

Cable Solutions

LÜTZE Cable Solutions

Network and Bus cables

Motor, Servo and Feedback cables

Control cables

Electronic cables

Accessories

LÜTZE SYSTEMATIC TECHNOLOGY

Efficiency in Automation

Cable • Connectivity • Cabinet • Control



Cable Solutions

Connectivity Solutions

Cabinet Solutions

Control Solutions

Transportation Solutions



Welcome to LÜTZE

LÜTZE - Efficiency in Automation

A tradition in automation for over 60 years, with countless pioneering achievements and patents, the LÜTZE International 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, single cable solutions, motor, servo and feedback cables, and also control cables and electronic cables.

Our industrial cables are specifically designed for continuous flexing applications in C-tracks and suited for automated production as they are very durable and can withstand harsh industrial environments.

LÜTZE SUPERFLEX® connected

LÜTZE SYSTEMATIC TECHNOLOGY

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Chapter 1: Network and Bus cables



Network and Bus cables

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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	300 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: plastic-laminated aluminum foil, 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 ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
104450	S*	(1×2×AWG26/7) stranded pairs layer pitch optimised white, blue	4.7	2.5	1.5

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

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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

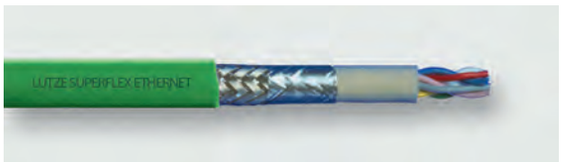
Construction
- Conductor: CU-wire bare, AWG conductor
- Conductor insulation: Special Polyolefin
- Overall stranding: stranding with cross element
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: green 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. 6_A, CU-wire bare						
104401	**S***	(4×2×AWG24/7)StC AWM 21198 cURus Cat.6_A 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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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 ∅ 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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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 moving 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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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 moving 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

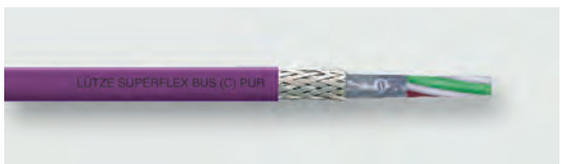
Construction
- Conductor: AWG conductor, CU-wire tin-plated
- Conductor insulation: Special Polyolefin
- Stranding: conductors stranded in pairs
- Overall shield: aluminium-laminated film shield, Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PVC
- Jacket color: green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

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

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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 flexing 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

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

Part-No.		Number of strands/cross-section/strand colors	Outer ∅ 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

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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 ∅ 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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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 ∅ 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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LÜTZE SUPERFLEX® DeviceNet™ (C) PUR
For highest requirements



Application
- For the wiring of industrial devices, sensors, control devices (SPS), valves
- DeviceNet™ is the leading BUS system for industry automation in the USA
- For continuous 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
- RoHS compliant

Technical data

Rated voltage	300 V
Test voltage	AC 1500 V
Impedance	nom. 120 Ω
Operating capacitance wire-wire	approx. 40 pF/m
Temperature range moving	-20 °C … +75 °C
Temperature range fixed	-40 °C … +75 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	5×D
Burning behavior according to	IEC 60332-1-2 DIN EN 60332-1-2 UL 1581 Part VW-1 Flame Test UL FT1
Conformity	CE RoHS REACH
Approvals	cULus CMX

Construction
- Conductor: CU-wire tin-plated
- Conductor insulation: foamed polyolefin
- Overall stranding: elements stranded together
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 80%BUS element statically shielded
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: violet RAL 4001

Part-No.		Number of strands/cross-section/strand colors	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
DeviceNet™ Thick UL/CMX					
104198	**R***	((2×AWG18)+(2×AWG16)) white, blue red, black	12.2	19.5	9.4
DeviceNet™ Thin UL/CMX					
104289	**S***	((2×AWG24)+(2×AWG22)) white, blue red, black	7.0	6.2	3.6

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

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R Available on request

LÜTZE SUPERFLEX® CAN-BUS (C) PUR
For highest requirements



Application
- For wiring of industrial field bus systems like CAN-BUS
- 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 850 V
Impedance	nom. 120 Ω
Operating capacitance wire-wire	approx. 40 pF/m
Temperature range moving	-30 °C … +70 °C
Temperature range fixed	-40 °C … +75 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	7.5×D
Burning behavior according to	DIN EN 60332-1-2 IEC 60332-1-2 UL VW-1
Oil resistant according to	IEC 60811-404 4 days at 100 °C
Halogen free according to	DIN EN 60754-1 IEC 60754-1
Conformity	CE RoHS
Approvals	CMX cULus

Construction
- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Overall stranding: stranded pairs
- Overall wrapping: Fleece taping
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: PUR
- Jacket color: violet RAL 4001

Part-No.		Number of strands/cross-section/strand colors	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS UL/CMX, 40 m max.					
104001	**S***	(2×2×AWG24/19) white, brown, green , yellow	8.4	7.2	3.3
104101	**S***	(1×2×AWG24/19) white, brown	6.5	4.4	2.4

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

LÜTZE ELECTRONIC CAN-BUS (C) PVC



Application
- For wiring of industrial field bus systems like CAN-BUS
- For fixed wiring or 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 24: ≤ 175.2 mΩ/m AWG 22: ≤ 110.8 mΩ/m
Impedance	nom. 120 Ω
Operating capacitance wire-wire	approx. 40 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	8×D
Burning behavior according to	IEC 60332-1 DIN EN 60332-1-2 VDE 0482 322-1-2 UL VW-1
Conformity	CE RoHS
Approvals	cULus CMX

Construction
- Conductor: AWG conductor, CU-wire bare
- Conductor insulation: Special Polyolefin
- Overall stranding: stranded pairs
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Jacket material: Special PVC
- Surface: adhesion-free, matt
- Jacket color: violet RAL 4001

Part-No.		Number of strands/cross-section/strand colors	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
CAN-BUS UL/CMX, 40 m max.					
104386	**S***	(1×2×AWG24/7) white, brown	5.8	4.0	1.7
104387	**S***	(2×2×AWG24/7) white, brown, green , yellow	7.5	6.0	3.5

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

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

Notes

Chapter 2: Motor, Servo and Feedback cables



Motor, Servo and Feedback cables

	Jacket	Shielding	Approval	Application	Page
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET	PUR	•	CE, UL	One-Cable Solution for Siemens system S210 C-track compatible	25
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO ETHERNET	PUR	•	CE, UL	One-Cable Solution for Bosch-Rexroth system MS2N C-track compatible	26
LÜTZE SUPERFLEX® PLUS M (C) PUR HYBRID SERVO 0,6/1 kV	PUR	•	CE, UL	One-Cable Solution with Hiperface DSL® interface C-track compatible	27
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0,6/1kV	PUR	•	CE, UL	For Siemens and other systems C-track compatible	28
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0,6/1 kV	PUR	•	CE, UL	For Bosch-Rexroth and other systems C-track compatible	29
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0,6/1kV	PUR	•	CE, UL	For Lenze, SEW and other systems C-track compatible	30
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK	PUR	•	CE, UL	For Siemens and other systems C-track compatible	31
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK	PUR	•	CE, UL	For Siemens Drive Cliq and other systems C-track compatible	32
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK	PUR	•	CE, UL	Für Bosch-Rexroth and other systems C-track compatible	33
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK	PUR	•	CE, UL	For Allen Bradley and other systems C-track compatible	34
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK	PUR	•	CE, UL	For Heidenhain, Fanuc, NUM, B+R and other systems C-track compatible	35
LÜTZE SUPERFLEX® PLUS PUR 0,6/1kV	PUR		CE, UL	Single-conductor energy supply cable C-track compatible	36
LÜTZE SUPERFLEX® PLUS (C) PUR 0,6/1kV	PUR	•	CE, UL	Single-conductor Energy supply cable C-track compatible	37
LÜTZE SUPERFLEX® PLUS M PUR 0,6/1kV	PUR		CE, UL	Multiple-conductor Energy supply cable C-track compatible	38
LÜTZE SILFLEX® M (C) PVC SERVO 0,6/1kV	PVC	•	CE, UL	For Siemens and other systems For flexible applications	39
LÜTZE SILFLEX® (C) PVC FEEDBACK	PVC	•	CE, UL	For Siemens Drive Cliq 6FX5008 Standard, For flexible applications	40

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
- Thanks to optimized cable construction designed for continuous flexing applications in C-tracks
- Very good resitance 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 flexing 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 verzinnt, 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 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	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

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

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 flexing 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

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

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 ∅ 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

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A Available with a lead time
R Available on request

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



halogen free flame retardant · Low Capacitance · LÜTZE SUPERFLEX connected · DESINA · c UL us · CE · RoHS

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 resitance 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	11.6	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

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

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	≥ 0.0 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 60332-1-2 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, × = 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 ∅ 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+2×(2×0.34))		11.2	17.7	9.5
111270	**S***	(4G1.0+2×(2×0.75))	INK 0653	12.5	23.2	13.8
111271	**S***	(4G1.5+2×(2×0.75))	INK 0650	12.9	25.5	16.2
111279	**S***	(4G2.5+2×(2×1.0))	INK 0602	14.2	33.0	22.6
111388	**S***	(4G4+(2×1.0)+(2×1.5))	INK 0603	16.3	38.0	32.9
111998	**S***	(4G6+(2×1.0)+(2×1.5))	INK 0604	18.4	53.0	38.5
111762	**S***	(4G10+(2×1.0)+(2×1.5))	INK 0605	22.3	76.5	57.0
111276	**S***	(4G16+2×(2×1.5))	INK 0606	26.8	106.4	89.1
111277	**R***	(4G25+2×(2×1.5))	INK 0607	29.3	171.4	126.0
111278	**R***	(4G35+2×(2×1.5))	INK 0667	32.5	217.6	164.0

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

Servo cables • C-track compatible • shielded

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

for Lenze and other systems, for highest requirements

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))	cURus, AWM Style 21223	9,6	13,4	8,0
111536 **S***	(4G1,5+(2x0,5))	cURus, AWM Style 21223	11,0	19,2	10,6
111997 **S***	(4G2,5+(2x0,5))	cURus, AWM Style 21223	12,8	27,1	15,3
111763 **R***	(4G4+(2x1,0))	cURus, AWM Style 21223	14,8	37,3	23,5
111764 **R***	(4G6+(2x1,0))	cURus, AWM Style 21223	16,9	47,7	31,6
111765 **R***	(4G10+(2x1,0))	cURus, 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, UL FT1 VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1

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

for SEW and other systems, for highest requirements

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 elemets (digit print 1,2,3)					
111560 **R***	(4G1,5+(3x1,0))	cURus, AWM Style 21223	11,8	24,4	13,9
111561 **R***	(4G2,5+(3x1,0))	cURus, AWM Style 21223	13,7	30,6	18,3
111562 **R***	(4G4+(3x1,0))	cURus, AWM Style 21223	14,7	39,6	25,6
111563 **R***	(4G6+(3x1,5))	cURus, AWM Style 21223	17,0	52,9	34,4
111564 **R***	(4G+10(3x1,5))	cURus, 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, UL FT1, VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1

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-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 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: Color 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 ∅ 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

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* SIEMENS and DRIVE-CLiQ are registered trademarks

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

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 resitance 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 ∅ 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

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R Available on request

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 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 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: Color 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 ∅ 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	S*	(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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* Indramat article designations are registered trademarks

* **S** Article from stock
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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 resitance 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 ∅ 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

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

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R Available on request

Feedback cables • C-track compatible • shielded

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK

for Heidenhain and other systems, for highest requirements

Part-No.	Number of strands/cross-section/strand color	UL approval	Outer diameter mm	Weight kg/100 m	Cu-Index kg/100 m
For Heidenhein 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	cURus, 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	cURus, 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, UL FT1, VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1

LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK

for various systems, for highest requirements

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	cURus, AWM Style 20233	7,8	9,3	6,3
Für NUM system					
111416 **R***	4x(2xAWG22) black, white, black, green, black, blue, black, red	cURus, AWM Style 20233	10,3	14,9	6,6
For B+R system					
111437 **S***	(3x2xAWG24/19) white,brown,green,yellow,grey,pink	cURus, AWM Style 20233	6,6	6,9	2,7

Construction

Conductor:	CU-wire tin-plated
Conductor insulation:	Speciall 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, UL FT1, VDE 0482 332-1-2, UL 1581 Teil 1080 VW-1

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

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

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	≥ 500 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	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 ∅ 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	R*	4G50	36.5	265.1	200.1

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

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	≥ 500 MΩ×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

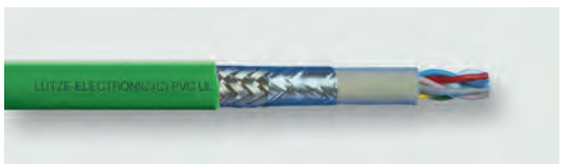
Construction
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 5, Finely stranded DIN VDE 0295, Class 5
- Conductor insulation: TPM/PP
- Conductor marking: black, with white print, U/L1/C/L+, V/L2, W/L3/D/L-, green/yellow
- Ground conductor: G = with green/yellow ground conductor, × = 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 ∅ 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

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

LÜTZE SILFLEX® (C) PVC FEEDBACK
Feedback cable for Siemens DRIVE-CLIQ 6FX5008 standard system



Application
- Digital feedback cable compatible with Siemens DRIVE-CLIQ standard stystem
- 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: plastic-laminated aluminum foil, 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 ∅ 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

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU
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Chapter 3: Control cables



Control cables

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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 harsh 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	≥ 1000 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	4×D
Radiation resistance	5×10^8 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 ∅ 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

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

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 harsh 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	≥ 1000 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
Radiation resistance	5×10^8 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, × = 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 ∅ 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

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

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 harsh 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	≥ 1000 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	4×D
Radiation resistance	5×10^8 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

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

Part-No.		Number of conductors/cross-section	Outer ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
0.5 mm²					
113431	**S***	2×0.5	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***	2×0.75	5.2	3.7	1.5
113445	**S***	3G0.75	5.5	4.4	2.2
113439	**S***	3×0.75	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***	2×1.0	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

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

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



halogen free flame retardant · Low Capacitance · RoHS · LÜTZE SUPERFLEX connected · c UL us · CE

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 harsh 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	≥ 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	6×D
Radiation resistance	5×10^8 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, × = 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 ∅ 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

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

LÜTZE SUPERFLEX® 2000 PVC
For medium to high requirements



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	≥ 1000 MΩ×km
Temperature range moving	-15 °C … +80 °C
Temperature range fixed	-30 °C … +80 °C
Minimum bending radius moving	7.5×D
Minimum bending radius fixed	4×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 ∅ 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

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

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



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	≥ 1000 MΩ×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 ∅ 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

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

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
- UL recognized 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
Note	Auch ohne UL Zulassung erhältlich. Lieferzeit auf Anfrage.

