

## MSUD valve plug A-18mm with cable

PUR 3x0.75 bk UL/CSA+robot+drag ch. 1.5m

**MSUD** Form A (18 mm) 110 V AC/DC ±10% LED and suppression

Further cable lengths on request.

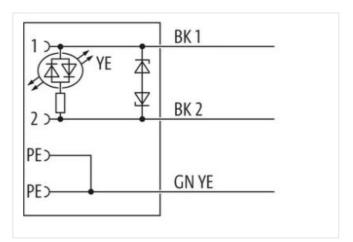
Plastic housings with good resistance against chemicals and oils.

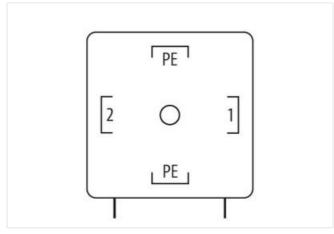
The resistance to aggressive media should be individually tested for your application. Further details on request.

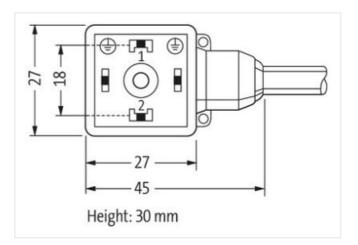
## **Link to Product**

## Illustration









Product may differ from Image











Cable length

1,5 m

Side 1

Tightening torque

0,4 Nm

The information in this Product-PDF has been compiled with the utmost care.

Liability for the correctness completeness and topicality of the information is restricted to gross negligence. Version: 2024-06-26



stay connected

Mounting method	inserted, screwed
Family construction form	MSUD A
Thread	M3
Material	PBT
Degree of protection (EN IEC 60529)	IP67
Commercial data	
ECLASS-6.0	27279218
ECLASS-7.0	27279218
ECLASS-8.0	27279218
ECLASS-9.0	27060311
ECLASS-10.1	27060312
ECLASS-11.1	27060312
ECLASS-12.0	27060312
ETIM-5.0	EC001855
customs tariff number	85444290
GTIN	4048879192880
Packaging unit	1
Electrical data	
	20
Drop-out delay time max.	20 ms
Electrical data   Supply	
Operating voltage AC	110 V
Operating voltage AC min.	99 V
Operating voltage AC max.	121 V
Operating voltage DC	110 V
Operating voltage DC min.	99 V
Operating voltage DC max.	121 V
Cut-off peak voltage max.	250 V
Current operating per contact max.	4 A
Installation   Connection	
Mounting set	M3
Device protection   Electrical	
Additional condition protection degree	inserted, screwed
Pollution Degree	3
Mechanical data   Material data	
Coating of fitting	verzinkt
Color housing	black
Material housing	Plastic
Material screw connection	Steel
Mechanical data   Mounting data	
Mounting method	inserted, screwed
Environmental characteristics   Climatic	
·	
Operating temperature min.	-25 °C
Operating temperature max.	85 °C
Additional condition temperature range	depending on cable quality
Important installation notes	
Note on strain relief	Protect the connectors by suitable measures from mechanical loads, e.g. by the usage of cable ties.
Note on bending radius	<b>Attention:</b> Observe the permissible bending radii when laying cables, as the IP protection class can be endangered by excessive bending forces.
Installation   Cable	
wire arrangement	black 1, black 2, green-yellow
Cable identification	656

