclosure and Siemens interstage networks 3TX7 004/5- M... and Siemens interstage networks 3TX7 004/5- AB04	4×20 (W×L)	100
681313	BZT 0411	Suitable for our MICROCOMPACT modules Model range 6.2 mm 5-pole enclosure and Siemens interstage networks 3TX7 004/5- 1L...	4×11 (W×L)	100
681315	BZT 0920	Suitable for all devices with standardised marker holders. (Siemens control units and many more)	9×20 (W×L)	100

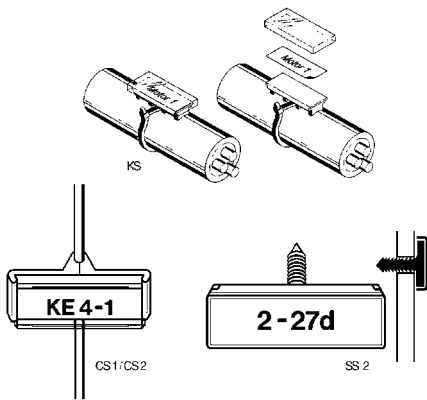
Labelling system

Identification of hook-up wires and cables



Technical data
Stability UV-stable and non-yellowing

Design
• Material Polypropylene
Covering cap: Polystyrene



Part-No.	Type	Description	Dimensions mm	weight approx. kg/100 piece	PU piece
Clip-on marker CS 1/CS 2					
680418	CS 1	For labelling of devices and supply cables after the wiring. Termination area 0.75 to 4.0 mm clip-on markers are supplied with labelling sheets. Labelling sheets for laser printer see system for laser printer labelling.	28 × 11	0.10	500
680419	CS 2	For labelling of devices and supply cables after the wiring. Termination area 0.75 to 4.0 mm clip-on markers are supplied with labelling sheets. Labelling sheets for laser printer see system for laser printer labelling.	39 × 15.5	0.30	500
Cable marker KS 1					
681310	KS 1	The cable marker KS 1 is designed for the labelling of cables, wires and conduits, pipes etc. in raw, moist and dusty environments. The label with the information is embedded in the cable marker and thus fully protected. The marker is attached using cable ties. Cable markers are supplied with labelling sheets labelling sheets for laser printer see system for laser printer labelling.	34 × 16	0.30	500
Plug-in markers SS 2					
680424	SS 2	For the labelling of devices on the mounting panel. Hole 4 mm. Pressing in of the plug-in marker. Securely locked in by plastic lugs. Plug-in markers are supplied with labelling sheets. labelling sheets see system for laser printer labelling.	32.0 × 12.0		

Labelling system

Sheet labels



Application

- For on-site hand-written labelling

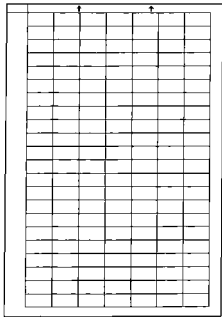
Properties

- Labelling sheet

Part-No.	Type	Description	Dimensions mm	Label/Sheet
Labels on sheets with black border				
681003	EB 1119	For on-site hand-written labelling. Material: PVC impregnated fabric yellow Good adhesive force temperature range: – 30 °C to + 80 °C Sheet size: 200 × 240 mm Resistant to water, sea water, alcohol, motor oil, benzine, methanol	11 × 19	200
681004	EB 1128	For on-site hand-written labelling. Material: PVC impregnated fabric yellow Good adhesive force temperature range: – 30 °C to + 80 °C Sheet size: 200 × 240 mm Resistant to water, sea water, alcohol, motor oil, benzine, methanol	11 × 28	120
681005	EB 1138	For on-site hand-written labelling. Material: PVC impregnated fabric yellow Good adhesive force temperature range: – 30 °C to + 80 °C Sheet size: 200 × 240 mm Resistant to water, sea water, alcohol, motor oil, benzine, methanol	11 × 38	100
Labels on sheets, endless form				
680428	BS-CS 1	Labelling sheet	20.5 × 9.0	360
680429	BS-CS 2	Labelling sheet	30.3 × 12.8	168

Labelling system

Laser labels



- Application**
- For the printing with laser printer
 - The high-contrast printing and the high resolution of laser printers set quality standards
 - The available border and the appropriate row and column spacing enable the optimal utilisation of the entire labelling field of the self-adhesive labels
 - Very high resistance to external influences and very high ageing resistance of the printed image.
- Design**
- Material Polyester white matt
 - Dimension 0.05 mm

Part-No.	Type	Description	Dimensions mm	Label/Sheet
Laser labels				
681316	BSL-CS 1	Labels for clip on markers CS 1	8.5 × 20	270
681318	BSL-SS 2	Labels for identification of hook-up wires and cables CS 2, SS 2 and KS 1.	12 × 29	138
Self-adhesive laser labels				
681031	LEB A4 PW	Labels suitable for: marker holder BZT 0920 MINICOMPACT DIOFACE valve plug all devices with standard marker	Sheet non-punched	
681032	LEB 0920 PW	Labels suitable for: marker holder BZT 0920 MINICOMPACT DIOFACE valve plug all devices with standard marker	9 × 20	270
681033	LEB 0615 PW	Labels suitable for: marker holder BZT 0720 MINICOMPACT modules 12.5 mm Actuator sensor boxes DIOPLEX	6.35 × 15.24	518
681034	LEB 0411 PW	Labels suitable for: marker holder BZT 0411 MICROCOMPACT modules 6.2 mm	4.23 × 11	1056

Labelling system

System for laser print labelling



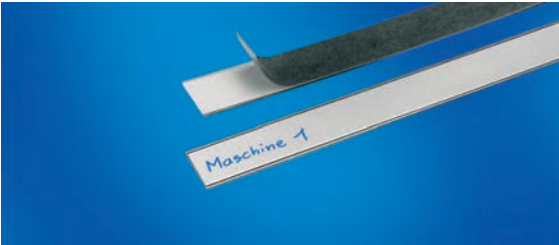
Application

- For the creation of labels using Windows 95/98, ME, NT, 2000 or XP
- PrintEasy is a powerful, immediately usable application for label design under Windows. Using PrintEasy, texts, graphics and bar codes can be easily combined and output as professional labels. Logically designed menu navigation and WYSIWYG preview allow for fast and accurate design of labels. Print Easy is optimised for the use of the numerous laser print materials and is equipped with all templates for thermotransfer standard labels.
- The film material is thicker as normal paper, thus we recommend the use of the single sheet feed on the laser printer

Part-No.	Type	Packaging unit
Software for laser printer		
681030	ECC4	Pack = 1 license with manual

Labelling system

Marker strips

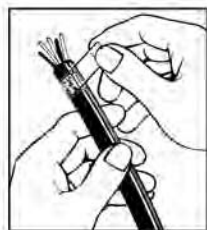


- Application**
- Marker strips flexible and self-adhesive
 - For the labelling of cable channels, control panels, operator panels . .
 - The labelled inserts are protected by a transparent film
 - Transparent hard film with exchangeable case strips for self-labelling
 - Can be cut to any desired width
 - Film and labelling strips are supplied separately

Part-No.	Type	Description	PU piece
Marker strip BS			
680420	BS	Width × Length: 21.5 mm × 1000 mm max. Labelling surface area: 18.0 mm × 1000 mm	10

Labelling system

Cable marker



Application

- For on-site hand-written labelling
- Blocked in handy sizes

Properties

- Permanent adhesive strength
- Resistant to dirt, water, alcohol, petroleum-based oils
- Labelling field white

Technical data

Temperature range -30 °C to +120 °C

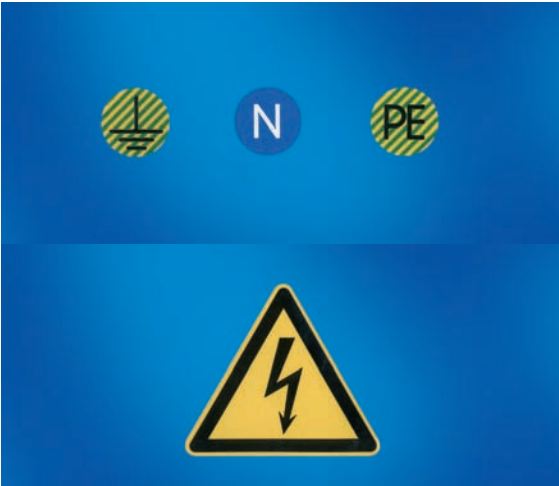
Design

- Material PVC transparent
- Dimension 25 × 25 mm

Part-No.	Type	Description	Dimensions mm
Cable marker TKM			
681001	TKM 75	f. Cable diameter max. 14 mm 60 marker/package	75 × 25
681002	TKM 150	f. Cable diameter max. 38 mm 30 marker/package	150 × 25

Labelling system

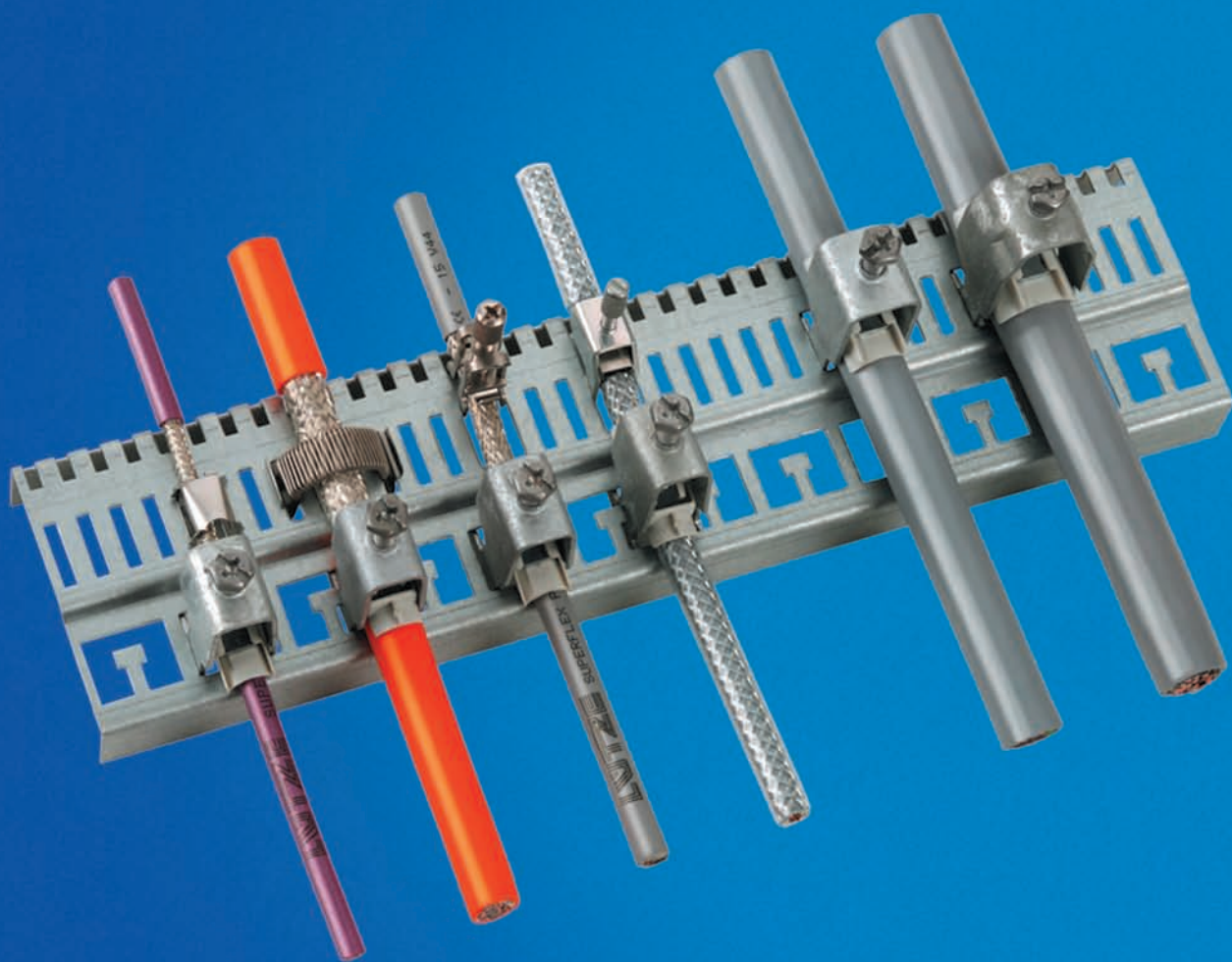
Wire markers LKZ



- Application**
- For labelling of rails, connections or equipment
 - For labelling of systems and devices
- Design**
- Material self-adhering PVC foil with lamination 0.10 mm strong

Part-No.	Type	Description	Diameter mm	Page length mm
Wire markers LKZ				
681011	LKZ 12.B4	Earth: 1 card with 10 LKZ stickers	12.5	
681019	LKZ 12 B6	Earth marking: 1 card with 10 LKZ stickers	12.5	
681018	LKZ 12.PE	Ground conductor: 1 card with 10 LKZ stickers	12.5	
681017	LKZ 12.N	Neutral conductor: 1 card with 10 LKZ stickers	12.5	
Safety sign ESSW				
681008	ESSW 1025	10 markers/card		25
681009	ESSW 1050	2 markers/card		50
681010	ESSW 1100	2 markers/card		100
681012	ESSW 1200	1 shield/card		200

15. EMC accessories



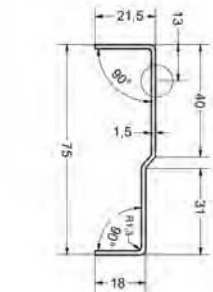
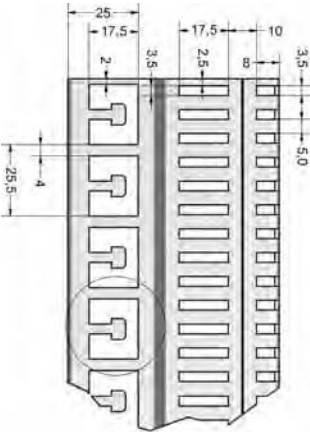
EMC accessories

EMC shield rail

EMC shield rail with cable clamping options for a wide variety of shield clamps



Dimensions

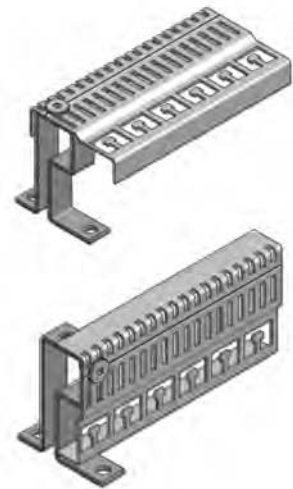
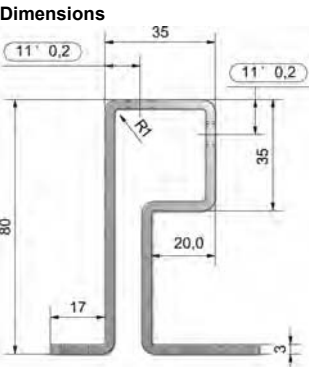


