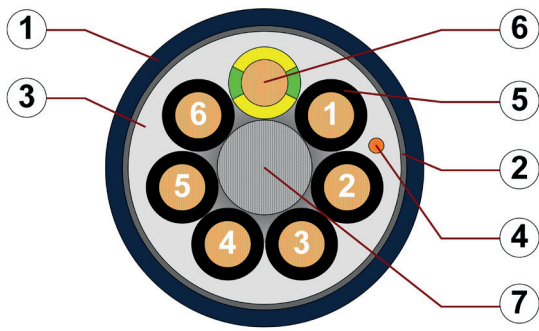


Data sheet

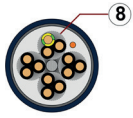
chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
4. CFRIP: Tear strip for faster cable stripping
5. Core insulation: Mechanically high-quality TPE mixture
6. Conductor: Stranded conductor in especially bend-resistant version consisting of bare copper wires
7. Strain relief: Tensile stress-resistant centre element
8. 12 cores or more: Bundles with optimised pitch length and pitch direction



Example image
For detailed overview please see design table

Cable structure

| | | |
|--|----------------------------|---|
| | Conductor | Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228). |
| | Core insulation | Mechanically high-quality TPE mixture. |
| | Core structure | Number of cores < 12: Cores wound in a layer with short pitch length. Number of cores ≥ 12: Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure. |
| | Core identification | Cores < 0.75 mm²: Colour code in accordance with DIN 47100. Cores ≥ 0.75 mm²: Black cores with white numbers, one green-yellow core. CF10.03.05.INI: brown, blue, black, white, green-yellow |
| | Inner jacket | TPE mixture adapted to suit the requirements in e-chains®. |
| | Overall shield | Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical |
| | Outer jacket | Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Steel-blue (similar to RAL 5011) Printing: white |
| | CFRIP® | Strip cables faster: a tear strip is moulded into the inner jacket Video ► www.igus.eu/CFRIP |

„00000 m⁴ igus chainflex CF10.--① -----② 300/500V E310776

RU AWM Style -----③ 90°C ---V④ RoHS-II conform EAC CE UKCA

www.igus.eu +++ chainflex cable works +++

* **Length printing:** Not calibrated. Only intended as an orientation aid.
① / ② Cable identification according to Part No. (see technical table).
③ / ④ Printing of UL information (see related chapter).
Example: ... chainflex ... **CF10.01.12** ... (12x0.14)C ... 300 V/500 V ...



Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant



Example image
igus® chainflex® CF10

Dynamic information

| | | | |
|---|------------------------|---|--|
|  | Bend radius | e-chain® linear flexible fixed | minimum 5 x d minimum 4 x d minimum 3 x d |
|  | Temperature | e-chain® linear flexible fixed | -35 °C up to +100 °C -50 °C up to +100 °C (following DIN EN 60811-504) -55 °C up to +100 °C (following DIN EN 50305) |
|  | v max. | unsupported gliding | 10 m/s 6 m/s |
|  | a max. | | 100 m/s ² |
|  | Travel distance | | Unsupported travel distances and up to 400 m for gliding applications, Class 6 |



These values are based on specific applications or tests. They do not represent the limit of what is technically feasible.

Guaranteed service life according to guarantee conditions

| Double strokes | 5 million | 7.5 million | 12.5 million |
|---------------------------|---------------------|---------------------|---------------------|
| Temperature, from/to [°C] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| -35/-25 | 6.8 | 7.5 | 8.5 |
| -25/+90 | 5 | 6 | 7 |
| +90/+100 | 6.8 | 7.5 | 8.5 |

Minimum guaranteed service life of the cable under the specified conditions.
The installation of the cable is recommended within the middle temperature range.

Electrical information

| | | |
|---|------------------------|---|
|  | Nominal voltage | 300/500 V (following DIN VDE 0298-3) Cores < 0.5 mm ² : 300 V (following UL) Cores ≥ 0.5 mm ² : 1000 V (following UL) |
|  | Testing voltage | 2000 V (following DIN EN 50395) |



Data sheet













chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant



Properties and approvals

-  **UV resistance** High
-  **Oil resistance** Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
-  **Silicone-free** Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
-  **Halogen-free** Following DIN EN 60754
-  **UL verified** Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
-  **UL AWM** Details see table UL AWM
-  **EAC** Certificate No. RU C-DE.ME77.B.00300/19 (TR ZU)
-  **REACH** In accordance with regulation (EC) No. 1907/2006 (REACH)
-  **Lead-free** Following 2011/65/EC (RoHS-II/RoHS-III)
-  **Cleanroom** According to ISO Class 1. The outer jacket material of this series complies with CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
-  **CE** Following 2014/35/EU
-  **UK CA** In accordance with the valid regulations of the United Kingdom (as at 08/2021)