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## stay connected

Type of Certificatio	Cable Type	5
Stranding   1	Jacket Color	black
Stranding   1	Type of Certificate	cURus
wire arrangement         black 1, black 2, green-yellow           Zable weight         48,4 g/m           Makerial jacket         PUR           Shore hardness jacket         58 ± 3 Shore D           Freedom from ingredients (jacket)         5.2 mm           Outer diameter (jacket)         5.2 mm           Tolerance outer diameter (sheath)         ± 5 %           Material wire insulation         PP           Mannount wires         3           Outer diameter insulation         1,7 mm           Outer diameter trolerance core insulation         1,7 mm           Outer diameter insulation         74 ± 3 Shore D           Fibre hardness wire insulation         74 ± 3 Shore D           Insurance or single wires         0,15 mm           During diameter insulation         42           Jameter of single wires         0,15 mm           Conductor rosssection (wire)         0,75 mm²           Material conductor wire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Current load capacity (standard)         to DIN VDE 0298-4           Current load capacity min. wire         12 A           Electrical resistance line constant wire         26 DKm	Amount stranding	1
Ask grim   Ask grim   Ask grim   PUR   Material picket   PUR   Material picket   PUR   Material picket   S9 ± 3 Shore D	Stranding	3 wires twisted
Material jacket         PUR           Shore hardness jacket         58 ± 3 Shore D           Freedom from ingredients (jacket)         lead-free, cadmium-free, CFC-free, halogen-free, silicone-free           Outer diameter (jacket)         5,2 mm           Folkrance outer diameter (sheath)         ± 5 %           Material wire insulation         PP           Amount wires         3           Outer diameter insulation         1,7 mm           User diameter insulation         ± 5 %           Shore hardness wire insulation         74 ± 3 Shore D           Ingredient freeness wire insulation         14 ± 3 Shore D           Ingredient freeness wire insulation         42           Diameter of single wires         0,15 mm           Conductor crosssection (wire)         0,75 mm²           Material conductor wire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Current load capacity win. wire         12 A           Current load capacity win. wire         12 A           Current properacy withstand voltage (wire - wire)         2,5 kV @ 60 s           Wax. operating temperature win. (dynamic)         2.5 °C           Operating temperature win. (dynamic)         2.5 °C <td>wire arrangement</td> <td>black 1, black 2, green-yellow</td>	wire arrangement	black 1, black 2, green-yellow
Shore hardness jacket	Cable weigth	48,4 g/m
lead-free, cadmium-free, CFC-free, halogen-free, silicone-free	Material jacket	PUR
Outer-diameter (jacket)         5.2 mm           Tolerance outer diameter (sheath)         ± 5 %           Amount wires         3           Outer diameter insulation         1.7 mm           Outer diameter insulation         1.7 mm           Shore hardness wire insulation         ± 5 %           Shore hardness wire insulation         the Shore D           Ingredient freeness wire insulation         lead-free, cadmium-free, CFC-free, halogen-free, silicone-free           Amount strands (wire)         42           Diameter of single wires         0.15 mm           Conductor rosssection (wire)         0.75 mm²           Malerial conductor wire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Current load capacity (standard)         10 DIN VIDE 0298-4           Current load capacity min. wire         12 A           Electrical resistance line constant wire         26 Ω/km @ 20 °C           AC withstand voltage (wire - wire)         2.5 kV @ 60 s           Power frequency withstand voltage (wire - acte)         2.5 kV @ 60 s           AD **C** Out ** Or **C** © 10000 h Operation           Operating temperature (steal)         80 °C / 90 °C @ 10000 h Operation           Operating tempe	Shore hardness jacket	58 ± 3 Shore D
Tolerance outer diameter (sheath)	Freedom from ingredients (jacket)	lead-free, cadmium-free, CFC-free, halogen-free, silicone-free
