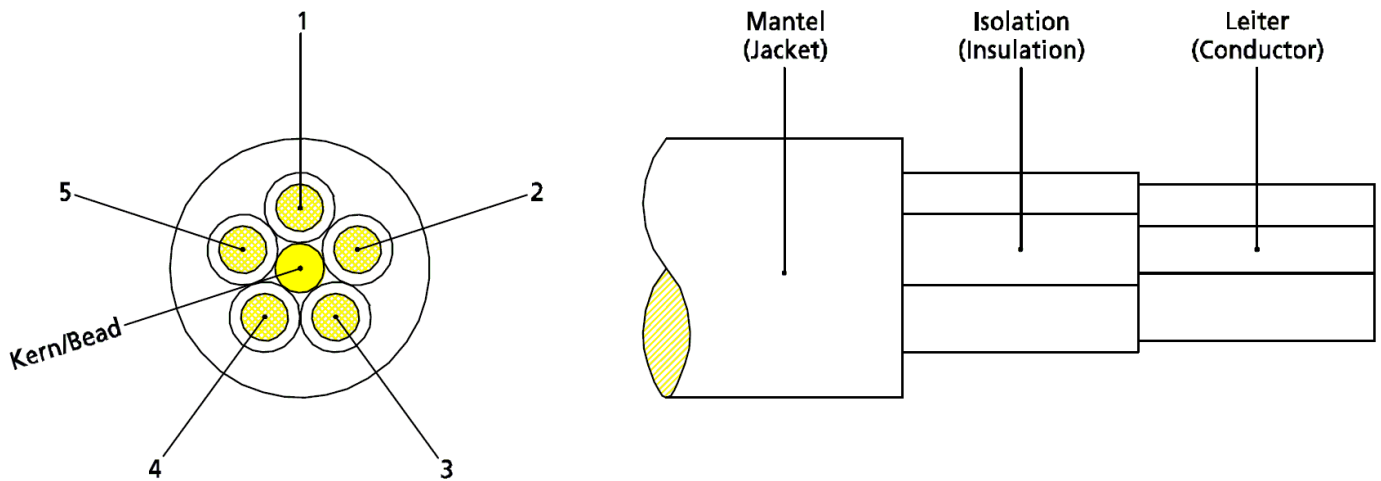
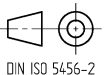


01. Drawing



The information/details in this datasheet merely contain general descriptions or performance factors which, when applied in an actual situation, do not always correspond with the described form, and may be amended by way of the further development of products. The desired performance factors shall only be binding if these are expressly agreed on conclusion of the contract.



**02. Application:**

Description: as a flexible, flame-retardant and halogen-free control line in the industrial mechanical- and plant engineering, for high requirements, particularly for the employment in cable carriers (Drag chains) and moved machine parts

**03. Line construction:**

03.01 Litz construction: VDE 0295, EN 60228, IEC 60228, HD 383  
 Wire material: Cu-ETP1 bare acc. DIN EN 13602  
 Wire size: 0,50 mm<sup>2</sup> (AWG 20)  
 Litz construction: approx. 16 x Ø 0,20 mm

03.02. Core insulation: No adhesion between the cores  
 Wire isolation: PP  
 Core-diameter: Ø 1,50 ±0,05 mm  
 Number of wires: 5  
 Correlation Core number-Core color: 1 brown/BN; 2 white/WH; 3 blau/BU; 4 black/BK; 5 green-yellow/GNYE

03.09. shielding: no

03.13. Outer jacket:

Jacket material: PUR  
 Jacket-diameter: Ø 5,40 ±0,20 mm  
 Jacket color: black matt similarly RAL 9005

Surface free from lubricant and grease.