Description	Part-No.	Type	PU	
EMC shield rail	346812	EMVS 03-46812	1	
Technical data	346812			
Number of shield points	46			
Length	1173.00 mm			
Height	75.0 mm			
Width	21.5 mm			
Weight (kg/piece)	1.169			
General				
Material	ST37-2-G			
Surface	burr-free			
Colour	Sendzimir galvanised 20-25 µm			
Storage temperature range	-30 °C – 90 °C			
Operation temperature range	-5 °C – 80 °C			
usable shield clamps	for cable Ø mm	Type	Article number	PU
Shield clamp	0–12	EMVSK 12	330089	100
Spring shield clamp	12–20	EMVFSK 1	330071	50
Spring shield clamp	20–30	EMVFSK 2	330072	50
Spring shield clamp	30–50	EMVFSK 3	330073	50
Matal tie wrap	250 mm lengh	KSE	330060	50
as clamping option	for cable Ø mm	Type	Article number	PU
Cable clamp	8–12	KS 0	331000	25
Cable clamp	12–16	KS 1	331001	25
Cable clamp	16–22	KS 2	331002	25
Cable clamp	34–40	KS 3	331003	25
Cable clamp	52–58	KS 4	331004	25

Comments
Mounting hole, diam. 8.5 mm, is made by the user.
Shield rails are mounted via spacing rollers DR 20×18/8.5 Article no. 330930.0100
possible screw M8×30, Article no. 331050.0100

EMC accessories

Mounting bracket Mounting bracket for fastening the EMC rail in the control cabinet



Description	Part-No.	Type	PU
Mounting bracket	346860.0002	HW-EMVS 03	2
Technical data	346860.0002		
Dimensions (w × h × d)	18.0 × 80.0 × 65.0 mm		
Material thickness	3 mm		
Thread	2×M8		
Hole diameter	2× 8.5 mm		
Weight (kg/100 pcs.)	9.800		
General			
Material	S235JR (ST37-2)		
Surface	smooth		
Colour	Punched edges bare/bright galvanised		
Storage temperature range	-30 °C – 90 °C		
Operation temperature range	-5 °C – 80 °C		
Comments			
suitable for shield rail 346813			

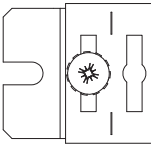
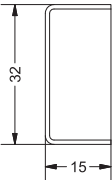
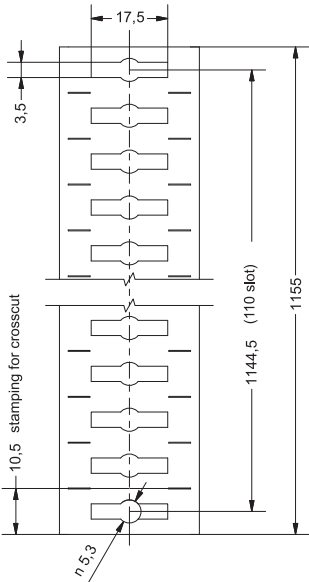
EMC accessories

EMC shield rail

EMC shield rail with cable clamping options for a wide variety of shield clamps



Dimensions

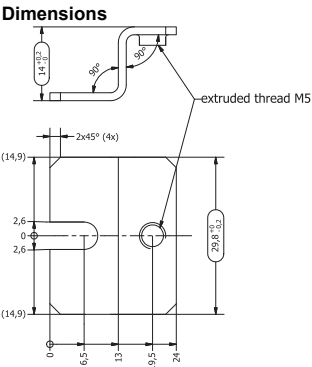


Description	Part-No.	Type	PU
EMC shield rail	346813	EMVS 04-55813	1
Technical data	346813		
Number of shield points	max. 55		
Dimensions (w × h × d)	32.0 × 15.0 × 1155.0 mm		
Weight (kg/100 pcs.)	0.466		
Hole diameter	5.3 mm		
General			
Material	Sheet steel		
Surface	galvanised		
Colour	Punched edges bare/natural		
Storage temperature range	-30 °C – 90 °C		
Operation temperature range	-5 °C – 80 °C		
Accessories	Article number	Type	PU
Bracket	346814.0010	HW EMVS-04	10

EMC accessories

Bracket

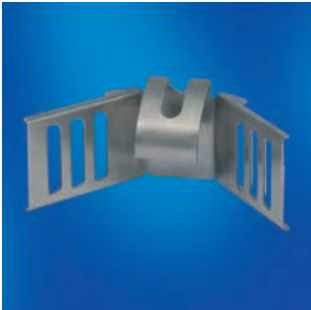
Retaining bracket for fastening the EMC rail



Description	Part-No.	Type	PU
Bracket	346814.0010	HW-EMVS 04	10
Technical data	346814.0010		
Dimensions (w × h × d)	29.8 × 14.0 × 24.0 mm		
Material thickness	1,5 mm		
Thread	M5		
Hole diameter	—		
Weight (kg/100 pcs.)	0.800		
General			
Material	V2A		
Surface	smooth		
Colour	Punched edges bare/natural		
Storage temperature range	-30 °C – 90 °C		
Operation temperature range	-5 °C – 80 °C		
Comments			
suitable for shield rail 346813			

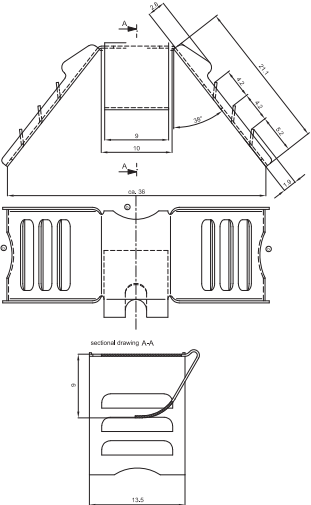
EMC accessories

Shield clamp



Description	Part-No.	Type	PU
Shield clamp	330089	EMVSK 12	100
Technical data	330089		
For cable diameter	0–12 mm		
Weight (kg/100 pcs.)	0.250		
General			
Material	Sheet steel 1.4310		
Material thickness	0,3 mm		
Surface	smooth/burr-free		
Colour	bare/stainless		
Operation temperature range	0 °C – 60 °C		

Dimensions

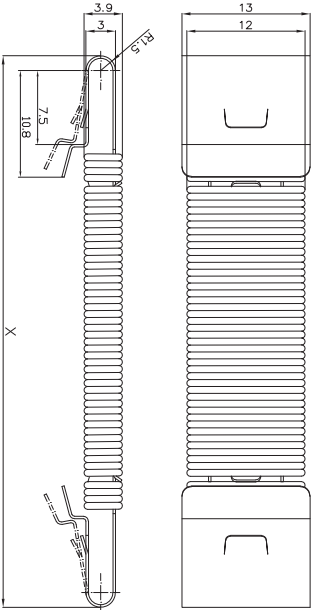


EMC accessories

Spring shield clamp Shield connection for large-diameter cables



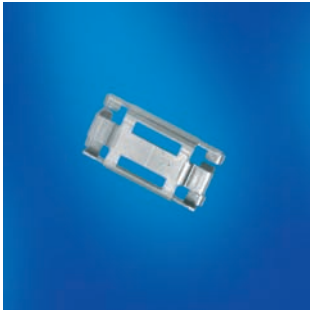
Dimensions



Description	Part-No.	Type	PU
Spring shield clamp	330071	EMVFSK 1	50
	330072	EMVFSK 2	50
	330073	EMVFSK 3	50
Technical data	330071	330072	330073
For cable diameter	12 – 20 mm	20 – 30 mm	30 – 50 mm
Length	42.00 mm	55.00 mm	74.00 mm
Weight (kg/100 pcs.)	0.300	0.500	0.700
Tensile strength (N/mm ²)	1000–1200		
General			
Material	Sheet steel 1.4310		
Colour	bare/stainless		
Operation temperature range	0 °C – 60 °C		

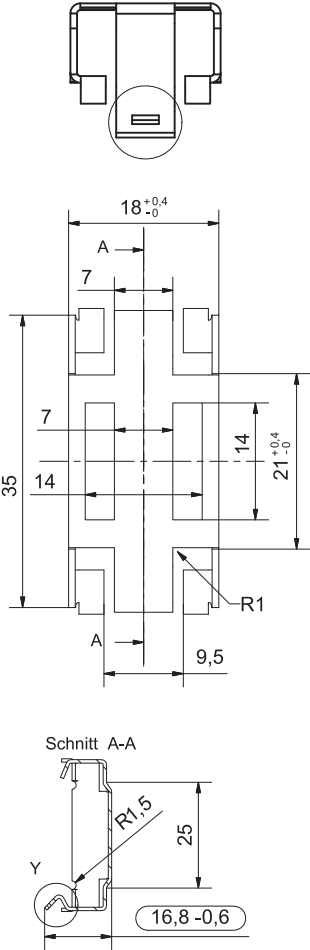
EMC accessories

Snap-on element for snapping onto hat rail



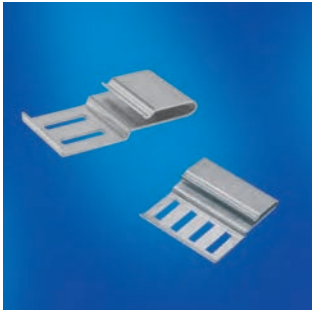
Description		Part-No.	Type	PU
Snap-on element				
Length	18.00 mm	330088	EMVRE H 1	10
Technical data			330088	
Weight (kg/100 pcs.)			0.700	
General				
Material			Spring steel	
Colour			bare/stainless	
Operation temperature range			0 °C – 60 °C	
Comments				
suitable for all webs of the series S, SN and hat rails				
Application example				

Dimensions



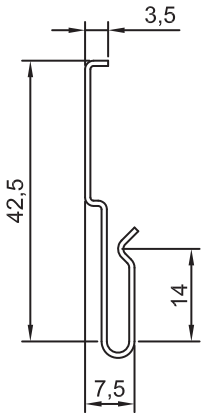
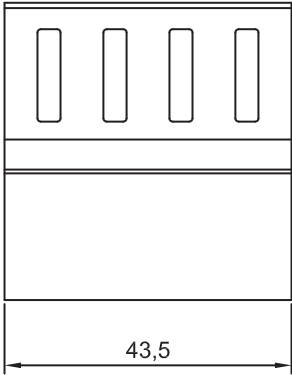
EMC accessories

Snap-on element can be snapped onto LSC profiles



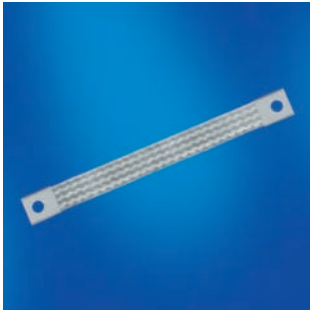
Description		Part-No.	Type	PU
Snap-on element				
Length	24.00 mm	330074	EMVRE 1	10
	43.50 mm	330068	EMVRE 2	10
Technical data		330074	330068	
Weight (kg/100 pcs.)		0.900	1.800	
General				
Material			Sheet steel 1.4310	
Colour			bare/stainless	
Operation temperature range			0 °C – 60 °C	
Comments				
suitable for all webs of the series M, S, SN, MF, F, A				

Dimensions

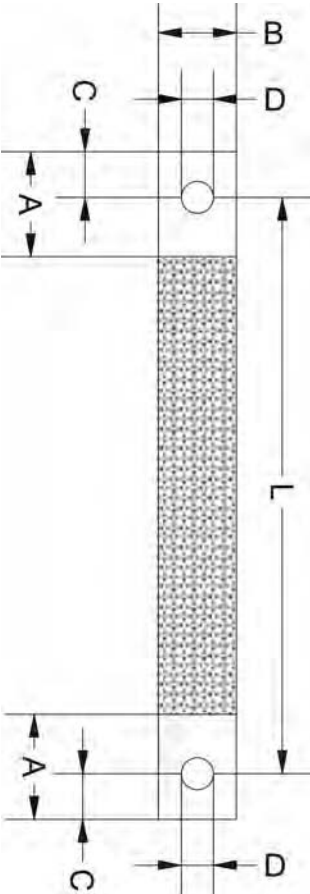


EMC accessories

Earthing strip, copper braiding, tin-plated
Ends with tin-plated copper sleeves
Single wire Cu ETP UNI 5649-71, similar to DIN 72333



Dimensions



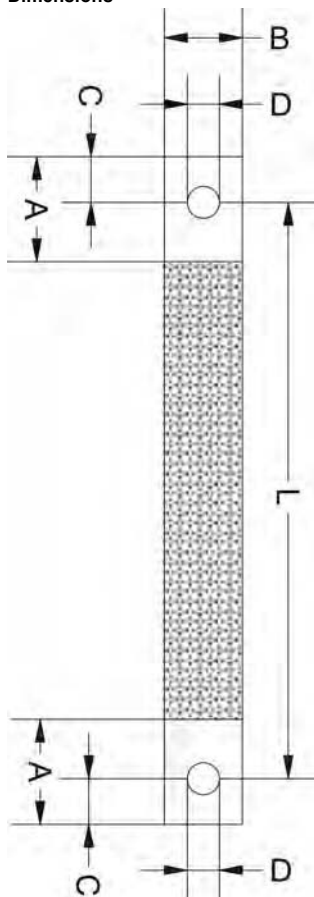
Description		Part-No.	Type	PU
both ends drilled				
Gauge	10	330173	EMVFB 10/100/M6	10
	10	330075	EMVFB 10/200/M6	10
	16	330076	EMVFB 16/200/M8	10
	25	330077	EMVFB 25/200/M8	10
Technical data	330173	330075	330076	330077
Wire conductors			0.20 mm ²	
D	7.0 mm		9.0 mm	
A		23.0 mm		
S	2.0 mm		2.5 mm	3.2 mm
B		17.0 mm	23.0 mm	
C		10 mm		
Weight (kg/m)	0.100		0.160	0.250
Approvals	European Directive 2005/95/CE acc. 6L. 37/23			
Length	100.00 mm		200.00 mm	
General				
Amperage range	see standards table (e.g. EN 60204)			
Cable construction	individual strands braided; cross-section rectangular			
Storage temperature range	-30 °C – 90 °C			
Operation temperature range	5 °C – 80 °C			
Accessories				
		Article number	Type	PU
Earthing set		331805	ES 8	1
Earthing set		331816	ES 8	1
Comments				
D= hole diameter				
A= sleeve length				
S= strip thickness				
B= width				
C= hole distance				

EMC accessories

Earthing strip, copper braiding, tin-plated
Ends with tin-plated copper sleeves
Single wire Cu ETP UNI 5649-71, similar to DIN 72333



Dimensions



Description		Part-No.	Type	PU
both ends drilled				
Gauge	10	330078	EMVFB 10/300/M6	10
	16	330079	EMVFB 16/300/M8	10
	25	330080	EMVFB 25/300/M8	10
	16	330038	EMVFB 16/400/M8	10
	16	330039	EMVFB 16/500/M8	10
	16	330040	EMVFB 16/600/M8	10