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

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

Part-No.		Number of conductors/ cross-section	Outer ∅ 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

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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
- UL recognized 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	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 ∅ 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

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

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A Available with a lead time
R Available on request

LÜTZE SILFLEX® N PUR



halogen free · Low Capacitance · CE · RoHS

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 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	≥ 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 ∅ 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	R*	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

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PUR control cables · shielded

LÜTZE SILFLEX® N (C) PUR



halogen free · Low Capacitance · CE · RoHS

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	≥ 100 MΩ×km
Temperature range moving	-25 °C … +80 °C
Temperature range fixed	-40 °C … +80 °C
Minimum bending radius moving	15×D
Minimum bending radius fixed	6×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 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 ∅ 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 m²					
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

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

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

Chapter 4: Electronic cables



Electronic cables

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



halogen free flame retardant · Low Capacitance · RoHS · LÜTZE SUPERFLEX® connected · c UL us · CE

Application
- C-track 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 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	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	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: Color 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

Part-No.		Number of conductors/cross-section	Outer ∅ 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	4.2	2.1	0.8
117041	S*	4×0.25	4.4	2.5	1.0
117042	S*	5×0.25	4.8	2.9	1.3
117043	S*	7×0.25	5.6	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	8.9	10.8	6.3
0.34 mm²					
117048	S*	2×0.34	4.1	2.1	0.7
117049	S*	3×0.34	4.5	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	6.9	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	9.6	13.2	8.4

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

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

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



Application
- C-track 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: Color 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 ∅ mm	Weight kg/100 m	Cu-Index kg/100 m
0.14 mm²					
117090	R*	(2×0.14)	4.2	2.0	1.0
117091	R*	(3×0.14)	4.2	2.3	1.2
117092	S*	(4×0.14)	4.7	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)	6.3	4.8	2.8
117096	S*	(12×0.14)	6.3	5.3	3.1
117097	S*	(18×0.14)	7.3	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)	5.3	3.7	2.3
117103	S*	(7×0.25)	6.1	4.8	3.0
117104	S*	(10×0.25)	6.9	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)	9.5	13.2	9.5
0.34 mm²					
117108	S*	(2×0.34)	4.7	2.6	1.5
117109	S*	(3×0.34)	4.7	2.1	1.9
117110	S*	(4×0.34)	5.3	3.7	2.3
117111	S*	(5×0.34)	5.6	4.3	2.8
117112	S*	(7×0.34)	6.5	5.7	3.7
117113	S*	(10×0.34)	7.3	7.2	5.0
117114	S*	(12×0.34)	7.5	8.0	5.6
117115	S*	(18×0.34)	8.6	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

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

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



halogen free flame retardant · Low Capacitance · RoHS · LÜTZE SUPERFLEX® connected · c UL us · CE

Application
- C-track 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

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 UL Horizontal Flame Test UL FT2
Halogen free according to	IEC 60754-1 DIN EN 60754-1
Conformity	CE RoHS
Approvals	cURus
Note	UL AWM Style 20233 or UL AWM Style 20549

Construction
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6, Superfinely stranded DIN VDE 0295, class 6
- Conductor insulation: Special TPE
- Conductor marking: Color 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 ∅ 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)	8.3	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)	11.5	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

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

LÜTZE SUPERFLEX® TRONIC AS PUR, unshielded
For highest requirements



Application
- Connecting cable for the actuator-sensor technology
- For continuous flexing 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 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	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: Color 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

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

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



Application
- Connecting cable for the actuator-sensor technology
- For continuous flexing 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: Color 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 ∅ 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×,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

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

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: Color 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

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* **S** Article from stock
A Available with a lead time
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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: Color 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 ∅ 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

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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: Color 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 ∅ 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 × 0.25∅					
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

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Chapter 5: Accessories



Accessories

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Feed-through system for cables LÜTZE CABLEFIX® VARIO and LÜTZE CABLEFIX® flanges	Feed-through system for pre-fabricated cables	65 - 67
Cable entry system LÜTZE CABLEFIX® ONE and LÜTZE CABLEFIX® X	Feed-through systems for standard and pre-fabricated cables	68, 69
Plastic fittings TOP-T-P and TOP-TR-P	Cable gland with secure strain relief, and higher tightness	70 - 72
Plastic fittings accessories, locknuts, reducing rings and blank plugs	Accessories for use with plastic fittings	73 - 76
Metal fittings, TOP-T, TOP-TR, TOP-T-S-EMV1 und TOP-T-S-EMV2	Cable gland with secure strain relief, and higher tightness Option for shield termination	77 - 80
Metal fittings accessories, locknuts, reducing rings, expansions and blank plugs	Accessories for use with metal fittings	81 - 85
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Mounting accessories, sockets, cable ties, identification plates and marker strips	Easy to use	87 - 91

LÜTZE CABLEFIX® Vario
Feed-through for all prefabricated cables and wires with connectors



Technical data

Protection class	IP65
Temperature range	-40 °C … +135 °C

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

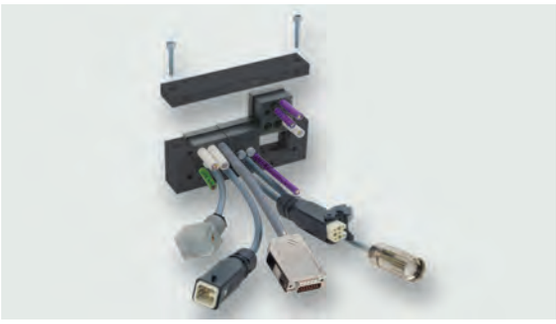
Properties
- Feed through and terminal frames from high-quality solid material
- High flexibility in the application
- Additional mounting to existing installation easily possible
- Even pressure effect on the feed through round material yields good strain relief and sealing
- Unneeded holes in the module can simply 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***	VARIO KKLR1 SW	136.0 × 71.0 × 30.0	PA 66 GF 50	4	2	Yes	1	HAN 16 B socket housing
606053	**S***	VARIO KKLR2 SW	164.0 × 71.0 × 30.0	PA 66 GF 50	6	3	Yes	1	HAN 24 B socket housing
Aluminium smooth-ground, also available as anodised									
606038	**A***	VARIO AKLR0	68.0 × 68.0 × 30.0	Aluminum	2	1	Yes	1	Drilling diameter 6.5 mm Hole dimensions 30×55
606001	**A***	VARIO AKLR1	108.0 × 68.0 × 30.0	Aluminum	4	2	Yes	1	
606002	**A***	VARIO AKLR2	148.0 × 68.0 × 30.0	Aluminum	6	3	Yes	1	
606003	**A***	VARIO AKLR3	148.0 × 88.0 × 30.0	Aluminum	9	3+3	Yes	1	
606004	**A***	VARIO AKLR4	148.0 × 108.0 × 30.0	Aluminum	12	6	Yes	1	
606005	**A***	VARIO AKLR5	188.0 × 78.0 × 30.0	Aluminum	8	4	Yes	1	
606006	**A***	VARIO AKLR6	188.0 × 98.0 × 30.0	Aluminum	12	4+4	Yes	1	
606007	**A***	VARIO AKLR7	188.0 × 118.0 × 30.0	Aluminum	16	8	Yes	1	
606040	**A***	VARIO AKLW2	148.0 × 68.0 × 30.0	Aluminum	6	3	Yes	1	HAN 24 B socket housing

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

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LÜTZE CABLEFIX® Vario
Feed-through for all prefabricated cables and wires with connectors



Technical data

Protection class	IP65
Temperature range	-40 °C … +125 °C

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

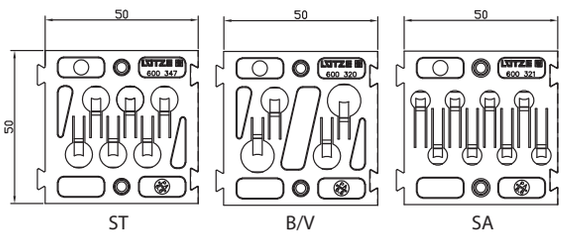
Properties
- High flexibility in the application
- Additional mounting to existing installation easily possible
- Even pressure effect on the feed through round material yields good strain relief and sealing
- Unneeded holes in the module can simply with blank plugs
- Compact design i.e. space-saving
- 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*	VARIO VK0	0.0 – 0.0	0		40	20.0		1
606151	S*	VARIO VK4	4.0 – 4.5	14		40	20.0		1
606152	S*	VARIO VK5	4.5 – 5.5	8		40	20.0		1
606153	S*	VARIO VK6	5.5 – 6.5	8		40	20.0		1
606154	S*	VARIO VK7	6.5 – 7.5	5		40	20.0		1
606155	S*	VARIO VK8	7.5 – 8.5	5		40	20.0		1
606156	S*	VARIO VK9	8.5 – 9.5	3		40	20.0		1
606157	S*	VARIO VK10	9.5 – 10.5	3		40	20.0		1
606158	S*	VARIO VK12	10.5 – 12.5	2		40	20.0		1
606159	S*	VARIO VK14	12.5 – 14.5	2		40	20.0		1
606160	S*	VARIO VK16	14.5 – 16.5	2		40	20.0		1
606200	S*	VARIO VG0	0.0 – 0.0	0		40	40.0		1
606201	S*	VARIO VG18	16.5 – 18.5	2		40	40.0		1
606202	A*	VARIO VG20	18.5 – 20.5	1		40	40.0		1
606203	S*	VARIO VG22	20.5 – 22.5	1		40	40.0		1
606204	A*	VARIO VG24	22.5 – 24.5	1		40	40.0		1
606205	A*	VARIO VG26	24.5 – 26.5	1		40	40.0		1
606206	S*	VARIO VG28	26.5 – 28.5	1		40	40.0		1
606207	S*	VARIO VG30	28.5 – 30.5	1		40	40.0		1
606208	S*	VARIO VG32	30.5 – 32.5	1		40	40.0		1
606209	S*	VARIO VG34	32.5 – 34.5	1		40	40.0		1
Matching blank plug, PA6 GF15									
606250	S*	VARIO BL4			4	30		606151	1
606251	S*	VARIO BL5			5	30		606152	1
606252	S*	VARIO BL6			6	30		606153	1
606253	S*	VARIO BL7			7	30		606154	1
606254	S*	VARIO BL8			8	30		606155	1
606255	S*	VARIO BL9			9	30		606156	1
606256	S*	VARIO BL10			10	30		606157	1
606257	S*	VARIO BL12			12	30		606158	1
606258	S*	VARIO BL14			14	30		606159	1
606259	S*	VARIO BL16			16	30		606160	1
606260	S*	VARIO BL18			18	30		606201	1

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

LÜTZE CABLEFIX® flanges





Application
LÜTZE CABLEFIX® flanges are used to introduce cables and wires into a housing. They are used in light to medium-weight machine and plant construction.

Properties
- With the dovetail guide, the LÜTZE 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

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
LÜTZE CABLEFIX® Control cable flange (ST)										
600347	**S***	Flansch 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
LÜTZE CABLEFIX® Bus flange (B/V)										
600320	**S***	Flansch 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
LÜTZE CABLEFIX® Sensor/Actuator flange (S/A)										
600321	**S***	Flansch 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.

LÜTZE CABLEFIX® ONE
Cable Entry System for cables



Application
- Cable entry system for cables with or without pre-installed connectors

Properties
- Kit includes frame, hardware and seal inserts to cover the entire clamping range specified for each entry point
- Simplified ordering process using a single part number for each kit
- Seal inserts have a layered design with defined clamping ranges accomodating a wide range of cable diameters
- Unused seals are closed by default, eliminating the need for blanking plugs
- Protects up to UL Type 4X, 12, 13 and IP 65
- Strong strain relief per DIN EN 62444
- Compact design provides space savings compared to using individual cable glands
- Acc. to UL 50E and 508A

Type 12/13 Type 4X RoHS c UL us

Technical data

Protection class	IP65
Temperature range	-40 °C … +80 °C
Burning behavior according to	UL 94 HB
Oil resistant according to	UL/NEMA Typ 13
Material sealing element	CR
Clamping range S1	3.5 – 5.5 mm 5.5 – 7.5 mm 7.5 – 9.5 mm
Clamping range S2	9.5 – 11.5 mm 11.5 – 13.5 mm 13.5 – 15.5 mm
Clamping range L1	15.5 – 17.5 mm 17.5 – 19.5 mm 19.5 – 21.5 mm
Clamping range L2	21.5 – 23.5 mm 23.5 – 25.5 mm 25.5 – 27.5 mm 27.5 – 29.5 mm

Construction
- Material: PA 6 glass fiber reinforced
- Color: black

Part-No.		Type	Number of cables × cable diameter	Dimensions (w × h × d) mm	Cut-out (B×H)	Approvals	PU piece
LÜTZE CABLEFIX® ONE							
606500	**S***	Entry System ONE 4	2 × 3.5 – 15.5 mm + 2 × 15.5 – 29.5 mm	156.5 × 75.5 × 27.5	112 × 46 mm	UL Type 4X UL CCN NITW2 NITW8	1
606501	**S***	Entry System ONE 7	6 × 3.5 – 15.5 mm + 1 × 15.5 – 29.5 mm	156.5 × 75.5 × 27.5	112 × 46 mm	UL Type 4X UL CCN NITW2 NITW8	1
606502	**S***	Entry System ONE 10	10 × 3.5 – 15.5 mm	156.5 × 75.5 × 27.5	112 × 46 mm	UL Type 4X UL CCN NITW2 NITW8	1

UL approval and sealing according to UL, in progress. Available in the 2nd half of the year.