Properties and approvals

UL AWM details

| Conductor nominal cross section [mm ²] | Number of cores | UL style core insulation | UL style outer jacket | UL Voltage Rating [V] | UL Temperature Rating [°C] |
|--|-----------------|--------------------------|-----------------------|-----------------------|----------------------------|
| 0,14 | 12-18 | 11884 | 22357 | 300 | 90 |
| 0,25 | 4-25 | 11884 | 22357 | 300 | 90 |
| 0,34 | 5 | 11884 | 22357 | 300 | 90 |
| 0,5 | 4-25 | 11886 | 22351 | 1000 | 90 |
| 0,75 | 4-25 | 11886 | 22351 | 1000 | 90 |
| 1 | 2-25 | 11886 | 22351 | 1000 | 90 |
| 1,5 | 4-18 | 11886 | 22351 | 1000 | 90 |
| 2,5 | 4-12 | 11886 | 22351 | 1000 | 90 |
| 4 | 4-5 | 11886 | 22351 | 1000 | 90 |

Example image
igus® chainflex® CF10

Data sheet

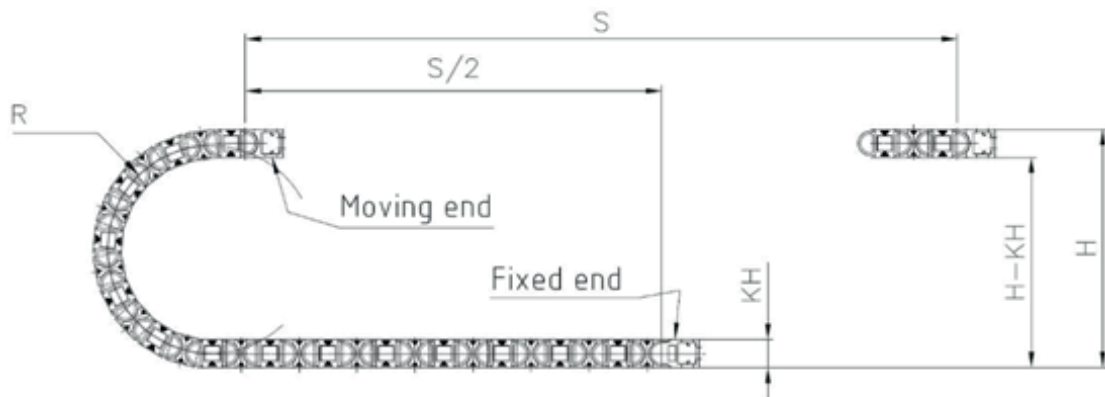
chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

Typical lab test setup for this cable series

| | |
|--------------------|--------------------------------------|
| Test bend radius R | approx. 28 - 100 mm |
| Test travel S | approx. 1 - 15 m |
| Test duration | minimum 2 - 4 million double strokes |
| Test speed | approx. 0.5 - 2 m / s |
| Test acceleration | approx. 0.5 - 1.5 m / s ² |

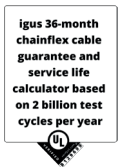


Typical application areas

- For heaviest duty applications, Class 7
- Unsupported travel distances and up to 400 m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications



Example image



Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

Technical tables:

