



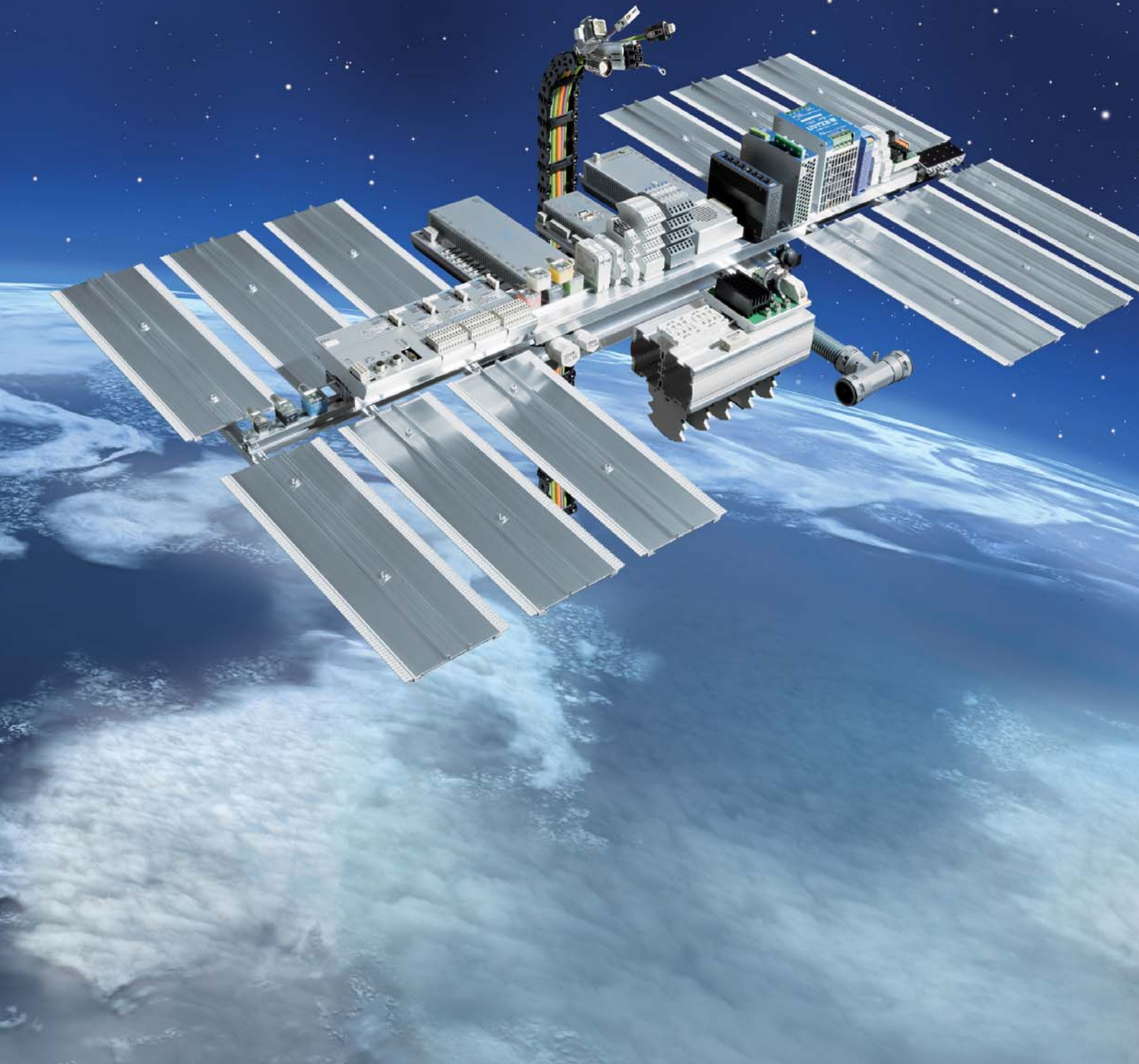
■ Cable Solutions

LÜTZE Cable Solutions

Network and Bus cables
Motor, Servo and Feedback cables
Control cables
Electronic cables

Efficiency in Automation

Cable • Connectivity • Cabinet • Control



Welcome to LÜTZE

Cable Solutions



Connectivity Solutions



Cabinet Solutions



Control Solutions



Transportation Solutions



LÜTZE - Efficiency in Automation

A tradition in automation for over 60 years, with countless pioneering achievements and patents, the international LÜTZE Group is today one of the leading companies in the automation industry. LÜTZE supplies very efficient electronic and electrotechnical components, system solutions for automation and high tech for rail engineering.

The Lütze Group has sales companies throughout Europe, Asia and the USA and numerous sales partners across the world to provide global product availability and service to our customers in all markets.

Our intelligent range of cables offers a large selection of Ethernet and bus cables, one-cable solutions, motor, servo and feedback cables, and also control cables and electronic cables.

Our industrial cables were specially developed for automated production, they are very durable, sturdy, and are designed for use with C-tracks. The cables from the LÜTZE cable program are also available as customized products.





Business Management: Sustainable and forw



The future is blue

Sustainable enterprise means thinking and planning ahead, understanding and embedding the belief that long lasting success is more important than short-term profit maximisation.

This is an attitude that has existed within LÜTZE for quite some time. Economic and environmental responsibilities complement each

other well and are reflected in the sustainable management and product policy - and from now in the **SkyBLUE** campaign.

We manufacture our products in a resourceful and energy-conscious manner. We use long lasting, environmentally-friendly materials. And our products, in turn, help our customers save energy and resources.

Good for everyone: for us, for the environment, for our customers a win-win-win situation.

ard-looking

„The competitiveness of our industry and of its suppliers depends quite substantially on how we succeed in developing practical results. The results that we produce together today, are our competitive advantages in the future.“

Udo LÜTZE,

*Member of the Executive Committee of
the Green Carbody Innovation Alliance*



Goods with real value

The value of a product or a solution from LÜTZE is determined by its sustainable qualities as well. Every innovation is only as successful in the future if it has a long-term positive effect. Therefore, we provide long-lasting as well as highly efficient components.

We are incorporating the necessary knowledge and manufacturing competence in numerous joint

projects with the objective of improving energy efficiency and sustainable technologies and industries. Thus, LÜTZE provides answers and demonstrates how to handle resources responsibly, with our environment and our future in mind.



RoHS

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Chapter 1: Network and Bus cables



Network and Bus cables

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LÜTZE SUPERFLEX® ETHERNET (C) PUR	PUR	•	CE, UL	C-track compatible For highest requirements	11, 12
LÜTZE SUPERFLEX® SINGLE PAIR ETHERNET (C) PUR	PVC	•	CE, UL	C-track compatible	13
LÜTZE ELECTRONIC ETHERNET (C) PVC	PVC	•	CE, UL	Shielded	14, 15
LÜTZE SUPERFLEX® Profibus (C) PUR	PUR	•	CE, UL	Shielded For highest requirements	16
LÜTZE ELECTRONIC Profibus (C) PVC	PVC	•	CE, UL	Shielded	17, 18

PUR Network cables · ETHERNET · C-track compatible

LÜTZE SUPERFLEX® ETHERNET (C) PUR For highest requirements



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- For continuous flexing 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 (EMC)
- Silicone free
- Halogen free
- RoHS-compliant
- Torsion-resistant

Technical data

Rated voltage	300 V
Test voltage	AC 2000 V
Impedance	nom. 100 Ω
Temperature range moving	-30 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	8×D
Burning behavior according to	IEC 60332-1-2 Horizontal Flame Test UL FT2
Oil resistant according to	DIN EN 60811-404 DIN EN 50363-10-2
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH

Construction

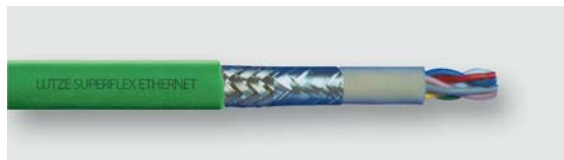
- Conductor: CU-wire bare, AWG conductor
- Conductor insulation: Special Polyolefin
- Overall stranding: stranding with cross element
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/ strand colors	Torsion	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
SUPERFLEX Industrial ETHERNET, Cat. 6A, CU-wire bare					
104401 S*	(4×2×AWG24/7)StC AWM 21198 cURus Cat.6A SF/UTP stranding with cross element white/blue, blue, white/orange, orange, white/green, green, white/brown, brown	± 180°	8.9	8.8	4.0
SUPERFLEX Industrial ETHERNET, Cat. 7, CU-wire tin-plated					
104404 S*	(4×(2×AWG24/7)St)C CMX Cat.7 S/FTP stranding with cross element white, blue, white, orange, white, green, white, brown	± 180°	9.4	9.6	4.4

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PUR Network cables · ETHERNET · C-track compatible

LÜTZE SUPERFLEX® ETHERNET (C) PUR For highest requirements



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- For continuous flexing 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 (EMC)
- Silicone free
- Halogen free
- RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1500 V
Impedance	nom. 100 Ω
Operating capacitance wire-wire	approx. 48 pF/m
Temperature range moving	-30 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH

Construction

- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
SUPERFLEX Industrial Ethernet/ProfiNet/Ethercat, FC				
104302 S*	(2×2×AWG22/19)C CMX cULus Cat.5e S/UTQ star quad stranding blue, white, yellow, orange	6.6	6.3	3.2
104303 S*	(2×2×AWG22/7)C CMX cULus Cat.5 S/UTQ star quad stranding blue, white, yellow, orange	6.5	6.5	3.0
SUPERFLEX Industrial Ethernet/Ethernet IP				
104379 S*	(2×2×AWG26/19)StC AWM 21198 cURus Cat.5e SF/UTQ star quad stranding white, blue, yellow, orange	5.3	3.5	1.8
104337 S*	(4×2×AWG24/19)C AWM 21198 cURus Cat.5e S/UTP stranded pairs white/blue, blue, white/orange, orange, white/green, green, white/brown, brown	7.8	8.5	4.4
104396 S*	(4×2×AWG26/19)StC AWM 21198 cURus Cat.5e SF/UTP stranded pairs white/blue, blue, white/orange, orange, white/green, green, white/brown, brown	6.7	5.1	2.8
104347 S*	(4×2×AWG26/19)StC CMX Cat.6 SF/UTP stranded pairs white/blue, blue, white/orange, orange, white/green, green, white/brown, brown	7.9	7.4	3.4

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PUR Network cables · ETHERNET · C-track compatible

LÜTZE SUPERFLEX® SINGLE PAIR ETHERNET (C) PUR



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- For continuous flexing 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 (EMC)
- Silicone free
- Halogen free
- RoHS-compliant

Technical data

Rated voltage	125 V
Test voltage	AC 2000 V
Impedance	nom. 100 Ω
Operating capacitance wire-shield	approx. 50 pF/m
Temperature range moving	-30 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	8×D
Burning behavior according to	IEC 60332-1-2
Oil resistant according to	DIN EN 50363-10-2 DIN EN 60811-404
Halogen free according to	IEC 60754-1 VDE 0472-815
Conformity	CE RoHS

Construction

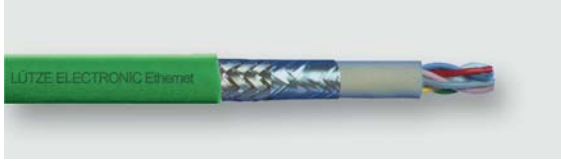
- Conductor: CU-wire bare, AWG conductor
- Conductor insulation: Special Polyolefin
- Overall shield: kunststoffkaschierte Aluminiumfolie, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
104450 S*	(1×2×AWG26/7) SF/UTP stranded pairs layer pitch optimised white, blue	4.7	2.5	1.5

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PUR Network cables · ETHERNET · shielded

LÜTZE ELECTRONIC ETHERNET (C) PVC



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- For fixed installation or mobile use without continuous flexing in automation technology, transport, conveyor technology and machine tools

Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1500 V
Impedance	nom. 100 Ω
Loop resistance	AWG 22: ≤ 115 mΩ/m AWG 24: ≤ 165 mΩ/m AWG 26: ≤ 273 mΩ/m
Operating capacitance wire-wire	approx. 48 pF/m
Temperature range moving	-10 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	10×D
Burning behavior according to	IEC 60332-3-24 CMG: FT4 UL 1685
Conformity	CE RoHS REACH

Construction

- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Overall shield: Foil shield, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PVC
- Surface: adhesion-free, matt
- Jacket color: green RAL 6018

Part-No.	Number of strands/ cross-section/strand colors	Approvals	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
ELECTRONIC Industrial Ethernet/Profinet/EtherCat					
104301	S* (2×2×AWG22/1)StC AWM 20201 Cat.5e SF/UTQ star quad stranding white, yellow, blue, orange	PLTC CMG cULus cURus	6.5	6.8	3.2
104307	S* (2×2×AWG22/7)StC AWM 20201 Cat.5e SF/UTQ star quad stranding white, yellow, blue, orange	PLTC CMG cULus cURus	6.5	6.9	3.2
104397	S* (4×(2×AWG22/1)St)C AWM 2570 Cat.6 _A S/FTP stranded pairs white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	PLTC CMG cULus cURus	9.6	9.6	5.3
ELECTRONIC Industrial Ethernet/Ethernet IP					
104335	S* (4×2×AWG26/7)StC Cat.5e SF/UTP stranded pairs white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	CMG cULus	6.3	5.5	3.0
104336	S* (4×2×AWG24/7)StC Cat.5e SF/UTP stranded pairs white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	CMG cULus	7.3	6.9	3.8
104338	S* (4×(2×AWG26/7)St)C Cat.6 _A S/FTP stranded pairs white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	CMG cULus	6.4	5.8	3.3
104331	S* (4×(2×AWG26/7)St)C Cat.7 S/FTP stranded pairs white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	CMG cULus	6.4	5.8	3.3

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PUR Network cables · ETHERNET · shielded

LÜTZE ELECTRONIC ETHERNET (C) PVC



Application

- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- For fixed installation or mobile use without continuous flexing in automation technology, transport, conveyor technology and machine tools

Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1000 V
Impedance	nom. 100 Ω
Loop resistance	≤ 114.8 mΩ/m
Operating capacitance wire-wire	approx. 50 pF/m
Temperature range moving	-25 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
UL style	AWM 2570
Burning behavior according to	DIN EN 60332-1-2 DIN EN 60332-3-24 UL 1685 UL FT4
Conformity	CE RoHS REACH
Approvals	cULus CMG CMX Outdoor PLTC cURus

Part-No.	Number of strands/ cross-section/strand colors	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
104350 S*	(4×2×AWG22/7) AWM 2570 Cat.5e SF/UTP white/blue, blue, white/orange, orange, white/green, green , white/brown, brown	8.6	9.2	4.8

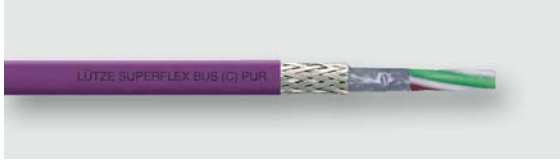
Construction

- Conductor: AWG conductor, CU-wire tin-plated
- Conductor insulation: Special Polyolefin
- Stranding: conductors stranded in pairs
- Overall shield: aluminium-laminated film shield, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PVC
- Jacket color: green RAL 6018

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PUR Bus cables · Profibus · C-track compatible · shielded

LÜTZE SUPERFLEX® Profibus (C) PUR For highest requirements



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 (EMC)
- Silicone free
- Halogen free
- RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1500 V
Loop resistance	≤ 165 mΩ/m
Impedance	nom. 150 Ω
Operating capacitance wire-wire	approx. 30 pF/m
Temperature range moving	-30 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×DFast Connection FC15×D
Minimum bending radius fixed	5×DFast Connection FC7.5×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	CMX cULus cURus

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
Profibus, highly flexible UL/CMX, AWM 21198 300 V				
104265 S*	(1×2×AWG24/19)	8.0	6.5	3.0
Profibus Fast Connection FC UL/CMX, AWM 21198 300 V				
104287 S*	(1×2×AWG24/19)	8.0	8.0	3.0
Profibus ET200 UL AWM 21198 300 V				
104275 S*	(3G0,75+(1×2×AWG24/19))	9.8	14.4	6.6

Construction

- Conductor: AWG conductor, CU-wire bareWire AWG 24/19 = 0.64∅
- Conductor insulation: Special Polyolefin
- Inner jacket: PE for version with fast connection FC
- Overall shield: Aluminium laminate, Foil shield, Braid shield, Tinned copper wires
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: violet RAL 4001

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PVC Bus cables · Profibus · shielded

LÜTZE ELECTRONIC Profibus (C) PVC



Application

- For the cabling of industrial field bus systems like PROFIBUS DP, F.I.P.
- With solid conductor AWG22/1 for hard wiring or with 7-wire stranded conductor for moving use without continuous flexing in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1500 V
Loop resistance	AWG 22: ≤ 110 mΩ/m AWG 24: ≤ 165 mΩ/m
Impedance	nom. 150 Ω
Operating capacitance wire-wire	approx. 30 pF/m
Temperature range moving	-10 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	7.5×D
Burning behavior according to	IEC 60332-1-2 CMX: FT1 UL 1581 UL VW-1 CMG: FT4 UL 1685
Conformity	CE RoHS REACH
Approvals	CMX cULus cURus

Construction

- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Inner jacket: PVC for version with fast connection
- Overall shield: Aluminium laminate, Foil shield, Braid shield, Tinned copper wires
- Jacket material: Special PVC
- Jacket color: violet RAL 4001

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
Profibus DP/FMS/FIP, Flexible UL/CMG 75 °C, AWM 20201 600 V				
104344 S*	(1×2×AWG24/7) red, green	8.0	7.2	3.0
Profibus DP/FMS/FIP, Fast Connection FC UL/CMG, AWM 20201 600 V				
104293 S*	(1×2×AWG22/1) red, green	8.0	7.6	3.0

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Bus cables · Profibus · shielded

LÜTZE ELECTRONIC Profibus (C) PVC



Application

- For the cabling of industrial field bus systems like PROFIBUS DP, F.I.P.
- With solid conductor AWG22/1 for fixed wiring or with stranded conductor for moving applications without continuous flexing in the automation technology, transport and conveyor technology, machine tool manufacture

Properties

- High active and passive interference resistance (EMC)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage	250 V
Test voltage	AC 1500 V
Loop resistance	AWG 22: ≤ 110 mΩ/m AWG 18: ≤ 39 mΩ/m
Impedance	AWG 22: nom. 150 Ω AWG 18: nom. 100 Ω
Operating capacitance wire-wire	AWG 22: approx. 30 pF/m AWG 18: approx. 52 pF/m
Temperature range moving	-5 °C ... +70 °C
Temperature range fixed	-30 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2
Conformity	CE RoHS

Construction

- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Overall shield: Foil shield, Braid shield, Tinned copper wires, optical cover approx. 70%
- Jacket material: PVC
- Jacket color: violet RAL 4001, blue RAL 5015, black RAL 9005

Part-No.	Number of strands/ cross-section/strand colors	Jacket color	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
Profibus DP/FMS/FIP					
104214 S*	(1×2×AWG22/7)StC red, green	violet RAL 4001	7.8	6.8	3.0
Profibus DP/FMS/FIP with inner jacket, halogen-free jacket (HM)					
104267 S*	(1×2×AWG22/1)StC FC red, green	violet RAL 4001	8.0	7.6	3.0

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Bus cables • CAN-BUS • DeviceNET™ • C-track compatible



LÜTZE SUPERFLEX® CAN-BUS (C) PUR

for highest requirements

Part-No.	Number of strands/cross-section/strand colors	Approvals	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS UL/CMX, 40 m max.					
104001 S*	(2x2xAWG24) white, brown, green, yellow	cULus, CMX	8,4	7,2	3,3
104101 S*	(1x2xAWG24) white, brown	cULus, CMX	6,5	4,4	2,4

Construction

Conductor: AWG conductor, CU-wire bare
 Conductor insulation: Special Polyolefin
 Overall shield: Brain shield, Tinned copper wires, optical cover approx. 85 %
 Jacket material: PUR
 Color: violet RAL 4001

Properties

Rated voltage: 300 V
 Test voltage: 850 V
 Impedance: 120 Ω
 Temperature range: moving: -30°C bis +70°C
 fixed: -40°C bis +75°C
 Bending radius: moving: 15xD
 fixed: 7,5xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, UL VW-1



LÜTZE ELECTRONIC CAN-BUS (C) PVC

for highest requirements

Part-No.	Number of strands/cross-section/strand colors	Approvals	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS UL/CMX, 40 m max.					
104386 S*	(1x2xAWG24/7) white, brown	cULus, CMX	5,8	4,0	1,7
104387 S*	(2x2xAWG24/7) white, brown, green, yellow	cULus, CMX	7,5	6,0	3,5

Construction

Conductor: AWG conductor, CU-wire bare
 Conductor insulation: Special Polyolefin
 Overall shield: Brain shield, Tinned copper wires, optical cover approx. 85 %
 Jacket material: Special PVC
 Color: violet RAL 4001

Properties

Rated voltage: 250 V
 Test voltage: 1500 V
 Impedance: 120 Ω
 Temperature range: moving: -10°C bis +70°C
 fixed: -40°C bis +80°C
 Bending radius: moving: 15xD
 fixed: 8xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, VDE 0482 332-1-2, UL VW-1



LÜTZE SUPERFLEX® DeviceNet™ (C) PUR

for highest requirements

Part-No.	Number of strands/cross-section/strand colors	Approvals	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
DeviceNet™ Thick UL/CMX					
104198 S*	((2xAWG18)+(2xAWG16)) white, blue, red, black	cULus, CMX	12,2	19,5	9,4
DeviceNet™ Thin UL/CMX					
104289 S*	((2xAWG24)+(2xAWG22)) white, blue, red, black	cULus, CMX	7,0	6,2	3,6