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

LÜTZE CABLEFIX® X
Cable Entry System for cables



Type 12/13 Type 4X RoHS c UL us

Technical data

Protection class	IP65
Temperature range	-40 °C … +80 °C
Burning behavior according to	UL 94 HB
Oil resistant according to	UL/NEMA Typ 13

Application
- Feed-through system for unassembled cables

Properties
- Simple and quick to install: cables are inserted by pushing the end through the seal from the front. Snap-in design for enclosures with a 1.5 mm wall thickness. Provides up to 80 % time savings compared to using individual cable glands.
- Integrated seal protects up to UL Type 4X, 12, 13 and IP65
- Compact design with improved cable density: up to 50% space savings compared to individual cable glands
- Wide clamping ranges allow for use with cables with various outer diameters
- Entry points are sealed by default, eliminating the need for blanking plugs.
- Cable entry points open without any tools when inserting the cable from the front.
- Acc. to UL 50E and 508A

Construction
- Material: PA 6 glass fiber reinforced
- Color: black

Part-No.		Type	Number of cables × cable diameter	Dimensions (w × h × d) mm	Cut-out (B×H)	Approvals	PU piece
LÜTZE CABLEFIX® X Snap-In							
606561	**S***	Entry System X 12 Snap-In	12 × 5 – 13 mm	148.0 × 60.0 × 13.5	112 × 36 mm	UL Type 4X (∅ 5 – 13 mm) UL Type 12/13 (∅ 4 – 13 mm) UL CCN NITW2 NITW8	1
606562	**S***	Entry System X 23 Snap-In	23 × 4 – 8.5 mm	148.0 × 60.0 × 13.5	112 × 36 mm	UL Type 12 UL Type 13 UL CCN NITW2 NITW8	1

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Plastic fittings TOP-T-P, metric version

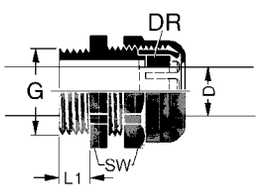


Properties
- **– metric –**
- Cable fitting with hexagon base
- Strain relief and seal

Technical data

Protection class	IP68 Up to 5 bar
Temperature range	-20 °C … +100 °C

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

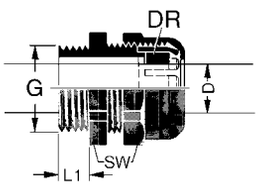


Part-No.		Type	Thread G	Approvals	Clamping range D mm	SW mm	L1 mm	Weight kg/100 units	PU piece
TOP-T-P metric grey RAL 7001									
600790	**S***	TOP-T-P M12×1,5 GR	M 12×1.5	UR	2.0 – 6.5	15	8	0.32	100
600680	**S***	TOP-T-P M16×1,5 GR	M 16×1.5	UR	4.0 – 10.0	20	8	0.57	100
600681	**S***	TOP-T-P M20×1,5 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

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

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
Temperature range	-20 °C … +100 °C

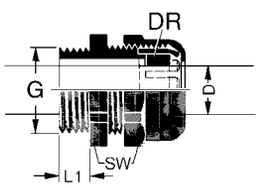
Construction
- Material: PA 6.6-V-2
- Color: grey RAL 7001, black RAL 9005
- Material sealing ring: Neoprene

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	PG 7		3.0 – 6.5	15	8	0.33	100
600661	**S***	TOP-T-P PG9	PG 9		4.0 – 8.0	19	8	0.52	50
600662	**S***	TOP-T-P PG11	PG 11	UR	5.0 – 10.0	22	8	0.87	100
600663	**S***	TOP-T-P PG13,5	PG 13.5	UL	6.0 – 12.0	24	9	0.96	100
600664	**S***	TOP-T-P PG16	PG 16	UL	10.0 – 14.0	27	10	1.37	50
600668	**S***	TOP-T-P PG42	PG 42	UL	30.0 – 38.0	60	13	8.80	5
600669	**A***	TOP-T-P PG48	PG 48	UL	34.0 – 44.0	65	14	9.79	5
TOP-T-P PG black RAL 7005									
600860	**S***	TOP-T-P PG7 SW	PG 7		3.0 – 6.5	15	8	0.33	50
600861	**S***	TOP-T-P PG9 SW	PG 9		4.0 – 8.0	19	8	0.52	50
600862	**S***	TOP-T-P PG11 SW	PG 11	UR	5.0 – 10.0	22	8	0.87	50
600863	**S***	TOP-T-P PG13,5 SW	PG 13.5	UL	6.0 – 12.0	24	9	0.96	50
600864	**S***	TOP-T-P PG16 SW	PG 16	UL	10.0 – 14.0	27	10	1.37	50
600865	**S***	TOP-T-P PG21 SW	PG 21	UL	13.0 – 18.0	33	11	2.04	25
600866	**S***	TOP-T-P PG29 SW	PG 29	UL	18.0 – 25.0	42	11	3.98	25
600867	**S***	TOP-T-P PG36 SW	PG 36	UL	22.0 – 34.0	55	13	6.90	10
600868	**S***	TOP-T-P PG42 SW	PG 42	UL	30.0 – 38.0	60	13	8.80	5
600869	**A***	TOP-T-P PG48 SW	PG 48	UL	34.0 – 44.0	65	14	9.79	5

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

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
Temperature range	-40 °C … +100 °C

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	M 16×1.5	UR	2.0 – 7.0	20	8	0.62	100
600691	**S***	TOP-TR-P M20×1,5 GR	M 20×1.5	UR	4.0 – 10.0	24	9	1.34	100
600692	**A***	TOP-TR-P M25×1,5 GR	M 25×1.5	UR	5.0 – 14.0	28	11	1.63	50
600693	**A***	TOP-TR-P M32×1,5 GR	M 32×1.5	UR	8.0 – 18.0	36	11	2.72	25

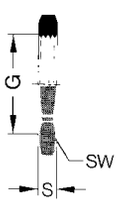
* **S** Article from stock
A Available with a lead time
R Available on request

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

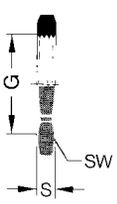
* **S** Article from stock
A Available with a lead time
R Available on request

Plastic accessory locknut GK, PG version



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

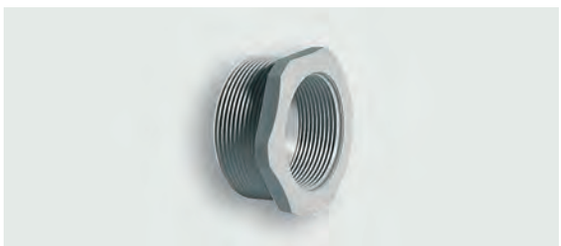
Construction
- Material: PA 6 GF 30
- Color: grey RAL 7001, black RAL 9005

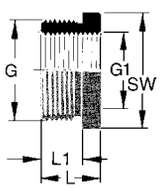


Part-No.		Type	Thread G	SW mm	S mm	Weight kg/100 units	PU piece
GK PG grey RAL 7001							
600430	**S***	GK PG7 GR	PG 7	19	5	0.13	100
600431	**S***	GK PG9 GR	PG 9	22	5	0.14	100
600432	**S***	GK PG11 GR	PG 11	24	5	0.15	100
600433	**S***	GK PG13,5 GR	PG 13.5	27	6	0.24	100
600434	**S***	GK PG16 GR	PG 16	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

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

Plastic accessory reducing ring RR, metric





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

Technical data

Temperature range -30 °C … +100 °C

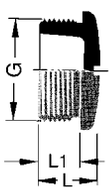
Construction
- Material: PA 6 GF 30
- Color: grey RAL 7035

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	8	0.39	100
600551	**S***	RR PA M20-M16	M 20×1.5	M 16×1.5	24	12	8	0.26	100
600552	**S***	RR PA M25-M12	M 25×1.5	M 12×1.5	29	14	8	0.70	100
600553	**S***	RR PA M25-M16	M 25×1.5	M 16×1.5	29	14	8	0.67	100
600554	**S***	RR PA M25-M20	M 25×1.5	M 20×1.5	29	14	8	0.50	100
600555	**A***	RR PA M32-M12	M 32×1.5	M 12×1.5	36	16	10	1.06	50
600556	**A***	RR PA M32-M16	M 32×1.5	M 16×1.5	36	16	10	1.06	50
600557	**S***	RR PA M32-M20	M 32×1.5	M 20×1.5	36	16	10	1.20	50
600558	**S***	RR PA M32-M25	M 32×1.5	M 25×1.5	36	16	10	0.88	25
600559	**A***	RR PA M40-M16	M 40×1.5	M 16×1.5	46	16	10	1.59	25
600560	**A***	RR PA M40-M20	M 40×1.5	M 20×1.5	46	16	10	1.68	25
600561	**A***	RR PA M40-M25	M 40×1.5	M 25×1.5	46	16	10	1.36	25
600562	**A***	RR PA M40-M32	M 40×1.5	M 32×1.5	46	16	10	1.35	25
600563	**A***	RR PA M50-M20	M 50×1.5	M 20×1.5	55	17	12	2.15	25
600564	**A***	RR PA M50-M25	M 50×1.5	M 25×1.5	55	17	12	2.16	25
600565	**A***	RR PA M50-M32	M 50×1.5	M 32×1.5	55	17	12	2.06	25
600566	**A***	RR PA M50-M40	M 50×1.5	M 40×1.5	55	17	12	1.97	25
600567	**A***	RR PA M63-M25	M 63×1.5	M 25×1.5	68	18	12	2.65	25
600568	**A***	RR PA M63-M32	M 63×1.5	M 32×1.5	68	18	12	2.95	25
600569	**A***	RR PA M63-M40	M 63×1.5	M 40×1.5	68	18	12	3.08	25
600570	**A***	RR PA M63-M50	M 63×1.5	M 50×1.5	68	18	12	3.05	25

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

Plastic accessory Blank plug BL





Properties
- metric with Philips/slot-head combination

Technical data

Temperature range -30 °C … +100 °C

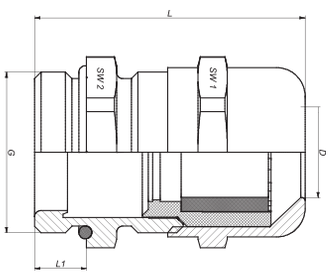
Construction
- Material: PA 6.6
- Color: grey RAL 7035

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

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

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
Temperature range	-30 °C … +100 °C

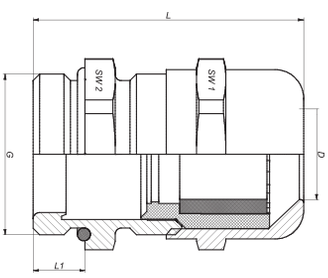
Construction
- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

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

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

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
Temperature range	-30 °C … +100 °C

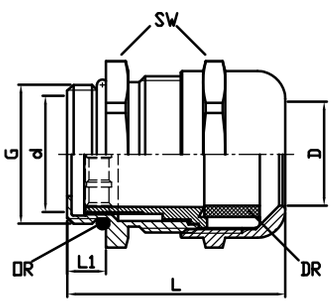
Construction
- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

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	M 12×1.5	2.0 – 5.0	14	14	5	25	1.22	100
600780	**S***	TOP-TR MS M16×1,5	M 16×1.5	3.0 – 8.0	17	17	5.5	27.5	1.50	100
600781	**S***	TOP-TR MS M20×1,5	M 20×1.5	6.0 – 12.0	22	22	6	30	2.73	50
600782	**S***	TOP-TR MS M25×1,5	M 25×1.5	8.0 – 15.0	30	30	7	36	5.80	25
600783	**S***	TOP-TR MS M32×1,5	M 32×1.5	13.0 – 19.0	34	34	8	38	7.40	10
600706	**S***	TOP-TR MS M40×1,5	M 40×1.5	16.0 – 23.0	44	44	8	42	16.72	10
600707	**S***	TOP-TR MS M50×1,5	M 50×1.5	21.0 – 29.0	54	54	9	52	33.80	5
600708	**S***	TOP-TR MS M63×1,5	M 63×1.5	27.0 – 38.0	66	66	10	54	42.50	5

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

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
Temperature range	-20 °C … +100 °C

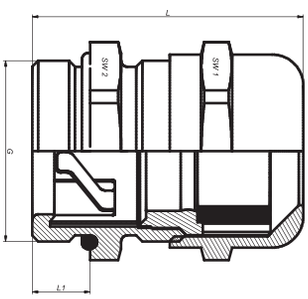
Construction
- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

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	14	5	5.2	1.21	100
600171	**S***	TOP-T-S-EMV1 MS M16	M 16×1.5	5.5 – 10.0	17	5.5	8.2	1.95	100
600172	**S***	TOP-T-S-EMV1 MS M20	M 20×1.5	8.0 – 13.0	22	6	11.5	3.19	50
600173	**S***	TOP-T-S-EMV1 MS M25 SW30	M 25×1.5	11.0 – 18.0	30	7	15.2	5.95	25
600174	**S***	TOP-T-S-EMV1 MS M32	M 32×1.5	15.0 – 21.0	34	8	18	8.76	10
600175	**S***	TOP-T-S-EMV1 MS M40 SW44	M 40×1.5	19.0 – 27.0	44	8	23	20.40	10
600176	**S***	TOP-T-S-EMV1 MS M50	M 50×1.5	26.0 – 35.0	55	9	31	36.20	5
600177	**A***	TOP-T-S-EMV1 MS M63 SW66	M 63×1.5	39.0 – 48.0	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	14	5	5	1.20	100
600521	**S***	TOP-T-S-EMV1 MS PG9	PG 9	5.5 – 10.0	17	6	7.5	1.70	100
600522	**S***	TOP-T-S-EMV1 MS PG11	PG 11	5.5 – 10.0	20	6	9.5	3.37	50
600523	**A***	TOP-T-S-EMV1 MS PG13,5	PG 13.5	8.0 – 13.0	22	6.5	11.5	3.10	50
600524	**A***	TOP-T-S-EMV1 MS PG16	PG 16	8.0 – 14.0	24	6.5	12	3.64	50
600525	**A***	TOP-T-S-EMV1 MS PG21	PG 21	11.0 – 18.0	30	7	17.5	5.76	25
600526	**A***	TOP-T-S-EMV1 MS PG29	PG 29	19.0 – 27.0	40	8	25	12.00	25
600527	**A***	TOP-T-S-EMV1 MS PG36	PG 36	24.0 – 32.0	50	9	31.5	15.10	10
600528	**A***	TOP-T-S-EMV1 MS PG42	PG 42	30.0 – 38.0	57	10	37.5	21.10	5
600529	**A***	TOP-T-S-EMV1 MS PG48	PG 48	34.0 – 44.0	64	10	43.5	30.00	5