Technical data	330078	330079	330080	330038	330039	330040
Wire conductors	0.20 mm ²					
D	7.0 mm			9.0 mm		
A				23.0 mm		
S	2.0 mm	2.5 mm	3.2 mm		2.5 mm	
B		17.0 mm	23.0 mm		17.0 mm	
C				10 mm		
Weight (kg/m)	0.100	0.160	0.250		0.160	
Approvals	European Directive 2005/95/CE acc. 6L 37/23					
Length		300.00 mm		400.00 mm	500.00 mm	600.00 mm

General

Amperage range	see standards table (e.g. EN 60204)					
Cable construction	individual strands braided; cross-section rectangular					
Storage temperature range	-30 °C – 90 °C					
Operation temperature range	5 °C – 80 °C					

Accessories	Article number	Type	PU
Earthing set	331805	ES 8	1
Earthing set	331816	ES 8	1

Comments

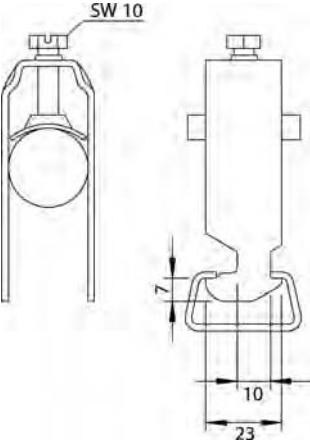
D= hole diameter
A= sleeve length
S= strip thickness
B= width
C= hole distance

EMC accessories

Cable clip



Dimensions



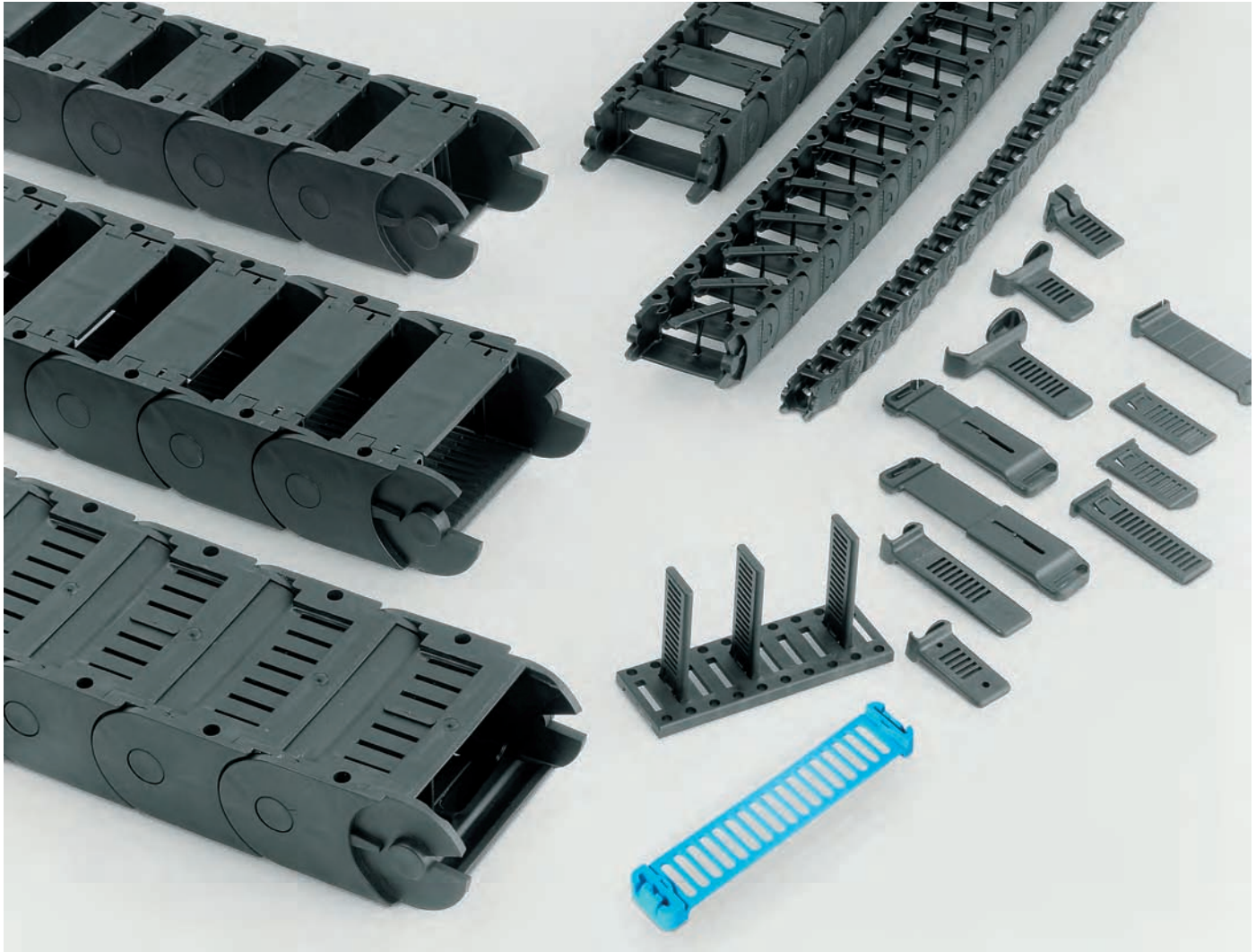
Description	Part-No.		Type		PU
Cable clip	331000		KS 0		10
	331001		KS 1		10
	331002		KS 2		10
	331003		KS 3		10
	331004		KS 4		10
Technical data	331000	331001	331002	331003	331004
Weight (kg/100 pcs.)	3.000	3.200	3.500	6.800	6.000
Thread	M6			M8	
General					
Material	Steel				
Colour	galvanised				
Operation temperature range	0 °C – 60 °C				
Hexagon screw	slotted				
Accessories	Article number		Type		PU
can be used on Lütze rails	345812		EMVS 03		
can be used on Lütze rails	345813		EMVS 04		
can be used on Lütze rails	333156		C rail		

Comments
Sold only with counter-shell, polypropylene plastic

16. C-tracks



KM Series

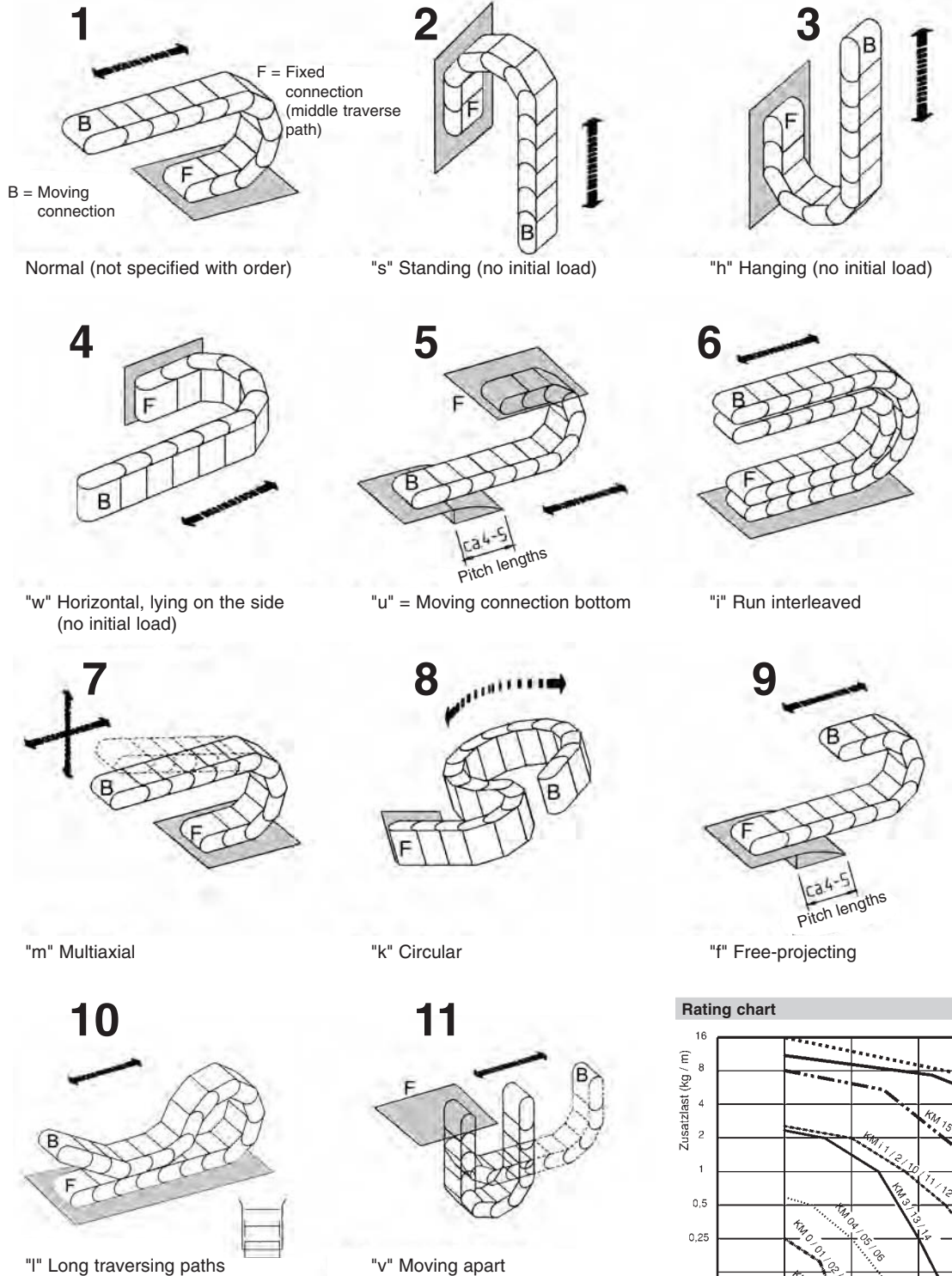


Plastic mono chain Type series KM

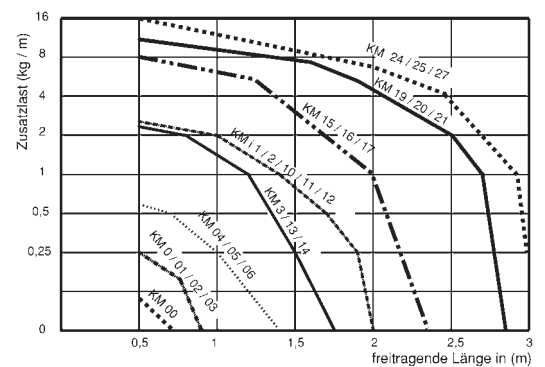
- Plastic power track chains with fixed chain widths.
A great variety of radiuses and cross sections enables virtually every application case to be covered
- Every chain link can be inserted as connection flange.
Additional connection parts are not necessary.
The mounting dimensions are identical for both chains
- Fast easy installation
- Reduced stock-keeping
- A rearing up of the chain is prevented since the connection area is highly stressable mechanically
- Snap-together bars facilitate the inserting of cables
- Subdividing of the placement space with separator bars for in-between, inserting and layers possible

KM Series

Arrangement KM series



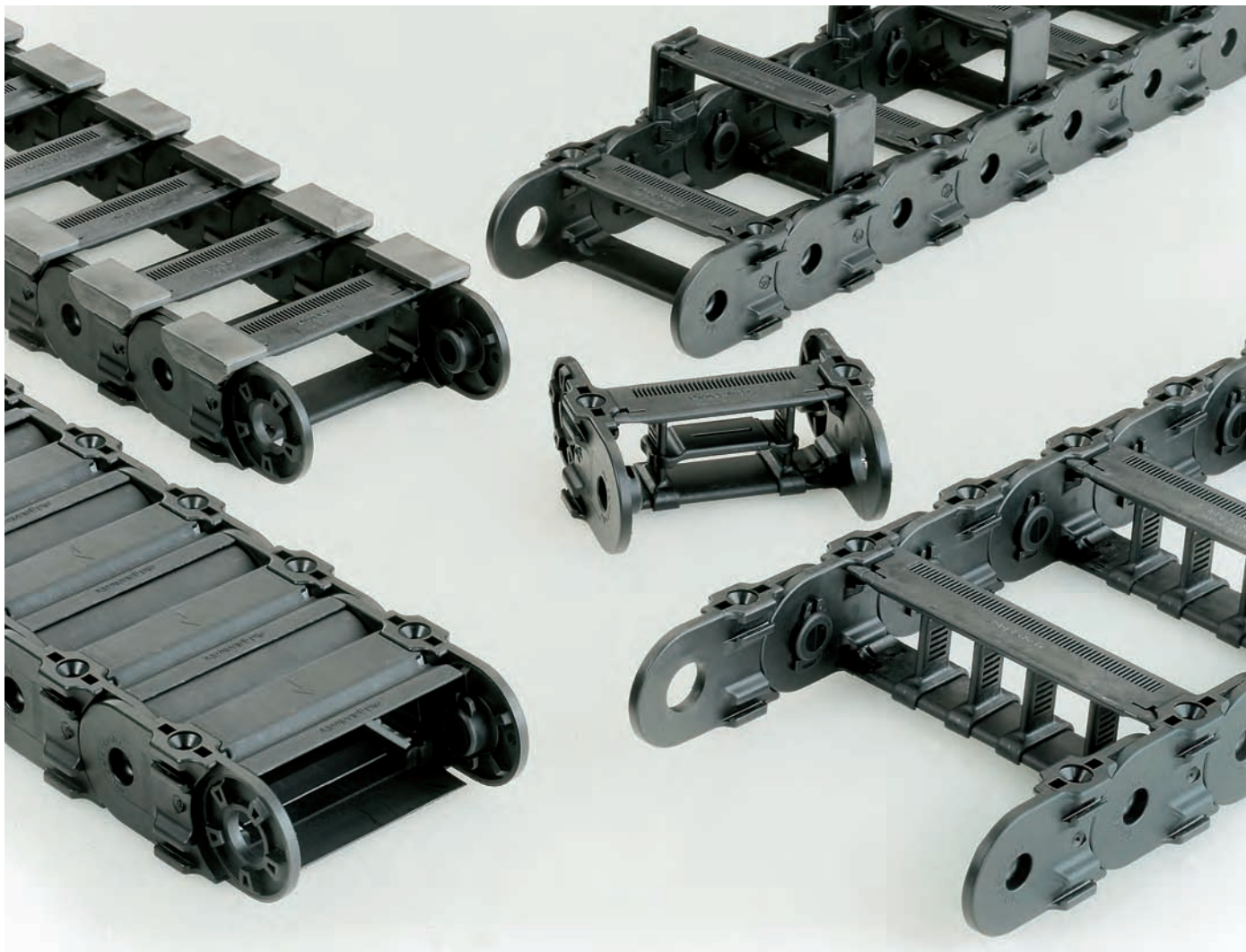
Rating chart



Drawing aids

- For CAD users, we keep schematic diagrams of our products available in different file formats that can be inserted into the existing drawings