Construction

Conductor: CU-wire tin-plated
 Conductor insulation: Foamed Polyolefin
 Overall shield: Brain shield, Tinned copper wires, optical cover approx. 85 %
 Jacket material: PUR
 Farbe: violet RAL 4001

Properties

Rated voltage: 300 V
 Test voltage: 1500 V
 Impedance: 120 Ω
 Temperature range: moving: -20°C bis +75°C
 fixed: -40°C bis +75°C
 Bending radius: moving: 15xD
 fixed: 5xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, UL 1581 Teil VW-1 Flame Test, UL FT1

Chapter 2: Motor, Servo and Feedback cables



Motor, Servo and Feedback cables

	Jacket	Shielding	Approval	Application	Page
SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET	PUR	•	CE, UL	C-track compatible and shielded Combined power supply cable for SIEMENS® and other systems For highest requirements	23
SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET	PUR	•	CE, UL	C-track compatible and shielded Combined power supply cable for BOSCH REXROTH® and other systems For highest requirements	24
LÜTZE SUPERFLEX® PLUS M (C) PUR HYBRID SERVO 0,6/1 kV	PUR	•	CE, UL	C-track compatible and shielded Combined power supply cable for servo motors with Hiperface DSL® interface For highest requirements	25
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PUR servo cables · C-track compatible · shielded

SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET combined power supply cable for Siemens and other systems For highest requirements



Application

- Connection cable motor or motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	111766: UL-Style AWM 20233 80 °C 300 V 111767: UL-Style AWM 21223 80 °C 1000 V
Rated voltage	111766: 300 V 111767: 1000 V
Test voltage	111766: AC 2000 V 111767: AC 3000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Impedance	nom. 100 Ω
Temperature range moving	-40 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	5×D
Burning behavior according to	DIN EN 60332-1-2 IEC 60332-1-2 UL VW1, FT1
Halogen free according to	IEC 60754-1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: Cu-Litze verzinkt, AWG-Leiter
- Cat.5 Element CU-Litze blank
- Conductor category: IEC 60228, Class 6, superfine strand
- Conductor insulation: Polyolefin
- Ground conductor: G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: elements stranded together, layer pitch optimized
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt
- Jacket color: orange RAL 2003

Part-No.	Number of strands/ cross-section/strand colors	SIEMENS designation*	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
111766 S*	(4GAWG22+(2×AWG22)+ (4×AWG26)) AWM 20233 4GAWG22 brown, U/L1/C/L+, black, V/L2, grey, W/L3/D/L-, yellow/green (2×AWG22) black, white (4×AWG26) yellow, blue, green, orange	1BE04	9.8	12.8	7.1
111767 S*	(4GAWG19+(2×AWG21)+ (4×AWG26)) AWM 21223 4GAWG19 brown, U/L1/C/L+, black, V/L2, grey, W/L3/D/L-, yellow/green (2×AWG21) black, white (4×AWG26) yellow, blue, green, orange	1BE08	10.6	15.8	9.6

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR servo cables · C-track compatible · shielded

SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET

combined power supply cable for Bosch-Rexroth and other systems

For highest requirements



Application

- For Indramat* system (and similar)
- Connection cable motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Due to Full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage	1000 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Impedance	nom. 100 Ω
Temperature range moving	-40 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7,5×D
Minimum bending radius fixed	5×D
Burning behavior according to	DIN EN 60332-1-2 IEC 60332-1-2 UL VW1, FT1
Halogen free according to	IEC 60754-1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, superfine strand
- Conductor insulation: Polyolefin
- Ground conductor: G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: elements stranded together, layer pitch optimised
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: matt
- Jacket color: orange RAL 2003

Part-No.	Number of strands/cross-section/strand colors	INK Description*	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
111759 S*	(4G1,5+(2×0,75)+(4×AWG24)) 4G1,5 black, with white number print, green/yellow (2×0,75) black, with white number print (4×AWG24) white, yellow, blue, orange	MS2N	13.3	25.0	15.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR servo cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS M (C) PUR HYBRID SERVO 0,6/1 kV combined power supply cable for servo motors with Hiperface DSL® interface For the highest of standards



Application

- Combined power supply cable with motor supply, brake and digital feedback especially for SERVO drives in machine and plant construction, transport and conveyor technology
- Due to Full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage UL	1000 V
Rated voltage U ₀ /U	600/1000 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Temperature range moving	-40 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	5×D
Burning behavior according to	VDE 0482 322-1-2 DIN EN 60332-1-2 IEC 60332-1-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	IEC 60754-1
Conformity	CE RoHS
Approvals	cURus

Construction

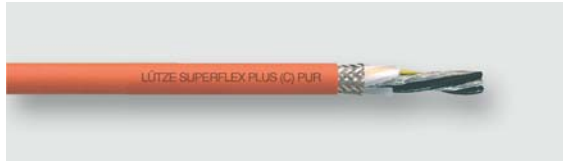
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special Polyolefin
- Conductor marking: black, with white print, U/L1/C/L+, V/L2, W/L3/D/L-, green/yellow
- Ground conductor: G = with green/yellow ground conductor, × = without ground conductor
- Inner jacket: TPE
- Overall stranding: elements stranded together
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Jacket color: orange RAL 2003

Part-No.	Number of conductors/cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
with control pair (black, white) and BUS pair (white, blue)				
111728	S* (4G0.75+(2×0.34)+(2×AWG22))	11.7	19.8	11.4
111630	S* (4G1.0+(2×0.75)+(2×AWG22))	12.4	19.0	13.5
111631	S* (4G1.5+(2×1.0)+(2×AWG22))	13.2	25.1	16.3
111632	S* (4G2.5+(2×1.0)+(2×AWG22))	14.5	31.4	21.7
111633	S* (4G4+(2×1.0)+(2×AWG22))	16.2	40.8	28.9
111634	R* (4G6+(2×1.0)+(2×AWG22))	18.0	51.2	37.3
111635	R* (4G10+(2×1.5)+(2×AWG22))	21.0	77.9	78.3
111636	R* (4G16+(2×1.5)+(2×AWG22))	26.0	119.8	119.8

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR servo cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0.6/1 kV High Flexing Motor Cable for Siemens and other systems For highest requirements



Application

- Connection cable motor or motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage UL	1000 V
Rated voltage U ₀ /U	600/1000 V
Test voltage	AC 4000 V
Insulation resistance at 20 °C	≥ 500 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D ≤16 mm ² 10×D ≥25 mm ²
Minimum bending radius fixed	5×D

Burning behavior according to IEC 60332-1
DIN EN 60332-1-2
VDE 0482 322-1-2
UL 1581 Part 1080 VW-1
UL FT1

Halogen free according to DIN EN 60754-1
IEC 60754-1

Conformity CE
RoHS
REACH

Approvals cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white print, U/L1/C/L+, V/L2, W/L3/D/L-, green/yellow
- Ground conductor: G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: conductors twisted without mechanical stress, layer pitch optimised, conductors twisted without mechanical stress
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: orange RAL 2003

Part-No.	Number of conductors/ cross-section	SIEMENS designation*	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
Construction without signal pair					
111879	S* (4G1.0)		7.4	10.8	6.5
111460	S* (4G1.5)	1BB11	8.6	11.7	8.3
111461	S* (4G2.5)	1BB21	10.8	17.3	13.0
111462	S* (4G4)	1BB31	12.2	24.5	19.3
111463	S* (4G6)	1BB41	14.0	36.5	27.5
111464	S* (4G10)	1BB51	17.6	54.9	45.0
111465	S* (4G16)	1BB61	21.2	84.9	72.0
111466	S* (4G25)	1BB25	25.0	129.9	108.0
111467	S* (4G35)	1BB35	28.8	169.2	152.4
111468	S* (4G50)	1BB50	33.9	244.2	216.8
Construction with one signal pair (white, black)					
111420	S* (4G1.5+(2×1.5))	1BA11	11.4	21.0	14.9
111421	S* (4G2.5+(2×1.5))	1BA21	12.9	23.5	19.3
111422	S* (4G4+(2×1.5))	1BA31	14.5	32.0	25.5
111423	S* (4G6+(2×1.5))	1BA41	16.1	43.0	33.9
111424	S* (4G10+(2×1.5))	1BA51	19.5	68.0	52.6
111425	S* (4G16+(2×1.5))	1BA61	23.6	95.6	77.3
111426	S* (4G25+(2×1.5))	1BA25	28.5	136.5	113.0
111427	R* (4G35+(2×1.5))	1BA35	31.0	274.6	159.0
111428	R* (4G50+(2×1.5))	1BA50	34.5	373.7	224.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR feedback cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK Encoder cables for Siemens and other systems For highest requirements in drive technology



Application

- Incremental encoder cable, connection cable for tacho sensor, brake sensor, speed sensor
- Due to Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 20236
Rated voltage	30 V
Test voltage	AC 500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus AWM II A/B

Construction

- Conductor: CU-wire tin-plated
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Polyolefin
- Conductor marking: Colour coded
- Overall stranding: layered construction
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/strand colors	SIEMENS designation*	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
For Siemens 6FX8000* standard system (and similar)					
111412	R* (8×2×0.18) (8×2×0.18) white/green, white/yellow, white/red, white/orange, white/black, white/brown, white, grey, violet, blue, green, yellow, red, orange, brown, black	1BD11	8.2	13.1	7.3
111456	S* (4×0.5+4×2×0.38) 4×0.5 white/blue, white/black, white/red, white/yellow 4×2×0.38 black, brown, violet, blue, yellow, green, red, orange	1BD21	9.4	13.2	8.6
111459	S* (2×(0.5)+3×(2×0.14)) 2×(0.5) red, black 3×(2×0.14) yellow, green, red, orange, brown, black	1BD31	8.7	12.8	6.9
111458	S* (2×0.5+3×(2×0.14)+4×0.14) 2×0.5 brown/blue, brown/red 3×(2×0.14) green, yellow, black, brown, red, orange 4×0.14 blue, grey, white/yellow, white/black	1BD41	8.6	12.2	6.1
111457	S* (2×0.5+4×0.23+3×(2×0.14)+4×0.14) 2×0.5 brown/blue, brown/red 4×0.23 green/red, green/black, brown/yellow, brown/grey 3×(2×0.14) yellow, green, black, brown, red, orange 4×0.14 blue, grey, white/yellow, white/black	1BD51	9.8	15.3	9.3
111453	R* (4×2×0.18) (4×2×0.18) violet, blue, green, yellow, red, orange, brown, black	1BD61	6.6	7.6	3.2
111452	R* (2×2×0.18) (2×2×0.18) brown, red, black, orange	1BD71	5.1	4.2	2.2
111454	R* (12×0.23) (12×0.23) black, brown, red, orange, yellow, green, blue, violet, grey, white, white/black, white/brown	1BD81	7.4	8.5	4.7
For Siemens-System DRIVE-CLiQ standard system (and similar)					
104310	S* (2×2×AWG26+1×2×AWG22) 2×2×AWG26 pink, blue, yellow, green 1×2×AWG22 red, black	2DC00	6.8	7.3	3.4

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

* SIEMENS and DRIVE-CLiQ are registered trademarks



* S Article from stock
A Available with a lead time
R Available on request

PUR feedback cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK Feedback cables for Siemens Drive Cliq and other systems For highest requirements in drive technology



Application

- Incremental encoder cable, connection cable for tacho sensor, brake sensor, speed sensor
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 20549
Rated voltage	300 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	5×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 UL VW1, FT1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, superfine strand
- Conductor insulation: Special Polyolefin
- Overall stranding: elements stranded together
- Overall wrapping: double fleece taping
- Overall shield: aluminium-laminated film shield, optical cover approx. 100%, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
104402	S* (2x2xAWG24+1x2AWG22) 2x2xAWG24 pink, blue, yellow, green 1x2xAWG22 red, black	6.7	7.3	3.5

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC servo cables · shielded

LÜTZE SILFLEX® M (C) PVC SERVO 0.6/1 kV Motor/energy supply cable for Siemens and other systems



Application

- For Siemens 6FX5008* standard system (and similar)
- Connection cable motor or motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Flexible construction for easy installation
- Suitable for static laying and slight movement of machine components (not C-track)
- Low capacitance for high dielectric strength for long cable guide from inverter to motor
- In dry and damp rooms
- Especially for industrial environments in mechanical and system engineering

Properties

- Low capacitance for high dielectric strength
- High active and passive interference resistance (EMC)
- PVC, flame-retardant and self-extinguishing
- Orange RAL 2003 per DESINA
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 2570
Rated voltage UL	1000 V
Rated voltage U_0/U	600/1000 V
Test voltage	AC 4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \times \text{km}$
Temperature range moving	-5 °C ... +80 °C
Temperature range fixed	-25 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part 1080 VW-1 UL FT1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: TPM/PP
- Conductor marking: black, with white print, U/L1/C/L+, V/L2, W/L3/D/L-, green/yellow
- Ground conductor: G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: layered construction
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Surface: adhesion-free, matt
- Jacket color: orange RAL 2003

Part-No.	Number of conductors/ cross-section	SIEMENS designation*	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
Construction without signal strands					
116401	S* (4G1.5)	1BB11	8.4	13.1	8.0
116402	S* (4G2.5)	1BB21	10.6	21.9	13.0
116403	R* (4G4)	1BB31	11.5	31.2	19.4
116404	S* (4G6)	1BB41	13.2	38.0	28.0
Construction with 1 signal pair (white, black)					
116415	S* (4G1.5+(2×1.5))	1BA11	11.6	24.8	15.0
116416	S* (4G2.5+(2×1.5))	1BA21	13.0	31.0	19.5

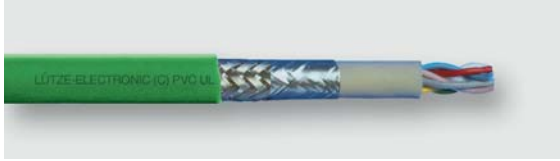
CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

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PVC feedback cables · shielded

LÜTZE SILFLEX® (C) PVC FEEDBACK

Feedback cable for Siemens DRIVE-CLIQ 6FX5008 standard system



Application

- Digital feedback cable compatible with Siemens DRIVE-CLIQ standard system
- In dry and damp rooms
- For flexible applications without continuous flexing

Properties

- High active and passive interference resistance (EMC)
- PVC Flame-retardant, self-extinguishing
- Resistant to most oils, greases, acids and bases
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 2502
Rated voltage	30 V
Test voltage	AC 500 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range moving	-5 °C ... +80 °C
Temperature range fixed	-25 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	7.5×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Polyolefin
- Overall shield: kunststoffkaschierte Aluminiumfolie, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Surface: adhesion-free, matt
- Jacket color: green RAL 6018

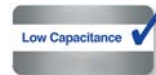
Part-No.	Number of strands/cross-section/strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
For Siemens system DRIVE-CLIQ 2DC00				
104341 R*	(2×2×AWG26+1×2×AWG22) 2×2×AWG26 green , yellow, blue , pink 1×2×AWG22 red , black	6.8	8.5	4.2

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PVC servo cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0.6/1 kV Supply line for Bosch Rexroth and other systems For highest requirements



Application

- For Indramat* system (and similar)
- Connection cable motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Due to Full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage UL	1000 V
Rated voltage U_0/U	600/1000 V
Test voltage	AC 4000 V
Insulation resistance at 20 °C	$\geq 0.0 \text{ M}\Omega \cdot \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10xD
Minimum bending radius fixed	6xD
Burning behavior according to	IEC 60332-1-2 DIN EN 60332-1-2 UL 1581 UL C22.2 No. 210.2 Flame Rating FT1
Halogen free according to	DIN EN 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Polyolefin
- Conductor marking: black, with white number print, green/yellow
- Ground conductor: G = with green/yellow ground conductor, x = without ground conductor
- Overall stranding: elements stranded together, layer pitch optimised, conductors twisted without mechanical stress
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: orange RAL 2003

Part-No.	Number of conductors/ cross-section	INK Description*	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
Construction with two control pairs (digit print 5, 6 and 7, 8)					
111719	R* (4G0.75+2x(2x0.34))		11.2	17.7	9.5
111270	S* (4G1.0+2x(2x0.75))	INK 0653	12.5	23.2	13.8
111271	S* (4G1.5+2x(2x0.75))	INK 0650	12.9	25.5	16.2
111279	S* (4G2.5+2x(2x1.0))	INK 0602	14.2	33.0	22.6
111388	S* (4G4+(2x1.0)+(2x1.5))	INK 0603	16.3	38.0	32.9
111998	S* (4G6+(2x1.0)+(2x1.5))	INK 0604	18.4	53.0	38.5
111762	S* (4G10+(2x1.0)+(2x1.5))	INK 0605	22.3	76.5	57.0
111276	S* (4G16+2x(2x1.5))	INK 0606	26.8	106.4	89.1
111277	R* (4G25+2x(2x1.5))	INK 0607	29.3	171.4	126.0
111278	R* (4G35+2x(2x1.5))	INK 0667	32.5	217.6	164.0

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PUR feedback cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK Feedback cables for Bosch-Rexroth and other systems For highest requirements in drive technology



Application

- Incremental encoder cable, connection cable for tachometer, brake sensor, speed sensor
- Due to Full PUR jacket and TPE conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 20233
Rated voltage	300 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	5×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Overall stranding: layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: orange RAL 2003

Part-No.	Number of strands/cross-section/strand colors	INK Description*	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
For Bosch-Rexroth system (and similar)					
110941 S*	(2×1.0+4×2×0.25) 2×1.0 white, brown 4×2×0.25 brown, green, grey, pink, red, black, blue, violet	INK-0209*	8.9	12.0	6.4
111780 S*	(2×0.5+4×2×0.25) 2×0.5 white, brown 4×2×0.25 brown, green, grey, pink, red, black, violet, blue	INK-0448*	8.5	10.0	5.9
110940 S*	(9×0.5) (9×0.5) DIN 47100	INK-0208*	8.8	12.5	7.5
111495 R*	(4×1.0+4×2×0.14+(4×0.14)) 4×1.0 blue, white, white/green, brown/black 4×2×0.14 red, black, green, brown, grey, pink, yellow, violet (4×0.14) black/green, black/yellow, black/blue, black/red	INK-0532*	9.5	13.7	9.6
111781 S*	(2×2×0.25+2×0.5) 2×2×0.25 grey, pink, red, black 2×0.5 white, brown	INK-0750*	7.6	9.0	4.2

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PUR feedback cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK Feedback cables for Allen-Bradley and other systems For highest requirements in drive technology



Application

- Incremental encoder cable, connection cable for tacho sensor, brake sensor, speed sensor
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage	1000 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 200 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Overall stranding: elements stranded together, layer pitch optimised, conductors twisted without mechanical stress
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Jacket color: green RAL 6018

Part-No.	Number of strands/cross-section/ strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
For Allen-Bradley system (and similar)				
111489 S*	(2×AWG16+2×AWG22+6×2×AWG26) 2×AWG16 grey, white/grey 2×AWG22 orange, white/orange 6×2×AWG26 black/white, black, red/white, red, green/white, green, blue/white, blue, brown/white, brown, yellow/white, yellow	10.8	18.0	12.0
111488 S*	(5×2×AWG22) (5×2×AWG22) black/white, black, red/white, red, green/white, green, grey/white, grey, orange/white, orange	9.2	10.7	5.4

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Servo cables • C-track compatible • shielded



LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0,6/1 kV

for Lenze and other systems

Part-No.	Number of conductors/ cross-section	UL approval	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
For Lenze System (and similar) with control pair (brown, white)					
111439 S*	(4G1,0+(2x0,5))	cULus, AWM Style 21223	9,6	13,4	8,0
111536 S*	(4G1,5+(2x0,5))	cULus, AWM Style 21223	11,0	19,2	10,6
111997 S*	(4G2,5+(2x0,5))	cULus, AWM Style 21223	12,8	27,1	15,3
111763 R*	(4G4+(2x1,0))	cULus, AWM Style 21223	14,8	37,3	23,5
111764 R*	(4G6+(2x1,0))	cULus, AWM Style 21223	16,9	47,7	31,6
111765 R*	(4G10+(2x1,0))	cULus, AWM Style 21223	20,3	71,0	51,3

Construction

Conductor: CU-wire bare
 Conductor insulation: Special TPE
 Overall shield: Braid shield, Tinned copper wires,
 optical cover approx. 85 %
 Jacket material: PUR
 Color: orange RAL 2003

Properties

Rated voltage: 600 / 1000 V
 Test voltage: 4000 V
 Temperature range: moving: -25°C bis +80°C
 fixed: -40°C bis +80°C
 Bending radius: moving: 10xD
 fixed: 6xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, VDE 0482 332-1-2,
 UL 1581 Teil 1080 VW-1, UL FT1



LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0,6/1 kV

for SEW and other systems

Part-No.	Number of conductors/ cross-section	UL approval	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
For system SEW, with sub jacket and three elements (digit print 1,2,3)					
111560 R*	(4G1,5+(3x1,0))	cULus, AWM Style 21223	11,8	24,4	13,9
111561 R*	(4G2,5+(3x1,0))	cULus, AWM Style 21223	13,7	30,6	18,3
111562 R*	(4G4+(3x1,0))	cULus, AWM Style 21223	14,7	39,6	25,6
111563 R*	(4G6+(3x1,5))	cULus, AWM Style 21223	17,0	52,9	34,4
111564 R*	(4G+10(3x1,5))	cULus, AWM Style 21223	20,5	73,0	52,2

Construction

Conductor: CU-wire bare
 Conductor insulation: Special TPE
 Overall shield: Braid shield, Tinned copper wires,
 optical cover approx. 85 %
 Jacket material: PUR
 Color: orange RAL 2003