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

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
Temperature range	-20 °C … +100 °C

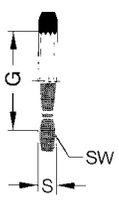
Construction
- Material: Brass nickel-plated
- Material sealing ring: CR
- Material O-ring: NBR

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 M12×1,5	M 12×1.5	3.0 – 6.5	14	14	6	27.5	1.26	50
600371	**S***	TOP-T-S-EMV2 MS M16×1,5	M 16×1.5	4.0 – 8.0	17	18	7	30	1.93	50
600372	**S***	TOP-T-S-EMV2 MS M20×1,5	M 20×1.5	6.0 – 12.0	22	22	8	32.3	2.79	50
600373	**S***	TOP-T-S-EMV2 MS M25×1,5	M 25×1.5	10.0 – 14.0	24	27	8	35.6	4.62	25
600374	**S***	TOP-T-S-EMV2 MS M32×1,5	M 32×1.5	13.0 – 18.0	30	34	9	40.2	8.05	25
600375	**S***	TOP-T-S-EMV2 MS M40×1,5	M 40×1.5	18.0 – 25.0	40	43	9	47.5	15.10	10
600376	**S***	TOP-T-S-EMV2 MS M50×1,5	M 50×1.5	22.0 – 32.0	50	55	9	56.3	28.10	5
600377	**A***	TOP-T-S-EMV2 MS M63×1,5	M 63×1.5	34.0 – 44.0	64	68	14	64.3	45.20	5

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

Metal accessory Locknut GMS





Properties
- Hexagonal nut

Technical data

Temperature range -60 °C … +200 °C

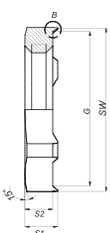
Construction
- Material: Brass nickel-plated

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	100
600361	**S***	GMS M16	M 16×1.5	19	2.8	0.27	100
600362	**S***	GMS M20	M 20×1.5	24	3	0.48	100
600363	**S***	GMS M25	M 25×1.5	30	3.5	0.90	100
600364	**S***	GMS M32	M 32×1.5	36	4	1.08	100
600365	**S***	GMS M40	M 40×1.5	46	5	2.40	50
600366	**S***	GMS M50	M 50×1.5	57	5	3.25	25
600367	**S***	GMS M63	M 60×1.5	70	6	4.62	25
GMS PG							
600420	**S***	GMS PG7	PG 7	15	2.8	0.18	100
600421	**S***	GMS PG9	PG 9	18	2.8	0.23	100
600422	**S***	GMS PG11	PG 11	21	3	0.30	100
600423	**S***	GMS PG13,5	PG 13.5	23	3	0.36	100
600424	**S***	GMS PG16	PG 16	26	3	0.50	100
600425	**S***	GMS PG21	PG 21	32	3.5	0.79	100
600426	**S***	GMS PG29	PG 29	41	4	1.30	50
600427	**S***	GMS PG36	PG 36	51	5	2.10	50
600428	**A***	GMS PG42	PG 42	60	5	3.45	50
600429	**A***	GMS PG48	PG 48	64	5.5	3.39	50

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

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

Technical data

Temperature range -60 °C … +200 °C

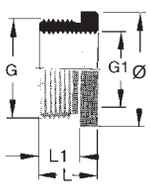
Construction
- Material: Brass nickel-plated

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

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

Metal accessory reducing ring RR





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

Technical data

Temperature range to 200 °C

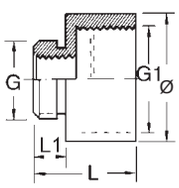
Construction
- Material: Brass nickel-plated

Part-No.		Type	Thread G	Thread G1	Outer ∅ 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	5	0.54	100
600221	**S***	RR MS M20/M12	M 20×1.5	M 12×1.5	24.0	8.5	6	1.59	100
600222	**S***	RR MS M20/M16	M 20×1.5	M 16×1.5	22.0	9	6	0.86	100
600223	**S***	RR MS M25/M16	M 25×1.5	M 16×1.5	30.0	10	7	2.76	50
600224	**S***	RR MS M25/M20	M 25×1.5	M 20×1.5	27.0	10	7	1.45	100
600225	**S***	RR MS M32/M20	M 32×1.5	M 20×1.5	37.0	11.5	8	5.16	50
600226	**S***	RR MS M32/M25	M 32×1.5	M 25×1.5	37.0	11.5	8	3.45	50
600227	**S***	RR MS M40/M25	M 40×1.5	M 25×1.5	43.0	11.5	8	7.44	25
600228	**S***	RR MS M40/M32	M 40×1.5	M 32×1.5	43.0	11.5	8	4.54	25
600229	**A***	RR MS M50/M32	M 50×1.5	M 32×1.5	56.0	14	10	14.58	10
600230	**S***	RR MS M50/M40	M 50×1.5	M 40×1.5	56.0	14	10	9.29	10
600231	**A***	RR MS M63/M40	M 63×1.5	M 40×1.5	66.0	14	10	19.81	10
600232	**S***	RR MS M63/M50	M 63×1.5	M 50×1.5	66.0	14	10	12.35	10
RR PG PG/PG									
600400	**S***	RR MS PG9/PG7	PG 9	PG 7	17.0	8.5	6	0.45	100
600411	**A***	RR MS PG11/PG7	PG 11	PG 7	20.0	8.5	6	1.20	100
600401	**S***	RR MS PG11/PG9	PG 11	PG 9	20.0	8.5	6	0.65	100
600408	**S***	RR MS PG13,5/PG9	PG 13.5	PG 9	22.0	9	6.5	1.01	100
600402	**S***	RR MS PG13,5/PG11	PG 13.5	PG 11	22.0	9	6.5	0.47	100
600409	**S***	RR MS PG16/PG9	PG 16	PG 9	24.0	9.5	6.5	0.85	100
600410	**A***	RR MS PG16/PG11	PG 16	PG 11	24.0	9.5	6.5	1.01	100
600403	**S***	RR MS PG16/PG13,5	PG 16	PG 13.5	24.0	9.5	6.5	0.59	100
600413	**A***	RR MS PG21/PG11	PG 21	PG 11	30.0	10	7	2.90	50
600414	**A***	RR MS PG21/PG13,5	PG 21	PG 13.5	30.0	10	7	1.23	50
600404	**S***	RR MS PG21/PG16	PG 21	PG 16	30.0	10	7	1.95	50
600407	**A***	RR MS PG29/PG16	PG 29	PG 16	39.0	11.5	8	6.42	50
600405	**A***	RR MS PG29/PG21	PG 29	PG 21	39.0	11.5	8	4.34	50
600412	**A***	RR MS PG36/PG21	PG 36	PG 21	50.0	12.5	9	11.40	25
600406	**A***	RR MS PG36/PG29	PG 36	PG 29	50.0	12.5	9	3.42	25
600416	**A***	RR MS PG42/PG36	PG 42	PG 36	57.0	14	10	7.00	10
600417	**A***	RR MS PG48/PG36	PG 48	PG 36	64.0	14	10	12.80	10
600415	**A***	RR MS PG48/PG42	PG 48	PG 42	64.0	14	10	6.40	10

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

Metal accessory expansion EW





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

Technical data

Temperature range to 200 °C

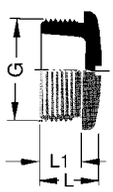
Construction
- Material: Brass nickel-plated

Part-No.		Type	Thread G	Thread G1	Outer ∅ 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	5	0.91	100
600281	**S***	EW MS M16/M20	M 16×1.5	M 20×1.5	22.0	17.5	5	1.29	100
600282	**A***	EW MS M20/M25	M 20×1.5	M 25×1.5	27.0	20	6	1.98	50
600283	**S***	EW MS M25/M32	M 25×1.5	M 32×1.5	34.0	22.5	7	3.22	100
600284	**A***	EW MS M32/M40	M 32×1.5	M 40×1.5	42.0	24.5	8	4.39	50
600285	**A***	EW MS M40/M50	M 40×1.5	M 50×1.5	52.0	27.5	8	6.43	25
600286	**A***	EW MS M50/M63	M 50×1.5	M 63×1.5	66.0	31	9	12.00	10
EW PG PG/PG									
600500	**A***	EW MS PG7/PG9	PG 7	PG 9	17.0	15	5	0.64	100
600501	**A***	EW MS PG9/PG11	PG 9	PG 11	20.0	16.5	6	0.82	100
600502	**S***	EW MS PG9/PG13,5	PG 9	PG 13.5	22.0	17.5	6	1.02	100
600503	**A***	EW MS PG11/PG13,5	PG 11	PG 13.5	22.0	17.5	6	1.15	100
600504	**S***	EW MS PG11/PG16	PG 11	PG 16	24.0	18.5	6	1.32	100
600506	**A***	EW MS PG13,5/PG16	PG 13.5	PG 16	24.0	19	6.5	1.32	100
600507	**A***	EW MS PG13,5/PG21	PG 13.5	PG 21	30.0	21	6.5	2.26	50
600508	**A***	EW MS PG16/PG21	PG 16	PG 21	30.0	21	6.5	2.09	50
600510	**A***	EW MS PG21/PG29	PG 21	PG 29	39.0	23	7	3.63	50
600511	**A***	EW MS PG29/PG36	PG 29	PG 36	50.0	27.5	8	7.30	25
600512	**A***	EW MS PG36/PG42	PG 36	PG 42	57.0	31	9	9.12	10
600513	**A***	EW MS PG42/PG48	PG 42	PG 48	64.0	33	10	14.45	10

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

Metal accessory blank plug BLMS





Properties
- Blank plug, round, metric or PG

Technical data

Temperature range -40 °C … +140 °C

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		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

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

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

Technical data

Temperature range -30 °C … +100 °C

Construction
- Material: TPE

Part-No.		Type	Outer ∅ 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	0.70	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	0.11	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	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	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	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	9.80	100

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

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.

Technical data

Temperature range -20 °C … +60 °C

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

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

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

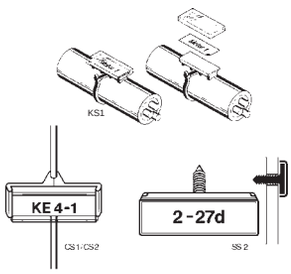
Temperature range -10 °C … +85 °C

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	mould-resistant	PA 6.6	natural	2.5	approx. 22	0.60	1000
680101	**S***	KABELBINDER KSN2 185X4,6	mould-resistant	PA 6.6	natural	4.8	approx. 50	1.40	1000
680102	**S***	KABELBINDER KSN3 380X4,7	mould-resistant	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

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

Identification of hook-up wires and cables





Technical data

Temperature range	-30 °C … +80 °C
Material characteristics	UV-resistant

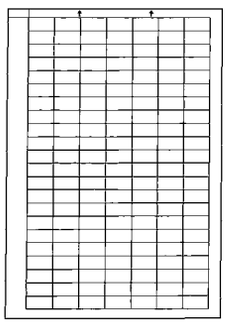
Construction
- Material: PP
- Material covering cap: Polystyrene

Part-No.		Type	Description	Description	Dimensions mm	Weight kg/100 units	PU piece
Clip markers CS 1/CS 2							
680418	**S***	CLIP-SCHILD CS1	clip-on marker CS 1	For labelling of devices and supply cables after the wiring. Termination area 0.75 to 4.0 mm clip-on markers are supplied with labelling sheets. Labelling sheets for laser printer see system for laser printer labelling.	28.0 × 11.0	0.100	500
680419	**S***	CLIP-SCHILD CS2	Clip-on marker CS 1/CS 2	For labelling of devices and supply cables after the wiring. Termination area 0.75 to 4.0 mm clip-on markers are supplied with labelling sheets. Labelling sheets for laser printer see system for laser printer labelling.	39.0 × 15.5	0.300	500
Cable marker KS 1							
681310	**S***	KS 1	Cable marker KS 1	The cable marker **KS 1** is designed for the labelling of cables, wires and conduits, pipes etc. in raw, damp and dusty environments. The label with the information is embedded in the cable marker and thus fully protected. The marker is attached using cable ties. (not included in the scope of delivery, when ordering the cable tie, selected the appropriate size.) Cable markers are supplied with labelling sheets. Labelling sheets for laser printer see system for laser printer labelling.	34.0 × 16.0	0.300	500
Plug-in marker SS 2							
680424	**S***	STECKSCHILD SS2	Plug-in marker SS 2	For the labelling of devices on the mounting panel. Hole 4 mm. Pressing in of the plug-in marker. Securely locked in by plastic lugs. Plug-in markers are supplied with labelling sheets. labelling sheets see system for laser printer labelling.	32.0 × 12.0	0.300	500

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

Labelling system

Laser labels



Application
- For the printing with laser printer
- The high-contrast printing and the high resolution of laser printers set quality standards
- The available border and the appropriate row and column spacing enable the optimal utilisation of the entire labelling field of the labels
- Very high resistance to external influences and very high ageing resistance of the printed image.