You can find the system form for LÜTZE SUPERFLEX® chains and cables on page 16.2



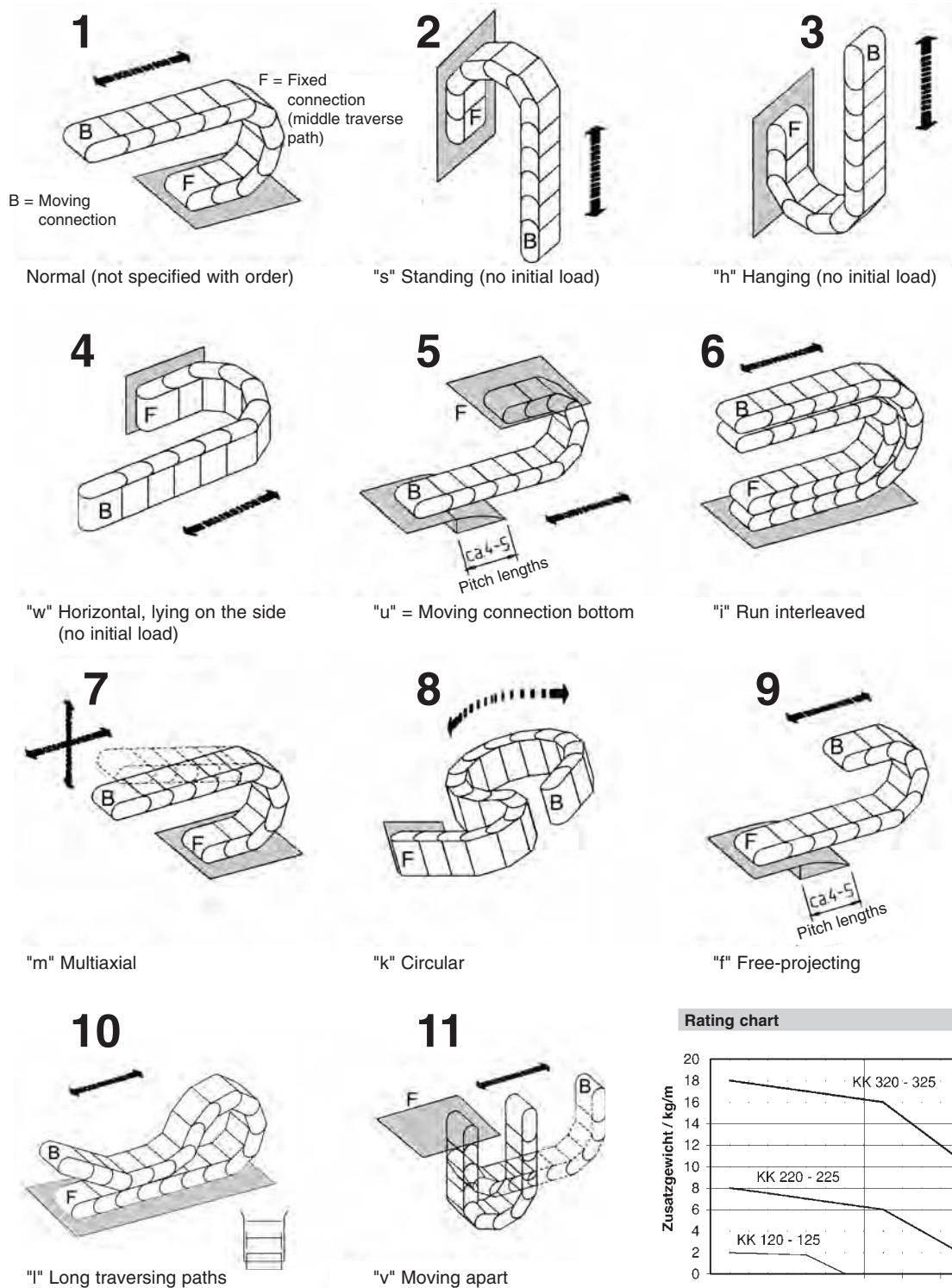
Plastic combi chain Type series KK

Stable power track chain with large self-supporting lengths. Many variation possibilities with bar lengths from 30 to 300 mm. Open, closed and multiple strand chains. The configuration bar offers additional assignment utilizations in the inner or outer radius. Traverse path >100 m possible without trouble.

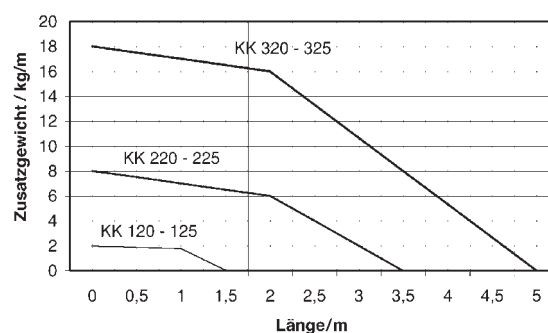
- Acceleration: 5 stops in the joints of the chain clip allow for the highest acceleration values
- Open in inner and outer radius possible
- Fast installation and without tools possible
- All-around protection through closed construction
- Connection: no separate mounting part, since connection is integrated into every chain link
- Glider for large traverse paths

KK Series

Arrangement KK Series



Rating chart

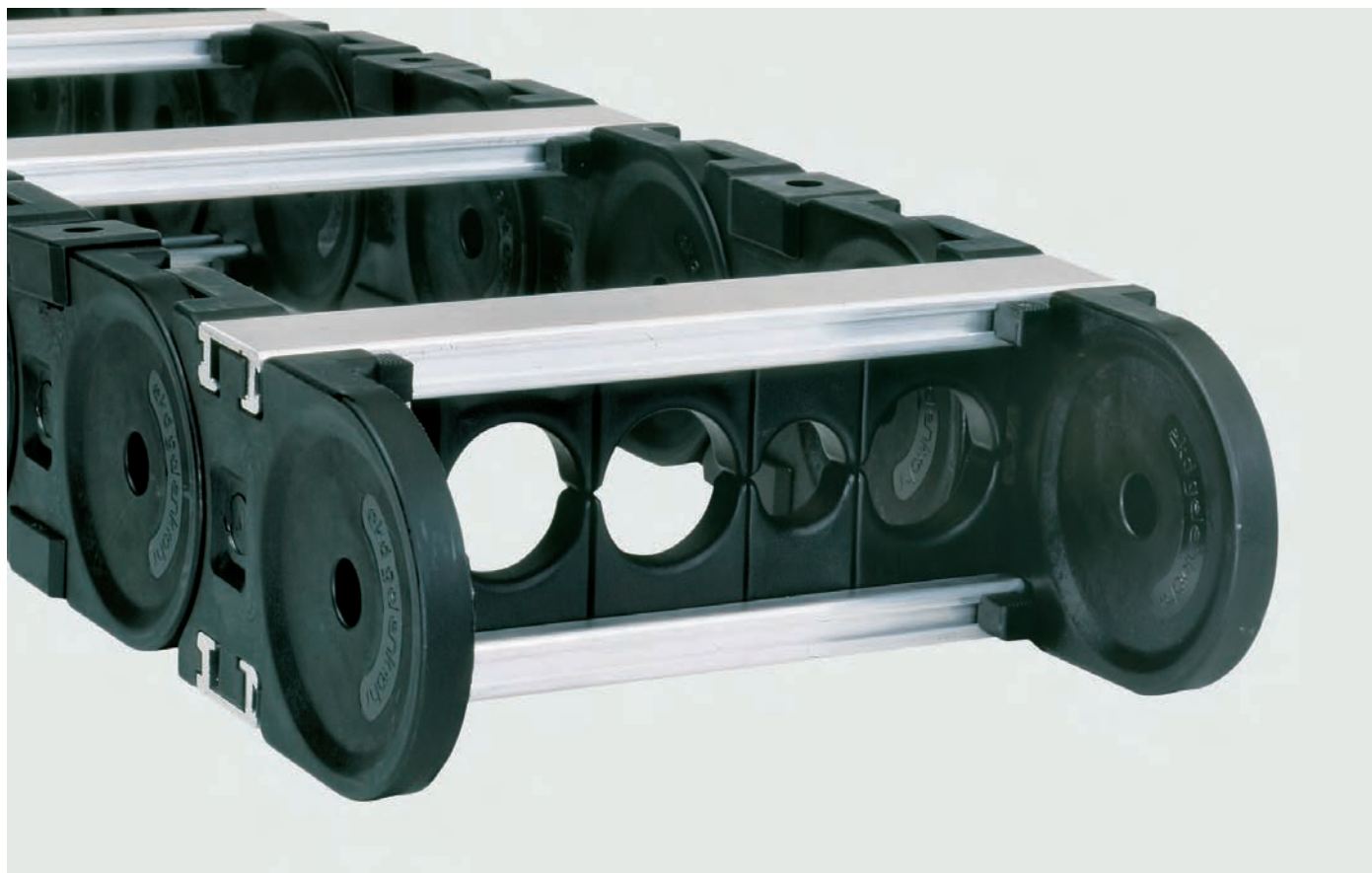


Drawing aids

- For CAD users, we keep schematic diagrams of our products available in different file formats that can be inserted into the existing drawings

You can find the system form for LÜTZE SUPERFLEX® chains and cables on page 16.2

KL Series



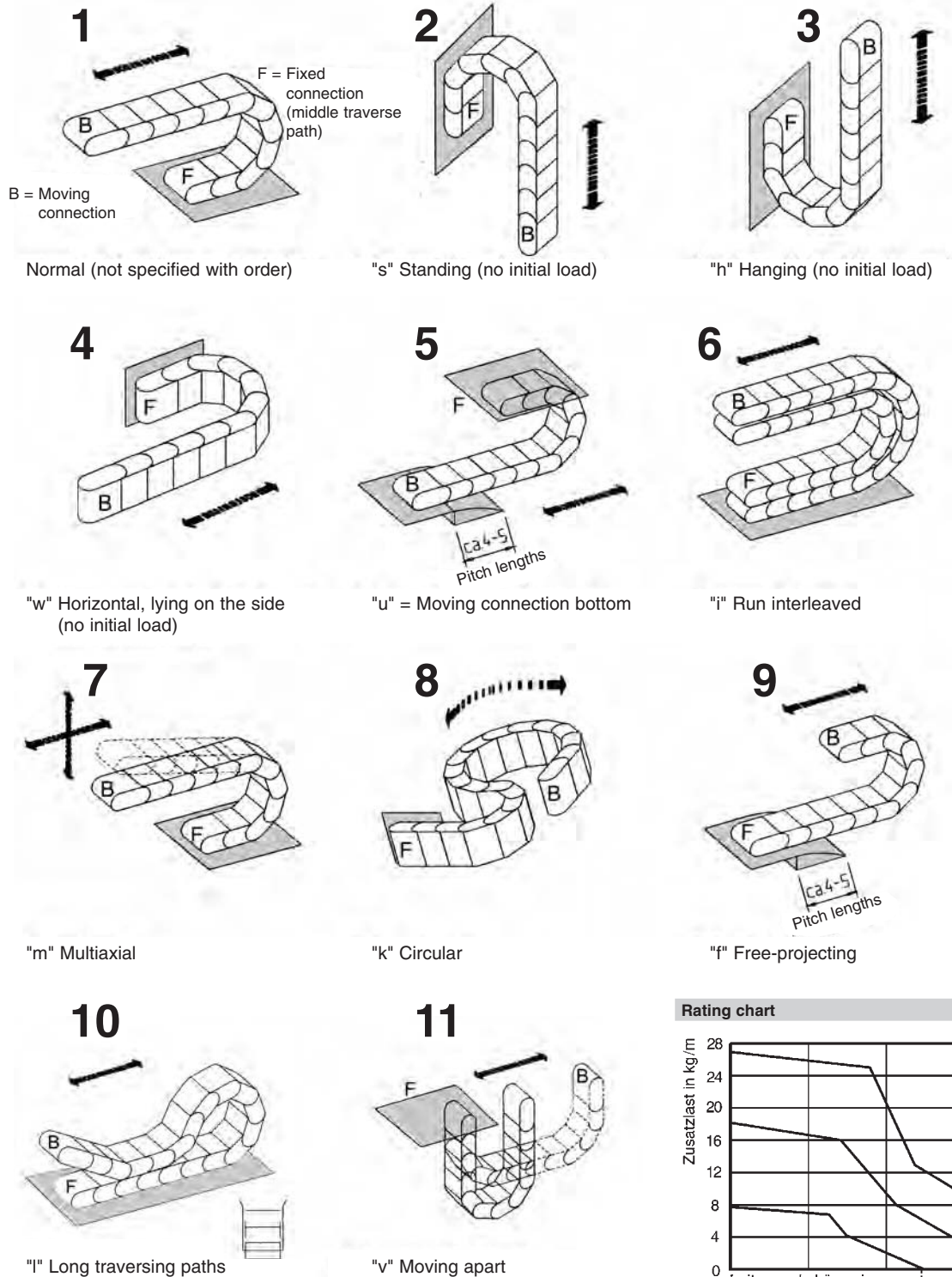
Plastic Clip Chain Type series KL

Power track chains with profile bars and integrated connection

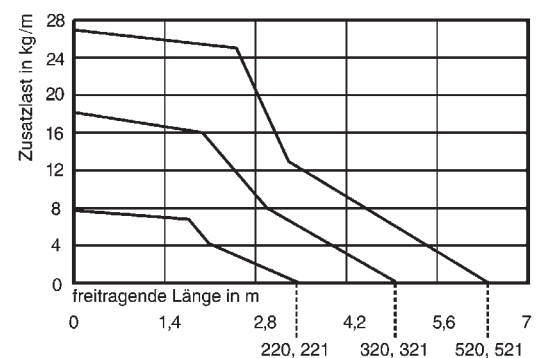
- Highly stressable
- Inner width from 50 – 700 mm without grading
- Integrated connection
- Lengthening or shortening without tool possible
- Suitable for high traversing speeds and acceleration
- Can be open in the inner and outer radius
- 4-way stops in the joint
- 3-clip band solution possible
- Lateral expansion