Material wire insulation         PP           Amount wires         3           20uter diameter insulation         1,7 mm           Outer diameter toterance core insulation         7± ± 3 Shore D           Impredient freeness wire insulation         7± ± 3 Shore D           Impredient freeness wire insulation         7± ± 3 Shore D           Impredient freeness wire insulation         42           Diameter of single wires         0.15 mm           Conductor crosssection (vire)         0.75 mm²           Material conductor vire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Courrent load capacity (standard)         to DIN VDE 0298-4           Current load capacity wini wire         12 A           Electrical resistance line constant wire         26 Ωkm @ 20 °C           AC withstand voltage (wire - wire)         2,5 kV @ 60 s           Power frequency withstand voltage (wire - acket)         3,5 kV @ 60 s           Min. operating temperature (stalic)         40 °C           Max. operating temperature (stalic)         40 °C           Max. operating temperature (stalic)         30 °C / 90 °C @ 10000 h Operation           Operating temperature min. (dynamic)         25 °C	Outer-diameter (jacket)	5,2 mm
Amount wires 3  Duter diameter insulation 1.7 mm  Duter diameter insulation ± 5 %  Shore hardness wire insulation 74 ± 3 Shore D  Ingredient freeness wire insulation lead-free, cadmium-free, CFC-free, halogen-free, silicone-free  Amount strands (wire) 42  Diameter of single wires 0,15 mm  Donductor crosssection (wire) 0,75 mm²  Material conductor wire Stranded copper wire, bare  Conductor type (wire) strand conductor wire Stranded sas 6  Nominal voltage AC max. 300 V  Current load capacity (standard) to DIN VDE 0298-4  Current load capacity (standard) to DIN VDE 0298-4  Current load capacity min. wire 12 A  Electrical resistance line constant wire 26 Ω/km @ 20 °C  AC withstand voltage (wire - wire) 2,5 kV @ 60 s  Power frequency withstand voltage (wire - wire) 2,5 kV @ 60 s  Win. operating temperature (static) -40 °C  Max. operating temperature (fixed) 80 °C ′90 °C @ 10000 h Operation  Diperating temperature max. (dynamic) Diperation Diperature max. (dynamic) 0 N E ISO 4892-2 A  Elame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance Good, application-related testing  Did resistance Good, application-related testing  Did resistance Good, application-related testing  Did resistance (C-track) 10 Min. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   Invizontal  Traversing distance (C-track) 5 m @ 25 °C   Invizontal  Traversing distance (C-track) 1 Min.  Torsion stress ± ± 360 °/m	Tolerance outer diameter (sheath)	± 5 %
Duter diameter insulation         1,7 mm           Duter diameter tolerance core insulation         ± 5 %           Shore hardness wire insulation         74 ± 3 Shore D           Ingredient freeness wire insulation         lead-free, cadmium-free, CFC-free, halogen-free, silicone-free           Amount strands (wire)         42           Diameter of single wires         0,15 mm           Conductor crosssection (wire)         0,75 mm²           Material conductor wire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Current load capacity (standard)         to DIN VDE 0298-4           Current load capacity win. wire         12 A           Electrical resistance line constant wire         26 Ω/km @ 20 °C           AC withstand voltage (wire - wire)         2,5 kV @ 60 s           Power frequency withstand voltage (wire - acket)         2,5 kV @ 60 s           Win. operating temperature (static)         40 °C           Win. operating temperature (fixed)         80 °C / 90 °C @ 10000 h Operation           DP erating temperature min. (dynamic)         -25 °C           Operating temperature max. (dynamic)         80 °C / 90 °C @ 10000 h Operation           DV resistance         DIN EN IS S 190 + 190 + 190 + 190 + 190 + 190 + 190 + 190 +	Material wire insulation	PP