Properties

Rated voltage: 600 / 1000 V
 Test voltage: 4000 V
 Temperature range: moving: -25°C bis +80°C
 fixed: -40°C bis +80°C
 Bending radius: moving: 10xD
 fixed: 6xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, VDE 0482 332-1-2,
 UL 1581 Teil 1080 VW-1, UL FT1

Feedback cables • C-track compatible • shielded



LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK

for Heidenhain and other systems

Part-No.	Number of strands/cross-section/strand color	UL approval	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
For Heidenhain system (and similar)					
111418 S*	(4x0,5+4x2x0,14+(4x0,14)) 4x0,5: white, blue, brown/green, white/green 4x2x0,14: yellow, violet, grey, pink, brown, green, red, black (4x0,14): green/black, blue/black, yellow/black, red/black	cULus, AWM Style 20233	8,7	12,3	6,0
111777 S*	(4x0,5+4x2x0,14) 4x0,5: white, blue, brown/green, white/green 4x2x0,14: yellow, violet, grey, pink, brown, green, red, black	cULus, AWM Style 20233	8,6	9,2	4,8

Construction

Conductor: CU-wire bare
 Conductor insulation: Special TPE
 Overall shield: Braid shield, Tinned copper wire, optical cover approx. 85 %
 Jacket material: PUR
 Color: black RAL 9005

Properties

Rated voltage: 300 V
 Test voltage: 2000 V
 Temperature range: moving: -25°C bis +80°C
 fixed: -40°C bis +80°C
 Bending radius: moving: 12xD
 fixed: 6xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1, UL FT1



LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK

for various systems

Part-No.	Number of strands/cross-section/strand color	UL approval	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
For System Fanuc (with drain wire)					
111491 S*	(5x0,5+2x2x0,18) 5x0,5: green, yellow, grey, pink, blue 2x2x0,18: white, brown, black, violet	cULus, AWM Style 20233	7,8	9,3	6,3
Für NUM system					
111416 S*	4x(2xAWG22) black, white, black, green, black, blue, black, red	cULus, AWM Style 20233	10,3	14,9	6,6
For B+R system					
111437 S*	(3x2xAWG24/19) white,brown,green,yellow,grey,pink	cULus, AWM Style 20233	6,6	6,9	2,7

Construction

Conductor: CU-wire tin-plated
 Conductor insulation: Special TPE
 Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85 %
 Jacket material: PUR
 Color: green RAL 6018

Properties

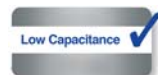
Rated voltage: 300 V
 Test voltage: 2000 V
 Temperature range: moving: -25°C bis +80°C
 fixed: -40°C bis +80°C
 Bending radius: moving: 12xD
 fixed: 6xD
 Burning behavior: IEC 60332-1, DIN EN 60332-1-2, VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1, UL FT1

PUR motor cables · C-track compatible · unshielded

LÜTZE SUPERFLEX® PLUS PUR 0.6/1 kV

Motor/energy supply cable

For highest requirements



Application

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

Properties

- 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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 10587
Rated voltage	1000 V
Test voltage	AC 3000 V
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	4×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: black RAL 9005

Part-No.	Number of conductors/ cross-section	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
Without shield, black				
111136	S* 1×6	7.1	9.0	5.6
111126	S* 1×10	8.4	13.8	9.3
111127	S* 1×16	9.8	20.5	14.8
111128	S* 1×25	11.4	30.6	23.3
111129	S* 1×35	13.4	43.1	32.6
111130	S* 1×50	15.2	57.2	47.8
111131	S* 1×70	16.6	78.3	64.5
111132	S* 1×95	19.2	104.3	88.8
111133	R* 1×120	22.6	130.2	120.0
Without screen, insulation and jacket greenyellow				
111241	S* 1G6	7.1	9.0	5.6
111243	S* 1G10	8.4	13.8	9.3
111197	S* 1G16	9.8	20.5	14.8
111337	R* 1G25	11.4	30.6	23.3
111285	S* 1G35	13.4	43.1	32.6

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PUR motor cables · C-track compatible

LÜTZE SUPERFLEX® PLUS (C) PUR 0.6/1 kV Motor/energy supply cable, for highest requirements



Application

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

Properties

- 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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 10587
Rated voltage	1000 V
Test voltage	AC 3000 V
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	4×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL FT1 UL 1581 cable flame
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: black RAL 9005

Part-No.	Number of conductors/ cross-section	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
With CU shield, black				
111288	S* (1×6)	7.7	11.5	7.7
111289	S* (1×10)	9.0	17.1	12.1
111290	S* (1×16)	10.4	24.1	18.1
111291	S* (1×25)	12.0	35.3	27.3
111292	S* (1×35)	14.0	48.1	37.3
111293	S* (1×50)	15.8	63.1	53.1
111294	R* (1×70)	17.4	85.3	70.6
111295	R* (1×95)	20.2	114.6	98.0
111296	R* (1×120)	23.6	143.1	132.0

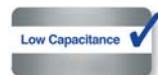
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PUR motor cables · C-track compatible · unshielded

LÜTZE SUPERFLEX® PLUS M PUR 0.6/1 kV

Motor/energy supply cable

For highest requirements



Application

- Motor connection cable, specifically for machine and device construction, transport and conveyor technology
- Due to full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough 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
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data

UL style	AWM 21223
Rated voltage UL	1000 V
Rated voltage U_0/U	600/1000 V
Test voltage	AC 4000 V
Insulation resistance at 20 °C	$\geq 500 \text{ M}\Omega \cdot \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius	7.5×D
Minimum bending radius fixed	4×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part 1080 VW-1 UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white number print, green/yellow
- Ground conductor: G = with green/yellow ground conductor, * = without ground conductor
- Overall stranding: layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Overall wrapping: Fleece taping
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: black RAL 9005

Part-No.		Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
111370	S*	4G1.5	8.2	10.5	5.8
111371	S*	4G2.5	10.0	15.2	9.7
111372	S*	4G4	11.6	22.2	15.5
111545	S*	5G4	13.0	26.8	19.4
111373	S*	4G6	13.6	33.8	23.3
111430	S*	5G6	14.4	37.8	29.2
111374	S*	4G10	16.8	55.5	39.1
111429	R*	5G10	18.8	69.5	48.8
111375	S*	4G16	20.4	78.8	62.2
111548	R*	5G16	24.2	112.6	77.5
111376	S*	4G25	24.2	120.8	96.0
111377	S*	4G35	30.5	172.5	136.5
111378	S*	4G50	36.5	265.1	200.1

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

Chapter 3: Control cables



Control cables

	Jacket	Shielding	Approval	Application	Page
LÜTZE SUPERFLEX® PLUS N PUR 600 V	PUR		CE, UL, VDE	C-track compatible and unshielded For highest requirements	41
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PUR control cables · C-track compatible · unshielded

LÜTZE SUPERFLEX® PLUS N PUR 600 V For highest requirements



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For installation in energy chains with constant linear movement

Properties

- Reduced friction due to high glide conductor insulation (HGI) for high mechanical loads
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- Halogen-free, no corrosive gases
- Very good flexing strength
- Low adhesion, abrasion-resistant, nick-resistant, tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20234
Rated voltage UL	600 V
Rated voltage U_0/U	300/500 V
Test voltage	AC 6000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \cdot \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	4×D
Radiation resistance	$5 \times 10^8 \text{ cJ/kg}$
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

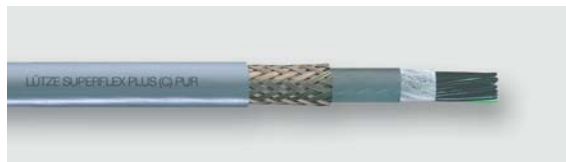
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor, × = without ground conductor
- Conductor marking standard: DIN EN 50334
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Jacket material: PUR
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
1.0 mm²				
113570	S* 2×1.0	7.1	6.1	2.0
113571	S* 3G1.0	7.4	7.3	3.0
113572	S* 4G1.0	8.0	8.7	4.0
113573	S* 5G1.0	8.7	10.5	5.0
113574	S* 7G1.0	10.0	13.9	6.9
113575	S* 12G1.0	12.0	20.5	11.9
113576	S* 18G1.0	13.8	28.9	17.9
113577	S* 25G1.0	16.4	39.3	24.8
1.5 mm²				
113485	S* 2×1.5	7.7	7.6	2.9
113406	S* 3G1.5	8.0	9.2	4.4
113412	S* 4G1.5	8.8	11.3	5.9
113407	S* 5G1.5	9.5	13.6	7.4
113408	S* 7G1.5	11.0	18.4	10.3
113409	S* 12G1.5	13.2	27.2	17.6
113410	S* 18G1.5	15.3	38.9	26.5
113411	S* 25G1.5	18.2	54.0	36.8
2.5 mm²				
113483	S* 3G2.5	9.2	13.3	7.3
113415	S* 4G2.5	10.0	16.3	9.7
113416	S* 5G2.5	10.9	19.7	12.2
113417	S* 7G2.5	12.8	27.3	17.0
113426	S* 12G2.5	15.3	40.7	29.2
113479	S* 18G2.5	17.8	58.9	43.8

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR control cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS N (C) PUR 600 V For highest requirements



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For installation in energy chains with constant linear movement
- Anywhere where electrical interference fields can influence the signal transmission

Properties

- Reduced friction due to high glide conductor insulation (HGI) for high mechanical loads
- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexing applications
- 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 resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20234
Rated voltage UL	600 V
Rated voltage U_0/U	300/500 V
Test voltage	AC 6000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	6×D
Radiation resistance	$5 \times 10^8 \text{ cJ/kg}$
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white number print, green/yellow
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor, x = without ground conductor
- Conductor marking standard: DIN EN 50334
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Jacket material: PUR
- Jacket color: grey RAL 7001

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

Part-No.	Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
1.0 mm²				
113360	R* (3G1.0)	9.0	10.8	4.7
113361	R* (4G1.0)	9.6	12.6	5.8
113362	R* (5G1.0)	10.4	14.6	7.8
113363	R* (7G1.0)	11.8	19.7	10.1
113364	R* (12G1.0)	13.8	27.4	15.8
113365	R* (18G1.0)	15.7	37.7	22.4
113366	R* (25G1.0)	18.5	51.9	33.2
1.5 mm²				
113346	R* (2×1.5)	9.3	11.5	4.7
113318	S* (3G1.5)	9.7	13.1	6.3
113331	S* (4G1.5)	10.5	16.0	8.7
113319	S* (5G1.5)	11.2	18.7	10.4
113320	S* (7G1.5)	12.8	24.2	13.8
113321	S* (12G1.5)	14.9	35.4	22.0
113322	S* (18G1.5)	17.2	48.7	32.4
113323	S* (25G1.5)	20.1	65.3	46.3
2.5 mm²				
113341	R* (3G2.5)	10.9	18.4	9.6
113332	S* (4G2.5)	11.8	22.3	12.9
113339	S* (5G2.5)	12.6	25.9	15.7
113340	S* (7G2.5)	14.6	35.2	21.2
113344	S* (12G2.5)	17.4	52.9	35.6
113342	R* (18G2.5)	19.9	73.1	53.2

PUR control cables · C-track compatible · unshielded

LÜTZE SUPERFLEX® PLUS N PUR 300 V For highest requirements



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For installation in energy chains with constant linear movement

Properties

- Reduced friction due to high glide conductor insulation (HGI) for high mechanical loads
- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- Halogen-free, no corrosive gases
- Very good flexing strength
- Low adhesion, abrasion-resistant, nick-resistant, tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20233
Rated voltage UL	300 V
Rated voltage U_0/U	300/500 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \cdot \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	$7.5 \times D$
Minimum bending radius fixed	$4 \times D$
Radiation resistance	$5 \times 10^8 \text{ cJ/kg}$
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

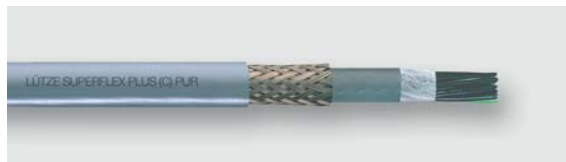
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, x = without ground conductor
- Conductor marking standard: DIN EN 50334
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Jacket material: PUR
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
113431	S* 2x0.5	4.8	2.9	1.0
113441	S* 3G0.5	5.0	3.4	1.5
113442	S* 4G0.5	5.4	4.1	2.0
113443	S* 5G0.5	5.8	4.8	2.5
113444	S* 7G0.5	6.7	6.6	3.4
113446	S* 12G0.5	8.0	9.7	5.9
113438	S* 18G0.5	9.3	13.8	8.8
113447	S* 25G0.5	11.0	18.9	12.3
0.75 mm²				
113432	S* 2x0.75	5.2	3.7	1.5
113445	S* 3G0.75	5.5	4.4	2.2
113439	S* 3x0.75	5.5	4.4	2.2
113435	S* 4G0.75	5.9	5.4	2.9
113422	S* 5G0.75	6.5	6.6	3.3
113437	S* 7G0.75	7.5	8.8	5.1
113425	S* 12G0.75	9.0	13.4	8.8
113428	S* 18G0.75	10.5	19.0	13.2
113448	S* 25G0.75	12.4	26.0	18.3
1.0 mm²				
113484	S* 2x1.0	5.6	4.2	2.0
113400	S* 3G1.0	5.9	5.4	3.0
113433	S* 4G1.0	6.4	6.8	4.0
113401	S* 5G1.0	7.0	8.1	5.0
113402	S* 7G1.0	8.2	11.2	6.9
113403	S* 12G1.0	9.8	16.9	11.9
113404	S* 18G1.0	11.4	24.4	17.8
113405	S* 25G1.0	13.6	33.4	24.8

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR control cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS N (C) PUR 300 V For highest requirements



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For installation in energy chains with constant linear movement
- Anywhere where electrical interference fields can influence the signal transmission

Properties

- Reduced friction due to high glide conductor insulation (HGI) for high mechanical loads
- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexing applications
- 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 resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20233
Rated voltage UL	300 V
Rated voltage U_0/U	300/500 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \cdot \text{km}$
Temperature according to UL	80 °C
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	6×D
Radiation resistance	$5 \times 10^8 \text{ cJ/kg}$
Burning behavior according to	IEC 60332-1-2 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white number print, green/yellow
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, x = without ground conductor
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Inner jacket: TPE
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Jacket color: grey RAL 7001

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

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC control cables · C-track compatible · unshielded

LÜTZE SUPERFLEX®2000 PVC For medium to high requirements



LÜTZE SUPERFLEX®
←connected



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In dry and damp rooms
- As a monitoring, measurement and control cable in continuously moving applications
- For installation in energy chains with constant linear movement

Properties

- Construction and material suitable for continuous movement application.
- PVC Flame-retardant, self-extinguishing
- Resistant to most oils, greases, acids and alkalis (see tech. information)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage U_0/U	300/500 V
Test voltage	3000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \cdot \text{km}$
Temperature range moving	-15 °C ... +80 °C
Temperature range fixed	-30 °C ... +80 °C
Minimum bending radius moving	$7.5 \times D$
Minimum bending radius fixed	$4 \times D$
Burning behavior according to	DIN EN 60332-2-2 VDE 0482-332-2-2
Conformity	REACH RoHS CE

Construction

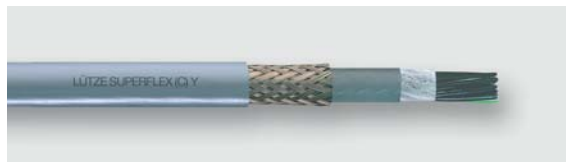
- Conductor: CU-wire bare
- Conductor category: DIN EN 60228, class 6, Superfinely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: TPE
- Conductor marking: black, with white number print, green/yellow
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: conductors layered construction, conductors twisted without mechanical stress, layer pitch optimised
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.		Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²					
100015	R*	3G0.5	5.0	3.6	1.4
100017	S*	4G0.5	5.4	4.3	1.9
100018	R*	5G0.5	5.9	5.1	2.4
100021	R*	7G0.5	6.8	6.7	3.4
100022	S*	12G0.5	8.2	10.2	5.8
100037	S*	18G0.5	9.5	14.4	8.6
100038	S*	25G0.5	11.2	19.1	12.0
0.75 mm²					
100040	R*	2×0.75	5.3	4.0	1.4
100041	S*	3G0.75	5.6	4.6	2.2
100042	R*	4G0.75	6.0	5.5	2.9
100043	S*	5G0.75	6.6	6.5	3.6
100044	S*	7G0.75	7.9	9.1	5.0
100045	S*	12G0.75	9.3	13.4	8.6
100046	S*	18G0.75	10.8	18.9	13.0
100047	S*	25G0.75	13.2	26.4	18.0
1.0 mm²					
100048	S*	2×1.0	5.7	4.8	1.9
100057	S*	3G1.0	6.0	5.5	2.9
100068	S*	4G1.0	6.5	6.8	3.8
100070	S*	5G1.0	7.2	8.2	4.8
100071	S*	7G1.0	8.5	11.2	6.7
100072	S*	12G1.0	10.1	16.7	11.5
100073	S*	18G1.0	11.8	23.8	17.3
100074	S*	25G1.0	14.4	33.2	24.0
1.5 mm²					
100075	S*	2×1.5	6.3	6.2	2.9
100076	S*	3G1.5	6.6	7.3	4.3
100077	S*	4G1.5	7.3	9.1	5.8
100096	S*	5G1.5	8.1	11.1	7.2
100109	S*	7G1.5	9.5	15.0	10.1
100110	R*	12G1.5	11.4	22.9	17.3
100113	S*	18G1.5	13.4	32.9	25.9
100114	R*	25G1.5	15.9	44.3	36.0
2.5 mm²					
100116	R*	2×2.5	8.1	10.3	4.8
100176	S*	3G2.5	8.6	12.2	7.2
100186	S*	4G2.5	9.4	15.1	9.6
100187	S*	5G2.5	10.2	18.0	12.0
100188	S*	7G2.5	12.2	24.6	16.8
100189	S*	12G2.5	15.1	38.9	28.8
100190	S*	18G2.5	17.9	56.7	43.2
4 mm²					
100191	R*	4G4	12.0	24.7	15.4

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC control cables · C-track compatible · shielded

LÜTZE SUPERFLEX® 2100 (C) PVC For medium to high requirements



LÜTZE SUPERFLEX®
←connected



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In dry and damp rooms
- As a monitoring, measurement and control cable in continuously moving applications
- For installation in energy chains with constant linear movement

Properties

- Construction and material suitable for continuous movement application.
- PVC Flame-retardant, self-extinguishing
- Resistant to most oils, greases, acids and alkalis (see tech. information)
- Silicone free
- RoHS-compliant

Technical data

Rated voltage U_0/U	300/500 V
Test voltage	3000 V
Insulation resistance at 20 °C	$\geq 1000 \text{ M}\Omega \times \text{km}$
Temperature range moving	-15 °C ... +80 °C
Temperature range fixed	-30 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	6×D
Burning behavior according to	DIN EN 60332-2-2 VDE 0482-332-2-2
Conformity	REACH RoHS CE

Construction

- Conductor: CU-wire bare
- Conductor category: DIN EN 60228, class 6, Superfinely stranded DIN VDE 0295, IEC 60228, Class 6
- Conductor insulation: TPE
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: conductors layered construction, conductors twisted without mechanical stress, layer pitch optimised
- Inner jacket: PVC
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111552	R* (2×0.5)	6.7	6.8	2.2
111553	R* (3G0.5)	6.9	7.8	2.8
111554	R* (4G0.5)	7.3	9.1	3.4
111567	R* (5G0.5)	7.8	11.2	4.0
111577	R* (7G0.5)	8.7	14.0	5.5
111583	R* (12G0.5)	10.2	19.3	8.0
0.75 mm²				
111584	R* (2×0.75)	7.2	8.0	2.8
111585	R* (3G0.75)	7.5	9.1	3.6
111586	R* (4G0.75)	7.9	11.1	5.2
111587	R* (5G0.75)	8.5	12.7	5.8
111588	R* (7G0.75)	9.6	17.0	7.0
111589	R* (12G0.75)	11.5	24.5	12.8
111591	R* (18G0.75)	13.4	35.0	16.9
111594	R* (25G0.75)	15.4	46.3	22.7
1.0 mm²				
111595	R* (2×1.0)	7.6	9.0	3.5
111596	R* (3G1.0)	7.9	10.9	4.5
111597	R* (4G1.0)	8.4	12.8	5.7
111606	R* (5G1.0)	9.0	15.2	6.8
111607	R* (7G1.0)	10.4	20.7	8.9
111608	R* (12G1.0)	12.5	28.8	15.4
111609	R* (18G1.0)	14.4	42.6	21.9
111612	R* (25G1.0)	16.6	55.1	30.4
1.5 mm²				
111613	R* (2×1.5)	8.2	11.5	4.8
111614	R* (3G1.5)	8.5	13.4	6.6
111637	R* (4G1.5)	9.1	15.9	8.0
111638	R* (5G1.5)	10.4	20.4	10.5
111639	R* (7G1.5)	11.8	26.0	13.7
111647	R* (12G1.5)	14.0	39.5	22.1
111697	R* (18G1.5)	16.1	53.8	32.5
111699	R* (25G1.5)	19.3	73.9	46.5
2.5 mm²				
111717	R* (3G2.5)	10.8	20.7	10.3
111718	R* (4G2.5)	11.6	24.6	13.0
111726	R* (5G2.5)	12.4	29.4	15.8
111727	R* (7G2.5)	14.6	41.2	21.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC control cables · unshielded

LÜTZE SILFLEX® N PVC MULTINORM

With approvals for Europe and North America



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In dry and damp rooms
- As a monitoring, measurement and control cable for industrial applications
- For flexible application without continuous flexing