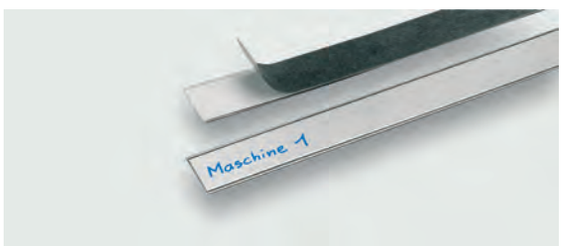
Construction
- Material: Paper
- Color: white

Part-No.		Type	Description	Application	Dimensions mm	Labels per sheet Quantity
Not self-adhesive Laser labels						
681316	**S***	BSL-CS 1 (á 1 Bogen)	Laser labels	Clip markers CS1	20.0 × 8.5	270
681318	**S***	BSL-SS 2 (á 1 Bogen)	Laser labels	Identification plates CS2, SS2 and KS1	29.0 × 12.0	138
Self-adhesive laser labels						
681032	**A***	LEB 0920	Self-adhesive laser labels	Marker holder BZT 0920 MINICOMPACT DIOFACE Suppressors for valves all devices with standardised shield	20.0 × 9.0	270
681033	**A***	LEB 0615	Self-adhesive laser labels	Marker holder BZT 0720 MINICOMPACT-components 12.5 mm Actuator sensor boxes DIOPLEX	15.2 × 6.4	528
681034	**A***	LEB 0415	Self-adhesive laser labels	Marker holder BZT 0411 MICROCOMPACT-components 6.2 mm	15.2 × 4.2	792

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

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	10

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

Notes



Chapter 6: Technical information

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LÜTZE SUPERFLEX® and LÜTZE SUPERFLEX® PLUS

LÜTZE SUPERFLEX® connected

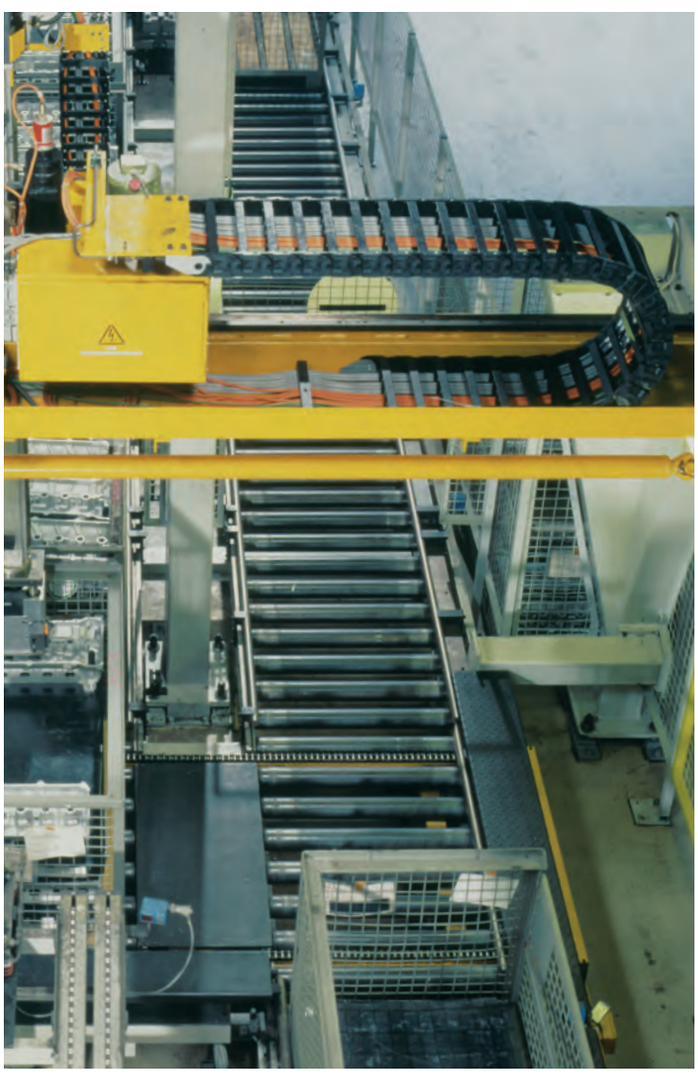
LÜTZE SUPERFLEX® sets Industry standards: longevity, reliability, flexibility

LÜTZE offers a variety of high flexing cables specifically designed for use in continuous motion applications such as drag chains. LÜTZE SUPERFLEX® and LÜTZE SUPERFLEX® Plus cables include high flexing control and motor supply cables, as well as electronic and network cables.
All LÜTZE SUPERFLEX® cables are compatible with all major brand drag chains.

LÜTZE SUPERFLEX® N is designed for moderate to higher performance flexing in short to medium length drag chains.
LÜTZE SUPERFLEX® N is offered with PVC or High Glide Insulation (TPE) insulation and with specially formulated PVC jacket.

LÜTZE SUPERFLEX® Plus PUR is designed for high performance flexing or longer drag chains. LÜTZE SUPERFLEX® Plus PUR contains high grade premium materials such as High Glide TPE insulation and PUR jackets for high performance applications in modern high speed machine tools.

All high flexing cables require special handling and installation techniques which are different from those of standard flexible control cables. To ensure the longest possible life span for your cable, it is important to follow installation procedures precisely.



Find here more informations about LÜTZE SUPERFLEX®:
https://bit.ly/2WNTOxh

LÜTZE SILFLEX®

LÜTZE SILFLEX® - The flexible cable for harsh industrial environments

LÜTZE SILFLEX® is a cable for flexible applications without compulsory guide (not recommended for drag chains) and allows easy installation

LÜTZE SILFLEX® is available as control or power cable configurations. The offering includes besides the Standard PVC type options with UL and VDE approval and also halogen free versions with PUR jacket for harsh industrial environments

LÜTZE SILFLEX® can be used in machine and plant construction, conveyor systems, Industrial HVAC as well as many other industrial applications.

LÜTZE SILFLEX® cables are silicone free and are being used by many automotive plants in various different applications.



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/s²	Cycles mio.
LÜTZE SUPERFLEX® PLUS					
Unshielded cable with	≤ 5	≥ 10 Ø	≤ 3	≤ 5	≥ 20
special TPE or HGI	≤ 20	≥ 7,5 Ø	≤ 5	≤10	≥ 10
insulation, PUR or TPE jacket	≤ 100	≥ 7,5 Ø	≤ 5	≤10	≥ 2
LÜTZE SUPERFLEX® PLUS (C)					
Shielded cable with	≤ 5	≥ 12 Ø	≤ 3	≤ 5	≥ 20
special TPE or HGI	≤ 20	≥ 10 Ø	≤ 5	≤10	≥ 10
insulation, PUR or TPE jacket	≤ 100	≥ 10 Ø	≤ 5	≤10	≥ 2
LÜTZE SUPERFLEX®					
Unshielded cable	≤ 5	≥ 12 Ø	≤ 3	≤ 5	≥ 10
	≤ 15	≥ 10 Ø	≤ 5	≤10	≥ 5
LÜTZE SUPERFLEX® (C)					
Shielded cable	≤ 5	≥ 15 Ø	≤ 3	≤ 5	≥ 10
	≤ 15	≥ 12 Ø	≤ 5	≤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/s²	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

Bend radii for fixed installation

Bend radiuses according to DIN and VDE specifications

The bending radiuses must not fall short of the specified bending radiuses in the tables. A shortened service life is to be anticipated for falling below these. Smallest permitted bending radiuses for high voltage current systems according to DIN VDE 0298 – section 3 to nominal voltage 0.6/1 kV.

Cables for fixed installation according to DIN VDE 0298 – section 3 to rated voltage 0,6/1 kV

Outer diameter of the cable or the strength of the flat cable in mm (D).

Type of installation	Ø to 10 mm	Ø more than 10 to 25 mm	Ø more than 25 mm
for hard wiring	4 x D	4 x D	4 x D
for molding	1 x D	2 x D	3 x D
(Not recommended by LÜTZE)			

Flexible Cables	to 8 mm	more than 8 to 12 mm	more than 12 to 20 mm	more than 20 mm
for hard wiring	3 x D	3 x D	4 x D	4 x D
for free wiring	3 x D	4 x D	5 x D	5 x D
for insertion	3 x D	4 x D	5 x D	5 x D

D = outer diameter of the cable or the strength of the flat cable.

Bend radii according to NFPA 79 specification (USA)

The bend radii must not fall short of the specified bend radii in the tables. For a shortfall a shortened life span is to be expected. Please note the recommended minimum radii of the manufacturer.

Bend radii for the forced guiding of flexible cables according to NFPA 79

Outer diameter of the cable or the size of the flat cable in mm (D).

Flexible cable	Ø up to 8 mm / 0.315 inches	Ø from 8 to 12 mm / 0.315 to 0.787 inches	Ø from 20 mm / 0.787 inches
Cable reel	6 x D	6 x D	8 x D
Guiding reel	6 x D	8 x D	8 x D
“Festoon“ system	6 x D	6 x D	8 x D
all others	6 x D	6 x D	8 x D

Bend radii in the cable tray according to NEC article 300.34 (USA)

The bending radius should not fall short of 8-times the diameter of an unshielded - and the 12-times the diameter of a shielded or lead-covered cable. That must be guaranteed after and during the installation.
The minimum bend radius for multiple-conductor cables or packed single-conductor cables with individual shielded conductor should be either 12-times the diameter of the largest shielded conductor, or 7-times of the overall diameter of the cable.

Note: All information are purely informative and following the mentioned standards. LÜTZE do not assume liability for the given information. Furthermore manufacturer information has to be considered.

Bus and network cables



Bus- and Network cables

Bus-Systems have become a very vital part of factory automation and it's hard to imagine automation without it.
Besides hardware and software components, passive components such as bus cables and connectors play an important role for reliable function of the system. Bus cables must comply with all electrical parameters of the particular system. There is no universally applicable bus cable as the individual requirements are to diverse.
LÜTZE offers robust, industrial grade Bus- and Network cables for the most common used systems worldwide. These cables are being offered for fixed and flexible application as well as continuous moving application in drag chains.

Profibus

Profibus ist he most common Bus-System used in Europe in the area of automated manufacturing.

Profibus DP

This Profibus variant, optimized through increased transmission speed and low installation cost, was especially designed for the communication between automation systems and decentralized peripheral devices in the field range. Profibus-DP substitutes the conventional parallel data communication with 24V or 0-20 mA. Lütze Profibus cables meet the specification for Profibus-DP type A according to EN 50254. Profibus-DP und Profibus FMS use the same transmission technology as well as a unified Bus protocol. Both variants can be operated simultaneously on one cable.

Profibus Fast Connect®

These cables have an optimized radial, symmetrical construction and can facilitate the application of special tools. Thereby, bus connector plugs are able to be assembled in a fast and installation-friendly way.

CAN-Bus

Can-Bus is specified according to ISO 11898. Primarily designed for automotive applications Can-Buses are used today for the exchange of digital information, Controller Area Network (CAN) for faster data transfer/data exchange.

DeviceNet

DeviceNet is a service related Network, based on the proven CAN-Technology for fast data exchange. The configuration consists of thick cable (aka Trunk cable) and thin cable (aka drop cable). The use of high flexing cables in drag chains is likewise possible. DeviceNet has been standardized by Open DeviceNet Vendor Association (ODVA) and is the leading bus system for industrial automation in North America.

Industrial Ethernet

Ethernet ist the most commonly used communication technology. The Ethernet Standard allows for a remarkable increase in the bandwidth, from 12 Mbits/s for a bus system, to up to 10 Gbit/s. In the office world the Ethernet Standard has already established itself as the standard technology, however the requirements for wiring systems and active components in the industrial environment differ greatly from those in an office environment. On one hand the infrastructure must be more robust; and on the other hand criteria such as real time application require special IT solutions. Consequently, this has resulted in the development of various proprietary systems such as ProfiNet, EtherCAT, Modbus TCP and Powerlink with system specific components which may not be compatible with others. A structured Ethernet cabling according to EN 50173-3 should support each proprietary system.
While LÜTZE offers a large number of industrial Ethernet cable solutions we are pleased to have a special innovation with our drag chain suitable Cat6 Ethernet cable.

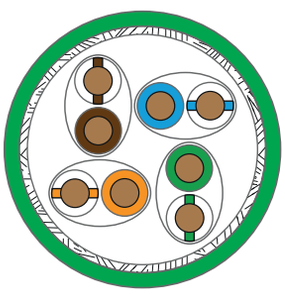
LÜTZE supplies a range of Ethernet cable that are suitable for industrial applications that also includes, as a special innovation, C-track and torsion-compatible Cat. 6_A and 7 cables. The newly developed single pair ETHERNET cable for mobile use will find applications in industrial automation in the future.

ETHERNET – Overview

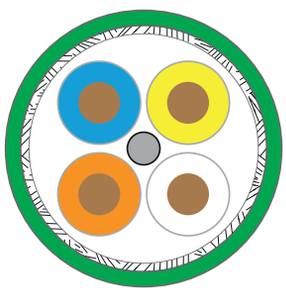
1. LÜTZE ETHERNET Cables

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.

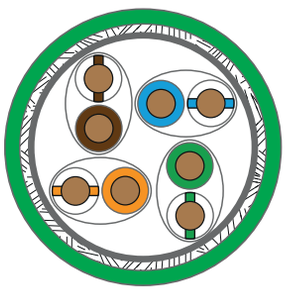
Available LÜTZE ETHERNET Cables:



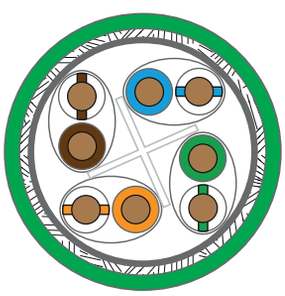
S/UTP



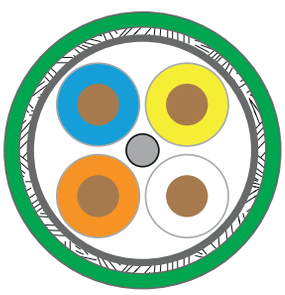
S/UTQ (Quad)



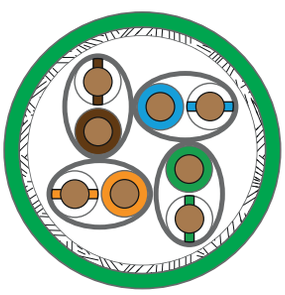
SF/UTP



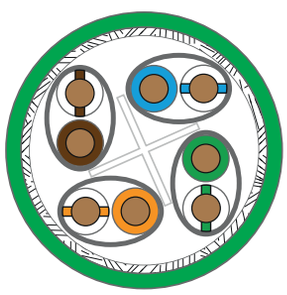
SF/UTP
with cross element



SF/UTQ (Quad)



S/FTP



S/FTP
with cross element

Susceptibility for Interference

S/UTP	S/UTQ (Quad)	SF/UTP	SF/UTP with cross element	SF/UTQ (Quad)	S/FTP	S/FTP with cross element
Susceptibility for Interference						
some	some	low	low	low	low	low

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

XX/YZZ		
XX – outer jacket	/ **Y –** for the pair shielding	**ZZ –** wire paring
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!