KL Series

Arrangement KL Series



Rating chart

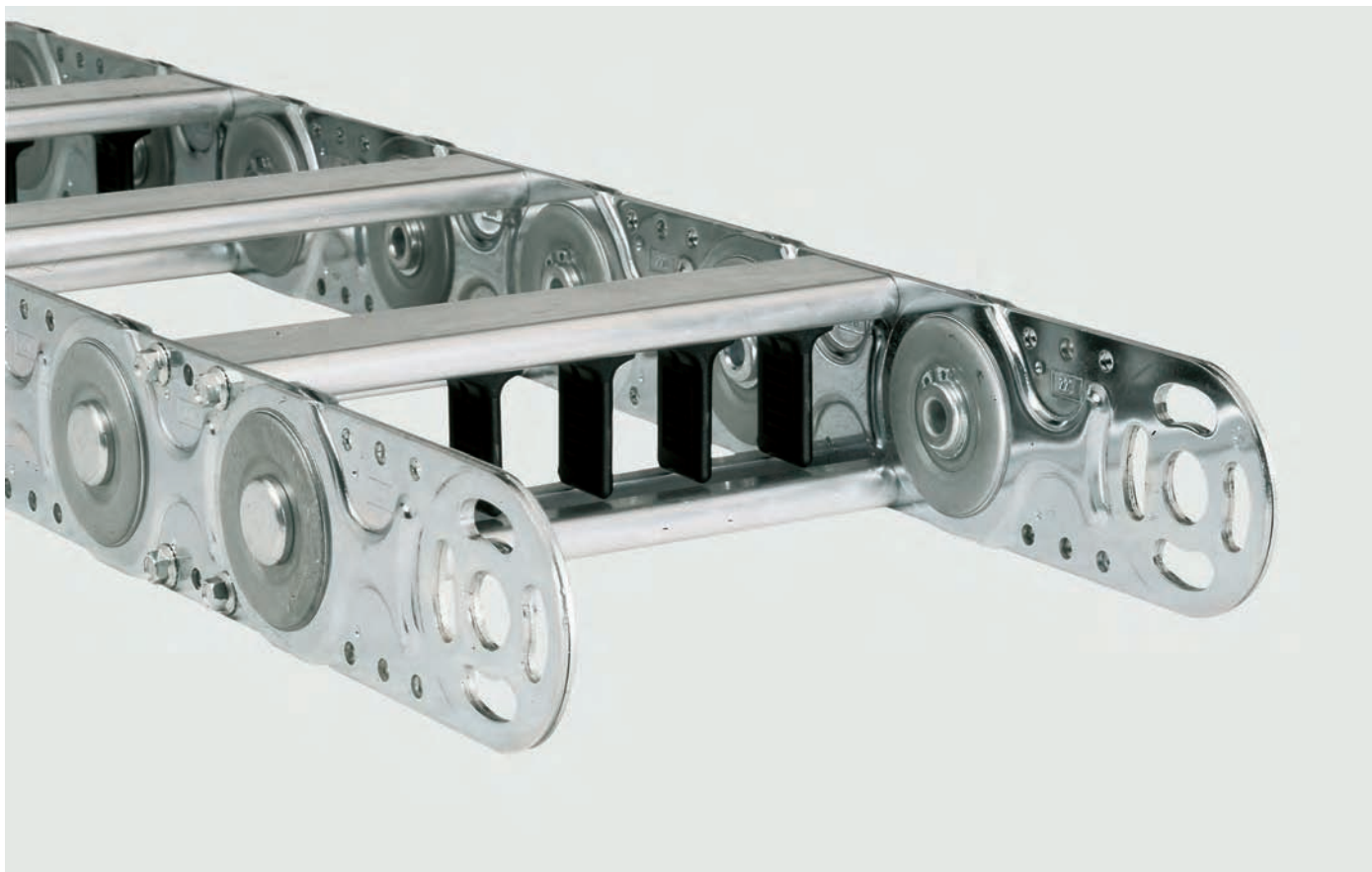


Drawing aids

- For CAD users, we keep schematic diagrams of our products available in different file formats that can be inserted into the existing drawings

You can find the system form for LÜTZE SUPERFLEX® chains and cables on page 16.2

SL Series



Steel Clip Chain Type Series SL

We recommend the use of a steel chain for large self-supporting lengths, large amounts of cables and heavy hydraulic hoses.

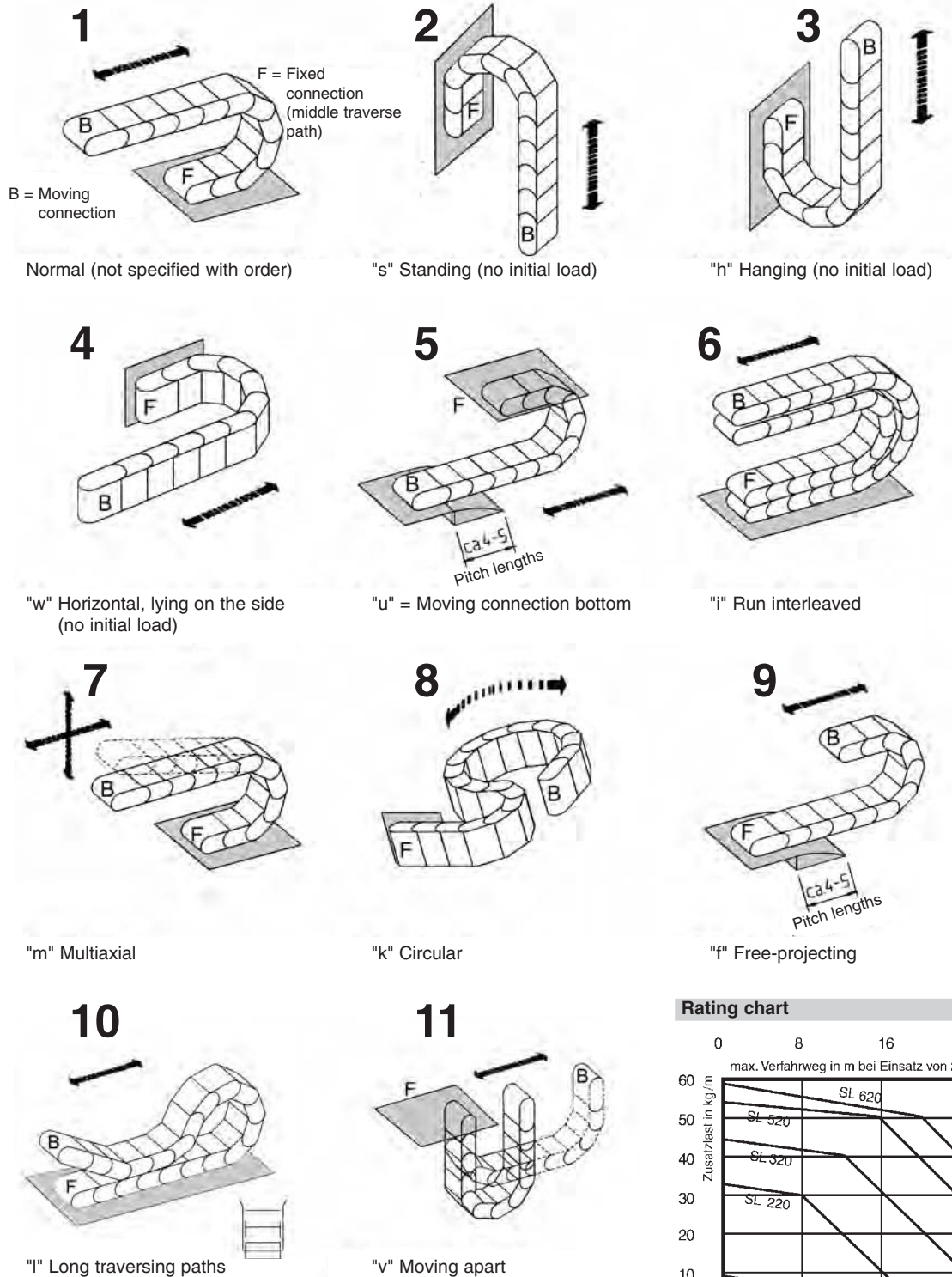
The steel clip chain is available in steel, stainless steel and in hardened construction.

The separation of cables and hoses can be done with hole bars and plastic separator bars.

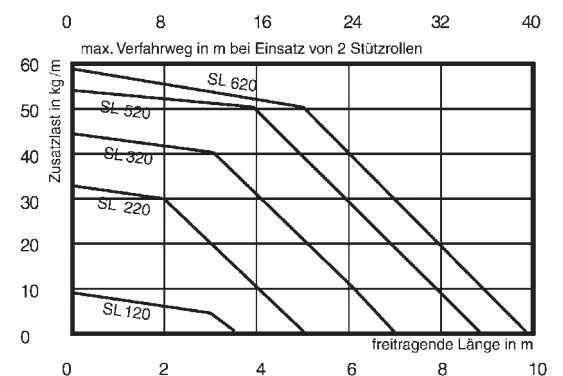
- Highest stability
- Simple handling
- Individual solutions
- Stepless bar widths
- Bar distribution in many versions
- Joint mechanics protected through cover plates

SL Series

Arrangement SL Series



Rating chart



Drawing aids

- For CAD users, we keep schematic diagrams of our products available in different file formats that can be inserted into the existing drawings

You can find the system form for LÜTZE SUPERFLEX® chains and cables on page 16.2

17. Technical information cables

Short abbreviation key according to VDE and DIN	17.2
Conductor structure - according to VDE - according to AWG	17.3
Conductor resistances	17.4
Current loads	17.5
Bending radii according to DIN/VDE regulations	17.6
Colour code tables	17.7
Conductor labelling according to DIN 47100 in pairs	17.8
Chemical resistance of PVC and PUR cable jackets	17.9
Isolation material properties	17.10
Design of the protection class designation according to EN 60529	17.11
The price of copper	17.12
Cable reel rental fee at KTG	17.13
Torques for cable fittings	17.14
Form for special cables / system form	starting 18.1



Short abbreviation key according to VDE and DIN

Symbol	Description
A-	outer cable
AB-	outer cable with lightning protection design
AJ-	outer cable with induction protection design
AiC-	conductor with copper wire braiding
b-	movement
(1B...)	one-layer steel band, . . . thickness of the steel band in mm
(2B...)	two-layer steel bands, . . . thickness of the steel band in mm
Bd	bundle cabling
c	protection sheathing from jute and bulk
C	shield from copper wire braid
(C)	shield from copper wire braid over an individual cabling element
Cu	copper wire
DM	Dieselhorst-Martin stranding
Dreier	triple-stranding
e	copper tinned wire
e	single-wire
E	protection sheathing from bulk with embedded plastic band
f	multi strand
ff	superfine strand
F	foil isolation
F	cable core with petroleum filling
F	flat design of installation cables
F	star quad with phantom utilization for long distance communication cable of the railroad
(F...)	flat cable armor, . . . thickness in mm
G	rubber
2G	silicon rubber (SiR)
3G	isobutylene-isoprene rubber (IIR) or ethylene propylene rubber (EPR)
4G	ethylene vinyl acetate rubber (EVA)
5G	chloroprene rubber (CR)
6G	chlorosulfonated polyethylene (CSM)
7G	fluoroide elastomer
8G	nitrile rubber (NBR)
G-	mine cable
GJ-	mine cable with induction protection design
J-	installation cable
JE-	installation cable for electronics industry
-J	cable with greenyellow ground conductor
-JZ	cable with greenyellow ground conductor and number printing
L-	cable
(L)	shield from plastic-coated aluminum band
(L)2Y	layered jacket
Lg	layer stranding
Li	conductor
m	jacket cable
M	lead jacket
Mz	lead jacket with hardening additive
-O	cable without greenyellow ground conductor
-OZ	cable without greenyellow ground conductor, with number printing
P	paper wire insulation
Pair	pair stranding
PiC	pair in copper wire braid
PiMF	pair in metal foil
Prfl	test wire

Symbol	Description
Q	steel braid
RAGL-	compensation cable for thermocouples
RD-	RHENOMATIC-cable
RG-	coaxial cable according to MIL specification
re	round, single-wire
rm	round, multiple-wire
(R/R)	inner conductor copper wire not insulated, outer conductor copper wire braid
RS-	computer cable
S	conventional railway signal cable
S-	switching cable
St	star quad for phantom utilization
St I	star quad in telephone cables for large distances
St III	star quad in site cables
(St)	static shield
Staku	Staku steel-copper conductor
Stli	steel-copper braid
T	support for suspended cables
TF	carrier frequency
TiC	group of three in the copper wire braid
TiMF	group of three in metal foil
v	tinned
vs	silver-plated
vg	gold-plated
vn	nickel-plated
W	corrugated steel jacket
X	crosslinked polyvinylchloride (PVC)
2X	crosslinked polyethylene (PE)
10X	crosslinked polyvinylidene fluoride (PVDF)
11X	crosslinked polyurethane X-PUR
Y	polyvinyl chloride (PVC)
Yu	polyvinyl chloride (PVC) flame-retardant (STAN-NOFLAM)
Yv	polyvinyl chloride (PVC) reinforced jacket
Yw	polyvinyl chloride (PVC) heat resistant to 90 °C (105 °C with shortened service life)
2Y	polyethylene (PE)
2Yv	polyethylene (PE), reinforced Jacket
02Y	polyethylene foam (PE)
02YS	foam-Skin
3Y	polystyrene (PS)
4Y	polyamide (PA)
5Y	polytetrafluoroethylene (PTFE)
6Y	perfluoroethylene propylene (FEP), TEFLON
7Y	ethylene tetrafluoroethylene (ETFE)
8Y	polyimide (PJ)
9Y	polypropylene (PP)
10Y	polyvinylidene fluoride (PVDF)
11Y	polyurethane (PUR)
12Y	polyethylene terephthalate (TPE, PETE)
(Z)	steel wire braid guaranteeing tensile strength

Conductor structure according to DIN VDE 0295/IEC 60228 and AWG

Conductor structure according to DIN VDE 0295 / IEC 60228

Cross section mm ²	Multi-strand conductor class 2 VDE 0295	Many-stranded conductor	Finely stranded conductor class 5 VDE 0295	Superfine strand conductor class 6 VDE 0295
Number of strands and individual strand mm				
0.14				18 x 0.10
0.25			14 x 0.15	32 x 0.10
0.34		7 x 0.25	19 x 0.15	42 x 0.10
0.38		7 x 0.27	12 x 0.20	21 x 0.15
0.50	7 x 0.30	7 x 0.30	16 x 0.20	28 x 0.15
0.75	7 x 0.37	7 x 0.37	24 x 0.20	42 x 0.15
1.00	7 x 0.43	7 x 0.43	32 x 0.20	56 x 0.15
1.50	7 x 0.52	7 x 0.52	30 x 0.25	84 x 0.15
2.50	7 x 0.67	19 x 0.41	50 x 0.25	140 x 0.15
4	7 x 0.85	19 x 0.52	56 x 0.30	224 x 0.15
6	7 x 1.05	19 x 0.64	84 x 0.30	192 x 0.20
10	7 x 1.35	49 x 0.51	80 x 0.40	320 x 0.20
16	7 x 1.70	49 x 0.65	128 x 0.40	512 x 0.20
25	7 x 2.13	84 x 0.62	200 x 0.40	800 x 0.20
35	7 x 2.52	133 x 0.58	280 x 0.40	1120 x 0.20
50	19 x 1.83	133 x 0.69	400 x 0.40	705 x 0.30
70	19 x 2.17	189 x 0.69	356 x 0.50	990 x 0.30
95	19 x 2.52	259 x 0.69	485 x 0.50	1340 x 0.30
120	37 x 2.03	336 x 0.67	614 x 0.50	1690 x 0.30
150	37 x 2.27	392 x 0.69	765 x 0.50	2123 x 0.30
185	37 x 2.52	494 x 0.69	944 x 0.50	1470 x 0.40
240	61 x 2.24	627 x 0.70	1225 x 0.50	1905 x 0.40
300	61 x 2.50	790 x 0.70	1530 x 0.50	2385 x 0.40
400	61 x 2.89		2035 x 0.50	
500	61 x 3.23		1768 x 0.60	

The number of the strands is non-binding. The VDE 0295 determines only the maximum diameter of the single wire that is required for compliance with the maximum wire resistance at 20 °C.