Properties

- Certified as component cable for use in North America
- Easy stripping and fast installation
- High flexibility for complex installation distances and small bending radii
- Improved oil resistance due to specifically developed PVC jacket
- Resistant to many oils, coolants and solvents
- Hydrolysis and microbe resistant
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 2587
Rated voltage UL	600 V
Rated voltage U ₀ /U	300/500 V
Test voltage	AC 6000 V
Insulation resistance at 20 °C	≥ 20 MΩ×km
Temperature according to UL	90 °C
Temperature range moving	-5 °C ... +70 °C
Temperature range fixed	-25 °C ... +70 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	4×D
Burning behavior according to	IEC 60332-1 IEC 60332-3-24 UL FT1 UL VW-1
Oil resistant according to	Oil Res II
Conformity	CE RoHS
Approvals	cURus AWM I/II A/B FT1 VDE

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special PVC
- Conductor insulation standard: UL 758 90°C
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: layered construction
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.		Number of conductors/cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²					
109700	S*	2×0.5	5.0	3.8	1.0
109701	S*	3G0.5	5.3	4.6	1.4
109702	S*	4G0.5	5.7	5.5	1.9
109703	S*	5G0.5	6.3	6.8	2.4
109704	S*	7G0.5	6.8	8.7	3.4
109705	S*	12G0.5	8.7	14.8	5.8
109707	R*	18G0.5	10.4	21.3	8.6
109708	R*	25G0.5	12.1	29.4	12.0
0.75 mm²					
109711	S*	2×0.75	5.4	4.7	1.5
109712	S*	3G0.75	5.7	5.7	2.2
109713	S*	4G0.75	6.2	7.0	2.9
109714	S*	5G0.75	6.8	8.9	3.6
109715	S*	7G0.75	7.4	11.2	5.0
109716	S*	12G0.75	9.5	19.5	8.6
109718	S*	18G0.75	11.4	28.2	12.9
109719	S*	25G0.75	13.3	39.1	18.0
1.0 mm²					
109720	S*	2×1.0	5.7	5.5	1.9
109721	S*	3G1.0	6.1	6.9	2.9
109722	S*	4G1.0	6.6	8.5	3.8
109723	S*	5G1.0	7.2	10.6	4.8
109724	S*	7G1.0	7.8	13.4	6.7
109725	S*	12G1.0	10.3	23.5	11.5
109727	S*	18G1.0	12.3	34.6	17.3
109728	S*	25G1.0	14.3	47.0	24.0
109729	S*	34G1.0	16.9	65.3	32.6
1.5 mm²					
109730	S*	2×1.5	6.3	7.2	2.9
109731	S*	3G1.5	6.7	9.4	4.3
109732	S*	4G1.5	7.3	11.6	5.8
109733	S*	5G1.5	8.0	14.6	7.2
109734	S*	7G1.5	8.7	18.5	10.1
109735	S*	12G1.5	11.5	32.3	17.3
109737	R*	18G1.5	13.8	47.6	25.9
109738	S*	25G1.5	16.0	65.3	36.0
2.5 mm²					
109740	S*	3G2.5	8.0	14.6	7.2
109741	S*	4G2.5	8.7	18.1	9.6
109742	S*	5G2.5	9.6	22.7	12.0
109743	S*	7G2.5	10.7	29.7	16.8
109744	S*	12G2.5	14.4	51.5	28.8
4 mm²					
109749	S*	3G4	9.3	21.6	11.5
109750	S*	4G4	10.5	27.4	15.4
109751	S*	5G4	11.5	33.9	19.2
109752	S*	7G4	12.8	44.5	26.9
6 mm²					
109753	S*	4G6	12.4	39.9	23.0
109754	S*	5G6	13.7	49.8	28.8
10 mm²					
109323	S*	4G10	15.9	66.2	38.4
109859	R*	5G10	17.9	83.8	48.0
16 mm²					
109860	R*	4G16	18.7	98.2	61.4
25 mm²					
109861	R*	4G25	23.8	155.9	96.0
35 mm²					
109864	R*	4G35	26.7	209.8	134.4
50 mm²					
109865	R*	4G50	32.6	299.9	192.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC control cables · shielded

LÜTZE SILFLEX® N (C) PVC MULTINORM With approvals for Europe and North America



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In dry and damp rooms
- As a monitoring, measurement and control cable for industrial applications
- For flexible application without continuous flexing
- Anywhere where electrical interference fields can influence the signal transmission

Properties

- Certified as component cable for use in North America
- Easy stripping and fast installation
- High flexibility for complex installation distances and small bending radii
- Improved oil resistance due to specifically developed PVC jacket
- Resistant to many oils, coolants and solvents
- Hydrolysis and microbe resistant
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 2587
Rated voltage UL	600 V
Rated voltage U_0/U	300/500 V
Test voltage	AC 6000 V
Insulation resistance at 20 °C	$\geq 20 \text{ M}\Omega \cdot \text{km}$
Temperature according to UL	90 °C
Temperature range moving	-5 °C ... +70 °C
Temperature range fixed	-25 °C ... +70 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 IEC 60332-3-24 UL FT1 UL VW-1
Oil resistant according to	Oil Res II
Conformity	CE RoHS
Approvals	cURus AWM I/II A/B FT1 VDE

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special PVC
- Conductor insulation standard: UL 758 90°C
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: layered construction
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
109800	S* (2×0.5)	5.6	4.7	2.2
109801	S* (3G0.5)	5.9	5.4	2.7
109802	R* (4G0.5)	6.3	6.8	3.7
109803	S* (5G0.5)	6.9	8.2	4.2
109804	S* (7G0.5)	7.4	10.1	5.6
109805	S* (12G0.5)	9.3	16.4	8.9
109807	S* (18G0.5)	11.0	22.8	12.2
109808	R* (25G0.5)	12.7	31.0	16.1
0.75 mm²				
109812	S* (3G0.75)	6.3	6.8	3.9
109813	S* (4G0.75)	6.8	8.4	4.6
109814	S* (5G0.75)	7.4	10.2	5.8
109815	S* (7G0.75)	8.0	12.6	7.3
109816	R* (12G0.75)	10.3	19.9	11.8
109818	R* (18G0.75)	12.2	29.1	17.0
109819	S* (25G0.75)	14.3	39.7	24.4
1.0 mm²				
109821	S* (3G1.0)	6.7	8.0	4.6
109822	S* (4G1.0)	7.2	10.0	6.1
109823	S* (5G1.0)	7.8	11.7	7.1
109824	S* (7G1.0)	8.4	15.0	9.4
109825	S* (12G1.0)	10.9	24.2	15.1
109827	S* (18G1.0)	12.9	35.7	21.3
109828	S* (25G1.0)	15.1	47.1	30.4
1.5 mm²				
109831	S* (3G1.5)	7.3	10.3	6.6
109832	S* (4G1.5)	7.9	12.3	8.2
109833	S* (5G1.5)	8.6	15.6	9.9
109834	S* (7G1.5)	9.5	20.0	13.2
109835	S* (12G1.5)	12.3	32.2	21.3
109837	S* (18G1.5)	14.8	48.5	32.3
109838	S* (25G1.5)	17.0	63.0	43.2
2.5 mm²				
109840	S* (3G2.5)	8.6	15.1	9.9
109841	S* (4G2.5)	9.3	19.4	12.7
109842	R* (5G2.5)	10.4	23.0	15.1
109843	R* (7G2.5)	11.3	29.6	20.4
109844	S* (12G2.5)	15.2	50.8	35.2
4 mm²				
109862	S* (4G4)	11.1	27.9	18.9
6 mm²				
109863	S* (4G6)	13.2	40.5	28.6

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PUR control cables · unshielded

LÜTZE SILFLEX[®]N PUR



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For flexible applications without continuous flexing

Properties

- Low capacitance, very good electrical properties
- Flexible in cold environments
- Halogen-free, no corrosive gases
- Low adhesion, Abrasion-resistant, Tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Silicone free
- RoHS-compliant

Technical data

Rated voltage U ₀ /U	300/500 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	≥ 100 MΩ×km
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	4×D
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special TPE
- Conductor insulation standard: based on, VDE 0207
- Conductor marking: black, with white number print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
- G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: layered construction
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: grey RAL 7001

Part-No.		Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²					
110437	R*	2×0.5	4.5	2.6	1.0
110196	S*	3G0.5	4.7	3.2	1.5
110457	R*	4G0.5	5.1	4.0	1.9
110372	R*	5G0.5	5.9	5.2	2.4
111016	S*	7G0.5	6.4	6.6	3.4
111707	S*	12G0.5	8.7	11.8	5.8
110644	R*	18G0.5	10.0	17.2	8.6
110459	S*	25G0.5	12.1	23.6	12.0
0.75 mm²					
110168	S*	2×0.75	5.0	3.3	1.4
110197	S*	3G0.75	5.3	4.2	2.2
110169	S*	4G0.75	5.8	5.5	2.9
110991	S*	5G0.75	6.4	6.7	3.6
110424	S*	7G0.75	7.2	8.9	5.0
110506	S*	12G0.75	9.5	15.4	8.6
110992	S*	18G0.75	11.2	23.0	13.0
110526	R*	25G0.75	13.5	31.6	18.0
1.0 mm²					
110443	S*	2×1.0	5.4	3.9	2.0
110182	S*	3G1.0	5.8	5.3	2.9
110418	S*	4G1.0	6.3	6.6	3.8
110184	S*	5G1.0	6.8	8.1	4.8
110185	S*	7G1.0	7.7	10.8	6.7
110188	S*	12G1.0	10.3	19.0	11.5
110189	S*	18G1.0	12.3	27.9	17.3
110191	S*	25G1.0	14.5	38.7	24.0
1.5 mm²					
110177	S*	3G1.5	6.4	7.1	4.3
110186	S*	4G1.5	7.1	9.3	5.8
110178	S*	5G1.5	8.0	11.4	7.2
110179	S*	7G1.5	8.7	15.1	10.1
110180	S*	12G1.5	11.7	26.6	17.3
110181	S*	18G1.5	14.0	39.0	25.9
110183	S*	25G1.5	16.4	53.9	36.0
2.5 mm²					
111102	S*	3G2.5	7.8	11.4	7.2
110192	S*	4G2.5	8.7	14.7	9.6
110193	S*	5G2.5	9.6	18.1	12.0
110194	S*	7G2.5	10.7	24.1	16.8
4 mm²					
110195	S*	4G4	11.0	22.4	15.4
6 mm²					
110450	S*	4G6	12.7	32.4	23.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR control cables · shielded

LÜTZE SILFLEX[®]N (C) PUR



Application

- Machine and device construction, transport and conveyor technology, HVAC technology
- In areas with high concentrations of people or material assets, where corrosive gases need to be avoided in the event of fire
- As a monitoring, measurement and control cable for industrial applications
- Especially for rough environments
- For flexible applications without continuous flexing
- 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
- High active and passive interference resistance (EMC)
- Low capacitance, very good electrical properties
- Flexible in cold environments
- Halogen-free, no corrosive gases
- Low adhesion, abrasion-resistant, nick-resistant, tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

Rated voltage U_0/U	300/500 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	$\geq 100 \text{ M}\Omega \times \text{km}$
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15xD
Minimum bending radius fixed	6xD
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special TPE
- Conductor insulation standard: based on, VDE 0207
- Conductor marking: black, with white print
- Ground conductor: green/yellow according to DIN EN 50334 in the top layer
G = with green/yellow ground conductor, × = without ground conductor
- Overall stranding: layered construction
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer \varnothing mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²				
111651	R* (2×0.5)	5.2	3.8	2.3
111652	R* (3G0.5)	5.5	4.5	2.8
111653	R* (4G0.5)	5.9	6.0	3.7
111654	S* (5G0.5)	6.5	7.0	4.8
111656	R* (7G0.5)	7.2	9.1	5.6
111657	R* (12G0.5)	9.3	14.6	9.0
111658	R* (18G0.5)	10.8	20.6	12.4
111659	R* (25G0.5)	12.7	28.9	17.8
0.75 mm²				
111660	S* (2×0.75)	5.6	4.7	2.8
111661	R* (3G0.75)	6.0	6.0	3.9
111662	R* (4G0.75)	6.5	7.2	4.6
111663	R* (5G0.75)	7.2	9.2	5.8
111664	R* (7G0.75)	7.8	11.8	7.4
111665	R* (12G0.75)	10.1	18.4	11.9
111666	R* (18G0.75)	12.0	26.6	17.2
111667	R* (25G0.75)	14.2	37.2	24.6
1.0 mm²				
111668	S* (2×1.0)	6.0	5.7	3.7
111669	R* (3G1.0)	6.3	6.9	4.6
111670	S* (4G1.0)	6.8	8.8	6.1
111671	R* (5G1.0)	7.6	10.6	7.1
111672	S* (7G1.0)	8.2	13.5	9.5
111673	R* (12G1.0)	10.9	22.0	15.3
111674	R* (18G1.0)	12.7	33.5	23.1
111675	R* (25G1.0)	15.3	43.7	30.6
1.5 mm²				
111676	R* (2×1.5)	6.6	7.0	4.7
111677	R* (3G1.5)	7.0	9.4	6.6
111678	S* (4G1.5)	7.6	11.4	8.1
111679	R* (5G1.5)	8.6	14.4	10.0
111680	R* (7G1.5)	9.3	18.2	13.4
111681	R* (12G1.5)	12.3	29.6	21.5
111682	R* (18G1.5)	14.4	45.2	32.6
2.5 mm²				
111684	R* (3G2.5)	8.6	13.9	10.1
111685	R* (4G2.5)	9.3	17.6	12.9
111686	R* (5G2.5)	10.4	21.4	15.3
111687	R* (7G2.5)	11.2	27.8	20.5
4 mm²				
111688	R* (4G4)	11.8	25.7	19.1
6 mm²				
111690	R* (4G6)	13.4	38.3	28.9

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Chapter 4: Electronic cables



Electronic cables

	Jacket	Shielding	Approval	Application	Page
LÜTZE SUPERFLEX® TRONIC PUR	PUR		CE, UL	C-track compatible and unshielded Unshielded electronic cable UL recognized For highest requirements	53
LÜTZE SUPERFLEX® TRONIC (C) PUR	PUR	•	CE, UL	C-track compatible and shielded Shielded electronic cable UL recognized For highest requirements	54
LÜTZE SUPERFLEX® TRONIC (C) PUR TP	PUR	•	CE, UL	C-track compatible and shielded Shielded electronic cable UL recognized, paired For highest requirements	55
LÜTZE SUPERFLEX® TRONIC AS PUR	PUR		CE, UL	C-track compatible and unshielded For highest requirements	56
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PUR electronic cables · C-track compatible · Unshielded

LÜTZE SUPERFLEX® TRONIC PUR Unshielded electronic cable UL recognized For highest requirements



Application

- Drag 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 damp rooms
- As monitoring, measurement and control cable for continuous flexing applications

Properties

- Low capacitance, very good electrical properties
- Flame-retardant, self-extinguishing
- Halogen-free, no corrosive gases
- Very good flexing strength
- Low adhesion, abrasion-resistant, nick-resistant, tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20549
Rated voltage	300 V
Test voltage	AC 1500 V
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Temperature according to UL	80 °C
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	10×D
Minimum bending radius fixed	4×D
Burning behavior according to	IEC 60332-2-2 DIN EN 60332-2-2 UL 1581 Horizontal Flame Test UL FT2
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS
Approvals	UR

Part-No.	Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
AWG 26 / 0,14 mm²				
117030	S* 2×0.14	3.6	1.4	0.3
117031	R* 3×0.14	3.7	1.6	0.4
117032	S* 4×0.14	4.1	1.9	0.6
117033	R* 5×0.14	4.4	2.2	0.7
117034	S* 7×0.14	5.0	2.9	1.0
117035	S* 10×0.14	5.7	3.7	1.4
117036	R* 12×0.14	5.9	4.1	1.7
117027	S* 15×0.14	6.5	4.9	2.2
117037	R* 18×0.14	6.8	5.7	2.7
117038	S* 25×0.14	8.1	7.9	3.6
AWG 24 / 0,25 mm²				
117039	S* 2×0.25	3.8	1.8	0.5
117040	S* 3×0.25	4.0	2.1	0.8
117041	S* 4×0.25	4.4	2.5	1.0
117042	S* 5×0.25	4.7	2.9	1.3
117043	S* 7×0.25	5.4	3.8	1.8
117044	S* 10×0.25	6.3	5.0	2.5
117045	S* 12×0.25	6.4	5.6	3.0
117028	S* 15×0.25	7.1	6.5	3.5
117046	S* 18×0.25	7.6	7.9	4.5
117047	S* 25×0.25	8.8	10.8	6.3
0.34 mm²				
117048	S* 2×0.34	4.1	2.1	0.7
117049	S* 3×0.34	4.3	2.4	1.0
117050	S* 4×0.34	4.6	2.9	1.3
117051	R* 5×0.34	5.2	3.4	1.7
117052	S* 7×0.34	6.0	4.5	2.4
117053	S* 10×0.34	6.7	5.9	3.4
117054	S* 12×0.34	6.9	6.8	4.0
117029	S* 15×0.34	7.6	8.4	5.0
117055	R* 18×0.34	7.9	9.6	6.1
117056	S* 25×0.34	9.5	13.2	8.4

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: grey RAL 7001

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR electronic cables · C-track compatible · Shielded

LÜTZE SUPERFLEX® TRONIC (C) PUR Shielded electronic cable UL recognized For highest requirements



Application

- Drag 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 damp rooms
- As monitoring, measurement and control cable for continuous flexing applications
- Especially for industrial environments with high EMI potential in machine, plant and device construction

Properties

- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexing applications
- 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 resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20549
Rated voltage	300 V
Test voltage	AC 1500 V
Insulation resistance at 20 °C	≥ 1000 MΩ×km
Temperature according to UL	80 °C
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-2-2 DIN EN 60332-2-2 UL 1581 Horizontal Flame Test UL FT2
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
117090	S* (2×0.14)	4.2	2.0	1.0
117091	S* (3×0.14)	4.2	2.3	1.2
117092	S* (4×0.14)	4.5	2.6	1.4
117093	S* (5×0.14)	4.8	3.0	1.7
117094	S* (7×0.14)	5.7	3.9	2.1
117095	S* (10×0.14)	6.2	4.8	2.8
117096	S* (12×0.14)	6.3	5.3	3.1
117097	S* (18×0.14)	7.2	7.1	4.2
117098	R* (25×0.14)	8.5	9.4	5.6
0.25 mm²				
117099	S* (2×0.25)	4.3	2.4	1.3
117100	S* (3×0.25)	4.7	2.8	1.6
117101	S* (4×0.25)	4.8	3.3	1.9
117102	S* (5×0.25)	5.1	3.7	2.3
117103	S* (7×0.25)	5.8	4.8	3.0
117104	S* (10×0.25)	6.7	6.1	4.0
117105	S* (12×0.25)	7.0	6.8	5.3
117106	S* (18×0.25)	8.0	9.4	6.3
117107	S* (25×0.25)	9.4	13.2	9.5
0.34 mm²				
117108	S* (2×0.34)	4.5	2.6	1.5
117109	S* (3×0.34)	4.7	2.1	1.9
117110	S* (4×0.34)	5.0	3.7	2.3
117111	S* (5×0.34)	5.4	4.3	2.8
117112	S* (7×0.34)	6.2	5.7	3.7
117113	S* (10×0.34)	7.1	7.2	5.0
117114	S* (12×0.34)	7.3	8.0	5.6
117115	S* (18×0.34)	8.4	11.2	8.0
117116	S* (25×0.34)	10.0	15.8	11.5

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR electronic cables · C-track compatible · Shielded

LÜTZE SUPERFLEX® TRONIC (C) PUR TP Shielded electronic cable UL recognized, paired For highest requirements



Application

- Drag 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 damp rooms
- As monitoring, measurement and control cable for continuous flexing applications
- Especially for industrial environments with high EMI potential in machine, plant and device construction

Properties

- High active and passive interference resistance (EMC)
- High crosstalk attenuation due to twisted pairs
- Braided shield optimised for continuous flexing applications
- 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 resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 20233
Rated voltage	300 V
Test voltage	AC 1500 V
Insulation resistance at 20 °C	≥ 1000 MΩ·km
Temperature according to UL	80 °C
Temperature range moving	-25 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12xD
Minimum bending radius fixed	6xD
Burning behavior according to	IEC 60332-2-2 DIN EN 60332-2-2 UL 1581 UL Horizontal Flame Test UL FT2
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: stranded pairs, layer pitch optimised, conductors twisted without mechanical stress
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 mm²				
117170	S* (2×2×0.25)	6.2	4.4	2.2
117171	S* (3×2×0.25)	6.5	5.0	2.8
117172	S* (4×2×0.25)	6.8	5.7	3.4
117173	S* (5×2×0.25)	7.7	7.3	4.0
117177	S* (6×2×0.25)	8.1	8.0	4.7
117174	S* (8×2×0.25)	9.4	11.3	6.0
117175	S* (10×2×0.25)	10.5	12.4	7.9
117176	S* (12×2×0.25)	10.8	14.1	9.1
0.34 mm²				
117180	S* (2×2×0.34)	6.5	4.7	2.6
117181	S* (3×2×0.34)	6.8	5.8	3.4
117182	S* (4×2×0.34)	7.4	7.0	4.2
117183	S* (5×2×0.34)	8.1	8.2	5.1
117184	R* (6×2×0.34)	8.6	9.6	5.9
117185	S* (8×2×0.34)	10.0	13.0	8.3
117186	R* (10×2×0.34)	10.9	14.9	10.0
117187	S* (12×2×0.34)	11.4	16.8	11.4
0.5 mm²				
117190	S* (2×2×0.5)	7.1	5.9	3.4
117191	S* (3×2×0.5)	7.5	7.1	4.5
117303	S* (4×2×0.5)	8.2	8.8	5.7
117192	S* (5×2×0.5)	9.0	10.4	6.8
117193	S* (6×2×0.5)	9.9	13.6	8.0
117194	R* (8×2×0.5)	11.2	17.0	11.2
117195	S* (10×2×0.5)	12.2	19.3	13.5
117196	R* (12×2×0.5)	12.6	22.3	15.6
0.75 mm²				
117199	S* (2×2×0.75)	8.3	8.3	4.7
117201	S* (3×2×0.75)	8.8	9.9	6.3
117202	S* (4×2×0.75)	9.7	12.8	8.2
117203	R* (5×2×0.75)	10.6	14.6	10.5
117204	R* (6×2×0.75)	11.5	18.1	12.3
117205	R* (8×2×0.75)	13.4	23.9	17.6