Duter diameter tolerance core insulation         ± 5 %           Shore hardness wire insulation         74 ± 3 Shore D           Ingredient freeness wire insulation         42 × 2           Diameter of single wires         0,15 mm           Conductor crosssection (wire)         0,75 mm²           Material conductor wire         Stranded copper wire, bare           Conductor (wire)         \$1 x made           Conductor (wire)         \$1 x made           Conductor type (wire)         \$1 x made           Stranded copper wire, bare         \$4 x made           Nominal voltage AC max.         300 V           Current load capacity (standard)         to DIN VDE 0298-4           Current load capacity min. wire         12 A           Electrical resistance line constant wire         26 Ω/km @ 20 °C           AC withstand voltage (wire - wire)         2,5 kV @ 60 s           Power frequency withstand voltage (wire - wire)         2,5 kV @ 60 s           Min. operating temperature (static)         40 °C           Max. operating temperature (ixed)         80 °C / 90 °C @ 10000 h Operation           DV resistance         DIN EN ISO 4892-2 A           DV resistance         DIN EN ISO 4892-2 A           Classiance         Good, application-related testing           Oli resistance <td>Amount wires</td> <td>3</td>	Amount wires	3
Shore hardness wire insulation 74 ± 3 Shore D Ingredient freeness wire insulation lead-free, cadmium-free, CFC-free, halogen-free, silicone-free Amount strands (wire) 42 Diameter of single wires 0,15 mm Conductor crosssection (wire) 0,75 mm² Material conductor wire Stranded copper wire, bare Stranded copper wire, bare Conductor type (wire) strand class 6 Nominal voltage AC max. 300 V Current load capacity (standard) to IDIN VDE 0298-4 Current load capacity min. wire 12 A Cliectrical resistance line constant wire 26 Ω/km @ 20 °C AC withstand voltage (wire - wire) 2,5 kV @ 60 s Power frequency withstand voltage (wire) 2,5 kV @ 60 s Power frequency withstand voltage (wire) 2,5 kV @ 60 s Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation Coperating temperature min. (dynamic) -25 °C Coperating temperature max. (dynamic) 80 °C / 90 °C @ 10000 h Operation UV resistance DIN EN ISO 4892-2 A Filame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2 Chemical resistance Good, application-related testing Casoline resistance Good, application-related testing Casoline resistance Good, application-related testing Casoline resistance Good, application-related testing   DIN EN 60811-404 Bending radius (fixed) 5 x Outer diameter Bending radius (fixed) 5 x Outer diameter Bending radius (fynamic) 10 x Outer diameter Bending radius (fynamic) 5 m @ 25 °C Traversing distance (C-track) 5 m @ 25 °C   horizontal Traversing distance (C-track) 5 m @ 25 °C   horizontal Traversing distance (C-track) 5 m @ 25 °C No. of torsion oxples 1 Min. Torsion stress ± 360 °/m	Outer diameter insulation	1,7 mm
Ingredient freeness wire insulation lead-free, cadmium-free, CFC-free, halogen-free, silicone-free Amount strands (wire) 42 Diameter of single wires 0,15 mm Conductor crosssection (wire) 0,75 mm² Material conductor wire Stranded copper wire, bare Conductor type (wire) strand class 6 Nominal voltage AC max. 300 V Current load capacity (standard) to DIN VDE 0298-4 Current load capacity (standard) to DIN VDE 0298-4 Current load capacity min. wire 12 A Electrical resistance line constant wire 25 kW 60 s Power frequency withstand voltage (wire - wire) 2,5 kW 60 s Min. operating temperature (static) 40 °C Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation  UV resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2 chemical resistance  UL 1581 § 1100 FT2   UL 1581 § 109   IEC 60332-2-2 chemical resistance  Good, application-related testing Dil resistance  Good, application-related testing Bending radius (fixed) 5 x Outer diameter Bending radius (dynamic) 10 x Outer diameter No. of bending cycles (C-track) 5 m @ 25 °C Traversing distance (C-track) 5 m @ 25 °C Traversing distance (C-track) 10 Mio. Torsion stress ± 360 °/m	Outer diameter tolerance core insulation	± 5 %
Amount strands (wire) 42 Diameter of single wires 0,15 mm Conductor crosssection (wire) 0,75 mm² Material conductor wire Stranded copper wire, bare Conductor type (wire) strand class 6 Nominal voltage AC max. 300 V Current load capacity (standard) to DIN VDE 0298-4 Current load capacity (standard) to DIN VDE 0298-4 Current load capacity min. wire 12 A Electrical resistance line constant wire 26 Ω/km @ 20 °C AC withstand voltage (wire - wire) 2,5 kV @ 60 s Power frequency withstand voltage (wire - acket) 40 °C Max. operating temperature (static) 40 °C Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation Operating temperature min. (dynamic) 25 °C Operating temperature max. (dynamic) 80 °C / 90 °C @ 10000 h Operation Operating temperature max. (dynamic) 10 NE NI SO 4892-2 A Flame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2 chemical resistance Good, application-related testing Oil resistance Good, application-related testing Dil resistance Good, application-related testing Bending radius (fixed) 5 x Outer diameter No. of bending cycles (C-track) 10 Mio. @ 25 °C Traversing distance (C-track) 5 m @ 25 °C   horizontal Travel speed (C-track) 3,3 m/s @ 25 °C No. of torsion stress ± 360 °/m	Shore hardness wire insulation	74 ± 3 Shore D