Conductor structure according to AWG

Cross section	AWG	Copper wire	Braid copper not insulated — Wire structure						Standard values		
			flexible	very flexible			highly flexible			A max.	Cu weight
mm2		mm Ø		mm Ø		mm Ø		mm Ø	Ω/km	at 20°C	kg/km
0.08		0.32	10 x 0.10	0.37			40 x 0.05	0.37	210		0.71
(0.09)	28	0.32	7 x 0.13	0.38			19 x 0.08	0.40	195	0.5	0.75
0.10		0.36	14 x 0.10	0.44	28 x 0.07	0.44	51 x 0.05	0.42	190	1.0	0.98
0.14	26	0.39	18 x 0.10	0.49	36 x 0.07	0.49	72 x 0.05	0.50	138	1.5	1.27
(0.13)		0.40	7 x 0.16	0.49	10 x 0.13	0.53	19 x 0.10	0.51	130		1.30
(0.21)	24	0.51	7 x 0.20	0.61	19 x 0.13	0.61	41 x 0.08	0.58	85		2.00
0.25		0.57	14 x 0.15	0.66	32 x 0.10	0.66	128 x 0.05	0.75	77	2.5	2.27
(0.32)	22	0.64	7 x 0.25	0.76	19 x 0.16	0.80	26 x 0.13	0.76	56		3.00
0.34		0.64	7 x 0.25	0.75	42 x 0.10	0.74	180 x 0.05	0.80	56	4.5	3.10
0.50	20	0.80	16 x 0.20	0.95	28 x 0.15	0.95	256 x 0.05	1.00	39	6.0	4.50
(0.52)		0.81	7 x 0.32	0.90	19 x 0.20	0.94	41 x 0.13	0.91	33		5.00
0.75	18	0.98	24 x 0.20	1.20	42 x 0.15	1.20	385 x 0.05	1.20	26	10.0	6.90
(0.82)		1.02	7 x 0.40	1.22	19 x 0.25	1.27	65 x 0.13	1.20	21		8.00
1.00		1.15	32 x 0.20	1.30	57 x 0.15	1.30	511 x 0.05	1.40	20	15.0	9.20
(1.31)	16	1.30	7 x 0.51	1.52	19 x 0.30	1.47	105 x 0.13	1.50	16		11.00
1.50		1.40	30 x 0.25	1.60	85 x 0.15	1.85	196 x 0.10	1.85	14	20.0	14.10
(2.08)	14	1.62	7 x 0.64	1.85	19 x 0.36	1.85	105 x 0.16	1.85	11		19.00
2.50		1.80	51 x 0.25	2.10	142 x 0.15	2.25	322 x 0.10	2.40	8	25.0	23.20
(3.31)	12	2.05	7 x 0.80	2.50	19 x 0.46	2.35	165 x 0.16	2.41	6		28.00
(5.26)	10	2.60	37 x 0.40	2.80					3.8		42.00

Conductor resistances

The values according to DIN VDE 0295 are listed depending on the conductor cross-section and conductor class. The diameter of the individual wires of every conductor, beginning with 0.5 mm², are the specified maximal values allowed (see VDE 0295), that are required for compliance with the maximum wire resistance, not exceeded.

Nominal cross section mm ²	Cu conductor not insulated (Ω/km)		Cu conductor tinned (Ω/km)		Welding cable (Ω/km)	
	class	class	class	classe	Cu conductor	Cu conductor
	1 and 2	5 und 6	1 and 2	5 and 6	not insulated	tinned
0.05		380		392		
0.08		237		244		
0.11		170		175		
0.126		150		155		
0.14		134		138		
0.22		85		99		
0.25		76		79		
0.34		53		56		
0.5	36.0	39.0	36.7	40.1		
0.75	24.5	26.0	24.8	26.7		
1.0	18.1	19.5	18.2	20.0		
1.5	12.1	13.3	12.2	13.7		
2.5	7.41	7.98	7.56	8.21		
4.0	4.61	4.95	4.70	5.09		
6.0	3.08	3.30	3.11	3.39		
10.0	1.83	1.91	1.84	1.95		
16.0	1.15	1.21	1.16	1.24	1.16	1.19
25.0	0.727*	0.780	0.734	0.795	0.758	0.780
35.0	0.524*	0.554	0.529	0.565	0.536	0.552
50.0	0.387*	0.386	0.391	0.393	0.379	0.390
70.0	0.268*	0.272	0.270	0.277	0.268	0.276
95.0	0.193*	0.206	0.195	0.210	0.198	0.204
120.0	0.153*	0.161	0.154	0.164	0.155	0.159
150.0	0.124*	0.129	0.126	0.132	0.125	0.129
185.0	0.0991	0.106	0.100	0.108	0.102	0.105
240.0	0.0754	0.0801	0.0762	0.0817		
300.0	0.0601	0.0641	0.0607	0.0654		
400.0	0.0470	0.0486	0.0475	0.0495		

Class 1 = single-wire strand for single and multi-wire cables
Class 2 = multi-wire strand for single and multi-wire cables
Class 5 = multi-strand Cu conductor for single and multi-wire cables
Class 6 = superfine strand Cu conductor for single and multi-wire cables
*For mineral isolated cables (only for class 1).

Current loads

The stated values in the following tables are standard values and in simplified form extracted from VDE 0298 section 4 or extract from VDE 0100 section 430 and 523. In border cases, the VDE terms are to be taken into account. Valid for industrial machines VDE 0113, section 1 (EN 60204 section 1/IEC 204-1); for telecommunication and information systems VDE 0891 section 1; for telecommunication aerial cable VDE 0891 section 8; for flat cables VDE 0891 section 10. You can find general terms/requirements and recommended values in VDE 0298 section 2 and section 4. Amperage range, after 1.5 – 120 mm² (for group 3 up to 35 mm²) according to VDE 0100 section 430 for an ambient temperature of up to + 30 °C

Nominal cross section mm ²	Group 1		Group 2		Group 3	
	Cu conductor A	Protection A	Cu conductor A	Protection A	Cu conductor A	Protection A
0.05	0.7		1		1	
0.14	1.4		2		2.8	
0.25	2.8		4.5		5	
0.34	4		6		7.5	
0.5	6		7.5		10	
0.75	9		12	6	15	10
1.0	11	6	15	10	19	10
1.5	16.5	16	16.5	16	21	20
2.5	21	20	22	20	29	25
4.0	28	25	30	25	39	35
6.0	36	35	38	35	51	50
10.0	49	40	53	50	70	63
16.0	65	63	72	63	94	80
25.0	85	80	94	80	125	100
35.0	105	100	118	100	154	125
50.0	126	125	142	125	198	160
70.0	160	160	181	160	245	200
95.0	193	160	219	200	292	250
120.0	223	200	253	250	344	315
150.0			335	250	391	315
185.0			382	315	448	400
240.0			453	400	528	400
300.0			504	400	608	500
400.0					726	630

Group 1	one or multiple single strand cables in conduit, e.g. PVC single core cable H 03V.../ H 05V.../ H 07V... according to VDE 0281.	Group 3	single strand, run free in the air, whereby the cables are run with an interspace of at least one time the cable diameter as well as single strand wiring in switching and distribution equipment and rail distributors.
Group 2	multi-core cables e.g. sheathed cable, moving cables, conduit cables in open or ventilated ducts.		

Amperage range of isolated cables and cables not run in the area of the ground at ambient temperatures over 30 °C (excerpt from VDE 0100 section 523, table 3).

Amperage range of the above stated table		
Ambient temperature	Rubber isolation permitted conductor temperature 60 °C	PVC insulation permitted conductor temperature 70 °C
°C	%	%
over 30 to 35	91	92
over 35 to 40	82	87
over 40 to 45	71	79
over 45 to 50	58	71
over 50 to 55	41	61

Amperage range of cables with increased thermal-resistance for ambient temperature over 55 °C (excerpt from VDE 0100 section 523, table 4).

Ambient temperature for cables with		Amperage range of the above stated table
permitted conductor temperature 100 °C	permitted conductor temperature 180 °C	
°C	°C	%
over 55 to 65	over 55 to 145	100
over 65 to 70	over 145 to 150	92
over 70 to 75	over 150 to 155	85
over 75 to 80	over 155 to 160	75
over 80 to 85	over 160 to 165	65
over 85 to 90	over 165 to 170	53
over 90 to 95	over 170 to 175	38

Bending radii

Bending radiuses according to DIN and VDE specifications

The bending radiuses must not fall short of the specified bending radiuses in the tables. A shortened service life is to be anticipated for falling below these. Smallest permitted bending radiuses for high voltage current systems according to DIN VDE 0298 – section 3 to nominal voltage 0.6/1 kV.

Cables for hard wiring

Outer diameter of the cable or the strength of the flat cable in mm (D).

Laying procedure	to 10 mm	over 10 to 25 mm	over 25 mm	
for hard wiring	4 x D	4 x D	4 x D	
for molding	1 x D	2 x D	3 x D	

Flexible Cables	to 8 mm	over 8 to 12 mm	over 12 to 20 mm	over 20 mm
for hard wiring	3 x D	3 x D	4 x D	4 x D
for free wiring	3 x D	4 x D	5 x D	5 x D
for insertion	3 x D	4 x D	5 x D	5 x D

D = outer diameter of the cable or the strength of the flat cable.

Colour code tables

Strand colour according toDIN VDE 0293-308

Cable and cables without green-yellow strand

Number of strands		Colours of the strands			
2	blue	brown	-	-	-
3	-	brown	black	grey	-
4	blue	brown	black	grey	-
5	blue	brown	black	grey	black

Cable and wires with green-yellow strand

Number of strands		Colours of the strands			
	Ground conductor	Active conductor			
3	green-yellow	blue	brown	-	-
4	green-yellow	-	brown	black	grey
5	green-yellow	blue	brown	black	grey

Not insulated concentric conductors, such as metallized jackets, armoring or shields are not considered as conductors in this table. a concentric conductor is identified by its arrangement and thus does not need to be identified by its colour.

Strand colours according to DIN 47100

Electronic data cables and computer cables with stranding with colour repetition after 45 strands The first colour is the base colour of the strand. For multiple colour strands, the identification marking consists of a base colour and a ring colour. The second or third colour respectively is applied as ring identification marking. Ring width approx. 2 – 3 mm. A certain amount of blur of the identification colour at the edges and a small offset of both half rings is permitted. The manner of counting occurs from outside to inside through all layers consecutively.

No. Base/ring colours	No. Base/ring colours
1 white	32 yellow/blue
2 brown	33 green/red
3 green	34 yellow/red
4 yellow	35 green/black
5 grey	36 yellow/black
6 pink	37 grey/blue
7 blue	38 pink/blue
8 red	39 grey/red
9 black	40 pink/red
10 violet	41 grey/black
11 grey/pink	42 pink/black
12 red/blue	43 blue/black
13 white/green	44 red/black
14 brown/green	45 white
15 white/yellow	46 brown
16 yellow/brown	47 green
17 white/grey	48 yellow
18 grey/brown	49 grey
19 white/pink	50 pink
20 pink/brown	51 blue
21 white/blue	52 red
22 brown/blue	53 black
23 white/red	54 violet
24 brown/red	55 grey/pink
25 white/black	56 red/blue
26 brown/black	57 white/green
27 grey/green	58 brown/green
28 yellow/grey	59 white/yellow
29 pink/green	60 yellow/brown
30 yellow/pink	61 white/grey
31 green/blue	

Strand colour according to IEC for electronic cables with AWG design

Strand no.	Colour
1	black
2	brown
3	red
4	orange
5	yellow
6	green
7	blue
8	violet
9	grey
10	white
11	white-black
12	white-brown

The double color green-yellow may only be used for the grounding conductor (yellow is the base color). For the remaining double colors, the base color is white respectively.

For possibly required additional double colors, grey or brown are recommended as additional base colors.

Conductor labelling according to DIN 47100 in pairs

Pair identification colour repetition after 45 pairs.

Electronic data cables and computer cables with paired stranding. The first colour is the base colour of the strand. For multiple colour strands of the pair, the identification consists of a base colour and a ring colour. The second colour is applied as ring marking, ring width approx. 2 – 3 mm. A certain amount of blur of the identification colour at the edges and a small offset of both half rings are permitted from a manufacturing technique perspective.

The manner of counting occurs from outside to inside through all layers pairwise consecutively.