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR actuator-sensor cables · c-track suitable

LÜTZE SUPERFLEX® TRONIC AS PUR, unshielded For highest requirements



Application

- Connecting cable for the actuator-sensor technology
- For continuous flexible use e.g. in c-tracks or free movement in the automation technology, transport and conveyor technology, machine tool manufacture
- PUR jacket optimally suited for rough operating conditions and aggressive coolants and lubricants

Properties

- Very good alternating bending strength
- Good pressure and roll-over resistance
- Low adhesion, Abrasion-resistant, Tear resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzenes and kerosene
- Silicone free
- Halogen free
- RoHS-compliant

Technical data

UL style	AWM 20549
Rated voltage	300 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	≥ 100 MΩ×km
Temperature according to UL	80 °C
Temperature range moving	-20 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	8×D
Minimum bending radius fixed	4×D
Burning behavior according to	DIN EN 60332-2-2 UL 1581 Horizontal Flame Test UL FT-2
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded
DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Conductor marking standard: EN 60947-5-2
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: black RAL 9005

Part-No.	Number of strands/cross-section/strand colors	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 mm²				
117242	R* 8×0.25 white, brown, green, yellow, grey, pink, blue, red	5.9	4.1	2.1
0.34 mm²				
117243	S* 3×0.34 brown, blue, black	4.2	2.2	1.0
117244	S* 4×0.34 brown, white, blue, black	4.5	2.7	1.3
117245	R* 5×0.34 brown, white, blue, black, grey	4.9	3.2	1.7
117246	R* 5×0.34 brown, white, blue, black, green/yellow	4.9	3.2	1.7
Actuator-sensor connecting cables				
110872	S* 3G1.0 brown, blue, green/yellow 8×0.34 white, black, green, yellow, grey, pink, violet, red	8.2	9.9	5.5
110874	S* 3G1.0 brown, blue, green/yellow 16×0.34 white, green, yellow, grey, pink, red, black, violet, grey/pink, red/blue, white/green, brown/green, white/yellow, yellow/brown, white/grey, grey/brown	9.7	13.5	8.1

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PUR actuator-sensor cables · C-track suitable

LÜTZE SUPERFLEX® TRONIC AS (C) PUR, shielded For highest requirements



Application

- Connecting cable for the actuator-sensor technology
- For continuous flexible use e.g. in c-tracks or free movement in the automation technology, transport and conveyor technology, machine tool manufacture
- PUR jacket optimally suited for rough operating conditions and aggressive coolants and lubricants

Properties

- Very good alternating bending strength
- High active and passive interference resistance (EMC)
- Good pressure and roll-over resistance
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- Halogen free
- RoHS compliant

Technical data

UL style	AWM 20549
Rated voltage	300 V
Test voltage	AC 3000 V
Insulation resistance at 20 °C	≥ 100 MΩ×km
Temperature according to UL	80 °C
Temperature range moving	-20 °C ... +80 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	6×D
Burning behavior according to	DIN EN 60332-2-2 UL 1581 Horizontal Flame Test UL FT2
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS REACH
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Colour coded
- Conductor marking standard: EN 60947-5-2
- Overall stranding: conductors layered construction, layer pitch optimised, conductors twisted without mechanical stress
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: black RAL 9005

Part-No.		Number of strands/cross-section/strand colors	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 mm²					
117250	R*	(3×0.25) brown, blue, black	4.6	2.8	1.7
117251	R*	(4×0.25) brown, white, blue, black	4.9	3.3	2.0
117252	R*	(8×0.25) brown, white, green, yellow, grey, pink, blue, red	6.3	5.5	3.5
0.34 mm²					
117253	S*	(3×0.34) brown, blue, black	4.8	3.2	2.0
117254	S*	(4×0.34) brown, white, blue, black	5.1	3.8	2.4
117255	S*	(5×0.34) brown, white, blue, black, grey	5.5	4.5	2.8

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC electronic cables · unshielded

LÜTZE ELECTRONIC LiYY

Unshielded electronic cable UL recognized



Application

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

Properties

- Minimal cable diameter due to thin-walled PVC conductor insulation according to UL
- Outer jacket special-PVC Class 43 according to UL
- Very good oil resistance
- Resistant to most acids and alkalis (see tech. information)
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 2464
Rated voltage	300 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 20 MΩ×km
Operating capacitance wire-wire	approx. 90 pF/m
Temperature according to UL	80 °C
Temperature range moving	-10 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	12×D
Minimum bending radius fixed	5×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special PVC
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: layered construction
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
108600	S* 2×0.14	3.7	1.5	0.3
108601	S* 3×0.14	3.8	1.7	0.4
108606	R* 10×0.14	5.7	4.0	1.4
0.25 mm²				
108612	S* 2×0.25	4.2	2.5	0.5
108613	S* 3×0.25	4.4	2.7	0.8
108614	S* 4×0.25	4.8	3.3	1.0
108615	R* 5×0.25	5.3	4.0	1.3
108616	S* 6×0.25	5.5	4.4	1.5
108617	R* 8×0.25	6.2	5.8	2.0
108618	R* 10×0.25	6.9	7.0	2.5
108619	R* 12×0.25	7.2	7.8	3.0
108620	R* 16×0.25	8.0	9.9	4.0
108621	R* 18×0.25	8.4	10.9	4.5
108622	R* 25×0.25	9.8	14.6	6.3
0.34 mm² = 7 × 0.25∅				
108624	S* 2×0.34	4.7	2.8	0.7
108625	S* 3×0.34	4.9	3.4	1.0
108626	S* 4×0.34	5.4	4.3	1.4
108627	S* 5×0.34	5.8	5.1	1.7
108628	R* 6×0.34	6.3	5.8	2.0
108629	R* 8×0.34	6.8	7.3	2.7
108630	R* 10×0.34	7.7	8.9	3.4
108631	R* 12×0.34	8.1	10.1	4.1
108632	R* 16×0.34	8.9	12.9	5.4
108633	R* 18×0.34	9.4	14.3	6.1
108634	R* 25×0.34	11.0	19.1	8.5
0.5 mm²				
108636	S* 2×0.5	5.3	3.6	1.0
108637	S* 3×0.5	5.5	4.3	1.5
108638	S* 4×0.5	6.0	5.3	2.0
108639	R* 5×0.5	6.5	6.4	2.5
108640	R* 6×0.5	7.0	7.5	3.0
108641	S* 8×0.5	7.6	9.3	4.0
108642	R* 10×0.5	8.7	11.4	5.0
108643	S* 12×0.5	9.1	13.0	6.0
108644	R* 16×0.5	10.1	16.9	8.0
108645	R* 18×0.5	10.6	18.6	9.0
108646	R* 25×0.5	12.6	25.5	12.5
0.75 mm²				
108648	S* 2×0.75	5.8	4.5	1.5

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC electronic cables · shielded

LÜTZE ELECTRONIC LiY (C) Y Shielded electronic cable UL recognized



Application

- For interference-free transmission in all areas of electronics, measuring, monitoring and regulation technology
- In low voltage switchgears, communications engineering
- In dry and damp 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 due to 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
- Resistant to most acids and alkalis (see tech. information)
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 2464
Rated voltage	300 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 20 MΩ×km
Operating capacitance wire-wire	approx. 100 pF/m
Operating capacitance wire-shield	approx. 150 pF/m
Temperature according to UL	80 °C
Temperature range moving	-10 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special PVC
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: layered construction
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Jacket color: grey RAL 7001

Part-No.	Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²				
108672	R* (4×0.14)	4.6	3.0	1.4
108675	S* (8×0.14)	5.6	4.6	2.2
108677	R* (12×0.14)	6.4	5.9	3.0
0.25 mm²				
108682	S* (2×0.25)	4.7	3.4	1.5
108683	S* (3×0.25)	4.9	3.8	1.8
108684	S* (4×0.25)	5.3	4.6	2.2
108685	S* (5×0.25)	5.8	5.4	2.6
108686	R* (6×0.25)	6.2	6.3	2.9
108687	S* (8×0.25)	6.7	7.5	3.6
108688	R* (10×0.25)	7.5	9.5	4.3
108689	R* (12×0.25)	7.8	10.4	5.0
108690	S* (16×0.25)	8.6	12.5	6.4
108691	R* (18×0.25)	9.0	13.8	8.0
108692	R* (25×0.25)	10.5	18.5	9.8
0.34 mm² = 7 × 0.25				
108694	S* (2×0.34)	5.2	4.2	2.1
108695	S* (3×0.34)	5.4	4.6	2.2
108696	S* (4×0.34)	5.9	5.6	2.8
108697	S* (5×0.34)	6.3	6.6	3.8
108698	S* (6×0.34)	6.8	7.4	3.9
108699	S* (8×0.34)	7.4	9.8	4.5
108700	R* (10×0.34)	8.3	11.3	6.3
108701	S* (12×0.34)	8.7	12.8	6.7
108702	R* (16×0.34)	9.5	15.9	7.9
108703	R* (18×0.34)	10.0	17.3	9.2
108704	R* (25×0.34)	11.6	22.6	12.3
0.5 mm²				
108706	S* (2×0.5)	5.8	4.9	2.2
108707	S* (3×0.5)	6.0	5.9	2.8
108708	S* (4×0.5)	6.3	6.5	3.4
108709	S* (5×0.5)	7.0	8.3	4.4
108710	S* (6×0.5)	7.6	9.9	6.8
108711	S* (8×0.5)	8.2	11.9	8.5
108712	S* (10×0.5)	9.3	14.3	10.0
108713	R* (12×0.5)	9.7	16.2	11.2
108714	R* (16×0.5)	10.7	20.4	14.0
108715	R* (18×0.5)	11.2	22.3	15.2
108716	S* (25×0.5)	13.2	29.8	19.5
0.75 mm²				
108718	S* (2×0.75)	6.3	6.1	2.8
108719	S* (3×0.75)	6.6	7.1	4.9
108720	S* (4×0.75)	7.2	9.5	5.8
108724	R* (10×0.75)	10.4	19.1	13.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

PVC electronic cables · shielded

LÜTZE ELECTRONIC LiY (C) Y TP

Shielded electronic cable UL recognized, paired



Application

- For interference-free transmission in all areas of electronics, measuring, monitoring and regulation technology
- In low voltage switchgears, communications engineering
- In dry and damp 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 due to 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
- Resistant to most acids and alkalis (see tech. information)
- Silicone free
- RoHS-compliant

Technical data

UL style	AWM 2464
Rated voltage	300 V
Test voltage	AC 2000 V
Insulation resistance at 20 °C	≥ 20 MΩ×km
Operating capacitance wire-wire	approx. 110 pF/m
Operating capacitance wire-shield	approx. 160 pF/m
Temperature according to UL	80 °C
Temperature range moving	-10 °C ... +70 °C
Temperature range fixed	-40 °C ... +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	6×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Conformity	CE RoHS
Approvals	cURus

Construction

- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: Special PVC
- Conductor marking: Colour coded
- Conductor marking standard: DIN 47100
- Overall stranding: stranded pairs
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Surface:
- Jacket color: grey RAL 7032

Part-No.	Number of conductors/ cross-section	Outer Ø mm	Weight kg/100 m	Cu-Index kg/100 m
0.25 mm²				
108751	S* (2×2×0.25)	6.3	5.3	2.8
108753	S* (4×2×0.25)	7.4	8.0	4.0
108754	R* (5×2×0.25)	8.0	10.3	5.0
108755	S* (6×2×0.25)	9.1	12.0	7.0
108756	R* (8×2×0.25)	9.6	14.4	7.5
0.34 mm²= 7 × 0.25Ø				
108761	S* (2×2×0.34)	7.1	6.9	2.7
108763	S* (4×2×0.34)	8.4	10.4	6.1
108764	R* (5×2×0.34)	9.3	12.7	6.6
108765	R* (6×2×0.34)	10.1	14.9	7.5
108766	S* (8×2×0.34)	10.7	18.1	9.7
0.5 mm²				
108771	R* (2×2×0.5)	8.1	9.4	4.6
108773	R* (4×2×0.5)	9.5	12.9	8.7
108774	R* (5×2×0.5)	10.5	15.8	10.4
108775	R* (6×2×0.5)	11.4	18.7	11.8
108776	R* (8×2×0.5)	12.1	22.6	14.0
0.75 mm²				
108934	S* (2×2×0.75)	9.0	11.4	6.7
108936	R* (5×2×0.75)	11.6	10.8	12.6
108938	R* (8×2×0.75)	13.6	16.0	18.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

Chapter 5: Accessories



Accessories

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Cable fittings and accessories	Cablefix Vario, Cablefix flanges, Plastic fittings, Plastic accessory, Metal fittings, Metal accessory	63 - 82
Mounting accessories and tools	Control panel installation, Cable tie	83, 84
Labelling system	Marker strips	85

Cable fittings and accessories

Cablefix Vario

Feed-through for all prefabricated cables and wires with connectors



Technical data

Temperature range
Protection class

-40 °C ... +135 °C
IP65

Application

- Electrotechnology, pneumatics, hydraulics, robotics, general machine and plant construction

Properties

- Feed through and terminal frames from high-quality solid material
- 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
- Unneeded holes in the module can simply be sealed with blank plugs
- Compact design i.e. space-saving
- 2 module sizes with slot and suspension principle
- Very good weathering resistance

Part-No.	Type	Dimensions (w × h × d) mm	Material	Number of rubber modules VK=40×22.9 mm	Number of rubber modules VG=40×43.5 mm	With flat seal and drilling template	PU piece	Master gauge for holes
Terminal frame as feed-through system with strain relief								
606052	S*	CABLEFIX VARIO KCLR1 SW	PA 66 GF 50	4	2	Yes	1	HAN 16 B socket housing
606053	S*	CABLEFIX VARIO KCLR2 SW	PA 66 GF 50	6	3	Yes	1	HAN 24 B socket housing
Aluminium smooth-ground, also available as anodised								
606038	A*	CABLEFIX VARIO AKLR0	Aluminum	2	1	Yes	1	Drilling diameter 6.5 mm Hole dimensions 30×55
606001	A*	CABLEFIX VARIO AKLR1	Aluminum	4	2	Yes	1	
606002	A*	CABLEFIX VARIO AKLR2	Aluminum	6	3	Yes	1	
606003	A*	CABLEFIX VARIO AKLR3	Aluminum	9	3+3	Yes	1	
606004	A*	CABLEFIX VARIO AKLR4	Aluminum	12	6	Yes	1	
606005	A*	CABLEFIX VARIO AKLR5	Aluminum	8	4	Yes	1	
606006	A*	CABLEFIX VARIO AKLR6	Aluminum	12	4+4	Yes	1	
606007	A*	CABLEFIX VARIO AKLR7	Aluminum	16	8	Yes	1	
606040	A*	CABLEFIX VARIO AKLW2	Aluminum	6	3	Yes	1	HAN 24 B socket housing

For cable and wire diameters from 4 mm to 34,5 mm.

Cable fittings and accessories

Cablefix Vario

Feed-through for all prefabricated cables and wires with connectors



Technical data

Protection class IP65

Application

- Electrotechnology, pneumatics, hydraulics, robotics, general machine and plant construction

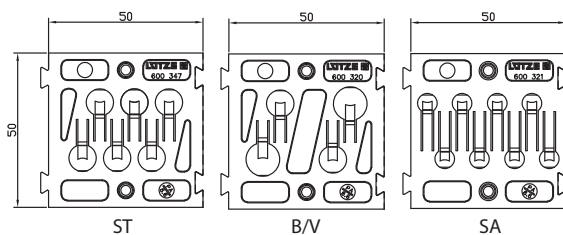
Properties

- 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
- Unneeded holes in the module can simply be sealed with blank plugs
- Compact design i.e. space-saving
- Very good weathering resistance

Part-No.	Type	Clamping range D mm	Number of holes	Diameter D mm	Length mm	Height mm	suitable for Part-No.	PU piece
Rubber module, material TPE								
606150	S*	CABLEFIX VARIO VK0	0.0 – 0.0	0	40	20		1
606151	S*	CABLEFIX VARIO VK4	4.0 – 4.5	14	40	20		1
606152	S*	CABLEFIX VARIO VK5	4.5 – 5.5	8	40	20		1
606153	S*	CABLEFIX VARIO VK6	5.5 – 6.5	8	40	20		1
606154	S*	CABLEFIX VARIO VK7	6.5 – 7.5	5	40	20		1
606155	S*	CABLEFIX VARIO VK8	7.5 – 8.5	5	40	20		1
606156	S*	CABLEFIX VARIO VK9	8.5 – 9.5	3	40	20		1
606157	S*	CABLEFIX VARIO VK10	9.5 – 10.5	3	40	20		1
606158	S*	CABLEFIX VARIO VK12	10.5 – 12.5	2	40	20		1
606159	S*	CABLEFIX VARIO VK14	12.5 – 14.5	2	40	20		1
606160	S*	CABLEFIX VARIO VK16	14.5 – 16.5	2	40	20		1
606200	S*	CABLEFIX VARIO VG0	0.0 – 0.0	0	40	40		1
606201	S*	CABLEFIX VARIO VG18	16.5 – 18.5	2	40	40		1
606202	A*	CABLEFIX VARIO VG20	18.5 – 20.5	1	40	40		1
606203	S*	CABLEFIX VARIO VG22	20.5 – 22.5	1	40	40		1
606204	A*	CABLEFIX VARIO VG24	22.5 – 24.5	1	40	40		1
606205	A*	CABLEFIX VARIO VG26	24.5 – 26.5	1	40	40		1
606206	S*	CABLEFIX VARIO VG28	26.5 – 28.5	1	40	40		1
606207	S*	CABLEFIX VARIO VG30	28.5 – 30.5	1	40	40		1
606208	S*	CABLEFIX VARIO VG32	30.5 – 32.5	1	40	40		1
606209	S*	CABLEFIX VARIO VG34	32.5 – 34.5	1	40	40		1
Matching blank plug, PA6 GF15								
606250	S*	CABLEFIX VARIO BL4		4	30		606151	1
606251	S*	CABLEFIX VARIO BL5		5	30		606152	1
606252	S*	CABLEFIX VARIO BL6		6	30		606153	1
606253	S*	CABLEFIX VARIO BL7		7	30		606154	1
606254	S*	CABLEFIX VARIO BL8		8	30		606155	1
606255	S*	CABLEFIX VARIO BL9		9	30		606156	1
606256	S*	CABLEFIX VARIO BL10		10	30		606157	1
606257	S*	CABLEFIX VARIO BL12		12	30		606158	1
606258	S*	CABLEFIX VARIO BL14		14	30		606159	1
606259	S*	CABLEFIX VARIO BL16		16	30		606160	1
606260	S*	CABLEFIX VARIO BL18		18	30		606201	1

Cable fittings and accessories

Cablefix flanges



Properties

- With the dovetail guide, the Cablefix flanges can be lined up with each other. This means that various flange combinations can be realized to suit specific requirements.
- Flanges can be used to suit 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	IP55
Temperature range	-30 °C ... +70 °C
Burning behavior according to	UL 94 V2
Sheet thickness	max. 3.0 mm

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.

Part-No.	Type	Dimensions (w × h × d) mm	Cut-out (B×H)	Number of cables × cable diameter	Material	Material seal	Bolt material	Material plug	PU piece
Cablefix Control cable flange (ST)									
600347	S*	CABLEFIX ST 50.0 × 50.0 × 11.5	46 × 46 mm	6 × 6.3 – 8.9	PA 6.6	TPE	Galvanised steel	PA 6	5 piece
Cablefix Bus flange (B/V)									
600320	S*	CABLEFIX B/V 50.0 × 50.0 × 11.5	46 × 46 mm	2 × 6.1 – 8.8 + 2 × 7.8 – 10.7 mm	PA 6.6	TPE	Galvanised steel	PA 6	5 piece
Cablefix Sensor/Actuator flange (S/A)									
600321	S*	CABLEFIX S/A 50.0 × 50.0 × 11.5	46 × 46 mm	8 × 3.8 – 6.3 mm	PA 6.6	TPE	Galvanised steel	PA 6	5 piece

50 mm must be allotted for each flange mounted side by side.
Cut out with standard sheetmetal holepunch.