Diameter of single wires         0,15 mm           Conductor crossection (wire)         0,75 mm²           Material conductor wire         Stranded copper wire, bare           Conductor type (wire)         strand class 6           Nominal voltage AC max.         300 V           Current load capacity (standard)         to DIN VDE 0298-4           Current load capacity min. wire         12 A           Electrical resistance line constant wire         26 D/km @ 20 °C           AC withstand voltage (wire - wire)         2,5 kV @ 60 s           Power frequency withstand voltage (wire - acket)         40 °C           Max. operating temperature (static)         40 °C           Max. operating temperature (static)         80 °C / 90 °C @ 10000 h Operation           Operating temperature min. (dynamic)         25 °C           Operating temperature max. (dynamic)         80 °C / 90 °C @ 10000 h Operation           UV resistance         DIN EN ISO 4892-2 A           Flame resistance         UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2           Chemical resistance         Good, application-related testing           Gasoline resistance         Good, application-related testing           Oil resistance         Good, application-related testing   DIN EN 60811-404           Bending radius (fixed)         5 x Outer diameter <td>Ingredient freeness wire insulation</td> <td>lead-free, cadmium-free, CFC-free, halogen-free, silicone-free</td>	Ingredient freeness wire insulation	lead-free, cadmium-free, CFC-free, halogen-free, silicone-free
Conductor crosssection (wire) 0,75 mm²  Material conductor wire Stranded copper wire, bare  Sonductor type (wire) strand class 6  Nominal voltage AC max. 300 V  Current load capacity (standard) to DIN VDE 0298-4  Current load capacity min. wire 12 A  Electrical resistance line constant wire 26 Ω/km @ 20 °C  AC withstand voltage (wire - wire) 2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket) 80 °C / 90 °C @ 10000 h Operation  Departing temperature (static) -40 °C  Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation  Dy resistance DIN EN ISO 4892-2 A  Flame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Cachemical resistance Good, application-related testing  Glori resistance Good, application-related testing  Glori resistance Good, application-related testing IDIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traver sing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Amount strands (wire)	42
Material conductor wire Stranded copper wire, bare  Conductor type (wire) strand class 6  Nominal voltage AC max. 300 V  Current load capacity (standard) to DIN VDE 0298-4  Current load capacity min. wire 12 A  Electrical resistance line constant wire 26 Ω/km @ 20 °C  AC withstand voltage (wire - wire) 2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket) 40 °C  Max. operating temperature (static) 40 °C  Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic) 25 °C  Operating temperature max. (dynamic) 80 °C / 90 °C @ 10000 h Operation  UV resistance DIN EN ISO 4892-2 A  Flame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance Good, application-related testing  Gasoline resistance Good, application-related testing  Dil resistance Good, application-related testing   DIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  No. of torsion cycles 1 Mio.  Traversing distance (C-track) 3,3 m's @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Diameter of single wires	0,15 mm
Conductor type (wire) strand class 6  Nominal voltage AC max. 300 V  Current load capacity (standard) to DIN VDE 0298-4  Current load capacity min. wire 12 A  Electrical resistance line constant wire 26 Ω/km @ 20 °C  AC withstand voltage (wire - wire) 2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket) 40 °C  Max. operating temperature (static) -40 °C  Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic) -25 °C  Operating temperature max. (dynamic) 80 °C / 90 °C @ 10000 h Operation  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing  Bending radius (fixed) 5 x Outer diameter  Bending radius (fixed) 5 x Outer diameter  Bending radius (fixed) 10 x Outer diameter  Bending radius (c-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 3,3 m/s @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles  L 360 °/m	Conductor crosssection (wire)	0,75 mm <sup>2</sup>