3. ETHERNET cable selection tool

Category	Use	2- or 4-pair	Part number	Shielding	AWG	AD (mm)	UL Recognized	UL Listed Type
Cat. 5	high flexing	2-pair	104303	S/UTQ	22	6,5		CMX
Cat. 5e	high flexing	2-pair	104302	S/UTQ	22	6,6		CMX
Cat. 5e	high flexing	2-pair	104379	SF/UTQ	26	5,3	cURus	
Cat. 5e	high flexing	4-pair	104337	S/UTP	24	7,8	cURus	
Cat. 5e	high flexing	4-pair	104396	SF/UTP	26	6,7	cURus	
Cat. 5e	static	2-pair	104301	SF/UTQ	22-single wire	6,5	cURus	PLTC, CMG
Cat. 5e	static	2-pair	104307	SF/UTQ	22	6,5	cURus	PLTC, CMG
Cat. 5e	static	4-pair	104335	SF/UTP	26	6,3		CMG
Cat. 5e	static	4-pair	104336	SF/UTP	24	7,3		CMG
Cat. 5e	static	4-pair	104350	SF/UTP	22	8,6	cURus	PLTC, CMG, CMX Outdoor
Cat. 6	high flexing	4-pair	104347	SF/UTP	26	7,9		CMX
Cat. 6_A	high flexing	4-pair	104401	SF/UTP	24	8,9	cURus	
Cat. 6_A	static	4-pair	104397	S/FTP	22-single wire	9,6	cURus	PLTC, CMG
Cat. 6_A	static	4-pair	104338	S/FTP	26	6,4		CMG
Cat. 7	high flexing	4-pair	104404	S/FTP	24	9,4		CMX
Cat. 7	static	4-pair	104331	S/FTP	26	6,4		CMG

4. 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

ETHERNET – Overview

5. 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:

Pair 1:
Conductor A ⟷ Conductor D

Pair 2:
Conductor B ⟷ Conductor C

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

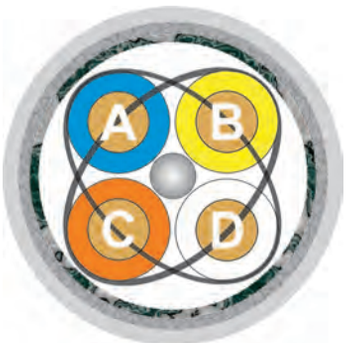


Image 1

6. 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.

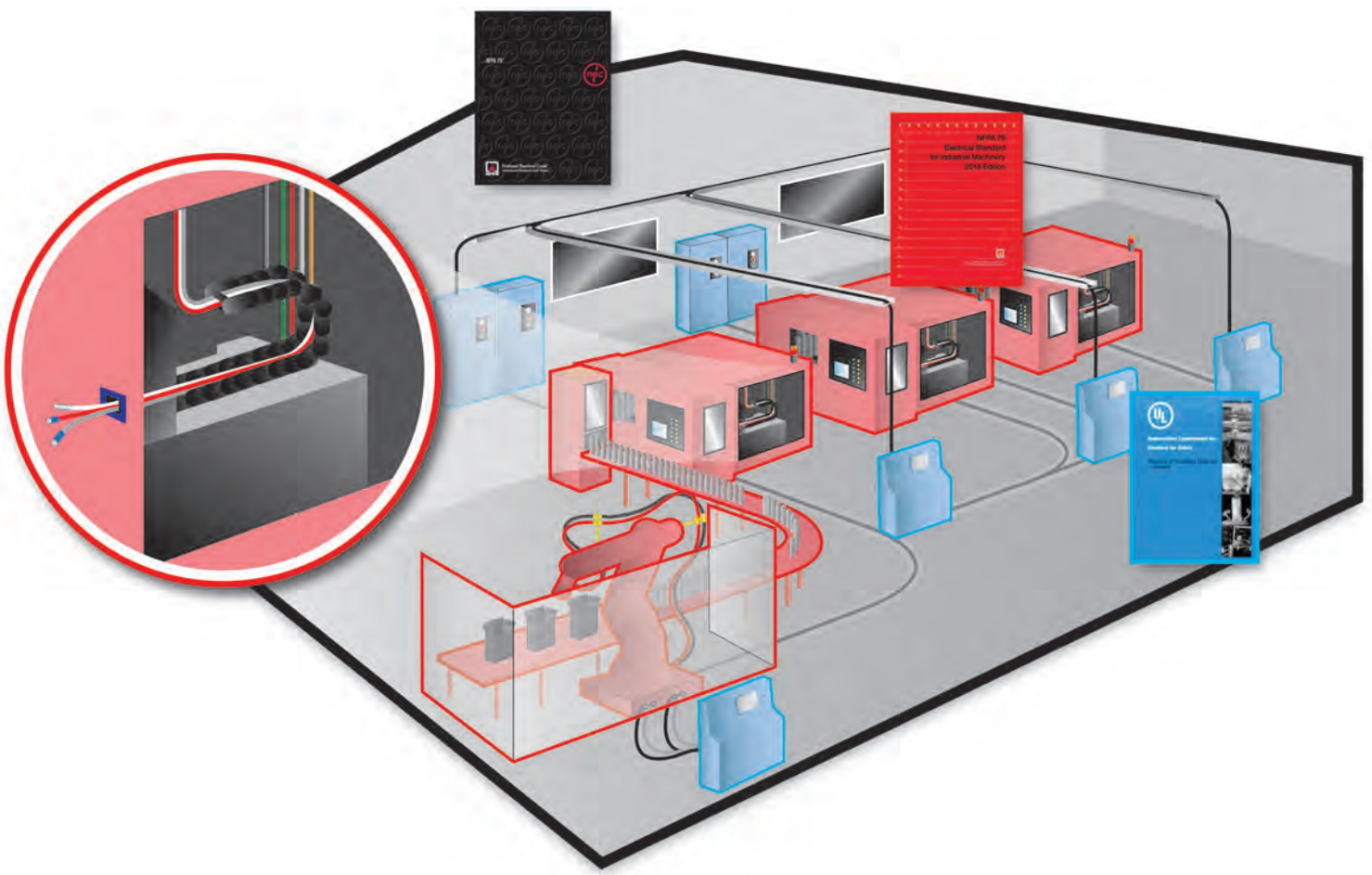
Pin assignement RJ45 – Color code according to EN 50173 – hard wiring:

ETHERNET cables							
	Star Quad (ProfiNet)		Paired				
Pin#	**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
2	Transmit-	orange	Transmit-	BI_DA-	(bidirectional)	GN	OR
3	Receive+	white	Receive+	BI_DB+	(bidirectional)	WH/OR	WH/GN
4	–		–	BI_DC+	(bidirectional)	BL	BL
5	–		–	BI_DC-	(bidirectional)	WH/BL	WH/BL
6	Receive-	blue	Receive-	BI_DB-	(bidirectional)	OR	GN
7	–		–	BI_DD+	(bidirectional)	WH/BN	WH/BN
8	–		–	BI_DD-	(bidirectional)	BN	BN

7. 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	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

How North American codes and standards affect your choice of cables



NEC - Regulates the field level

NFPA 79 - Regulates the machine level

UL 508A - Regulates the cabinet level

Codes and standards are not the same. A **standard** represents a principle or a model in how something is being done. You could call it a “best practice”. Standards are also defined as a level of quality or attainment and allow comparative evaluations.

A **code** goes a step further and represents a law or regulation that must be followed when it is given statutory force.

The NEC is not federal law but is enforced by adoption by state or municipality.

Electrical wiring in the USA is regulated by the National Electric Code also referred to in short as the NEC. The NEC will make a reference to many different standards.

Approvals for North America

Different UL ratings for cables

Product certifications in North America will often be conducted by the National Recognized Testing Laboratories (NRTL). The NRTLs are determined by the Occupational Safety and Health Administration (OSHA). You can find a list of the current NRTLs on www.osha.gov.

LÜTZE mainly uses Underwriters Laboratories (UL) to certify the products. UL (USA) and CSA (Canada) have an agreement that allows the usage of one certification for both USA and Canada.

In general there are two main certification classes:

Certification	Logos	Meaning
UL Recognized		„UL Recognized“ signifies that the product is rated as a component. A component is a part of an application. Cables with an „Appliance Wiring Material“ (AWM per Standard 758) are always „recognized“. Typically these cables are already installed on the machine when it ships.
UL Listed		„UL Listed“ signifies a cable as actually tested and proven for a specific use. This way the cable has to match the UL Standards and the requirements of the National Electric Code (NEC). Typically, cables with a UL Listing are used for field wiring in North America.

Common „UL Listings“ for industrial cables:

UL Listing type	Description	Meaning
CM	Communication	Cables for data communication per UL category DUZX and NEC 800
CMG	Communication General	Cables for data communication per UL category DUZX and NEC 800
CMX	Communication Residential	Cables for data communication with restrictions per UL category DUZX and NEC 800
PLTC	Power Limited Tray Cable	Cables for tray applications per UL category QPTZ and NEC 725
PLTC-ER	Power Limited Tray Cable Exposed Run	Cables for tray applications per UL category QPTZ and NEC 725 (exposed use possible)
ITC	Instrumentation Tray Cable	Instrumentation cables for tray applications per UL category NYTT and NEC 727
ITC-ER	Instrumentation Tray Cable Exposed Run	Instrumentation cables for tray applications per UL category NYTT and NEC 727 (exposed use possible)
TC	Power and Control Tray Cable	Power and control cables for tray applications per UL category QPOR and NEC 336
TC-ER	Power and Control Tray Cable Exposed Run	Power and control cables for tray applications per UL category QPOR and NEC 336 (exposed use possible)
MTW	Machine Tool Wire	Single or multi conductor control cables for Machine Tool Wiring per UL category ZKHZ and NEC 670
Flexible VFD and Servo	Flexible VFD and Servo aka Flexible Motor Supply Cable	Power cables for motor and variable frequency drive applications per UL category ZJFH
CMX-Outdoor	Communication Residential	The CMX type cable is suitable for installation outside residential units
CMR	Communication Riser	Cables for data communication in vertical shafts per UL category DUZX and IVEC 800
WTTC	Wind Turbine Tray Cable	Power and control cables for wind turbine applications per UL category ZGZN

This list only shows the common UL Listings for typical applications in the field of automation and does not stand for a complete overview of the current UL Listings.

It is possible to combine different UL Listings in one cable. LÜTZE offers a variety of cables with UL Listings for various industrial applications.

NFPA 79

NFPA 79 is the standard for industrial machines and installations in the USA. The NFPA 79 standard is published by National Fire Protection Agency (NFPA) and covers among other things the wiring of machine installations. The NFPA 79 standard works as an addition or an extension to the NEC (National Electric Code) which describes the general rules.

The 2007 regulations in regards AWM has been unsettling for many machine- and plant equipment manufacturers. The requirements of NFPA 79 standard are basically always met, if the cable has a listing of a National Recognized Testing Laboratory (NRTL) such as UL. It was possible that a cable carried both approvals and hence be marked with a c UL us LISTED logo, as well as a c UL us.

The 2012 edition created a new option in article “12.9 special cables and conductors”, allowing the use of AWM cables as long as the suitability of cables for the industrial applications on the machine is given.

The reason for this restriction is that any AWM cable is considered a component and thus can only be allowed if the component is used within its intended use.

Previously allowed: c UL us LISTED

Since 2012 Edition allowed: c UL us c UL

In order to use any AWM (UL 758) cable according to the current 2015, the requirements of paragraph 12.9 must be fulfilled. This paragraph lists three requirements of which at least one must be met.

To fulfill the most likely requirement, you have to use AWM cable which is suitable for the industrial use. This restriction shall prevent that machine- and equipment manufacturers use a cable which is not suitable for the intended use. The suitability can be checked easily by matching the UL AWM Style to the application. The UL AWM Styles provide, among other things, information about the materials and wall thickness of a cable. Any jacket-Style for example, includes information about:

- Material
- Wall thickness
- Voltage (Volt)
- Temperature range
- Use statement

Example: AWM 2587 describes a 600 V 90 °C cable with PVC jacket for external wiring.

The actual use, for example, may not exceed the rated voltage of this cable. Typical rated voltages for AWM cables are 30, 300, 600 and 1000 V.

For this purpose LÜTZE has expanded the offering of suitable industrial AWM cables per UL 758 Standard. All AWM Styles and the conforming rated voltages are marked explicitly in the catalog, so that you can find matching cables for every industrial application.

More information about the UL Standard 758 and the Style details you can find on www.ul.com. Information about NFPA 79 you can find on www.nfpa.org.

Current loads

Current rating of cables with rated voltage up to 1000 V and of heat-resistant cables. (cf. VDE 0298-4, 2003-08, Table 11)

	Group 1 Single-conductor cable • Rubber-insulated • PVC-insulated • TPE-insulated • Heat-resistant	Group 2 Multi-conductor cable for household - and hand-held equipment • Rubber-insulated • PVC-insulated • TPE-insulated		Group 3 Multi-conductor cable except household - a. hand-held equipm. • Rubber-insulated • PVC-insulated • TPE-insulated
Installation type	**Free in air**	**On or at the surface**		
Number of current carrying conductors	**1**	**2**	**3**	**2 oder 3**
Nominal cross section in mm²		Current rating in Ampere		
0,14 *	3	-	-	2
0,25 *	5	-	-	4
0,34 *	8	-	-	6
0,5 *	12	3	3	9
0,75	15	6	6	12
1,0	19	10	10	15
1,5	24	16	16	18
2,5	32	25	20	26
4	42	32	25	34
6	54	40	-	44
10	73	63	-	61
16	98	-	-	82
25	129	-	-	108
35	158	-	-	135
50	198	-	-	168
70	245	-	-	207
95	292	-	-	250
120	344	-	-	292
150	391	-	-	335
185	448	-	-	382
240	528	-	-	453
Based on DIN VDE 0298-4 2003-08	Table 11 column 1 e.g. H07V-K, LÜTZE SUPERFLEX® PLUS PUR single-conductor	Table 11 column 3 and 4		Table 11 column 5 z.B. LÜTZE SILFLEX® and LÜTZE SUPERFLEX® cables
Conversion factor for				
Deviating ambient temperature	Temperature	-		Temperature
Multi-conductor cables	-	-		Number of conductors

* not offical part of VDE 0298-4 2003-08. Current rating in accordance with 0891-1 or 0298-4 2003-08.