Cable fittings and accessories

Plastic fittings TOP-T-P, metric version



Properties

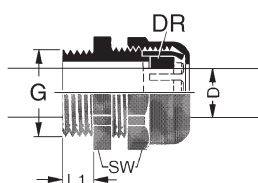
- – metric –
- Cable fitting with hexagon base
- Strain relief and seal

Technical data

Protection class IP68
Up to 5 bar

Construction

- Material: PA 6.6-V-2
- Color: grey RAL 7001, black RAL 9005
- Material sealing ring: Neoprene



Part-No.	Type	Thread G	Approvals	Clamping range D mm	SW mm	L1 mm	Weight kg/100 units	PU piece
TOP-T-P metric grey RAL 7001								
600790	S* TOP-T-P M12×1,5 GR	M 12×1.5	UR	2.0 – 6.5	15	8	0.32	100
600680	S* TOP-T-P M16×1,5 GR	M 16×1.5	UR	4.0 – 10.0	20	8	0.57	100
600681	S* TOP-T-P M20×1,5 GR	M 20×1.5	UL	6.0 – 12.0	24	9	0.96	100
600682	S* TOP-T-P M25×1,5 GR	M 25×1.5		9.0 – 16.0	28	11	1.55	50
600683	S* TOP-T-P M32×1,5 GR	M 32×1.5	UL	11.0 – 21.0	36	11	2.65	25
600791	S* TOP-T-P M40×1,5 GR	M 40×1.5	UL	16.0 – 28.0	46	11	4.34	10
600792	S* TOP-T-P M50×1,5 GR	M 50×1.5	UR	27.0 – 35.0	55	12	6.80	5
600684	S* TOP-T-P M63×1,5 GR	M 63×1.5		32.0 – 42.0	68	12	9.60	5
TOP-T-P metric black RAL 9005								
600840	S* TOP-T-P M12×1,5 SW	M 12×1.5	UR	2.0 – 6.5	15	8	0.32	100
600841	S* TOP-T-P M16×1,5 SW	M 16×1.5	UR	4.0 – 10.0	20	8	0.57	100
600842	S* TOP-T-P M20×1,5 SW	M 20×1.5	UL	6.0 – 12.0	24	9	0.96	100
600843	S* TOP-T-P M25×1,5 SW	M 25×1.5	UL	9.0 – 16.0	28	11	1.55	50
600844	S* TOP-T-P M32×1,5 SW	M 32×1.5	UL	11.0 – 21.0	36	11	2.65	25
600845	S* TOP-T-P M40×1,5 SW	M 40×1.5	UL	16.0 – 28.0	46	11	4.40	10
600846	S* TOP-T-P M50×1,5 SW	M 50×1.5	UL	21.0 – 34.5	55	13	7.37	5
600847	A* TOP-T-P M63×1,5 SW	M 63×1.5		30.0 – 44.5	65	17	10.26	5

Cable fittings and accessories

Plastic fittings TOP-T-P, PG version



Properties

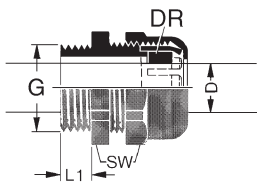
- – PG –
- Cable fitting with hexagon base
- Strain relief and seal

Technical data

Protection class IP68
Up to 5 bar

Construction

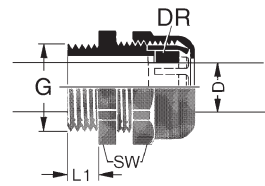
- Material: PA 6.6-V-2
- Color: grey RAL 7001, black RAL 9005
- Material sealing ring: Neoprene



Part-No.	Type	Thread G	Approvals	Clamping range D mm	SW mm	L1 mm	Weight kg/100 units	PU piece
TOP-T-P PG grey RAL 7001								
600660	S*	TOP-T-P PG7		3.0 – 6.5	15	8	0.33	100
600661	S*	TOP-T-P PG9		4.0 – 8.0	19	8	0.52	50
600662	S*	TOP-T-P PG11	UR	5.0 – 10.0	22	8	0.87	100
600663	S*	TOP-T-P PG13,5	UL	6.0 – 12.0	24	9	0.96	100
600664	S*	TOP-T-P PG16	UL	10.0 – 14.0	27	10	1.37	50
600668	S*	TOP-T-P PG42	UL	30.0 – 38.0	60	13	8.80	5
600669	A*	TOP-T-P PG48	UL	34.0 – 44.0	65	14	9.79	5
TOP-T-P PG black RAL 7005								
600860	S*	TOP-T-P PG7 SW		3.0 – 6.5	15	8	0.33	50
600861	S*	TOP-T-P PG9 SW		4.0 – 8.0	19	8	0.52	50
600862	S*	TOP-T-P PG11 SW	UR	5.0 – 10.0	22	8	0.87	50
600863	S*	TOP-T-P PG13,5 SW	UL	6.0 – 12.0	24	9	0.96	50
600864	S*	TOP-T-P PG16 SW	UL	10.0 – 14.0	27	10	1.37	50
600865	S*	TOP-T-P PG21 SW	UL	13.0 – 18.0	33	11	2.04	25
600866	S*	TOP-T-P PG29 SW	UL	18.0 – 25.0	42	11	3.98	25
600867	S*	TOP-T-P PG36 SW	UL	22.0 – 34.0	55	13	6.90	10
600868	S*	TOP-T-P PG42 SW	UL	30.0 – 38.0	60	13	8.80	5
600869	A*	TOP-T-P PG48 SW	UL	34.0 – 44.0	65	14	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
- Reduced clamping range

Technical data

Protection class IP68
Up to 5 bar

Construction

- Material: PA 6.6-V-2
- Color: grey RAL 7001
- Material sealing ring: NBR

Part-No.	Type	Thread G	Approvals	Clamping range D mm	SW mm	L1 mm	Weight kg/100 units	PU piece
TOP-TR-P metric								
600690	S*	TOP-TR-P M16×1,5 GR	UR	2.0 – 7.0	20	8	0.62	100
600691	S*	TOP-TR-P M20×1,5 GR	UR	4.0 – 10.0	24	9	1.34	100
600692	A*	TOP-TR-P M25×1,5 GR	UR	5.0 – 14.0	28	11	1.63	50
600693	A*	TOP-TR-P M32×1,5 GR	UR	8.0 – 18.0	36	11	2.72	25

Cable fittings and accessories

Plastic accessory locknut GK, metric version

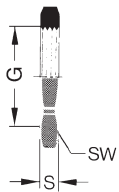


Properties

- – metric –
- Counter nut, hexagonal, with metric thread

Construction

- Material: PA 6 GF 30
- Color: grey RAL 7001, black RAL 9005



Part-No.	Type	Thread G	SW mm	S mm	Weight kg/100 units	PU piece	
GK metric grey RAL 7001							
600398	S*	GK M12 GR	M 12×1.5	17	5	0.10	100
600391	S*	GK M16 GR	M 16×1.5	22	5	0.16	100
600392	S*	GK M20 GR	M 20×1.5	26	6	0.23	100
600393	S*	GK M25 GR	M 25×1.5	32	6	0.28	100
600394	S*	GK M32 GR	M 32×1.5	41	7	0.41	100
600395	S*	GK M40 GR	M 40×1.5	50	7	0.67	50
600396	S*	GK M50 GR	M 50×1.5	60	8	1.14	50
600698	S*	GK M63 GR	M 63×1.5	75	8	1.95	50
GK metric black RAL 9005							
600850	S*	GK M12 SW	M 12×1.5	17	5	0.10	100
600851	S*	GK M16 SW	M 16×1.5	22	5	0.14	100
600852	S*	GK M20 SW	M 20×1.5	26	6	0.22	100
600853	S*	GK M25 SW	M 25×1.5	32	6	0.26	100
600854	S*	GK M32 SW	M 32×1.5	41	7	0.38	100
600855	S*	GK M40 SW	M 40×1.5	50	7	0.63	50
600856	S*	GK M50 SW	M 50×1.5	60	8	1.14	50
600857	S*	GK M63 SW	M 63×1.5	75	8	1.78	50

Cable fittings and accessories

Plastic accessory locknut GK, PG version

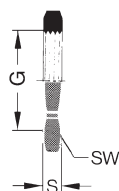


Properties

- – PG –
- Counter nut, hexagonal, with armour thread

Construction

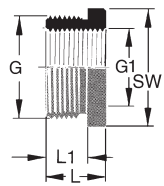
- Material: PA 6 GF 30
- Color: grey RAL 7001, black RAL 9005



Part-No.	Type	Thread G	SW mm	S mm	Weight kg/100 units	PU piece	
GK PG grey RAL 7001							
600430	S*	GK PG7 GR	PG 7	19	5	0.13	100
600431	S*	GK PG9 GR	PG 9	22	5	0.14	100
600432	S*	GK PG11 GR	PG 11	24	5	0.15	100
600433	S*	GK PG13,5 GR	PG 13.5	27	6	0.24	100
600434	S*	GK PG16 GR	PG 16	30	6	0.31	100
600435	S*	GK PG21 GR	PG 21	36	7	0.45	100
600436	S*	GK PG29 GR	PG 29	46	7	0.68	50
600437	S*	GK PG36 GR	PG 36	60	8	1.47	50
600438	A*	GK PG42 GR	PG 42	65	8	1.53	50
600439	A*	GK PG48 GR	PG 48	70	8	1.71	50
GK PG black RAL 9005							
600830	A*	GK PG7 SW	PG 7	19	5	0.13	100
600831	S*	GK PG9 SW	PG 9	22	5	0.14	100
600832	A*	GK PG11 SW	PG 11	24	5	0.15	100
600833	S*	GK PG13,5 SW	PG 13.5	27	6	0.24	100
600834	S*	GK PG16 SW	PG 16	30	6	0.31	100
600835	S*	GK PG21 SW	PG 21	36	7	0.45	100
600836	A*	GK PG29 SW	PG 29	46	7	0.68	100
600837	A*	GK PG36 SW	PG 36	60	8	1.47	50
600838	A*	GK PG42 SW	PG 42	65	8	1.53	50
600839	A*	GK PG48 SW	PG 48	70	8	1.71	50

Cable fittings and accessories

Plastic accessory reducing ring RR, metric



Properties

- -metric-
- Reducing ring from plastic with large outer thread and small inner thread

Construction

- Material: PA 6 GF 30
- Color: grey RAL 7035

Part-No.	Type	Thread G	Thread G1	SW mm	L mm	L1 mm	Weight kg/100 units	PU piece
RR-PA metric								
600550	A*	RR PA M20-M12	M 20×1.5	M 12×1.5	24	12	0.39	100
600551	S*	RR PA M20-M16	M 20×1.5	M 16×1.5	24	12	0.26	100
600552	S*	RR PA M25-M12	M 25×1.5	M 12×1.5	29	14	0.70	100
600553	S*	RR PA M25-M16	M 25×1.5	M 16×1.5	29	14	0.67	100
600554	S*	RR PA M25-M20	M 25×1.5	M 20×1.5	29	14	0.50	100
600555	A*	RR PA M32-M12	M 32×1.5	M 12×1.5	36	16	1.06	50
600556	A*	RR PA M32-M16	M 32×1.5	M 16×1.5	36	16	1.06	50
600557	S*	RR PA M32-M20	M 32×1.5	M 20×1.5	36	16	1.20	50
600558	S*	RR PA M32-M25	M 32×1.5	M 25×1.5	36	16	0.88	25
600559	A*	RR PA M40-M16	M 40×1.5	M 16×1.5	46	16	1.59	25
600560	A*	RR PA M40-M20	M 40×1.5	M 20×1.5	46	16	1.68	25
600561	A*	RR PA M40-M25	M 40×1.5	M 25×1.5	46	16	1.36	25
600562	A*	RR PA M40-M32	M 40×1.5	M 32×1.5	46	16	1.35	25
600563	A*	RR PA M50-M20	M 50×1.5	M 20×1.5	55	17	2.15	25
600564	A*	RR PA M50-M25	M 50×1.5	M 25×1.5	55	17	2.16	25
600565	A*	RR PA M50-M32	M 50×1.5	M 32×1.5	55	17	2.06	25
600566	A*	RR PA M50-M40	M 50×1.5	M 40×1.5	55	17	1.97	25
600567	A*	RR PA M63-M25	M 63×1.5	M 25×1.5	68	18	2.65	25
600568	A*	RR PA M63-M32	M 63×1.5	M 32×1.5	68	18	2.95	25
600569	A*	RR PA M63-M40	M 63×1.5	M 40×1.5	68	18	3.08	25
600570	A*	RR PA M63-M50	M 63×1.5	M 50×1.5	68	18	3.05	25

Cable fittings and accessories

Plastic accessory Blank plug BL

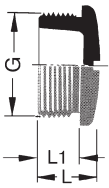


Properties

- metric with Philips/slot-head combination

Construction

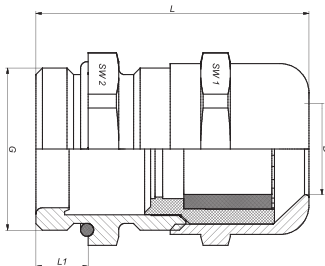
- Material: PA 6.6
- Color: grey RAL 7035



Part-No.	Type	Thread G	L mm	L1 mm	Weight kg/100 units	PU piece	
BL metric PA							
600870	S*	BL M12	M 12×1.5	9	6	0.05	100
600871	S*	BL M16	M 16×1.5	10	6	0.09	100
600872	S*	BL M20	M 20×1.5	10	6	0.19	100
600873	S*	BL M25	M 25×1.5	11.5	7	0.20	100
600874	S*	BL M32	M 32×1.5	12.5	8	0.48	100
600875	S*	BL M40	M 40×1.5	12.5	9	0.66	50
600876	S*	BL M50	M 50×1.5	15	10	1.57	25
600877	S*	BL M63	M 63×1.5	18	12	2.26	25
BL PG PA							
601490	S*	BL PG7 PA	PG 7	8	6	0.07	100
601491	S*	BL PG9 PA	PG 9	9.5	6.5	0.13	100
601492	S*	BL PG11 PA	PG 11	10	6.5	0.15	100
601493	S*	BL PG13,5 PA	PG 13.5	10	6.5	0.20	100
601494	S*	BL PG16 PA	PG 16	10	6.5	0.23	100
601495	S*	BL PG21 PA	PG 21	12	8	0.40	100
601496	S*	BL PG29 PA	PG 29	11.5	8	0.82	50
601497	S*	BL PG36 PA	PG 36	14	10	1.32	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 IP68
Up to 5 bar

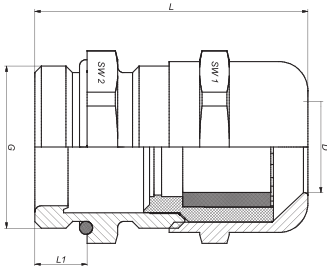
Construction

- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

Part-No.	Type	Thread G	Clamping range D mm	SW 1 mm	SW 2 mm	L1 mm	L mm	Weight kg/100 units	PU piece	
TOP-T metric										
600701	S*	TOP-T MS M12×1,5	M 12×1.5	3.0 – 6.5	14	14	5	25	1.12	100
600760	S*	TOP-T MS M16×1,5	M 16×1.5	5.5 – 10.0	17	17	5.5	27.5	1.55	100
600761	S*	TOP-T MS M20×1,5	M 20×1.5	8.0 – 13.0	22	22	6	30	2.72	50
600762	S*	TOP-T MS M25×1,5 SW30	M 25×1.5	11.0 – 18.0	30	30	7	36	5.70	25
600763	S*	TOP-T MS M32×1,5	M 32×1.5	15.0 – 21.0	34	34	8	38	7.41	10
600702	S*	TOP-T MS M40×1,5	M 40×1.5	19.0 – 27.0	44	44	8	42	16.53	10
600703	S*	TOP-T MS M50×1,5	M 50×1.5	26.0 – 35.0	54	54	9	52	33.80	5
600704	A*	TOP-T MS M63×1,5	M 63×1.5	39.0 – 48.0	66	66	10	54	42.50	5
TOP-T PG										
600710	S*	TOP-T MS PG7	PG 7	3.0 – 6.5	14	14	5	24	1.13	100
600711	S*	TOP-T MS PG9	PG 9	5.5 – 10.0	17	17	6	28	1.50	100
600712	S*	TOP-T MS PG11	PG 11	5.5 – 10.0	20	20	6	32	3.12	50
600713	S*	TOP-T MS PG13,5	PG 13.5	8.0 – 13.0	22	22	6.5	31	2.78	50
600714	S*	TOP-T MS PG16	PG 16	8.0 – 14.0	24	24	6.5	31.6	3.34	50
600715	S*	TOP-T MS PG21	PG 21	11.0 – 18.0	30	30	7	36.5	6.20	25
600716	S*	TOP-T MS PG29	PG 29	19.0 – 27.0	40	40	8	45	11.00	25
600717	S*	TOP-T MS PG36	PG 36	26.0 – 35.0	50	50	9	54.5	18.82	10
600718	S*	TOP-T MS PG42	PG 42	26.0 – 35.0	57	57	10	55	31.58	5
600719	A*	TOP-T MS PG48	PG 48	39.0 – 48.0	66	66	10	57	29.00	5

Cable fittings and accessories

Metal fitting TOP-TR



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket and O-Ring
- Reduced sealing insert
- Reduced Clamping range

Technical data

Protection class IP68
Up to 5 bar

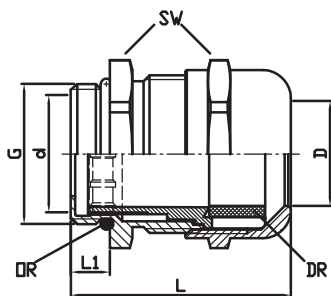
Construction

- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

Part-No.	Type	Thread G	Clamping range D mm	SW 1 mm	SW 2 mm	L1 mm	L mm	Weight kg/100 units	PU piece
TOP-TR metric									
600705	R*	TOP-TR MS M12×1,5	2.0 – 5.0	14	14	5	25	1.22	100
600780	S*	TOP-TR MS M16×1,5	3.0 – 8.0	17	17	5.5	27.5	1.50	100
600781	S*	TOP-TR MS M20×1,5	6.0 – 12.0	22	22	6	30	2.73	50
600782	S*	TOP-TR MS M25×1,5	8.0 – 15.0	30	30	7	36	5.80	25
600783	S*	TOP-TR MS M32×1,5	13.0 – 19.0	34	34	8	38	7.40	10
600706	S*	TOP-TR MS M40×1,5	16.0 – 23.0	44	44	8	42	16.72	10
600707	S*	TOP-TR MS M50×1,5	21.0 – 29.0	54	54	9	52	33.80	5
600708	S*	TOP-TR MS M63×1,5	27.0 – 38.0	66	66	10	54	42.50	5

Cable fittings and accessories

Metal fitting with shield termination TOP-T-S-EMV1



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket
- O-ring and EMC compliant shield termination
- For installation, the shield braiding and plastic insert are pressed against fitting base.

Technical data

Protection class IP68
Up to 5 bar

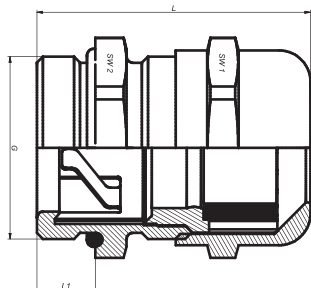
Construction

- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

Part-No.	Type	Thread G	Clamping range D mm	SW mm	L1 mm	d mm	Weight kg/100 units	PU piece	
TOP-T-S-EMV1 metric									
600170	S*	TOP-T-S-EMV1 MS M12	M 12×1.5	3.0 – 6.5 mm	14	5	5.2	1.21	100
600171	S*	TOP-T-S-EMV1 MS M16	M 16×1.5	5.5 – 10.0 mm	17	5.5	8.2	1.95	100
600172	S*	TOP-T-S-EMV1 MS M20	M 20×1.5	8.0 – 13.0 mm	22	6	11.5	3.19	50
600173	S*	TOP-T-S-EMV1 MS M25 SW30	M 25×1.5	11.0 – 18.0 mm	30	7	15.2	5.95	25
600174	S*	TOP-T-S-EMV1 MS M32	M 32×1.5	15.0 – 21.0 mm	34	8	18	8.76	10
600175	S*	TOP-T-S-EMV1 MS M40 SW44	M 40×1.5	19.0 – 27.0 mm	44	8	23	20.40	10
600176	S*	TOP-T-S-EMV1 MS M50	M 50×1.5	26.0 – 35.0 mm	55	9	31	36.20	5
600177	A*	TOP-T-S-EMV1 MS M63 SW66	M 63×1.5	39.0 – 48.0 mm	66	10	31	46.50	5
TOP-T-S-EMV1 PG									
600520	A*	TOP-T-S-EMV1 MS PG7	PG 7	3.0 – 6.5 mm	14	5	5	1.20	100
600521	S*	TOP-T-S-EMV1 MS PG9	PG 9	5.5 – 10.0 mm	17	6	7.5	1.70	100
600522	S*	TOP-T-S-EMV1 MS PG11	PG 11	5.5 – 10.0 mm	20	6	9.5	3.37	50
600523	A*	TOP-T-S-EMV1 MS PG13,5	PG 13.5	8.0 – 13.0 mm	22	6.5	11.5	3.10	50
600524	A*	TOP-T-S-EMV1 MS PG16	PG 16	8.0 – 14.0 mm	24	6.5	12	3.64	50
600525	A*	TOP-T-S-EMV1 MS PG21	PG 21	11.0 – 18.0 mm	30	7	17.5	5.76	25
600526	A*	TOP-T-S-EMV1 MS PG29	PG 29	19.0 – 27.0 mm	40	8	25	12.00	25
600527	A*	TOP-T-S-EMV1 MS PG36	PG 36	24.0 – 32.0 mm	50	9	31.5	15.10	10
600528	A*	TOP-T-S-EMV1 MS PG42	PG 42	30.0 – 38.0 mm	57	10	37.5	21.10	5
600529	A*	TOP-T-S-EMV1 MS PG48	PG 48	34.0 – 44.0 mm	64	10	43.5	30.00	5

Cable fittings and accessories

Metal fitting with shield termination TOP-T-S-EMV2



Properties

- Cable fitting with hexagon base
- Strain relief
- Gasket
- O-ring and EMC compliant shield termination
- The braided shield is automatically contacted when mounting the screw connection.