Paired stranding

Pair no.			a-strand	b-strand	Pair no.			a-strand	b-strand
1	23	45	white	brown	12	34	56	white/red	brown/red
2	24	46	green	yellow	13	35	57	white/black	brown/black
3	25	47	grey	pink	14	36	58	grey/green	yellow/grey
4	26	48	blue	red	15	37	59	pink/green	yellow/pink
5	27	49	black	violet	16	38	60	green/blue	yellow/blue
6	28	50	grey/pink	red/blue	17	39	61	green/red	yellow/red
7	29	51	white/green	brown/green	18	40		green/black	yellow/black
8	30	52	white/yellow	yellow/brown	19	41		grey/blue	pink/blue
9	31	53	white/grey	grey/brown	20	42		grey/red	pink/red
10	32	54	white/pink	pink/brown	21	43		grey/black	pink/black
11	33	55	white/blue	brown/blue	22	44		blue/black	red/black

Colour table according to RAL

Colour abbreviation according to HD 457

Colour	Short abbreviation	RAL	DESINA Outer jacket colour	DIN 47002 German	IEC 757 English
black	sw	9005	Power cable	sw	BK
brown	bn	8003		br	BN
red	rt	3000		rt	RD
orange	org	2003	Power cable	or	OG
yellow	ge	1021	Sensor/-actor cables	ge	YE
green	gn	6018	Signal cable	gn	GN
blue	bl	5015		bl	BU
violet	vio	4001	Bus/Fiber optic cable	vi	VT
silvergrey	gr	7001		gr	GY
pebble grey		7032			
window grey		7040	Control cable		
white	ws	9010		ws	WH
pink	rs	3015		pk	PK
turquoise (petrol)	tk	5018		tq	TQ
green/yellow	gnge	6018/1021		gnye	GNYE
silver		-			SR
dark blue	dbl	5010		dbl	
dark brown	dbn	8014		dbn	
transparent	tr	-		tr	

Chemical resistance of PVC and PUR cable jackets

Anorganic	Concentration	Degree of resistance PVC	Degree of resistance PUR
Alaune	c.s.	+	
Aluminum salts	ec.	+	
Ammonia , a	10%	+	+
Ammonium acetate, a	ec.	+	
Ammonium carbonate, a	ec.	+	–
Ammonium chloride, a	ec.	+	+
Barium salts	ec.	+	+
Boric acid	100%	+	O
Calcium chloride, a	c.s.	+	O
Calcium chloride, a	10 and 40%		+
Calcium nitrate, a	c.s.	+	
Chrome salts, a	c.s.	+	+
Potassium carbonate, a (potash)		+	
Potassium chlorate, a	c.s.	+	
Potassium chloride, a	c.s.	+	O
Calcium dichromate, a		+	
Calcium iodide, a		+	
Calcium nitrate, a	c.s.	+	+
Potassium permanganate , a		O	–
Potassium sulfate, a		+	+
Copper salts, a	c.s.	+	+
Magnesium salts, a	c.s.	+	O
Sodium carbonate, a (Natron)		+	O
Sodium bisulfate, a		+	
Sodium chloride , a (common salt)		+	+
Sodium thiosulfate, a (fixing salt)		+	O
Nickel salts, a	c.s.	+	+
Phosphoric acid	50%	+	–
Mercury	100%	+	+
Mercury salts, a	c.s.	+	+
Nitric acid	30%	–	–
Hydrochloric acid	concentration	–	
Sulfur	100%	+	+
Sulfur dioxide,	gaseous	+	O
Carbon disulfide		–	–
Hydrogen sulfide		+	–
Sea water		+	+
Silver salts, a		+	+
Hydrogen peroxide, a	3%	+	+
Zinc salts, a		+	–
Tin(II) chloride		+	
Organic	Concentration	Degree of resistance PVC	Degree of resistance PUR
Ethyl alcohol	100%	–	–
Formic acid	30%	–	–
Benzine/Benzene		–	+
Succinic acid, a	c.s.	+	
Acetic acid	20%	O	O
Hydraulic oil		–	O
Isopropyl alcohol	100%	–	O
Kerosene			+
Machine oil		O	O
Methyl alcohol, a	100%	O	O
Mineral oil, depending on type (ASTM)			±
Oxalic acid, a	c.s.	+	
Paraffin oil			+
Plant oils and greases		+	+
Cutting oil		O	+
Tartaric acids, a		+	
Citric acid		+	

Legend:

ec. = each concentration + = resistant
c.s. = cold saturated O = conditionally resistant
a = aqueous – = unstable

Properties of isolation materials

Material	Abb.	Short abbreviation	Service temperature °C	Dielectric constant 10³	spec. contact Ohm x cm	Tensile strength N/mm²	Elongation at break %	Absorption of water (20 °C) %	Weathering resistance	Fuel resistance	Oil resistance	Flammability
Polyvinyl chloride	PVC	Y	– 30/+ 70	4	10 ¹² – 10 ¹⁵	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
Polyvinyl chloride heat resistant	PVC	Y	– 20/+ 90	3.5	10 ¹² – 10 ¹⁵	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
High pressure polyethylene	LDPE	2Y	– 50/+ 70	2.3	10 ¹⁷	20 – 30	500	0.1	good	low	moderate	flammable
Low pressure polyethylene	HDPE	2Y	– 50/+ 100	2.3	10 ¹⁷	30	800	0.1	moderate	low	moderate	flammable
Polyurethane	PUR	11Y	– 40/ + 90/100	4.0 – 6.0	10 ¹²	30 – 45	300 – 600	1.5	very good	good	good	self-extinguishing
Polyamide	PA	4Y	– 40/+ 80	3.5 – 7.0	10 ¹⁴	50 – 180	200 – 300	1 – 2	good	moderate	good	flammable
Polybutylene terephthalate	PBTP	-	– 60/+ 110	3.0 – 4.0	10 ¹⁶	50 – 100	50 – 300	0.5	good	good	good	flammable
Polytetrafluoroethylene	PTFE	5Y	– 190/+ 260	2.1	10 ¹⁸	14 – 40	240 – 400	0.01	very good	very good	very good	not flammable
tetrafluoroethylene hexafluoropropylene Copolymer	FEP	6Y	– 100/+ 200	2.1	10 ¹⁸	20 – 25	250 – 350	0.01	very good	very good	very good	not flammable
Ethylene tetrafluoroethylene	ETFE	7Y	– 100/+ 150	2.6	10 ¹⁶	40 – 50	100 – 300	0.01	very good	very good	very good	not flammable
Perfluoroalkoxy polymer	PFA	–	– 190/+ 260	2.1	10 ¹⁵	30	300	0.01	very good	very good	good	not flammable
Chloroprene rubber	CR	5G	– 40/+ 100	6.0 – 8.0	10 ¹³	25	450	1.0	very good	low	good	self-extinguishing
Silicon rubber	SI	2G	– 60/+ 180	2.8 – 3.2	10 ¹⁵	5 – 10	200 – 350	1.0	very good	low	moderate	flame flammable
Ethylene vinyl acetate	EVA	4G	– 30/+ 125	5 – 7	10 ¹³	5	200	0.01	good	low	low	flammable
Ethylene propylene rubber	EPM/ EPDM	3G	– 30/+ 120	3.2	10 ¹⁴	5 – 25	200 – 450	0.02	good	low	low	flammable
Thermoplastic polyolefin Elastomer	TPE-O	18Y	– 40/+ 120	2.7 – 3.6	5 x 10 ¹⁴	>6	>400	1.5	very good	moderate	moderate	flammable
Thermoplastic polyester Elastomer	TPE-E	12Y	– 70/+ 125	3.7 – 5.1	10 ¹²	3 – 25	280 – 650	0.3 – 0.6	very good	good	very good	flammable
Styrol triblock Copolymer	TPE-S	–	– 75/ + 105/140	2.2 – 2.6	10 ¹⁶	9 – 25	500 – 700	1 – 2	moderate	good	low	flammable

Only for basic materials, deviations are possible depending on the indented use/design.

Design of the protection class designation according to EN 60529

The protection of electrical equipment through corresponding enclosure is specified with code letters and code numbers. This protection class designation consists of the letters "IP" and two code numbers from 0 to 8. The first code number stands for the protection against contact and foreign substances, the second number specifies the degree of protection against water. The higher the respective code number is, the higher is the offered protection. The valid protection class for each product is specified in the technical data.

For example the designation:

IP 65	Code letter IP	IP	
	First code number	6	corresponds to: Protection against entrance of dust
	Second code number	5	corresponds to: Protection against sprayed water

For protection against contact and foreign substances

First code number	Protection scope designation	Explanation
0	No protection	No special protection of persons from accidental contact with standing or moving parts under voltage. No protection of the equipment against entry of solid foreign substances.
1	Protection against foreign substances > 50 mm	Protection against accidental contact of large area surfaces of standing and internally moving parts under voltage, e.g. with the hand, but no protection against intentional access to these parts. Protection against entry of solid foreign substances with a diameter larger than 50 mm.
2	Protection against foreign substances > 12 mm	Protection against contact by the fingers of standing or internally moving parts under voltage. Protection against entry of solid foreign substances with a diameter larger than 12 mm.
3	Protection against foreign substances > 2.5 mm	Protection against contact of standing or internally moving parts under voltage with tools, wires or similar of a thickness larger than 2.5 mm. Protection against entry of solid foreign substances with a diameter larger than 2.5 mm.
4	Protection against foreign substances > 1 mm	Protection against contact of standing or internally moving parts under voltage with tools, wires or similar of a thickness larger than 1 mm. Protection against entry of solid foreign substances with a diameter larger than 1 mm.
5	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage moving parts under voltage. Protection against dust accumulation. The entry of dust is not fully prevented but the dust may not enter in such quantities that the functioning is impaired.
6	Protection against dust accumulation	Full protection against contact of standing or internally moving parts under voltage moving parts under voltage. Protection against entry of dust.

For water protection

Second code number	Protection scope designation	Explanation
0	No protection	No special protection
1	Protection from vertically falling dripping water	Water drops that fall vertically may not have any damaging effect.
2	Protection from dripping water falling at an angle	Water drops that fall at an arbitrary angle of up to 15° to vertical may not have any damaging effect.
3	Protection from sprayed water	Water that falls in an arbitrary angle up to 60° to vertical may not have a damaging effect.
4	Protection from splashed water	Water that is splashed from all directions against the equipment may not have a damaging effect.
5	Protection from water projected from a nozzle	Water projected from a nozzle that is aimed at the equipment from all directions may not have any damaging effect.
6	Protection against flooding	Water may not enter into the equipment in damaging amounts during temporary flooding (e.g. by heavy seas)
7	Protection against immersion	Water may not enter in damaging amounts if the equipment is immersed in water for the defined pressure and time conditions.
8	Protection against submersion	Water may not enter in damaging amounts if the equipment is submerged in water for the defined pressure and indefinite amount of time.

You can find the valid protection class for the respective product in the technical data.

The price of copper

Cables and conductors are sold at DEL current daily prices for copper. The DEL is the listing for Deutsches Elektrolytkupfer für Leitzwecke (German electrolyte copper for conducting purposes), i.e. 99.5 % pure copper. The DEL is specified in Euro per 100 kg. You can normally find the DEL listing in the business section of the daily newspaper.

The copper basis

A proportion of the copper price is contained in the list price of many cables and almost all wires already. It is also specified in Euro per 100 kg.

- 150.00 Euro/100 kg for the most popular wires
- 100.00 Euro/100 kg for telephone cables and wires
- 0.00 Euro/100 kg for underground cable (e.g. high-voltage current NYY), thus price without metal.

Example: DEL 198.89 means:
100 kg copper (Cu) costs Euro 198.89.

Additional purchasing costs of 1% are added to the daily quote for cables and wires.

The copper number (kg/100m)

The copper number is the copper weight of a cable or wire and is specified for every catalog article.

Example: Silflex N 3 G 1.5 mm²
copper number according to catalog 4.32 kg/100 m
The copper contained in 100 m of wire thus weighs 4.32 kg.

Formula for calculation of the copper surcharge

$$\text{Copper number (kg/100 m)} \times \frac{(\text{DEL} + 1.5 \% \text{ purchasing costs}) - \text{copper basis}}{100} = \text{copper surcharge in Euro/100 m}$$

Example calculation: Silflex N 3 G 1.5 mm²
DEL: 198.89 Euro/kg
Cu-Basis: 150.00 Euro/kg
Cu-Index: 4.32 kg/100 m

$$4.32 \text{ kg/100 m} \times \frac{(198.89 + 2.98) - 150.00}{100} = 2.24 \text{ Euro/100 m}$$

This sum would be for assumed DEL quote of 198.89 Euro the copper surcharge for 100 m Silflex N 3 G 1.5 mm².

Price including copper

The net price is calculated in the following way

Gross price
– Rebate (%)
± Copper surcharge
= Net price including copper

The copper surcharge is shown separately on our invoice.

Conditions for the relinquishment of cable and wire spools

Conditions for the relinquishment of cable and wire spools of the KABELTROMMEL GmbH & Co. KG in Köln (valid for the Federal Republic of Germany)

§ 1 Subject of the contract

Spools in the sense of the contract are standardized cable and wire spools of the sizes 05 to 28. Supporting material and spool casing are not subject matter of this contract.

§ 2 Conclusion of the contract

Between Kabeltrommel GmbH & Co. Kommanditgesellschaft, Köln (named as KTG in the following), and the recipient of cables or wires (named as purchaser in the following) a contractual relationship to the following conditions results with the acquisition from the cable plant/wholesale of cables or wires on KTG-marked spools at the time of the receipt of spools at the purchaser or the receiving location designated by the purchaser.

§ 3 Rental fee

- (1) KTG calculates no rental fee for the renting of the spools of type 05 provided that these are returned to KTG within an appropriate time period. However, the respective security deposit*) is calculated for the transferring of these spools abroad; the transfer is to be reported to the KTG.
- (2) For spools of the size 07 to 28, the following conditions are valid:
 - a) For a time period of 6 months, calculated starting with the delivery receipt of the respective supplier, no rental fee is calculated. If the spools are not returned within 6 months or numerically released in writing at the KTG, KTG imposes a spool rental fee. This amounts from the 7th month forward for every beginning month 15% of the security deposit*) of the spools.
 - b) For spools that are not returned to the KTG by expiration of 12 months or are released in writing, the full security deposit value is calculated as sales price. The KTG is prepared to take back spools that are sent back after the previously mentioned time limit, however, within 3 years. Provided that these spools are in a proper state, the KTG reimburses 25% of the security deposit.
 - c) The calculation occurs in each case after return/release of the spool, at the latest, however, after expiration of the rental period of 12 months. The sales tax is added in the respective legal amount to the time of the issuing of the invoice.

§ 4 Risk assumption and liability of the purchaser

The purchaser bears the risk and is liable for all damages to spools from the point in time of the beginning of the contract up to the acceptance of the spools through the KTG according to § 6, as far as they are not purchased according to § 3, (2) b.

§ 5 Guarantee and liability of the KTG

- (1) The liability of the KTG – equal for whatever legal ground – is restricted to the respective replacement wires in the framework of the coverage of its liability insurance, that is concluded in the usual scope with measured adequate insured sums for property damage and bodily injury.
- (2) A further liability – equal for whatever legal ground– is explicitly excluded.

§ 6 Return transport of spools

- (1) The purchaser must notify the KTG about all released spools for action of the return transport continuously and without delay in writing. This is arranged for through the KTG within an appropriate period of time.
- (2) The freight charges for the return transport are incurred by the KTG; for the loading or as the case may be for incidental loading costs at the place of dispatch, the purchaser/releaser is responsible.
- (3) All costs that accrue through return transport not according to instructions are to be carried by the purchaser.
- (4) As far as the purchaser has brought spools abroad, the purchaser has to arrange for the return transport at the purchaser's own cost.

§ 7 Payments

Invoices of the KTG are payable due net no later than 14 days after receipt. For delay of payment, we calculate – besides incidental dunning costs – interest on late payments in the amount of at least 3 % over the prime rate of the German Federal Bank or respectively the higher of arising costs to us from the intermediate financing of the owed amount.

§ 8 Jurisdiction– miscellaneous

- (1) Jurisdiction for all disputes resulting from this contractual relationship is Cologne, Germany.
- (2) The KTG is also entitled to file a suit at the site of the respective purchaser.
- (3) Changes and additions to this contract must be in written form; this also applies for an amendment to this clause.