Note 1:
This table deviates from the table in VDE 0298-4. If there is uncertainty, the latest version of DIN VDE 0298-4 is valid. The actual current rating is also influenced by deviating ambient temperature, as well as the number of conductor in a cable. In this case the derating factors from table “Temperature“ and “Number of conductors“ must be used.

Note 2:
The here shown descriptions are reference values and in simplified form taken from VDE 0298-4 2003-8. If necessary additional conversion factors for accumulation, installation in tubes or cable racks must be taken from the entire version of VDE 0298-4 2003-8. Should there be newer versions available after printing deadline, these must be considered. LÜTZE assumes no guarantee for the completeness or the correctness of any information provided here.

Current loads

Temperature

Conversion factors for deviating ambient temperature (see VDE 0298-4 2003-08 Table 17, column 4, 5 and 7)

Ambient temperature	Factor 70 °C at the conductor	Factor 80 °C at the conductor	Factor 90 °C at the conductor
10 °C	1,22	1,18	1,15
15 °C	1,17	1,14	1,12
20 °C	1,12	1,10	1,08
25 °C	1,06	1,05	1,04
30 °C	1,00	1,00	1,00
35 °C	0,94	0,95	0,96
40 °C	0,87	0,89	0,91
45 °C	0,79	0,84	0,87
50 °C	0,71	0,77	0,82
55 °C	0,61	0,71	0,76
60 °C	0,50	0,63	0,71
65 °C	0,35	0,55	0,65
70 °C	-	0,45	0,58
75 °C	-	0,32	0,50
80 °C	-	-	0,41
85 °C	-	-	0,29

Number of conductors

Conversion factors for multi-conductor cable with a nominal cross section up to 10 mm² (see VDE 0298-4 2003-08 Table 26, column 2)

Number of loaded conductors	Factor
5	0,75
7	0,65
10	0,55
14	0,50
19	0,45
24	0,40
40	0,35
61	0,30

Note:
If necessary additional conversion factors for accumulation, installation in tubes or cable racks must be taken from the entire version of VDE 0298-4 2003-8. LÜTZE assume no guarantee for the completeness or the correctness of any information provided here.

Conductors resistances

The values according to DIN VDE 0295 are listed depending on the conductor cross-section and conductor class. The diameter of the individual wires of every conductor, beginning with 0,5 mm², are the specified maximal values allowed (see VDE 0295), that are required for compliance with the maximum wire resistance 20 °C (68 °F), not exceeded.

Nominal cross section	Cu conductor not insulated (Ω/km)		Cu conductor tinned (Ω/km)		Welding cable (Ω/km)	
mm²	class 1 and 2	class 5 and 6	class 1 and 2	class 5 and 6	Cu conductor not insulated	Cu conductor tinned
0,05		380		392		
0,08		237		244		
0,11		170		175		
0,126		150		155		
0,14		134		138		
0,22		85		99		
0,25		76		79		
0,34		53		56		
0,5	36,0	39,0	36,7	40,1		
0,75	24,5	26,0	24,8	26,7		
1,0	18,1	19,5	18,2	20,0		
1,5	12,1	13,3	12,2	13,7		
2,5	7,41	7,98	7,56	8,21		
4,0	4,61	4,95	4,70	5,09		
6,0	3,08	3,30	3,11	3,39		
10,0	1,83	1,91	1,84	1,95		
16,0	1,15	1,21	1,16	1,24	1,16	1,19
25,0	0,727*	0,780	0,734	0,795	0,758	0,780
35,0	0,524*	0,554	0,529	0,565	0,536	0,552
50,0	0,387*	0,386	0,391	0,393	0,379	0,390
70,0	0,268*	0,272	0,270	0,277	0,268	0,276
95,0	0,193*	0,206	0,195	0,210	0,198	0,204
120,0	0,153*	0,161	0,154	0,164	0,155	0,159
150,0	0,124*	0,129	0,126	0,132	0,125	0,129
185,0	0,0991	0,106	0,100	0,108	0,102	0,105
240,0	0,0754	0,0801	0,0762	0,0817		
300,0	0,0601	0,0641	0,0607	0,0654		
400,0	0,0470	0,0486	0,0475	0,0495		

Class 1 = single-wire strand for single and multi-wire cables
Class 2 = multi-wire strand for single and multi-wire cables
Class 5 = multi-strand Cu conductor for single and multi-wire cables
Class 6 = superfine strand Cu conductor for single and multi-wire cables
*For mineral isolated cables (only for class 1)

Conductor structure according to DIN VDE 0295 / IEC 60228 and AWG

Conductor structure according to DIN VDE 0295 / IEC 60228

Cross section mm²	Multi-stranded conductor class 2 VDE 0295	Many-stranded conductor	Finely stranded conductor class 5 VDE 0295	Superfine strand conductor class 6 VDE 0295			
			Number of strands and individual strand mm				
0,14				18 x 0,10	18 x 0,10	36 x 0,07	72 x 0,05
0,25			14 x 0,15	32 x 0,10	32 x 0,10	65 x 0,07	128 x 0,05
0,34		7 x 0,25	19 x 0,15	42 x 0,10	42 x 0,10	88 x 0,07	174 x 0,05
0,38		7 x 0,27	12 x 0,20	21 x 0,15	48 x 0,10	100 x 0,07	194 x 0,05
0,50	7 x 0,30	7 x 0,30	16 x 0,20	28 x 0,15	64 x 0,10	131 x 0,07	256 x 0,05
0,75	7 x 0,37	7 x 0,37	24 x 0,20	42 x 0,15	96 x 0,10	195 x 0,07	384 x 0,05
1,00	7 x 0,43	7 x 0,43	32 x 0,20	56 x 0,15	128 x 0,10	260 x 0,07	512 x 0,05
1,50	7 x 0,52	7 x 0,52	30 x 0,25	84 x 0,15	192 x 0,10	392 x 0,07	768 x 0,05
2,50	7 x 0,67	19 x0,41	50 x 0,25	140 x 0,15	320 x 0,10	651 x 0,07	1280 x 0,05
4	7 x 0,85	19 x 0,52	56 x 0,30	224 x 0,15	512 x 0,10	1040 x 0,07	
6	7 x 1,05	19 x 0,64	84 x 0,30	192 x 0,20	768 x 0,10	1560 x 0,07	
10	7 x 1,35	49 x 0,51	80 x 0,40	320 x 0,20	1280 x 0,10	2600 x 0,07	
16	7 x 1,70	49 x 0,65	128 x 0,40	512 x 0,20	2048 x 0,10		
25	7 x 2,13	84 x 0,62	200 x 0,40	800 x 0,20	3200 x 0,10		
35	7 x 2,52	133 x 0,58	280 x 0,40	1120 x 0,20			
50	19 x 1,83	133 x 0,69	400 x 0,40	705 x 0,30			
70	19 x 2,17	189 x 0,69	356 x 0,50	990 x 0,30			
95	19 x 2,52	259 x 0,69	485 x 0,50	1340 x 0,30			
120	37 x 2,03	336 x 0,67	614 x 0,50	1690 x 0,30			
150	37 x 2,27	392 x 0,69	765 x 0,50	2123 x 0,30			
185	37 x 2,52	494 x 0,69	944 x 0,50	1470 x 0,40			
240	61 x 2,24	627 x 0,70	1225 x 0,50	1905 x 0,40			
300	61 x 2,50	790 x 0,70	1530 x 0,50	2385 x 0,40			
400	61 x 2,89		2035 x 0,50				
500	61 x 3,23		1768 x 0,60				

The number of the strands is non-binding. The VDE 0295 determines only the maximum diameter of the single wire that is required for compliance with the maximum wire resistance at 20 °C.

Conductor structure according to AWG

Cross section mm²	AWG	Copper wire	Braid copper not insulated — Wire structure flexible		very flexible		highly flexible			Standard values A max.	Cu weight
		mm Ø		mm Ø		mm Ø		mm Ø	Ω/km	at 20 °C	kg/km
0,08		0,32	10 x 0,10	0,37			40 x 0,05	0,37	210	0,5	0,71
(0,09)	**28**	0,32	7 x 0,13	0,38			19 x 0,08	0,40	195		0,75
0,10		0,36	14 x 0,10	0,44	28 x 0,07	0,44	51 x 0,05	0,42	190	1,0	0,98
0,14	**26**	0,39	18 x 0,10	0,49	36 x 0,07	0,49	72 x 0,05	0,50	138	1,5	1,27
(0,13)		0,40	7 x 0,16	0,49	10 x 0,13	0,53	19 x 0,10	0,51	130		1,30
(0,21)	**24**	0,51	7 x 0,20	0,61	19 x 0,13	0,61	41 x 0,08	0,58	85		2,00
0,25		0,57	14 x 0,15	0,66	32 x 0,10	0,66	128 x 0,05	0,75	77	2,5	2,27
(0,32)	**22**	0,64	7 x 0,25	0,76	19 x 0,16	0,80	26 x 0,13	0,76	56		3,00
0,34		0,64	7 x 0,25	0,75	42 x 0,10	0,74	180 x 0,05	0,80	56	4,5	3,10
0,50		0,80	16 x 0,20	0,95	28 x 0,15	0,95	256 x 0,05	1,00	39	6,0	4,50
(0,52)	**20**	0,81	7 x 0,32	0,90	19 x 0,20	0,94	41 x 0,13	0,91	33		5,00
0,75		0,98	24 x 0,20	1,20	42 x 0,15	1,20	385 x 0,05	1,20	26	10,0	6,90
(0,82)	**18**	1,02	7 x 0,40	1,22	19 x 0,25	1,27	65 x 0,13	1,20	21		8,00
1,00		1,15	32 x 0,20	1,30	57 x 0,15	1,30	511 x 0,05	1,40	20	15,0	9,20
(1,31)	**16**	1,30	7 x 0,51	1,52	19 x 0,30	1,47	105 x 0,13	1,50	16		11,00
1,50		1,40	30 x 0,25	1,60	85 x 0,15	1,85	196 x 0,10	1,85	14	20,0	14,10
(2,08)	**14**	1,62	7 x 0,64	1,85	19 x 0,36	1,85	105 x 0,16	1,85	11		19,00
2,50		1,80	51 x 0,25	2,10	142 x 0,15	2,25	322 x 0,10	2,40	8	25,0	23,20
(3,31)	**12**	2,05	7 x 0,80	2,50	19 x 0,46	2,35	165 x 0,16	2,41	6		28,00
(5,26)	**10**	2,60	37 x 0,40	2,80					3,8		42,00

Color code tables

Strand color according to DIN VDE 0293-308

Cable and cables without green-yellow strand

Number of strands	Colors of the strands				
2	blue	brown	-	-	-
3	-	brown	black	grey	-
4	blue	brown	black	grey	-
5	blue	brown	black	grey	black

Cable and cables without green-yellow strand

Number of strands	Colors of the strands				
	Ground conductor	Active conductor			
3	green-yellow	blue	brown	-	-
4	green-yellow	-	brown	black	grey
5	green-yellow	blue	brown	black	grey

Not insulated concentric conductors, such as metallized jackets, armoring or shields are not considered as conductors in this table. A concentric conductor is identified by its arrangement and thus does not need to be identified by its color.

Strand colors according to DIN 47100

Electronic data cables and computer cables with stranding with color repetition after 45 strands. The first color is the base colour of the strand. For multiple color strands, the identification marking consists of a base color and a ring color. The second or third color respectively is applied as ring identification marking. Ring width approx. 2 – 3 mm. A certain amount of blur of the identification colour at the edges and a small offset of both half rings is permitted. The manner of counting occurs from outside to inside through all layers consecutively.

No.	Base/ring colors	No.	Base/ring colors
1	white	32	yellow/blue
2	brown	33	green/red
3	green	34	yellow/red
4	yellow	35	green/black
5	grey	36	yellow/black
6	pink	37	grey/blue
7	blue	38	pink/blue
8	red	39	grey/red
9	black	40	pink/red
10	violet	41	grey/black
11	grey/pink	42	pink/black
12	red/blue	43	blue/black
13	white/green	44	red/black
14	brown/green	45	white
15	white/yellow	46	brown
16	yellow/brown	47	green
17	white/grey	48	yellow
18	grey/brown	49	grey
19	white/pink	50	pink
20	pink/brown	51	blue
21	white/blue	52	red
22	brown/blue	53	black
23	white/red	54	violet
24	brown/red	55	grey/pink
25	white/black	56	red/blue
26	brown/black	57	white/green
27	grey/green	58	brown/green
28	yellow/grey	59	white/yellow
29	pink/green	60	yellow/brown
30	yellow/pink	61	white/grey
31	green/blue		

Strand color according to IEC for electronic cables with AWG design

Strand no.	Color
1	black
2	brown
3	red
4	orange
5	yellow
6	green
7	blue
8	violet
9	grey
10	white
11	white-black
12	white-brown

The double color green-yellow may only be used for the grounding conductor (yellow is the base color). For the remaining double colors, the base color is white respectively.

For possibly required additional double colors, grey or brown are recommended as additional base colors.

Conductor marking acc. to DIN 47100 pairs and jacket colors acc. to RAL

Pair identification colour repetition after 45 pairs

Electronic data cables and computer cables with paired stranding. The first colour is the base colour of the strand. For multiple colour strands of the pair, the identification consists of a base colour and a ring colour. The second colour is applied as ring marking, ring width approx. 2 – 3 mm. A certain amount of blur of the identification colour at the edges and a small offset of both half rings are permitted from a manufacturing technique perspective.

The manner of counting occurs from outside to inside through all layers pairwise consecutively.