Technical data

Protection class IP68
Up to 5 bar

Construction

- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

Part-No.	Type	Thread G	Clamping range D mm	SW 1 mm	SW 2 mm	L1 mm	L mm	Weight kg/100 units	PU piece
TOP-T-S-EMV2 metric									
600370	S* TOP-T-S-EMV2 MS M12x1,5	M 12x1.5	3.0 – 6.5	14	14	6	27.5	1.26	50
600371	S* TOP-T-S-EMV2 MS M16x1,5	M 16x1.5	4.0 – 8.0	17	18	7	30	1.93	50
600372	S* TOP-T-S-EMV2 MS M20x1,5	M 20x1.5	6.0 – 12.0	22	22	8	32.3	2.79	50
600373	S* TOP-T-S-EMV2 MS M25x1,5	M 25x1.5	10.0 – 14.0	24	27	8	35.6	4.62	25
600374	S* TOP-T-S-EMV2 MS M32x1,5	M 32x1.5	13.0 – 18.0	30	34	9	40.2	8.05	25
600375	S* TOP-T-S-EMV2 MS M40x1,5	M 40x1.5	18.0 – 25.0	40	43	9	47.5	15.10	10
600376	S* TOP-T-S-EMV2 MS M50x1,5	M 50x1.5	22.0 – 32.0	50	55	9	56.3	28.10	5
600377	A* TOP-T-S-EMV2 MS M63x1,5	M 63x1.5	34.0 – 44.0	64	68	14	64.3	45.20	5

Cable fittings and accessories

Metal accessory Locknut GMS

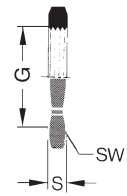


Properties

- Hexagonal nut

Construction

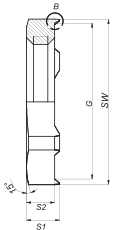
- Material: Brass nickel-plated



Part-No.	Type	Thread G	SW mm	S mm	Weight kg/100 units	PU piece
GMS metric						
600368	S*	GMS M12	M 12×1.5	15	2.8	0.20
600361	S*	GMS M16	M 16×1.5	19	2.8	0.27
600362	S*	GMS M20	M 20×1.5	24	3	0.48
600363	S*	GMS M25	M 25×1.5	30	3.5	0.90
600364	S*	GMS M32	M 32×1.5	36	4	1.08
600365	S*	GMS M40	M 40×1.5	46	5	2.40
600366	S*	GMS M50	M 50×1.5	57	5	3.25
600367	S*	GMS M63	M 60×1.5	70	6	4.62
GMS PG						
600420	S*	GMS PG7	PG 7	15	2.8	0.18
600421	S*	GMS PG9	PG 9	18	2.8	0.23
600422	S*	GMS PG11	PG 11	21	3	0.30
600423	S*	GMS PG13,5	PG 13.5	23	3	0.36
600424	S*	GMS PG16	PG 16	26	3	0.50
600425	S*	GMS PG21	PG 21	32	3.5	0.79
600426	S*	GMS PG29	PG 29	41	4	1.30
600427	S*	GMS PG36	PG 36	51	5	2.10
600428	A*	GMS PG42	PG 42	60	5	3.45
600429	A*	GMS PG48	PG 48	64	5.5	3.39

Cable fittings and accessories

Metal accessory Locknut GMS EMC



Properties

- Hexagonal nut for potential equalisation
- With cutting edges for cutting through layers of paint or power coating for optimal contact

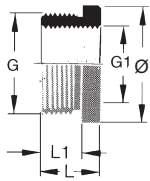
Construction

- Material: Brass nickel-plated

Part-No.	Type	Thread G	SW mm	S1 mm	S2 mm	Weight kg/100 units	PU piece	
GMS EMV metric								
600460	S*	GMS EMV M12	M 12×1.5	15	4.7	2.8	0.26	100
600461	S*	GMS EMV M16	M 16×1.5	19	4.7	3	0.37	100
600462	S*	GMS EMV M20	M 20×1.5	24	4.7	3	0.65	100
600463	S*	GMS EMV M25	M 25×1.5	30	5.2	3	1.06	50
600464	S*	GMS EMV M32	M 32×1.5	36	5.7	3.5	1.35	50
600465	S*	GMS EMV M40	M 40×1.5	46	6.5	4	2.85	50
600466	S*	GMS EMV M50	M 50×1.5	60	6	5	5.46	10
600467	A*	GMS EMV M63	M 63×1.5	70	6	6	5.92	10
GMS EMV PG								
600530	A*	GMS EMV PG7	PG 7	15	4.7	2.8	0.25	100
600531	S*	GMS EMV PG9	PG 9	18	4.7	2.8	0.33	100
600532	S*	GMS EMV PG11	PG 11	21	4.7	3	0.38	100
600533	A*	GMS EMV PG13,5	PG 13.5	23	4.7	3	0.45	100
600534	S*	GMS EMV PG16	PG 16	26	4.7	3	0.63	100
600535	A*	GMS EMV PG21	PG 21	32	5.2	3.5	0.98	50
600536	A*	GMS EMV PG29	PG 29	41	5.7	4	1.58	50
600537	A*	GMS EMV PG36	PG 36	51	6.5	5	2.58	50
600538	A*	GMS EMV PG42	PG 42	60	6.5	5	3.12	25
600539	A*	GMS EMV PG48	PG 48	64	6.5	5.5	3.74	50

Cable fittings and accessories

Metal accessory reducing ring RR



Properties

- Reducing ring from **metric** to **metric** or **PG** to **PG**
- with large outer thread and small inner thread

Construction

- Material: Brass nickel-plated

Part-No.	Type	Thread G	Thread G1	Outer Ø mm	L mm	L1 mm	Weight kg/100 units	PU piece
RR metric metric/metric								
600220	S*	RR MS M16/M12	M 16×1.5	M 12×1.5	18.0	7.5	0.54	100
600221	S*	RR MS M20/M12	M 20×1.5	M 12×1.5	24.0	8.5	1.59	100
600222	S*	RR MS M20/M16	M 20×1.5	M 16×1.5	22.0	9	0.86	100
600223	S*	RR MS M25/M16	M 25×1.5	M 16×1.5	30.0	10	2.76	50
600224	S*	RR MS M25/M20	M 25×1.5	M 20×1.5	27.0	10	1.45	100
600225	S*	RR MS M32/M20	M 32×1.5	M 20×1.5	37.0	11.5	5.16	50
600226	S*	RR MS M32/M25	M 32×1.5	M 25×1.5	37.0	11.5	3.45	50
600227	S*	RR MS M40/M25	M 40×1.5	M 25×1.5	43.0	11.5	7.44	25
600228	S*	RR MS M40/M32	M 40×1.5	M 32×1.5	43.0	11.5	4.54	25
600229	A*	RR MS M50/M32	M 50×1.5	M 32×1.5	56.0	14	14.58	10
600230	S*	RR MS M50/M40	M 50×1.5	M 40×1.5	56.0	14	9.29	10
600231	A*	RR MS M63/M40	M 63×1.5	M 40×1.5	66.0	14	19.81	10
600232	S*	RR MS M63/M50	M 63×1.5	M 50×1.5	66.0	14	12.35	10
RR PG PG/PG								
600400	S*	RR MS PG9/PG7	PG 9	PG 7	17.0	8.5	0.45	100
600411	A*	RR MS PG11/PG7	PG 11	PG 7	20.0	8.5	1.20	100
600401	S*	RR MS PG11/PG9	PG 11	PG 9	20.0	8.5	0.65	100
600408	S*	RR MS PG13,5/PG9	PG 13.5	PG 9	22.0	9	1.01	100
600402	S*	RR MS PG13,5/PG11	PG 13.5	PG 11	22.0	9	0.47	100
600409	S*	RR MS PG16/PG9	PG 16	PG 9	24.0	9.5	0.85	100
600410	A*	RR MS PG16/PG11	PG 16	PG 11	24.0	9.5	1.01	100
600403	S*	RR MS PG16/PG13,5	PG 16	PG 13.5	24.0	9.5	0.59	100
600413	A*	RR MS PG21/PG11	PG 21	PG 11	30.0	10	2.90	50
600414	A*	RR MS PG21/PG13,5	PG 21	PG 13.5	30.0	10	1.23	50
600404	S*	RR MS PG21/PG16	PG 21	PG 16	30.0	10	1.95	50
600407	A*	RR MS PG29/PG16	PG 29	PG 16	39.0	11.5	6.42	50
600405	A*	RR MS PG29/PG21	PG 29	PG 21	39.0	11.5	4.34	50
600412	A*	RR MS PG36/PG21	PG 36	PG 21	50.0	12.5	11.40	25
600406	A*	RR MS PG36/PG29	PG 36	PG 29	50.0	12.5	3.42	25
600416	A*	RR MS PG42/PG36	PG 42	PG 36	57.0	14	7.00	10
600417	A*	RR MS PG48/PG36	PG 48	PG 36	64.0	14	12.80	10
600415	A*	RR MS PG48/PG42	PG 48	PG 42	64.0	14	6.40	10

Cable fittings and accessories

Metal accessory expansion EW

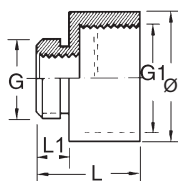


Properties

- Expansion from metric to metric or PG to PG
- with small outer thread and large inner thread

Construction

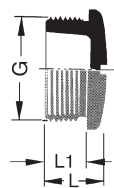
- Material: Brass nickel-plated



Part-No.	Type	Thread G	Thread G1	Outer \varnothing mm	L mm	L1 mm	Weight kg/100 units	PU piece
EW metric metric/metric								
600280	S*	EW MS M12/M16	M 12×1.5	M 16×1.5	18.0	15.5	0.91	100
600281	S*	EW MS M16/M20	M 16×1.5	M 20×1.5	22.0	17.5	1.29	100
600282	A*	EW MS M20/M25	M 20×1.5	M 25×1.5	27.0	20	1.98	50
600283	S*	EW MS M25/M32	M 25×1.5	M 32×1.5	34.0	22.5	3.22	100
600284	A*	EW MS M32/M40	M 32×1.5	M 40×1.5	42.0	24.5	4.39	50
600285	A*	EW MS M40/M50	M 40×1.5	M 50×1.5	52.0	27.5	6.43	25
600286	A*	EW MS M50/M63	M 50×1.5	M 63×1.5	66.0	31	12.00	10
EW PG PG/PG								
600500	A*	EW MS PG7/PG9	PG 7	PG 9	17.0	15	0.64	100
600501	A*	EW MS PG9/PG11	PG 9	PG 11	20.0	16.5	0.82	100
600502	S*	EW MS PG9/PG13,5	PG 9	PG 13.5	22.0	17.5	1.02	100
600503	A*	EW MS PG11/PG13,5	PG 11	PG 13.5	22.0	17.5	1.15	100
600504	S*	EW MS PG11/PG16	PG 11	PG 16	24.0	18.5	1.32	100
600506	A*	EW MS PG13,5/PG16	PG 13.5	PG 16	24.0	19	1.32	100
600507	A*	EW MS PG13,5/PG21	PG 13.5	PG 21	30.0	21	2.26	50
600508	A*	EW MS PG16/PG21	PG 16	PG 21	30.0	21	2.09	50
600510	A*	EW MS PG21/PG29	PG 21	PG 29	39.0	23	3.63	50
600511	A*	EW MS PG29/PG36	PG 29	PG 36	50.0	27.5	7.30	25
600512	A*	EW MS PG36/PG42	PG 36	PG 42	57.0	31	9.12	10
600513	A*	EW MS PG42/PG48	PG 42	PG 48	64.0	33	14.45	10

Cable fittings and accessories

Metal accessory blank plug BLMS



Properties

- Blank plug, round, metric or PG

Construction

- Material: Brass nickel-plated

Part-No.	Type	Thread G	L mm	L1 mm	Weight kg/100 units	PU piece	
BLMS metric							
600090	A*	BLMS M12	M 12×1.5	7.5	5	0.38	100
600091	S*	BLMS M16	M 16×1.5	8	5	0.55	100
600092	S*	BLMS M20	M 20×1.5	9.5	6	0.98	100
600093	S*	BLMS M25	M 25×1.5	11	7	1.56	100
600094	A*	BLMS M32	M 32×1.5	12	8	2.50	50
600095	A*	BLMS M40	M 40×1.5	13	8	3.90	50
600096	A*	BLMS M50	M 50×1.5	15	9	7.90	25
600097	A*	BLMS M63	M 63×1.5	16	10	12.00	10
BLMS metr. with O ring							
600201	S*	BLMS M12 O-Ring	M 12×1.5	7.5	5	0.32	100
600202	S*	BLMS M16 O-Ring	M 16×1.5	8	5	0.60	100
600203	S*	BLMS M20 O-Ring	M 20×1.5	9.5	6	0.87	100
600204	S*	BLMS M25 O-Ring	M 25×1.5	11	7	1.57	100
600205	S*	BLMS M32 O-Ring	M 32×1.5	12	8	2.42	50
600206	S*	BLMS M40 O-Ring	M 40×1.5	13	8	3.90	50
600207	S*	BLMS M50 O-Ring	M 50×1.5	15	9	7.25	25
600208	S*	BLMS M63 O-Ring	M 63×1.5	16	10	12.03	10
BLMS PG							
600590	A*	BLMS PG7	PG 7	8	5	0.34	100
600591	S*	BLMS PG9	PG 9	9	6	0.45	100
600592	A*	BLMS PG11	PG 11	9	6	0.71	100
600593	A*	BLMS PG13,5	PG 13.5	9.5	6.5	0.87	100
600594	S*	BLMS PG16	PG 16	9.5	6.5	1.10	100
600595	A*	BLMS PG21	PG 21	11	7	2.11	50
600596	A*	BLMS PG29	PG 29	12	8	3.81	25
600597	A*	BLMS PG36	PG 36	15	9	8.10	10

Cable fittings and accessories

Plastic and metal accessory multiple sealing insert 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

Construction

- Material: TPE

Part-No.	Type	Outer Ø mm	Number of cables	Cable diameter min. mm	Weight kg/100 units	PU piece
MFDE PG						
600626	S* MFDE PG9 2×3	10.0	2	3	0.57	100
600627	A* MFDE PG9 4×3	10.0	4	3	0.46	100
600541	A* MFDE PG9	10.0	0	0	0.70	100
600628	A* MFDE PG11 2×4	13.0	2	4	1.00	100
600629	A* MFDE PG11 2×4,5	13.0	2	4.5	0.80	100
600635	S* MFDE PG11 3×4	13.0	3	4	0.10	100
600636	S* MFDE PG11 3×5	13.0	3	5	0.70	100
600542	A* MFDE PG11	13.0	0	0	0.11	100
600638	A* MFDE PG13,5 2×4,5	15.0	2	4.5	1.32	100
600639	A* MFDE PG13,5 2×5	15.0	2	5	1.20	100
600640	S* MFDE PG13,5 2×6	15.0	2	6	1.20	100
600637	A* MFDE PG13,5 3×4	15.0	3	4	1.40	100
600630	S* MFDE PG13,5 3×5	15.0	3	5	1.20	100
600543	A* MFDE PG13,5	15.0	0	0	1.60	100
600641	A* MFDE PG16 2×4	17.0	2	4	2.00	100
600644	S* MFDE PG16 2×6	17.0	2	6	1.78	100
600631	A* MFDE PG16 3×4	17.0	3	4	1.92	100
600643	A* MFDE PG16 3×5	17.0	3	5	1.60	100
600646	S* MFDE PG16 4×6	17.0	4	6	1.20	100
600633	A* MFDE PG16 5×4	17.0	5	4	1.62	100
600544	A* MFDE PG16	17.0	0	0	2.30	100
600645	A* MFDE PG16 3×6	17.0	3	6	1.00	100
600647	A* MFDE PG16 3×6,5	17.0	3	6.5	1.20	100
600642	S* MFDE PG16 4×4	17.0	4	4	1.73	100
600632	S* MFDE PG16 4×5	17.0	4	5	1.20	100
600648	A* MFDE PG21 2×7	22.0	2	7	3.60	100
600651	S* MFDE PG21 2×8	22.0	2	8	3.20	100
600653	A* MFDE PG21 2×9	22.0	2	9	3.20	100
600649	A* MFDE PG21 3×7	22.0	3	7	3.00	100
600652	A* MFDE PG21 3×8	22.0	3	8	2.65	100
600634	S* MFDE PG21 4×7	22.0	4	7	2.60	100
600545	A* MFDE PG21	22.0	0	0	5.60	100
600656	A* MFDE PG29 5×8,5	29.5	5	8.5	6.00	100
600654	A* MFDE PG29 6×5	29.5	6	5	7.70	100
600655	A* MFDE PG29 8×5	29.5	8	5	7.40	100
600546	A* MFDE PG29	29.5	0	0	9.80	100

- * S Article from stock
- A Available with a lead time
- R Available on request

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	Rated current A	Pole number	Voltage V	Color	Weight kg/100 units	PU piece
Socket ST-3/S							
680024	S* Plug Socket ST-3/S Push In GR	16	2	max. AC 250	grey	7.20	5
680025	S* Plug Socket ST-3/S Push In GE	16	2	max. AC 250	yellow	7.20	5
Socket ST-3/A							
680026	S* Plug Socket ST-3/A Push In SA	16	2	max. AC 250	grey	7.30	5
Socket ST-3/F							
680027	S* Plug Socket ST-3/F Push In	16	2	max. AC 250	grey	9.90	5
Adapter							
680574	S* ADAPTER ST3/SEV-T	16	2	max. AC 250	grey	6.00	1

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!**

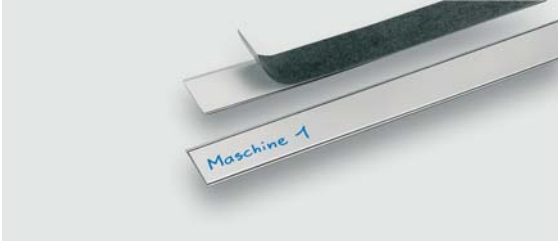
Technical data

Temperature range -10 °C ... +85 °C

Part-No.	Type	Material characteristics	Material	Color	Width mm	Bundling range mm	Weight kg/100 units	PU piece	
Cable tie KSN									
680100	S*	KABELBINDER KSN1 100X2,5	PA 6.6	natural	2.5	approx. 22	0.60	1000	
680101	S*	KABELBINDER KSN2 185X4,6	PA 6.6	natural	4.8	approx. 50	1.40	1000	
680102	S*	KABELBINDER KSN3 380X4,7	PA 6.6	natural	4.8	approx. 102	2.50	100	
Cable tie KSS									
680105	S*	KABELBINDER KSS1 SW	UV-resistant	PA 6.6	black	2.5	approx. 22	0.60	1000
680106	S*	KABELBINDER KSS2 SW	UV-resistant	PA 6.6	black	4.8	approx. 50	1.50	1000
680107	S*	KABELBINDER KSS3 SW	UV-resistant	PA 6.6	black	4.8	approx. 102	2.50	100
680108	S*	KABELBINDER KSS4 SW	UV-resistant	PA 6.6	black	2.5	approx. 53	0.90	1000

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 length
- Film and labelling strips are supplied separately
- Max. labelling surface area: 18 mm × 1000 mm

Part-No.	Type	Dimensions mm	PU piece
Marker strip BS			
680420	S*	BS 21,5×1000 MM	1000.0 × 21.5

Chapter 6: Technical information

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Bending cycles of high flexing cables

LÜTZE SUPERFLEX® - longevity, reliability, flexibility

The high mechanical requirements in a drag chain require the use of special cables, which are designed for the usage in continuous motion application. The life span of cable in drag chains is strongly influenced by mechanical parameters of the application, as well as the carefulness of the installation.

Type of cable	Traveling distance in m	Bending radius = Factor x Cable-Ø (mm)	Velocity m/s	Acceleration m/s ²	Cycles mio.
LÜTZE SUPERFLEX® PLUS					
Unshielded cable with special TPE or HGI insulation, PUR or TPE jacket	≤ 5 ≤ 20 ≤ 100	≥ 10 Ø ≥ 7,5 Ø ≥ 7,5 Ø	≤ 3 ≤ 5 ≤ 5	≤ 5 ≤ 10 ≤ 10	≥ 20 ≥ 10 ≥ 2
LÜTZE SUPERFLEX® PLUS (C)					
Shielded cable with special TPE or HGI insulation, PUR or TPE jacket	≤ 5 ≤ 20 ≤ 100	≥ 12 Ø ≥ 10 Ø ≥ 10 Ø	≤ 3 ≤ 5 ≤ 5	≤ 5 ≤ 10 ≤ 10	≥ 20 ≥ 10 ≥ 2
LÜTZE SUPERFLEX®					
Unshielded cable	≤ 5 ≤ 15	≥ 12 Ø ≥ 10 Ø	≤ 3 ≤ 5	≤ 5 ≤ 10	≥ 10 ≥ 5
LÜTZE SUPERFLEX® (C)					
Shielded cable	≤ 5 ≤ 15	≥ 15 Ø ≥ 12 Ø	≤ 3 ≤ 5	≤ 5 ≤ 10	≥ 10 ≥ 5

The values of this table show application-parameter and actual performed cycles in independent tests. The cycle count can only be compared, if every value is taken in consideration with each other. A valuation as "Million Operating Cycles" is insignificant, if traveling distance, velocity and bending radius is unknown.