*) The security deposits comply with the respective valid conditions of the KABELTROMMEL GmbH & Co. KG

KABELTROMMEL GmbH & Co. KG
Schanzenstr. 30
51063 Cologne
Tel.: 02 21/67 88-0
Fax: 02 21/67 88-205
www.kabeltrommel.de
info@kabeltrommel.de

Validity area: Federal Republic of Germany

Torques for cable fittings

Cable fittings with metric threads, EN 50262		
Nominal size	recommended torque in Nm	
	Plastic	Metal
M 12 x 1.5	1.0	5
M 16 x 1.5	2.5	5
M 20 x 1.5	4.0	7.5
M 25 x 1.5	6.0	10
M 32 x 1.5	7.0	15
M 40 x 1.5	7.5	18
M 50 x 1.5	8.0	20
M 63 x 1.5	9.0	20
Cable fittings with PG threads, DIN VDE 0619		
Nominal size	recommended torque in Nm	
	Plastic	Metal
PG 7	2.5	6.25
PG 9	3.75	6.25
PG 11	3.75	6.25
PG 13.5	3.75	6.25
PG 16	5.0	7.5
PG 21	7.5	10.0
PG 29	7.5	10.0
PG 36	7.5	10.0
PG 42	7.5	10.0
PG 48	7.5	10.0
Note:		
The specified values are standard values for achieving the protection class IP 68, 5 bar.		
The torque should be suitable to the material and wire application.		

Wire request form

1. Appointments	Recorded	Submittal of quotation			
2. Customer	Company		Cust. No.		
	Contact person		Department		
	Telephone		Fax		
	Postcode		City		
	Road		P.O. Box		
3. Amount	Demand		Batch size		
4. Dimensions	Outer-Ø	max.	min.		
	Conductor gauge =		x	mm ²	/ x mm ²
5. Cable structure	Cable	☐ not insulated	☐ tinned	☐ silvered	☐ highly flexible ☐
	Cable insul.	☐ PVC	☐ PE/PP	☐ TPE	☐ Silicon ☐ FEP/PTFE
	Coding	☐ black with numbers	☐ Ground cable greenyellow	☐ DIN 47100	☐ other
6. Stranding	☐ Plies ☐ Couples ☐ Combination cable				
7. Inside jacket					
8. Shielding	☐ Couple/Element shield		☐ Braided	☐ Electrical isolation/Description	
			☐ Twisted shield	☐ Foil shield	
	☐ Overall shield	☐ Meshwork	☐ Twisted shield	☐ Foil shield	☐ Drain wire
	☐ Other properties				
9. Outer jacket	PVC	PUR	PE	Silicon	Teflon
	Color	Printing			
10. Electrical requirements	Operating voltage (V)	Test voltage (V)	max. Operating capacitance (pF/m)		Other spec.
11. Mechanical requirements	Operating temperature - ____ °C + ____ °C Short-term overtemperature - ____ °C + ____ °C				
	Drag chain traverse path ____ m, Speed ____ m/s, Cycles/Week ____				
	☐ Burning behavior	☐ Flame-retardant	☐ Halogen-free	☐ Low smoke	
	Environmental conditions (oil, chemicals, UV, foodstuffs areas, etc.)				
How is the wire being run? Note.					
12. Standards	☐ UL/CSA ☐ HAR ☐ Miscellaneous				
13. Notes	e.g. replacement for / known problems /				

System request for LÜTZE SUPERFLEX® chains and cables

Company:

Contact person:

Department:

Street:

City, ZIP code:

Telephone:

Fax:

LÜTZE

Germany

Friedrich Lütze GmbH & Co. KG

Postfach 1224 (PLZ 71366)

Bruckwiesenstraße 17-19

71384 Weinstadt

Tel.: +49 (0)71 51 60 53-0

Fax: +49 (0)71 51 60 53-277(-288)

info@luetze.de

UK

Lutze Ltd.

Unit 3 Sandy Hill Park,

Sandy Way, Amington

Tamworth, Staffs, B77 4DU

Phone: +44 1827 31333-0

Fax: +44 1827 31333-2

sales.gb@lutze.co.uk

Please advise us of your requirements using the system form. We will gladly prepare an offer for you:

Installation variations (according to figures 1 – 11):

Length of the traversing path (in mm):

Infed in the middle? yes no

If no, please attach or create a sketch!

Acceleration (in m/sec²):

Traversing speed (in m/sec):

Traversing frequency of occurrence/year (cycles):

max. building width of the chain (in mm):

max. building height of the chain (in mm):

if necessary, the guide channel (C-track) (in mm):

Ambient temperature (in °C):

Air humidity (in %):

Please fax us the completed form. You'll gladly receive an offer from us.

1

B = Moving connection

Normal (not specified with order)

2

"s" Standing (no initial load)

3

"h" Hanging (no initial load)

4

"w" Horizontal, lying on the side (no initial load)

5

"u" = Moving connection bottom

6

"i" Run interleaved

7

"m" Multiaxial

8

"k" Circular

9

"f" Free-projecting

10

"l" Long traversing paths

11

"v" Moving apart

Assignment (electro-cables/conduits)						
Quantity	Manufacturer	Article number	Cross section	Diameter	Weight kg/m	Minimum bending radius

Distinctive features/environmental influences/sketch:

Certificates



C E R T I F I C A T E

DQS GmbH
Deutsche Gesellschaft zur Zertifizierung von Managementsystemen
hereby certifies that the company

Friedrich Lütze GmbH & Co. KG
Bruckwiesenstrasse 17-19
D-71384 Weinstadt

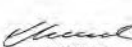
with the organizational units/sites as listed in the annex
for the scope
Development, production and distribution of electrical and electronic components and solutions for the automation technology

has implemented and maintains a
Quality Management System.

An audit, documented in a report, has verified that this quality management system fulfils the requirements of the following standard:

DIN EN ISO 9001 : 2000
December 2000 edition

This certificate is valid until	2010-07-04
Certificate Registration No.	001737 QM
Frankfurt am Main	2007-07-05


Ass. iur. M. Drechsel
MANAGING DIRECTORS


Dipl.-Ing. S. Heinloth


IONet
THE INTERNATIONAL ORGANIZATION OF NEDERLANDS

D-60433 Frankfurt am Main, August-Schanz-Straße 21

Deutscher Institut für Normung
Standards for the World



C E R T I F I C A T E

DQS GmbH
Deutsche Gesellschaft zur Zertifizierung von Managementsystemen
hereby certifies that the company

Friedrich Lütze GmbH & Co. KG
Bruckwiesenstrasse 17-19
D-71384 Weinstadt

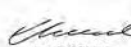
for the scope
Development, production and distribution of electrical and electronic components and solutions for the automation technology

has implemented and maintains an
Environmental Management System.

An audit, documented in a report, has verified that this environmental management system fulfils the requirements of the following standard:

EN ISO 14001 : 2004
November 2004 edition

This certificate is valid until	2010-07-04
Certificate Registration No.	001737 UM
Frankfurt am Main	2007-07-05


Ass. iur. M. Drechsel
MANAGING DIRECTORS


Dipl.-Ing. S. Heinloth


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C E R T I F I C A T E

DQS GmbH
Deutsche Gesellschaft zur Zertifizierung von Managementsystemen
hereby certifies that the company

Friedrich Lütze GmbH & Co. KG
Bruckwiesenstrasse 17-19
D-71384 Weinstadt

for the product categories
On board vehicle control (IRIS Scope 9)
Cabling and cabinets (IRIS Scope 12)

for the scope
Development, production and marketing of components and systems for rail vehicles

confirms, as an IRIS approved certification body, that the Management System of the above organization has been assessed and found to be in accordance with the

International Railway Industry Standard (IRIS)
Revision 00, March 2006

Certification audit	2007-05-15 – 2007-05-23
Certification decision	2007-07-05
This certificate is valid until	2010-07-04
Certificate Registration No.	001737 IRIS
Issued in Frankfurt am Main, Germany	2007-07-05


Ass. iur. M. Drechsel
MANAGING DIRECTORS


Dipl.-Ing. S. Heinloth


IRIS Certification

D-60433 Frankfurt am Main, August-Schanz-Straße 21
(Tel. +49-69 95 42 70)

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100124	7.7	100437	7.6	100646	7.9	100893	2.8	101260	7.10	103787	9.5
100154	2.8	100438	7.6	100648	7.9	100900	2.8	101261	7.10	103788	9.5
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100256	7.11	100447	7.6	100652	7.9	100920	8.6	101280	8.7	103791	9.5
100258	7.6	100453	7.6	100653	7.9	100921	7.10	101281	8.7	103792	9.5
100327	8.6	100454	7.6	100654	7.9	100922	8.6	101288	2.9	103793	9.5
100338	8.6	100455	7.6	100655	7.9	100933	2.11	101311	7.5	103794	9.5
100354	7.6	100456	7.6	100656	7.9	100948	8.6	101312	7.5	103795	9.5
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104265	4.2	108317	8.6	108529	3.9	108673	8.5	109459	2.10	110129	8.6
104267	4.3	108349	7.12	108530	3.9	108674	8.5	109460	2.10	110131	8.6
104270	4.4	108350	7.12	108531	3.9	108675	8.5	109461	2.10	110135	8.6
104275	4.2	108351	7.12	108540	3.11	108676	8.5	109462	2.10	110137	8.9
104279	4.8	108352	7.12	108543	3.11	108677	8.5	109463	2.10	110138	3.11
104284	4.3	108353	7.12	108544	3.11	108678	8.5	109464	2.10	110144	7.4
104287	4.2	108354	7.12	108545	3.11	108679	8.5	109465	2.10	110150	12.3
104289	4.8	108355	7.12	108600	8.4	108680	8.5	109466	2.10	110155	12.2
104290	4.3	108356	7.12	108601	8.4	108682	8.5	109467	2.10	110156	12.2
104291	4.3	108357	7.12	108602	8.4	108683	8.5	109468	2.10	110157	12.2
104292	4.3	108358	7.12	108603	8.4	108684	8.5	109469	2.10	110158	12.2
104293	4.3	108359	7.12	108604	8.4	108685	8.5	109470	2.10	110159	12.3
104301	4.7	108360	7.12	108605	8.4	108686	8.5	109471	2.10	110165	12.3
104303	4.6	108361	7.12	108606	8.4	108687	8.5	109472	2.10	110168	7.2
104304	4.6	108362	7.12	108607	8.4	108688	8.5	109473	2.10	110169	7.2
104307	4.7	108363	7.12	108608	8.4	108689	8.5	109474	2.10	110171	7.4
104310	4.6	108364	7.12	108609	8.4	108690	8.5	109475	2.10	110172	7.4
104311	4.7	108365	7.12	108610	8.4	108691	8.5	109476	2.10	110173	7.4
104313	4.7	108366	7.12	108612	8.4	108692	8.5	109479	2.10	110176	7.4
104323	5.3	108367	7.12	108613	8.4	108694	8.5	109568	7.13	110177	7.2
104324	5.3	108368	7.12	108614	8.4	108695	8.5	109569	7.13	110178	7.2
104326	4.6	108369	7.12	108615	8.4	108696	8.5	109570	7.13	110179	7.2
104327	4.7	108370	7.12	108616	8.4	108697	8.5	109571	7.13	110180	7.2
104328	4.6	108372	7.12	108617	8.4	108698	8.5	109572	7.13	110181	7.2
104335	4.7	108373	7.12	108618	8.4	108699	8.5	109573	7.13	110182	7.2
104336	4.7	108374	7.12	108619	8.4	108700	8.5	109574	7.13	110183	7.2
104337	4.6	108375	7.12	108620	8.4	108701	8.5	109575	7.13	110184	7.2
104338	4.7	108376	7.12	108621	8.4	108702	8.5	109576	7.13	110185	7.2
104339	4.7	108377	7.12	108622	8.4	108703	8.5	109577	7.13	110186	7.2
108000	2.9	108378	7.12	108624	8.4	108704	8.5	109578	7.13	110188	7.2
108001	2.9	108380	7.12	108625	8.4	108706	8.5	109579	7.13	110189	7.2
108002	2.9	108381	7.12	108626	8.4	108707	8.5	109580	7.13	110190	6.3
108003	2.9	108382	7.12	108627	8.4	108708	8.5	109581	7.13	110191	7.2
108022	2.11	108383	7.12	108628	8.4	108709	8.5	109582	7.13	110192	7.2
108025	7.9	108384	7.12	108629	8.4	108710	8.5	109583	7.13	110193	7.2
108026	2.11	108385	7.12	108630	8.4	108711	8.5	109584	7.13	110194	7.2
108036	2.11	108386	7.12	108631	8.4	108712	8.5	109585	7.13	110195	7.2
108037	2.11	108391	7.12	108632	8.4	108713	8.5	109587	7.13	110196	7.2
108045	2.8	108401	7.12	108633	8.4	108714	8.5	110000	8.6	110197	7.2
108047	7.10	108410	7.12	108634	8.4	108715	8.5	110001	8.6	110198	7.4
108049	2.8	108500	3.10	108636	8.4	108716	8.5	110002	8.6	110199	7.4
108055	2.8	108501	3.10	108637	8.4	108718	8.5	110003	8.6	110200	12.3
108057	8.8	108502	3.10	108638	8.4	108719	8.5	110004	8.6	110201	12.3
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117061	2.16	117177	2.14	118389	7.6	118776	8.2	190008	11.2	192150.0050	1.22
117062	2.16	117180	2.14	118393	2.8	118777	8.2	190009	11.2	192150.0100	1.22
117063	2.16	117181	2.14	118406	8.7	118778	8.2	190010	11.2	192150.0200	1.22
117064	2.16	117182	2.14	118407	8.7	118779	8.2	190012	11.2	192150.0300	1.22
117065	2.16	117183	2.14	118408	8.7	118780	8.2	190013	11.2	192150.0500	1.22
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117083	2.16	117204	2.14	118467	8.7	118803	2.7	192000.1000	1.21	197478	1.20
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117095	2.13	118004	6.3	118734	8.2	118813	2.7	192022.0500	1.21	198007.1000	1.14
117096	2.13	118005	6.3	118735	8.2	118814	2.7	192022.1000	1.21	198010.1000	1.8
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Germany

Friedrich Lütze GmbH & Co. KG
Postfach 12 24 (PLZ 71366)
Bruckwiesenstraße 17-19
D-71384 Weinstadt
Tel.: +49 (0)71 51 60 53-0
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sales.gb@lutze.co.uk

USA

LUTZE INC.
13330 South Ridge Drive
Charlotte, NC 28273
Tel.: +1 (704) 504-0222
Fax: +1 (704) 504 -0223
info@lutze.com

Österreich

LÜTZE Elektrotechnische
Erzeugnisse Ges.m.b.H.
Tel.: +43 (0)1 257 52 52-0
Fax: +43 (0)1 257 52 52-20
office@luetze.at

Schweiz

LÜTZE AG
Tel.: +41 (0)55 450 23 23
Fax: +41 (0)55 450 23 13
info@luetze.ch

France

LÜTZE S.A.
Tél.: +33 (0)1 34 18 77 00
Fax: +33 (0)1 34 18 18 44
lutze@lutze.fr

España

LUTZE, S.L.
Tel.: +34 93 285 7480
Fax: +34 93 285 7481
info@lutze.es

China

Lutze Control System (Shanghai) Ltd.
Tel. : +86 21 51007566 0
Fax : +86 21 51007565
sales@lutze.com.cn

www.lutze.com