Color: yellow  
 Printing: \* 228 / \*\* PUR E\*\*\* cURus AWM STYLE \*\*\*\* AWM I/II A/B 80°C 300V FT2 + 8025081 SUITABLE FOR USE WITHIN EQUIPMENT ONLY

- \* = Producer identification
- \*\* = Production-year and -week
- \*\*\* = UL-Producer number
- \*\*\*\* = UL-Style-Number

**04. Characteristics:**

04.01 Temperature range:  
 in stationary position: - 50 °C - + 105 °C, Lifetime 5.000 h  
 - 50 °C - + 80 °C, Lifetime > 20.000 h (UL)  
 flexible: - 25 °C - + 105 °C, Lifetime 5.000 h  
 - 25 °C - + 80 °C, Lifetime > 20.000 h (UL)  
 Ambient temperature in the drag chain movement: - 25 °C - + 60 °C

04.02 Electrical characteristics: at 20 °C  
 nominal voltage: ≤ 300 V  
 test voltage core/core, (50 Hz, 1 min.): ≥ 2000 V eff.  
 conductor resistance: max. 39,0 Ω/km  
 Insulation resistance: > 1000 MΩxkm

Bending radius in stationary position: > 5 x D  
 Bending radius in flexible stress: > 10 x D  
 Bending radius drag chain > 10 x D  
 Angle of torsion max.: ± 360 °  
 Length of torsion: 1 m  
 Bending cycles at torsion: > 5 Mio.

04.04 Drag chain characteristics: yes  
 Bending cycles \*: 5 Mio.  
 permissible acceleration: max. 5 m/s<sup>2</sup>  
 permissible horizontal traverse path: at 5 m/s<sup>2</sup> ► 5 m  
 permissible vertical traverse path: at 5 m/s<sup>2</sup> ► 2 m  
 permissible traverse speed at 5 m hor. trav. path: max. 200 m/min

\* depending on horizontal travel length and acceleration.

**05. Burning behavior:** **flame retardent**  
 flame retardent acc. to: DIN EN 60332-2-2, VDE 0482-332-2-2, IEC 60332-2-2, CSA FT2

**06. Halogen-free:** **yes**  
 Tests acc. to: DIN EN 50267-2-1, IEC 60754-1, VDE 0482-267-2-1

**07. Resistances:**  
 Oil rest. tests acc. with: IEC 60811:404  
 others: good microbes and hydrolysis resistance  
 good chemical resistance

**08. Other characteristics:**  
 Exclusion of dangerous materials acc.: EU-Directives:  
 1907/2006/EG, Reach  
 2011/65/EU, RoHS2  
 2015/863/EU, RoHS3  
 further legal requirements: EU-Directive:  
 2014/35/EU, LVD  
 others: mainly plasticizer diffusion free  
 Exclusion of PVC and Silicone  
 free of lacquer wetting disturbing substances  
 Coldness Flexibility

**09. Approvals:** **UL/CSA**  
 Jacket: cURus in acc. with AWM Style 20549 (80 °C / 300 V)  
 Core: cURus in acc. with AWM Style 10493 (80 °C / 300 V)

**product overview**

Article-No.	Type
000-108-198	STL 228/25 M
000-109-574	STL 228/100 M PUR
000-109-575	STL 228/500 M PUR
193-228-001	STL 228, 5x0,50mm <sup>2</sup> , PP/PUR, schwarz

Version: 25

Description of changes:

Add: with protective earth green/yellow GNYE Yes

Changed: Printing: \* 228 / \*\* PUR E\*\*\* cURus AWM STYLE \*\*\*\* AWM I/II A/B

80°C 300V FT2 + 8025081 in \* 228 / \*\* PUR E\*\*\* cURus AWM STYLE \*\*\*\* AWM I/II A/B

80°C 300V FT2 + 8025081 SUITABLE FOR USE WITHIN

EQUIPMENT ONLY

Add: others: good microbes and hydrolysis resistance

good chemical resistance

Changed: Exclusion of dangerous materials acc.: 2000/53/EG, 2011/65/EU, 2003/11/EG, 1907/2006/EG in EU-

Directives:

1907/2006/EG, Reach

2011/65/EU, RoHS2

2015/863/EU, RoHS3

Deleted: (Notiz), Datenblatt good microbes and hydrolysis resistance

mainly plasticizer diffusion free

good chemical and oil resistance

Exclusion of PVC and Silicone

free of lacquer wetting disturbing substances

Coldness Flexibility

Add: further legal requirements: EU-Directive:

2014/35/EU, LVD

Add: others: mainly plasticizer diffusion free

Exclusion of PVC and Silicone

free of lacquer wetting disturbing substances

Coldness Flexibility