Paired stranding

Pair no.			a-strand	b-strand
1	23	45	white	brown
2	24	46	green	yellow
3	25	47	grey	pink
4	26	48	blue	red
5	27	49	black	violet
6	28	50	grey/pink	red/blue
7	29	51	white/green	brown/green
8	30	52	white/yellow	yellow/brown
9	31	53	white/gray	grey/brown
10	32	54	white/pink	pink/brown
11	33	55	white/blue	brown/blue

Pair no.			a-strand	b-strand
12	34	56	white/red	brown/red
13	35	57	white/black	brown/black
14	36	58	grey/green	yellow/grey
15	37	59	pink/green	yellow/pink
16	38	60	green/blue	yellow/blue
17	39	61	green/red	yellow/red
18	40		green/black	yellow/black
19	41		grey/blue	pink/blue
20	42		grey/red	pink/red
21	43		grey/black	pink/black
22	44		blue/black	red/black

Colour table according to RAL

Colour abbreviation according to HD 457

Colour	Short abbreviation	RAL	DESINA	DIN 47002	IEC 757
			Outer jacket colour	German	English
black	sw	9005	Power cable	sw	BK
brown	bn	8003		br	BN
red	rt	3000		rt	RD
orange	org	2003	Power cable	or	OG
yellow	ge	1021	Sensor/-actor cables	ge	YE
green	gn	6018	Signal cable	gn	GN
blue	bl	5015		bl	BU
violet	vio	4001	Bus/Fiber optic cable	vi	VT
silvergrey	gr	7001		gr	GY
pebble grey		7032			
window grey		7040	Control cable		
white	ws	9010		ws	WH
pink	rs	3015		pk	PK
turquoise (petrol)	tk	5018		tq	TQ
green/yellow	gnge	6018/1021		gnye	GNYE
silver		-			SR
dark blue	dbl	5010		dbl	
dark brown	dbn	8014		dbn	
transparent	tr	-		tr	

Chemical resistance of PVC, 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; c.s. = cold saturated; O = conditionally resistant; * = depending on the additives in oil; a = aqueous; + = resistant; – = unstable

All specification refer to room temperature!

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 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.

Properties of isolation materials

Material	Abb.	Short abbreviation	Service temperature °C	Dielectric constant 10^3	spec. contact Ohm x cm	Tensile strength N/mm²	Elongation at break %	Absorption of water (20 °C) %	Weathering resistance	Fuel resistance	Oil resistance	Flammability
Polyvinyl chloride	PVC	Y	– 30/+ 70	4 - 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 polyethelyne	LDPE	2Y	– 50/+ 70	2.3	10^{17}	20 – 30	500	0.1	good	low	moderate	flammable
Low pressure polyethelyne	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
Polytetrafluoro-- ethylene	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	ETFE	7Y	– 100/+ 150	2.6	10^{16}	40 – 50	100 – 300	0.01	very good	very good	very good	not flammable
Perfluoroalkoxy polymer	PFA	–	– 190/+ 260	2.1	10^{15}	30	300	0.01	very good	very good	good	not flammable
Chloroprene rubber	CR	5G	– 40/+ 100	6.0 – 8.0	10^{13}	25	450	1.0	very good	low	good	self-extinguishing
Silicon rubber	SI	2G	– 60/+ 180	2.8 – 3.2	10^{15}	5 – 10	200 – 350	1.0	very good	low	moderate	flame flammable
Ethylene vinyl acetate	EVA	4G	– 30/+ 125	5 – 7	10^{13}	5	200	0.01	good	low	low	flammable
Ethylene propylene rubber	EPM/ EPDM	3G	– 30/+ 120	3.2	10^{14}	5 – 25	200 – 450	0.02	good	low	low	flammable
Thermoplastic polyolefin Elastomer	TPE-O	18Y	– 40/+ 120	2.7 – 3.6	5 x 10^{14}	>6	>400	1.5	very good	moderate	moderate	flammable
Thermoplastic polyester Elastomer	TPE-E	12Y	– 70/+ 125	3.7 – 5.1	10^{12}	3 – 25	280 – 650	0.3 – 0.6	very good	good	very good	flammable
Styrol triblock Copolymer	TPE-S	–	– 75/ + 105/140	2.2 – 2.6	10^{16}	9 – 25	500 – 700	1 – 2	moderate	good	low	flammable

Only for basic materials, deviations are possible depending on the indented use/design.

Short abbreviation key according to DIN/VDE and HAR

DIN/VDE

Abbreviations	Description
J	Cable with green-yellow ground conductor
VDE	Electrical Engineering Association
O	Cable without green-yellow ground conductor
Z	Black conductors with number print
B	Colour coded Conductors
Y	Polyvinyl chloride (PVC)
Yw	Heat resistant PVC (+90 °C bis +105 °C)
Yk	Cold resistant PVC (-40 °C)
2Y	Polyethylene (PE) as LDPE or HDPE (low/high density)
X	Cross-linked PVC
3Y	Polystyrene (PS)
4Y	Polyamide (PA)
5Y	Polytetrafluorethylene (PTFE, e.g. Teflon®)
6Y	Perfluorethylenpropylene (FEP)
7Y	Ethylene tetrafluoroethylene (ETFE, e.g. Tefzel®)
9Y	Polypropylene (PP)
10Y	Polyvinylidene fluoride (PVDF, e.g. Kynar®)
11Y	Polyurethane (PUR)
12Y	Polyester elastomer (TPE-E)
13Y	Polyether elastomer (TPE)
17Y	Styrene-ethylene styrene copolymer (TPE-S)
18Y	Polyolefin elastomer (TPE-O)
31Y	Polyolefin elastomer (TPE-S)
41Y	Polyamide elastomer (TPE-A)
91Y	Polyolefin elastomer (TPE-O)
G	Natural rubber, rubber (NR/SBR)
2G	Silicon rubber (SIR)
7G	Fluorelastomer (FKM, e.g. Viton®)
A	Outer cable
Li	Stranded wire
LiF	Superfine strand

HAR

Abbreviations	Description
H	Harmonized cable
G	Cable with green-yellow ground conductor
X	Cable without green-yellow ground conductor
V	Polyvinyl chloride (PVC)
V2	Heat resistant PVC (+90 °C bis +105 °C)
V3	Cold resistant PVC (-40 °C)
E	Polyethylene (PE) as LDPE or HDPE (low/high density)
V4	Cross-linked PVC
V5	Oil resistant PVC
Q3	Polystyrene (PS)
Q4	Polyamide (PA)
E4	Polytetrafluorethylene (PTFE, e.g. Teflon®)
E5	Perfluorethylenpropylene (FEP)
E6	Ethylene tetrafluoroethylene (ETFE, e.g. Tefzel®)
E7	Polypropylene (PP)
Q6	Polyvinylidene fluoride (PVDF, e.g. Kynar®)
Q	Polyurethane (PUR)
R	Natural rubber, rubber (NR/SBR)
S	Silicon rubber (SIR)
N6	Fluorelastomer (FKM, e.g. Viton®)
01	100 V
03	300V/300V
05	300V/500V
07	450V/750V
0,6/1kV	600V/1000V

Technical Terms

°C	Degree Celsius
(C)	Cable is shielded with copper braid
Abrasion-resistant	The characteristic of a material to be resistant to abrasion
Conductor / Diameter	Eg.: 4G16 A cable with 4 conductor and respective conductor-diameter of 16 mm². 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
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 x D ≈ 10 x 10,5 mm = 105 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
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
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 cupper 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

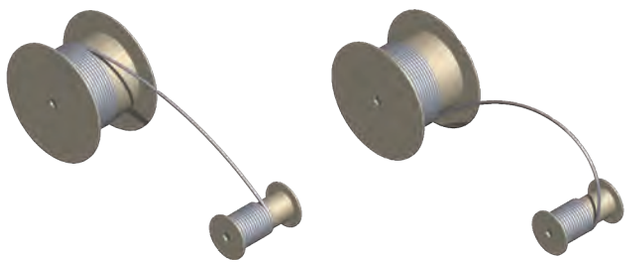
Technical Terms

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 conducter
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
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

Handling & Installation LÜTZE SUPERFLEX® - Quick Overview

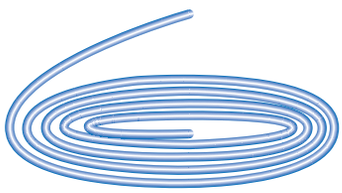
Correct Handling of LÜTZE SUPERFLEX® Cables

When unreeling the cable from a drum do not change the bend direction. The cable has to go on the new reel in the same direction it came off the existing reel, using low and equal tensile force during reeling!

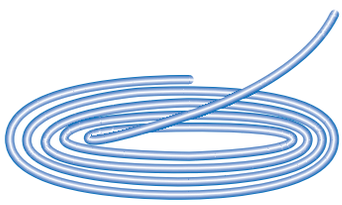


DO ✓ DO NOT ✗

Cables on coils should be uncoiled from the outer end to prevent twisting of the cable.



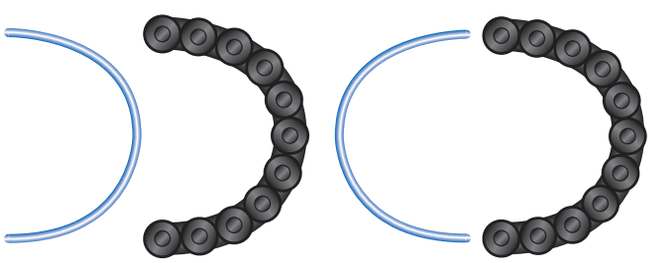
DO ✓



DO NOT ✗

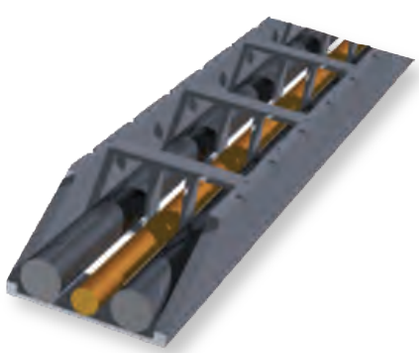
Correct Installation of LÜTZE SUPERFLEX® Cables

When the cable is taken directly from the reel it retains the original curvature from the reel form. If the cable is installed immediately, do not flex against original curve of the cable, or alternatively the curvature can be removed by laying the cable flat for 24 hours.



DO ✓ DO NOT ✗

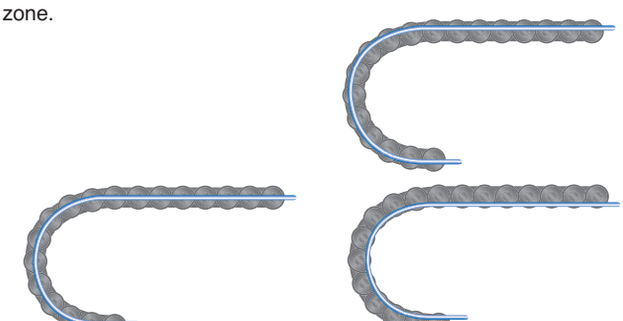
If possible the weight should be installed evenly within the cable track. Heavy cables should be installed on the outer edges, and lighter control and signal cables on the inside.



Use dividers horizontally and vertically to seperate the track into seperate cavities. Install just one cable per seperated cavity. If absolutely necessary two small, or a small and a large cable can share a cavity.



Observe the minimum bending radius for optimum performance. Make sure that all cables are length-adjusted and run in the neutral zone.



DO ✓ DO NOT ✗

For further information please visit: https://bit.ly/2Eli78R

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

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

This sum would be for assumed DEL quote of 198.89 Euro the copper surcharge for 100 m Silflex N 3 G 1.5 mm².

Price including copper

The net price is calculated in the following way

Gross price
– Rebate (%)
± Copper surcharge
= Net price including copper

The copper surcharge is shown separately on our invoice.

Torques for cable fittings

Cable fittings with metric threads, EN 50262

Nominal size	Torque reference values in Nm	
	Plastic	Metal
M 12 x 1,5	2	5
M 16 x 1,5	2,5	6
M 20 x 1,5	4	7,5
M 25 x 1,5	6	10
M 32 x 1,5	7	12,5
M 40 x 1,5	7,5	15
M 50 x 1,5	8	20
M 63 x 1,5	9	23

Cable fittings with PG threads, DIN VDE 0619

Nominal size	Torque reference values in Nm	
	Plastic	Metal
PG 7	2,5	5
PG 9	3,75	7,5
PG 11	3,75	7,5
PG 13,5	3,75	8
PG 16	5	9
PG 21	7,5	10
PG 29	7,5	12,5
PG 36	7,5	15
PG 42	7,5	20
PG 48	7,5	23

Note:
The specified values are standard values for achieving the protection class IP 68, 5 bar.
The torque should be suitable to the material and wire application.

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.

Certificates



CERTIFICATE

This is to certify that

Friedrich Lütze GmbH
Bruckwiesenstraße 17-19
71384 Weinstadt
Germany

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 : 2015

Certificate registration no.	001737 QM15
Valid from	2018-06-14
Valid until	2021-06-13
Date of certification	2018-06-14

DQS GmbH

Stefan Heinloth
Managing Director

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



CERTIFICATE

This is to certify that

Friedrich Lütze GmbH
Bruckwiesenstraße 17-19
71384 Weinstadt
Germany

with the organizational units/sites as listed in the annex

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 : 2015

Certificate registration no.	001737 UM15
Valid from	2018-04-18
Valid until	2021-04-17
Date of certification	2018-04-18

DQS GmbH

Stefan Heinloth
Managing Director

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

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600560	75	**600698**	73	**600869**	71	**680024**	87				
600561	75	**600701**	77	**600870**	76	**680025**	87				
600562	75	**600702**	77	**600871**	76	**680026**	87				
600563	75	**600703**	77	**600872**	76	**680027**	87				
600564	75	**600704**	77	**600873**	76	**680100**	88				
600565	75	**600705**	78	**600874**	76	**680101**	88				
600566	75	**600706**	78	**600875**	76	**680102**	88				
600567	75	**600707**	78	**600876**	76	**680105**	88				
600568	75	**600708**	78	**600877**	76	**680106**	88				
600569	75	**600710**	77	**601490**	76	**680107**	88				
600570	75	**600711**	77	**601491**	76	**680108**	88				
600590	85	**600712**	77	**601492**	76	**680418**	89				
600591	85	**600713**	77	**601493**	76	**680419**	89				
600592	85	**600714**	77	**601494**	76	**680420**	91				
600593	85	**600715**	77	**601495**	76	**680424**	89				

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