Nominal voltage A C max.  300 V  Current load capacity (standard)  12 A  Electrical resistance line constant wire  26 Ω/km @ 20 °C  4C withstand voltage (wire - wire)  2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket)  40 °C  Max. operating temperature (static)  40 °C  Max. operating temperature (fixed)  80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic)  25 °C  Operating temperature max. (dynamic)  80 °C / 90 °C @ 10000 h Operation  Ut 1581 § 1100 FT2   Ut 1581 § 1090   IEC 60332-2-2  chemical resistance  Ut 1581 § 1100 FT2   Ut 1581 § 1090   IEC 60332-2-2  chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m's @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Material conductor wire	Stranded copper wire, bare
Current load capacity (standard)  Current load capacity min. wire  12 A  Electrical resistance line constant wire  26 Ω/km @ 20 °C  AC withstand voltage (wire - wire)  2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket)  Aux. operating temperature (static)  Aux. operating temperature (fixed)  Aux. operating temperature min. (dynamic)  Coperating temperature max. (dynamic)  Deperating temperature max. (dynamic)  Bull 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Coll resistance  Good, application-related testing  Coll resistance  Good, application-related testing  Coll resistance  Good, application-related testing  Bending radius (fixed)  5 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C  Travel speed (C-track)  10 Mio.  Torsion stress  ± 360 °/m	Conductor type (wire)	strand class 6
Current load capacity min. wire         12 A           Electrical resistance line constant wire         26 Ω/km @ 20 °C           AC withstand voltage (wire - wire)         2,5 kV @ 60 s           Power frequency withstand voltage (wire - acket)         2,5 kV @ 60 s           Win. operating temperature (static)         -40 °C           Max. operating temperature (fixed)         80 °C / 90 °C @ 10000 h Operation           Operating temperature min. (dynamic)         -25 °C           Operating temperature max. (dynamic)         80 °C / 90 °C @ 10000 h Operation           UV resistance         DIN EN ISO 4892-2 A           Flame resistance         UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2           chemical resistance         Good, application-related testing           Gasoline resistance         Good, application-related testing           Dil resistance         Good, application-related testing   DIN EN 60811-404           Bending radius (fixed)         5 x Outer diameter           No. of bending cycles (C-track)         10 x Outer diameter           No. of bending cycles (C-track)         5 m @ 25 °C   horizontal           Traver sing distance (C-track)         5 m @ 25 °C   horizontal           Travel speed (C-track)         1 Mio.           Torsion stress         ± 360 °/m	Nominal voltage AC max.	300 V
Electrical resistance line constant wire 26 Ω/km @ 20 °C  AC withstand voltage (wire - wire) 2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket) 2,5 kV @ 60 s  Min. operating temperature (static) 40 °C  Max. operating temperature (fixed) 80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic) -25 °C  Operating temperature max. (dynamic) 80 °C / 90 °C @ 10000 h Operation  UV resistance DIN EN ISO 4892-2 A  Flame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance Good, application-related testing  Gasoline resistance Good, application-related testing  Oil resistance Good, application-related testing   DIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Current load capacity (standard)	to DIN VDE 0298-4
AC withstand voltage (wire - wire)  2,5 kV @ 60 s  Power frequency withstand voltage (wire - acket)  2,5 kV @ 60 s  2,5 kV @ 60 s  Win. operating temperature (static)  40 °C  Max. operating temperature (fixed)  80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic)  -25 °C  Operating temperature max. (dynamic)  80 °C / 90 °C @ 10000 h Operation  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Current load capacity min. wire	12 A