LÜTZE SUPERFLEX® PLUS M (C) PUR UL Servo 0,6 / 1 kV according to SIEMENS* Standard Similar to SIEMENS MOTION-CONNECT 800PLUS

	Traveling distance in m	Bending radius = Factor x Cable-Ø (mm)	Velocity m/s	Acceleration m/s ²	Cycles mio.
LÜTZE SUPERFLEX® PLUS M (C) PUR UL Servo 0,6 / 1 kV					
	≤ 3	≥ 10 Ø	≤ 5	≤ 50	≥ 10
	≤ 5	≥ 10 Ø	≤ 5	≤ 30	≥ 10
	≤ 10	≥ 10 Ø	≤ 5	≤ 15	≥ 10
	≤ 15	≥ 10 Ø	≤ 5	≤ 10	≥ 10
	≤ 50	≥ 10 Ø	≤ 5	≤ 5	≥ 10

ETHERNET – Overview

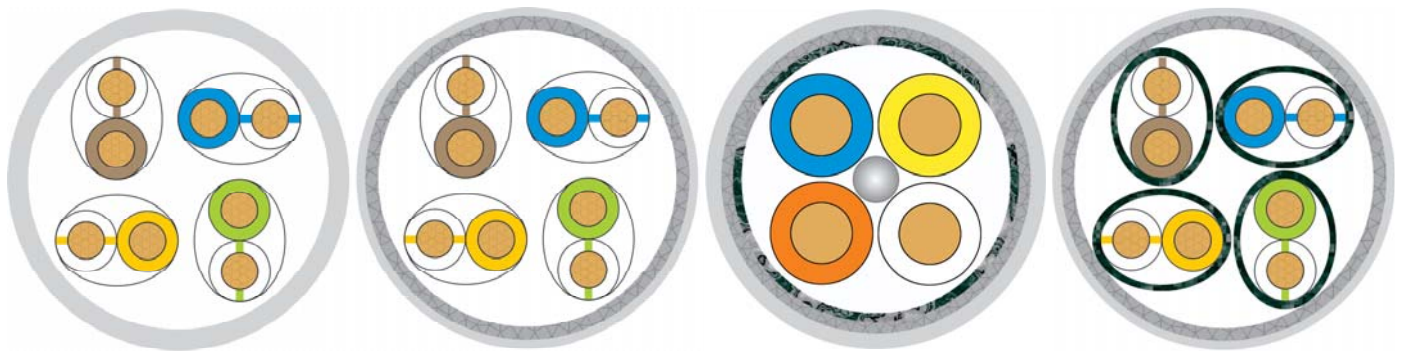
1. Correct Handling and Installation of Network Copper Cable

- Do not subject cable to tension
- Do not kink the cable
- Do not bend the cable more than 90° (See individual specifications for bending radius)
- Strip the cable as short as possible
- Do not crush cable when fastening
- Do not untwist the conductor pairs by **more than 0.5 inch**
- Terminate the shielding on both ends

2. LÜTZE ETHERNET Cables

We recommend shielded industrial Ethernet cable, such as LÜTZE ETHERNET cable, for use in industrial environment to ensure secure connectivity. Motors and other electrical noise producing devices are often located in close proximity to network cabling. EMI (Electro Magnetic Interference) and RFI (Radio Frequency Interference) can distort data transmission on copper-based network cable. To lessen or eliminate interference, called alien-crosstalk, the use of shielded industrial cable and connectors is recommended.

Available LÜTZE ETHERNET Cables:



S/UTP	SF/UTP	SF/UTQ (Star Quad)	S/FTP
Susceptibility for Interference			
some	low	low	low
104337 CAT 5e	104335 CAT 5e 104366 CAT 5e 104347 CAT6	104301 CAT 5 104307 CAT 5 104302 CAT 5 104303 CAT 5	104338 CAT 6a 104331 CAT 7

3. Key for twisted pair cables according to ISO/IEC-11801 (2002)E

XX/YYZ		
XX – outer jacket	/ Y – for the pair shielding	ZZ – wire pairing
U = unshielded	/ U = unshielded	TP = twisted pair (regular)
F = foiled shield	/ F = foiled shield	TQ = quad pair (star quad)
S = braided shield	/ S = braided shield	
SF = braided and foiled shield		

In order to utilize EMI/RFI shielding, the shield must be properly terminated at both ends!

ETHERNET – Overview

4. ProfiNet – Star Quad Design and Termination

The star quad is a specific low-impedance cable configuration. Four conductors are twisted on a common axis. The conductors across from each other make a pair.

In Figure 1 the pairs are as follows:

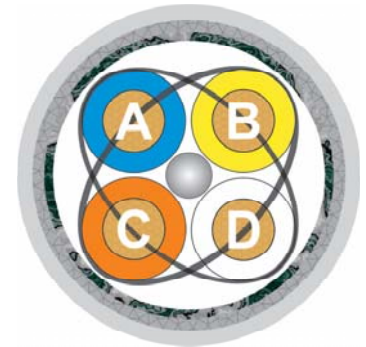
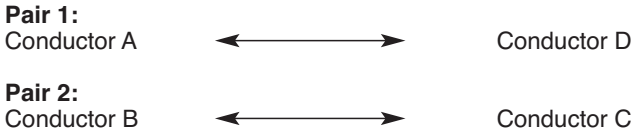


Bild 1

Other terminations than in Figure 1 lead to interferences, decreased connectivity or no connectivity at all.

5. Pin Assignment and Installation

RJ45 is the most common Ethernet connector and is available both shielded and unshielded. All pins of the RJ45 connector are used for 1000 Mbit/s (4-pair transmission). Four pins are used for 10/100 Mbit/s (2-pair transmission).

According to the EN 50173 standard, two color codes are defined for installation: T568A and T568B. It makes no difference which color code is used, however the same code should be used consistently throughout the entire installation. Mixing up the two color codes will result in malfunctions.

Pin assignment RJ45 – Color code according to EN 50173 – hard wiring:

ETHERNET cables									
Pin#	Star Quad (ProfiNet)			Paired					
	100BASE-TX	Colorcode	10 BASE-T, 100BASE-TX	1000BASE-T		Colorcode T568A		Colorcode T568B	
1	Transmit+	yellow	Transmit+	BI_DA+	(bidirectional)	WH/GN	WH/OR	WH/OR	WH/OR
2	Transmit-	orange	Transmit-	BI_DA-	(bidirectional)	GN	OR	OR	OR
3	Receive+	white	Receive+	BI_DB+	(bidirectional)	WH/OR	WH/GN	WH/GN	WH/GN
4	–		–	BI_DC+	(bidirectional)	BL	BL	BL	BL
5	–		–	BI_DC-	(bidirectional)	WH/BL	WH/BL	WH/BL	WH/BL
6	Receive-	blue	Receive-	BI_DB-	(bidirectional)	OR	GN	GN	GN
7	–		–	BI_DD+	(bidirectional)	WH/BN	WH/BN	WH/BN	WH/BN
8	–		–	BI_DD-	(bidirectional)	BN	BN	BN	BN

6. ETHERNET Categories and Classes

	ProfiNet*	CAT 5	CAT 5e	CAT 6	CAT 6a	CAT 7
Class	D	D	De	E	Ea	F
Construction	2 pair (AWG 22)	2 pair (AWG 24, AWG 26)	4 pair (AWG 24, AWG 26)	4 pair (26 AWG)	4 pair (26 AWG)	4 pair (26 AWG)
Speed	10/100 Mbit/s	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s	10/100/1000/10000 Mbit/s	10/100/1000/10000 Mbit/s
LAN Applications (max.)	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair)	10BASE-T (2 pair) 100BASE-TX (2 pair) 1000BASE-T (4 pair)	10BASE-T 100BASE-TX 1000BASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T	10BASE-T 100BASE-TX 1000BASE-T 10GBASE-T
Nominal Impedance	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm	100 Ohm
Bandwidth	100 MHz	100 MHz	100 MHz	250 MHz	500 MHz	600 MHz
max. lenght	100 m (10BASE-T) 100 m (100BASE-TX)	100 m (10BASE-T) 100 m (100BASE-TX)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T) 100 m (10GBASE-T)	100 m (10BASE-T) 100 m (100BASE-TX) 100 m (1000BASE-T) 100 m (10GBASE-T)
CAT compatibility	CAT 5	CAT 5	CAT 5	CAT 5, CAT 5e	CAT 5, CAT 6	CAT 5, CAT 6, CAT 6a
ISO/IEC standard	–	ISO/IEC 11801	ISO/IEC 11801	ISO/IEC 11801	Modification 1 ISO/IEC 11801	ISO/IEC 11801
ANSI/TIA standard	–	ANSI/TIA-568-B	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	ANSI/TIA-568-C.2	Not recognized

Chemical resistance of PVC, TPE and PUR cables jackets

Anorganic	Concentration	PVC	TPE	PUR
Alaune	c.s.	+	+	
Aluminium 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 chlorid, a	c.s.	+	+	O
Calcium chlorid, a	10 % and 40 %			+
Calcium nitrate, a	c.s.	+	+	
Chrom salts, a	c.s.	+	+	+
Calium 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	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	PVC	TPE	PUR
Ethyl alcohol	100 %	–	–	–
Formic acid	30 %	–	–	–
Benzine/Benzene		–	O	+
Succinic acid, a	c.s.	+	+	–
Acetic acid	20 %	O	O	O
Hydraulic oil		–	*	O*
Isopropyl alcohol	100 %	–	-	O
Kerosene			O	O
Machine oil		O*	O*	+*
Methyl alcohol, a	100 %	O	O	O
Mineral oil, depending on type (ASTM)			*	*
Oxalic acid, a	c.s.	+	+	
Paraffin oil			+	+
Plant oils and greases		O/+*	+*	O/+*
Cutting oil		O*	O/+*	+*
Tartaric acids, a		+	+	
Citric acid		+	+	

Legend: ec. = each concentration a = aqueous
c.s. = cold saturated + = resistant
O = conditionally resistant – = unstable
* = depending on the additives in oil

Disclaimer: This information shall only serve as support for choosing a suitable material for use with chemical substances. Prior to the final installation a test of the material should be performed with the chemical substances under prospective conditions of use. Lütze assumes no guarantee for the completeness or the correctness of this content, and declines all liability claims, which relate to loss or damage, which was caused by the use of the presented information or recommendations.

All specification refer to room temperature!

Properties of isolation materials

Material	Abb.	Short abbreviation	Service temperature °C	Dielectric constant 10 ³	spec. contact Ohm x cm	Tensile strength N/mm ²	Elongation at break %	Absorption of water (20 °C) %	Weathering resistance	Fuel resistance	Oil resistance	Flammability
Polyvinyl chloride	PVC	Y	-30/+ 70	4 - 7	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 hexafluoro-propylene 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 Perfluoroalkoxy polymer	ETFE PFA	7Y -	-100/+ 150 -190/+ 260	2.6 2.1	10 ¹⁶ 10 ¹⁵	40 - 50 30	100 - 300 300	0.01 0.01	very good very good	very good very good	very good good	not flammable 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.

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

Technical Terms

°C	Degree Celsius
(C)	Cable is shielded
Abrasion-resistant Conductor / Diameter	The characteristic of a material to be resistant to abrasion Eg.: 4G16 A cable with 4 conductor and respective conductor-diameter of 16 mm: When the specification is used 4G16, is one of four conductors green/yellow. When the specification is used 416, is none of the four conductors green/yellow. (See G and x)
Low adhesion	For cables one refers to the so-called mechanical adhesion, that is the adhesion of faces (Anti-friction property)
Outer diameter	The nominal outer diameter of the cable
Outer layer	The position of a conductor, which is located directly under the jacket
AWG	American Wire Gauge
AWM	Appliance Wiring Material, "UL Subject 758" is an approval for components and applicable for cables installed at the factory
Mutual capacitance	Capacitance between the conductors for multi-conductor cables or between conductor and jacket
Bend radius	Specification how closely a cable is allowed to be bent. For cables, it is distinguished between fixed and flexible installed. It is given as multiplier of the outer diameter of the cable. (Eg. $10 \times D \approx 10 \times 10,5 \text{ mm} = 105 \text{ mm}$ bent radius)
Bend cycle	Number of bends of the cable e.g. in cable tracks. Heavily depending on accurate installation. Must always be viewed in context of other parameter as e.g. bend radius and velocity.
Burning behavior	Indicates which fireproof standards of the cable are fulfilled
BUS	Binary Unit System for the digital data transmission
Cat	Category – Standard for the transmission speed of a network cable
CMG	Communication General – UL Listing or communication cable, requirements on the flame test are UL 1685 or FT 4 and there with higher quality as IEC 60332-3
CMX	Communication Residential – UL Listing for communication cable, requirements on flame test are UL VW-1 or FT 1
CSA	Canadian Standards Association
Cu	Copper
Cu-Number	Quantity of copper within the cable in kg/100m
D	Diameter of the cable
DESINA	DistributEd and Standardised INstAllation technology technology for machine tools and manufacturing systems
DIN	German institution of standardization
DRIVE-CLiQ®	Feedback/communication system by SIEMENS*
Dielectric strenght	The voltage at which the material loses its ability to insulate
Single-wire	Solid copper wire
E-Copper strand	Stranded electrolyte-copper wires
EMV	Electromagnetic compability
EN	European Standard
F	Farad – Unit of capacitance
Color-coded	The conductor insulations of the different conductors of a cable have defined colors
Finely stranded	Strand construction according to DIN VDE 0295 class 5, IEC 60228 class 5
Super finely stranded	Strand construction according to DIN VDE 0295 class 6, IEC 60228 class 6
Flame retardant	Hardly inflammable
Foil tape	The wrapping around the conductor with a foil for protection of the conductor.
Frequency converter	The device for changing a standard alternating voltage in a modifiable alternating voltage to vary the speed of an electric engine. The connection of a frequency converter to a motor should be made with a low capacitance cable
FT	Flame Test (Canada)
Fillers	Filling material which is used to achieve a circular cable
G	Protective conductor existing and included in the number of conductor
Braid shield	Copper shield made out of meshed copper wire
Halogen free	The cable does not emit the following halogenated substances : Fluorine, Chlorine, Iodine, Bromine und Astatine
HGI	High Glide Insulation – LÜTZE Standard for PP conductor insulation with very low friction coefficient resistances especially for high-flexible applications
Adhesion-free	The characteristic of a material not absorbing liquids
Hz	Herz
Impedance	Resistance at occurring alternating current
Inner jacket	See sub jacket
Insulation resistance	In general insulation resistance is the resistance which opposes a non-conductor e.g. the insulating jacket of a wire, to a more or less long-lasting flow of the current
J	Joule
Low-Capacitance	Here: The ability of a cable to transmit relatively current without loss
Capillary effect (Wicking)	The characteristic of into the cable incorporated fillings to absorb liquids and to involve in the cable
Nick-resistant	The characteristic of a material which describes the behavior during its deformation by intermittently stress
Copper strand - blank	No tin plating on faces of copper strand
Copper strand - tinned	Tin plating on surfaces of copper strand to avoid oxidation
Cabled in layers	Structure of conductors in a cable in layer
Strand	One conductor is made out of several copper wires
Magnetic Field	Electric current occurring field
Jacket	The outer protecting jacket of a cable, which protect the transmission conductor.
Minimum bend radius	Recommended value which should not be fallen short during bending of the cable. (is calculated from the diameter of the cable)

* Registered trademark

Technical Terms

NEC	National Electric Code (USA)
NEMA	National Electrical Manufactureres Association (USA)
Rated voltage	Electric voltage in stranded operation
NFPA	National Fire and Protection Agency (USA)
Optical coverage	Degree of coverage by the copper braid shield (how dense the shield is braided)
Ozone resistance	Ability of the material to withstand ozone radiation
Ozone resistance	There are 2 conductors twisted with each other in the cable
PE	Protective Earth – Protection conductor
PIMF	Pairs in Metal Foil – twisted pair cabled pairs of conductors are shielded separately
Polyethylen (PE)	Insulation material with very good electric characteristics, low water-absorption, high viscosity and excellent dielectric values
Polyolefin	Insulation material with good electric characteristics, good chemical resistance as well as high viscosity and ultimate elongation. Belongs to the Group of semi-crystalline thermoplastics
Polypropylen (PP)	Insulation material with good electric characteristics as well as high strength and stability. Belongs to the group of semi-crystalline thermoplastics
Polyurethan (PUR)	Thermoplastic Polyurethane – High-quality jacket-material for the usage in cable tracks and harsh environmental conditions
Polyvinylchlorid (PVC)	Popular jacket material for industrial control cable, allowed due to compounds with additives high flexibility and improved oil resistance
Test voltage	Represents the voltage with which the cable has been tested
RAL-Number	Numbered color system for definite identification of a color type
RoHS	Restriction of Hazardous Substances
Layer pitch optimized	The lay length of the cabled conductors will be optimized for the application shorter lay lengths for higher alternating bending
Loop resistance	In the transmission technique the loop resistance is the resistance of a at the end short-circuit pair of conductors am (Forward- and return cable e.g. of a BUS- cable)
Protective conductor	Grounding conductor
Self-extinguishing	The characteristic of a material to extinguish flames by itself (eg. PVC)
Servo	The name of a supply- and motor connection cable
Zero potential	High quality stranding technique for cabled conductor without mechanical back twist. Especially important for high-flexible cables for the use in cable tracks
StC	Double shielded (Static shiel/foil+braid)
Star quad	Four conductors are cabled around a common axis
Control pair	Twisted conductor pairs for signal transmission in motor cables
Interfering signal	Cable- or fieldbound interferences
Radiation resistance	Resistance agaist radiation
Talcum	Talcum is used in powder as a release agent between the jacket and the conductor cable core. This allows the jacket to be removed easier later on
Temperature range	The recommended temperature range for the use of a cable
Thermoplastics	Thermoplastics can be transferred in a plastic state by heat supply
TI	Classification of characteristics of PVC Insulation material according to EN 50363
TM	Classification of characteristics of PVC jacket material according to EN 50363
Torsion	Here: The rotation of a cable around the logitudinal axis Specification for cable in °/m
TP	Twisted pair
TPE	Thermoplastic elastomere – High-quality material with good mechanical stress characteristics. Divided into various subgroups
U0/U	Rated volatge/Operating voltage
UL	Underwriters Laboratories
V	Volt
VDE	Association of Electrical, Electronic and Information Technologies
Rotproof	Increased resistance to rotting
Fleece wrap	A fleece wrapped around the conductors to protect the conductors and for better gliding characteristics.
VW-1	Flam test of UL (Vertical Wire Flame Test)
Wall thickness	The thickness of the jacket
Bend strength	The ability of a material not to break during permanent bending
Tear-resistant	The ability of a material to resists further cracking after a tear occurred
Characteristic impedance	Complex input resistance of infinite cable.
x	Ground conductor is not existing (like OZ, OB)
XLPE	Cross-linked polyethylene = XLPE
Tensile strenght	The maximum tension (pulling)
Tension	Tension which is built up in the direction of the external load in the interior of an object
Sub jacket	Between conductor and shield introduced separation layer to protect the wires
Ω	Ohm

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 € 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 € per 100 kg.

- 150.00 €/100 kg for the most popular wires
- 100.00 €/100 kg for telephone cables and wires
- 0.00 €/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 € 198.89.

Additional purchasing costs of 1,0 % 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

$$\text{Copper number (kg/100 m)} \times \frac{(\text{DEL} + 1,0 \% \text{ purchasing costs}) - \text{copper basis}}{100} = \text{copper surcharge in €/100 m}$$

Example calculation: Silflex N 3 G 1.5 mm²
DEL: 198.89 €/kg
Cu-Basis: 150.00 €/kg
Cu-Index: 4.32 kg/100 m

$$4.32 \text{ kg/100 m} \times \frac{(198.89 + 1,99) - 150.00}{100} = 2.20 \text{ €/100 m}$$

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

$$\begin{array}{r} \text{Gross price} \\ - \text{Rebate (\%)} \\ \pm \text{Copper surcharge} \\ \hline = \text{Net price including copper} \end{array}$$

The copper surcharge is shown separately on our invoice.

Certificates





CERTIFICATE

This is to certify that

Friedrich Lütze GmbH
Bruckwiesenstrasse 17-19
71384 Weinstadt

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System**.

Scope:
Development, production and distribution of electrical and electronic components and solutions for the automation technology

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	001737 QM08	
Date of certification	2013-07-05	
Valid until	2016-07-04	

DQS GmbH
G. Blechschmidt
Götz Blechschmidt
Managing Director



Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main





CERTIFICATE

This is to certify that

Friedrich Lütze GmbH
Bruckwiesenstrasse 17-19
71384 Weinstadt

has implemented and maintains an **Environmental Management System**.

Scope:
Development, production and distribution of electrical and electronic components and solutions for the automation technology

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 14001 : 2004 + Cor 1 : 2009

Certificate registration no.	001737 UM	
Date of certification	2013-08-03	
Valid until	2016-08-02	

DQS GmbH
G. Blechschmidt
Götz Blechschmidt
Managing Director



Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main




C E R T I F I C A T E

awarded to

Friedrich Lütze GmbH
Bruckwiesenstrasse 17-19
71384 Weinstadt
Germany

DQS GmbH

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 02, May 2009

for the activity of Design and development & Manufacturing
for the scopes of certification 9 (On board vehicle control)
Electrical and electronic components and solutions for the automation technology

Certificate valid from: 21/05/2013 Certificate valid until: 20/05/2016 *

G. Blechschmidt

Current date: 08/07/2013
Certificate-Register-No.: 001737 IRIS

* Providing that the subsequent surveillance audits are successful before the anniversary of this validity date.
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100074	45	108631	58	108766	60	109815	48	110941	32	111462	26
100075	45	108632	58	108771	60	109816	48	110991	49	111463	26
100076	45	108633	58	108773	60	109818	48	110992	49	111464	26
100077	45	108634	58	108774	60	109819	48	111016	49	111465	26
100096	45	108636	58	108775	60	109821	48	111102	49	111466	26
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