

## Data cable | TPE | chainflex® CF11

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- Twisted pair
- Oil-resistant, bio-oil-resistant
- PVC and halogen-free
- Hydrolysis and microbe-resistant

## Dynamic information

|                                                                                   |                        |                                                                                         |                                                |
|-----------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b>                                                                  | minimum 6.8 x d                                |
|                                                                                   |                        | <b>flexible</b>                                                                         | minimum 5 x d                                  |
|                                                                                   |                        | <b>fixed</b>                                                                            | minimum 4 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b>                                                                  | -35 °C to +100 °C                              |
|                                                                                   |                        | <b>flexible</b>                                                                         | -50 °C to +100 °C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>                                                                            | -55 °C to +100 °C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>                                                                      | 10 m/s                                         |
|                                                                                   |                        | <b>gliding</b>                                                                          | 6 m/s                                          |
|  | <b>a max.</b>          |                                                                                         | 100 m/s <sup>2</sup>                           |
|  | <b>Travel distance</b> | Unsupported travel distances and up to 400 m and more for gliding applications, Class 6 |                                                |

## Cable structure

|                                                                                     |                            |                                                                                                                                                                        |  |
|-------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | <b>Conductor</b>           | Stranded conductor in especially bending-resistant design consisting of bare copper wires (following DIN EN 60228).                                                    |  |
|    | <b>Core insulation</b>     | Mechanically high-quality TPE mixture.                                                                                                                                 |  |
|   | <b>Core structure</b>      | Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths.                                                                      |  |
|  | <b>Core identification</b> | <b>Cores &lt; 1.0 mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100.<br><b>Cores ≥ 1.0 mm<sup>2</sup>:</b> Black cores with white numerals.                 |  |
|  | <b>Inner jacket</b>        | TPE mixture, adapted to suit the requirements in e-chains®.                                                                                                            |  |
|  | <b>Overall shield</b>      | Extremely bending-resistant braiding made of tinned copper wires.<br>Coverage approx. 70 % linear, approx. 90 % optical                                                |  |
|  | <b>Outer jacket</b>        | Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®.<br>Colour: Steel-blue (similar to RAL 5011) |  |

## Electrical information

|                                                                                     |                        |                                      |
|-------------------------------------------------------------------------------------|------------------------|--------------------------------------|
|  | <b>Nominal voltage</b> | 300/300 V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 1500 V (following DIN EN 50395)      |

## Class 6.6.4.1

|                    |             |   |   |   |   |   |   |   |         |
|--------------------|-------------|---|---|---|---|---|---|---|---------|
| Basic requirements | low         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| Travel distance    | unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ≥ 400 m |
| Oil resistance     | none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| Torsion            | none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ±180°   |

## Properties and approvals

|                                                                                     |                       |                                                                                                                                    |
|-------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>  | High.                                                                                                                              |
|  | <b>Oil resistance</b> | Oil resistant (following DIN EN 60811-404), bio-oil resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4. |
|  | <b>Silicone-free</b>  | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992).                                            |
|  | <b>Halogen-free</b>   | Following DIN EN 60754.                                                                                                            |
|  | <b>EAC</b>            | Certificate no. RU C-DE.ME77.B.01254 (TR ZU)                                                                                       |
|  | <b>Lead-free</b>      | Following 2011/65/EU (RoHS-II).                                                                                                    |
|  | <b>Cleanroom</b>      | According to ISO Class 1. Outer jacket material complies with CF9.15.07, tested by IPA according to standard 14644-1.              |
|  | <b>CE</b>             | Following 2014/35/EU.                                                                                                              |

## Guaranteed lifetime according to guarantee conditions (Page 22-23)

| Double strokes*           | 5 million           | 7.5 million         | 10 million          |
|---------------------------|---------------------|---------------------|---------------------|
| Temperature, from/to [°C] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| -35/-25                   | 7.5                 | 8.5                 | 9.5                 |
| -25/+90                   | 6.8                 | 7.5                 | 8.5                 |
| +90/+100                  | 7.5                 | 8.5                 | 9.5                 |

\* Higher number of double strokes? Online lifetime calculation: [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

## Typical mechanical application areas

- For extremely heavy duty applications
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV resistant
- Unsupported travel distances and up to 400 m and more for gliding applications
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling equipment, Clean room, semiconductor handling, outdoor cranes, low temperature applications



igus® chainflex® CF11

Example image

| Part No.                    | Number of cores and conductor nominal cross section<br>mm <sup>2</sup> | Outer diameter (d) max.<br>mm | Copper index<br>kg/km | Weight<br>kg/km |
|-----------------------------|------------------------------------------------------------------------|-------------------------------|-----------------------|-----------------|
| CF11.01.04.02               | (4x(2x0.14))C                                                          | 7.5                           | 31                    | 65              |
| CF11.01.18.02               | (18x(2x0.14))C                                                         | 12.0                          | 107                   | 198             |
| CF11.02.01.02               | (2x0.25)C                                                              | 6.0                           | 18                    | 39              |
| CF11.02.02.02 <sup>2)</sup> | (2x(2x0.25))C                                                          | 6.5                           | 28                    | 51              |
| CF11.02.03.02               | (3x(2x0.25))C                                                          | 8.0                           | 37                    | 80              |
| CF11.02.04.02               | (4x(2x0.25))C                                                          | 8.5                           | 44                    | 91              |
| CF11.02.05.02               | (5x(2x0.25))C                                                          | 9.0                           | 52                    | 107             |
| CF11.02.06.02               | (6x(2x0.25))C                                                          | 10.0                          | 73                    | 134             |
| CF11.02.09.02 <sup>1)</sup> | (9x(2x0.25))C                                                          | 12.5                          | 102                   | 208             |
| CF11.02.10.02               | (10x(2x0.25))C                                                         | 13.0                          | 109                   | 223             |
| CF11.02.14.02               | (14x(2x0.25))C                                                         | 13.5                          | 132                   | 232             |
| CF11.03.08.02               | (8x(2x0.34))C                                                          | 13.0                          | 113                   | 227             |
| CF11.05.04.02               | (4x(2x0.5))C                                                           | 9.5                           | 82                    | 138             |
| CF11.05.06.02               | (6x(2x0.5))C                                                           | 12.0                          | 110                   | 205             |
| CF11.05.08.02               | (8x(2x0.5))C                                                           | 14.0                          | 145                   | 271             |
| CF11.07.03.02               | (3x(2x0.75))C                                                          | 10.0                          | 87                    | 159             |
| CF11.10.04.02               | (4x(2x1.0))C                                                           | 12.0                          | 134                   | 237             |
| CF11.15.06.02               | (6x(2x1.5))C                                                           | 17.0                          | 263                   | 427             |
| CF11.25.03.02               | (3x(2x2.5))C                                                           | 15.5                          | 226                   | 393             |

<sup>1)</sup> Phase-out modelThe chainflex® types marked with <sup>2)</sup> are cables designed as a star-quadr.**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.**G** = with green-yellow earth core **x** = without earth core

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