Mechanical information

| Part No. | Number of cores and conductor nominal cross section [mm ²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------|---|---------------------------------|-------------------------|-------------------|
| CF10.01.12 | (12x0.14)C | 7.5 | 37 | 78 |
| CF10.01.18 | (18x0.14)C | 9.5 | 63 | 119 |
| CF10.02.04 | (4x0.25)C | 6.5 | 24 | 49 |
| CF10.02.08 | (8x0.25)C | 8.0 | 40 | 79 |
| CF10.02.12 | (12x0.25)C | 9.5 | 65 | 122 |
| CF10.02.25 | (25x0.25)C | 12.0 | 110 | 211 |
| CF10.03.05.INI | (5x0.34)C | 7.0 | 33 | 63 |
| CF10.05.04 | (4x0.5)C | 7.0 | 37 | 70 |
| CF10.05.05 | (5x0.5)C | 7.5 | 44 | 81 |
| CF10.05.07 | (7x0.5)C | 8.5 | 58 | 104 |
| CF10.05.12 | (12x0.5)C | 12.0 | 107 | 198 |
| CF10.05.18 | (18x0.5)C | 13.5 | 144 | 261 |
| CF10.05.25 | (25x0.5)C | 15.0 | 186 | 332 |
| CF10.07.04 | (4G0.75)C | 7.5 | 49 | 86 |
| CF10.07.05 | (5G0.75)C | 8.0 | 58 | 102 |
| CF10.07.07 | (7G0.75)C | 9.5 | 90 | 147 |
| CF10.07.12 | (12G0.75)C | 12.5 | 139 | 244 |
| CF10.07.20 | (20G0.75)C | 15.0 | 210 | 350 |
| CF10.07.25 | (25G0.75)C | 17.0 | 255 | 443 |
| CF10.10.02 | (2x1.0)C | 7.5 | 38 | 72 |
| CF10.10.03 | (3G1.0)C | 7.5 | 48 | 84 |
| CF10.10.04 | (4G1.0)C | 8.0 | 60 | 100 |
| CF10.10.05 | (5G1.0)C | 8.5 | 72 | 118 |
| CF10.10.07 | (7G1.0)C | 10.0 | 110 | 172 |
| CF10.10.12 | (12G1.0)C | 13.5 | 175 | 294 |
| CF10.10.18 | (18G1.0)C | 16.0 | 244 | 404 |
| CF10.10.25 | (25G1.0)C | 19.0 | 323 | 550 |
| CF10.15.04 | (4G1.5)C | 9.0 | 94 | 141 |
| CF10.15.05 | (5G1.5)C | 9.5 | 111 | 163 |
| CF10.15.07 ¹⁷⁾ | (7G1.5)C | 11.5 | 148 | 224 |
| CF10.15.12 | (12G1.5)C | 15.0 | 240 | 373 |
| CF10.15.18 | (18G1.5)C | 18.5 | 365 | 568 |

¹⁷⁾ When using the cables with „7G1.5mm²“ and „G2.5mm²“ minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

Technical tables:

Mechanical information

| Part No. | Number of cores and conductor nominal cross section [mm ²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------|---|---------------------------------|-------------------------|-------------------|
| CF10.25.04 | (4G2.5)C | 11.0 | 140 | 209 |
| CF10.25.07 ¹⁷⁾ | (7G2.5)C | 13.5 | 227 | 335 |
| CF10.25.12 | (12G2.5)C | 19.5 | 402 | 636 |
| CF10.40.04 | (4G4.0)C | 12.5 | 205 | 287 |
| CF10.40.05 | (5G4.0)C | 13.5 | 254 | 351 |

¹⁷⁾ When using the cables with „7G1.5mm²“ and „G2.5mm²“ minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

Electrical information

| Conductor nominal cross section [mm ²] | Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km] | Max. current rating at 30 °C [A] |
|---|---|-------------------------------------|
| 0.14 | 138 | 2.5 |
| 0.25 | 79 | 5 |
| 0.34 | 57 | 7 |
| 0.5 | 39 | 10 |
| 0.75 | 26 | 14 |
| 1 | 19.5 | 17 |
| 1.5 | 13.3 | 21 |
| 2.5 | 8 | 30 |
| 4 | 4.95 | 41 |

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



Example image

Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

Design table

| Part No. | Number of cores | Core design | Part No. | Number of cores | Core design |
|----------------|-----------------|-------------|------------|-----------------|-------------|
| CF10.XX.02 | 2 | | CF10.XX.08 | 8 | |
| CF10.XX.03 | 3 | | CF10.XX.12 | 4x3 | |
| CF10.XX.04 | 4 | | CF10.XX.18 | 6x3 | |
| CF10.XX.05.INI | 5 | | CF10.XX.20 | 5x4 | |
| CF10.XX.05 | 5 | | CF10.XX.25 | 5x5 | |
| CF10.XX.07 | 7 | | | | |



Example image

Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

Colour code in accordance with DIN 47100

| Conductor no. | Colours according to DIN ISO 47100 | Conductor no. | Colours according to DIN ISO 47100 |
|---------------|------------------------------------|---------------|------------------------------------|
| 1 | white | 19 | white-pink |
| 2 | brown | 20 | pink-brown |
| 3 | green | 21 | white-blue |
| 4 | yellow | 22 | brown-blue |
| 5 | grey | 23 | white-red |
| 6 | pink | 24 | brown-red |
| 7 | blue | 25 | white-black |
| 8 | red | 26 | brown-black |
| 9 | black | 27 | grey-green |
| 10 | violet | 28 | yellow-grey |
| 11 | grey-pink | 29 | pink-green |
| 12 | red-blue | 30 | yellow-pink |
| 13 | white-green | 31 | green-blue |
| 14 | brown-green | 32 | yellow-blue |
| 15 | white-yellow | 33 | green-red |
| 16 | yellow-brown | 34 | yellow-red |
| 17 | white-grey | 35 | green-black |
| 18 | grey-brown | 36 | yellow-black |



Example image