Power frequency withstand voltage (wire - acket)  Min. operating temperature (static)  Max. operating temperature (fixed)  Departing temperature min. (dynamic)  Departing temperature min. (dynamic)  Departing temperature max. (dynamic)  Departing temperature max. (dynamic)  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Dil resistance  Good, application-related testing  Dil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3.3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Electrical resistance line constant wire	26 Ω/km @ 20 °C
Acket)  Min. operating temperature (static)  Max. operating temperature (fixed)  Departing temperature min. (dynamic)  Departing temperature min. (dynamic)  Departing temperature max. (dynamic)  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  7 min.  Torsion stress  ± 360 °/m	AC withstand voltage (wire - wire)	2,5 kV @ 60 s
Max. operating temperature (fixed)  80 °C / 90 °C @ 10000 h Operation  Operating temperature min. (dynamic)  -25 °C  Operating temperature max. (dynamic)  80 °C / 90 °C @ 10000 h Operation  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  ± 360 °/m	Power frequency withstand voltage (wire - jacket)	2,5 kV @ 60 s
Operating temperature min. (dynamic)  -25 °C Operating temperature max. (dynamic)  80 °C / 90 °C @ 10000 h Operation  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Min. operating temperature (static)	-40 °C
Operating temperature max. (dynamic)  80 °C / 90 °C @ 10000 h Operation  UV resistance  DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  Chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  Oil resistance  Good, application-related testing   DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Max. operating temperature (fixed)	80 °C / 90 °C @ 10000 h Operation
DIN EN ISO 4892-2 A  Flame resistance  UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance  Good, application-related testing  Gasoline resistance  Good, application-related testing  DIN EN 60811-404  Bending radius (fixed)  5 x Outer diameter  Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Operating temperature min. (dynamic)	-25 °C
Flame resistance UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2  chemical resistance Good, application-related testing  Gasoline resistance Good, application-related testing  Oil resistance Good, application-related testing   DIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Operating temperature max. (dynamic)	80 °C / 90 °C @ 10000 h Operation
Chemical resistance Good, application-related testing Gasoline resistance Good, application-related testing Oil resistance Good, application-related testing   DIN EN 60811-404 Bending radius (fixed) 5 x Outer diameter Bending radius (dynamic) 10 x Outer diameter No. of bending cycles (C-track) 10 Mio. @ 25 °C Traversing distance (C-track) 5 m @ 25 °C   horizontal Travel speed (C-track) 3,3 m/s @ 25 °C No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	UV resistance	
Gasoline resistance Good, application-related testing Oil resistance Good, application-related testing   DIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Flame resistance	UL 1581 § 1100 FT2   UL 1581 § 1090   IEC 60332-2-2
Oil resistance Good, application-related testing   DIN EN 60811-404  Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	chemical resistance	Good, application-related testing
Bending radius (fixed) 5 x Outer diameter  Bending radius (dynamic) 10 x Outer diameter  No. of bending cycles (C-track) 10 Mio. @ 25 °C  Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Gasoline resistance	Good, application-related testing
Bending radius (dynamic)  10 x Outer diameter  No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Oil resistance	Good, application-related testing   DIN EN 60811-404
No. of bending cycles (C-track)  10 Mio. @ 25 °C  Traversing distance (C-track)  5 m @ 25 °C   horizontal  Travel speed (C-track)  3,3 m/s @ 25 °C  No. of torsion cycles  1 Mio.  Torsion stress  ± 360 °/m	Bending radius (fixed)	5 x Outer diameter
Traversing distance (C-track) 5 m @ 25 °C   horizontal  Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Bending radius (dynamic)	
Travel speed (C-track) 3,3 m/s @ 25 °C  No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	No. of bending cycles (C-track)	
No. of torsion cycles 1 Mio.  Torsion stress ± 360 °/m	Traversing distance (C-track)	·
Torsion stress ± 360 °/m	Travel speed (C-track)	· · · · · ·
	No. of torsion cycles	1 Mio.
Torsion speed 35 cycles/min	Torsion stress	
	Torsion speed	35 cycles/min