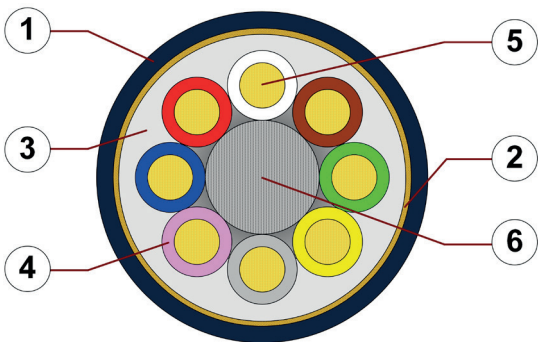


Data sheet

chainflex® CF99.PLUS



Control cable (Class 7.5.4.1) ● For heaviest duty applications and especially small radii down to 3 x d ● 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 alloy wires.
- 3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
- 4. Core insulation: Mechanically high-quality TPE mixture
- 5. Conductor: Conductor consisting of a highly flexible special alloy
- 6. Strain relief: Tensile stress-resistant centre element

Example image
For detailed overview please see design table

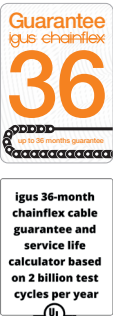
Cable structure

| | | |
|--|---------------------|---|
| | Conductor | Conductor consisting of a highly flexible special alloy. |
| | Core insulation | Mechanically high-quality TPE mixture. |
| | Core structure | Cores wound in a layer with especially short pitch length. |
| | Core identification | Colour code in accordance with DIN 47100. |
| | Inner jacket | TPE mixture adapted to suit the requirements in e-chains®. |
| | Overall shield | Extremely bending resistant braiding made of alloy 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 |

„00000 m“ igus chainflex CF99.PLUS.--.---① -----② 300/300V EAC CE UKCA

RoHS-II conform www.igus.de +++ chainflex cable works +++

* **Length printing:** Not calibrated. Only intended as an orientation aid.
① / ② Cable identification according to Part No. (see technical table).
Example: ... chainflex **CF99.PLUS.01.02 (2x0.14)C 300 V/300 V ...**



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Data sheet






chainflex® CF99.PLUS



Control cable (Class 7.5.4.1) ● For heaviest duty applications and especially small radii down to 3 x d ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant



Dynamic information

| | | | |
|---|-----------------|--------------------------------------|---|
|  | Bend radius | e-chain® linear flexible fixed | minimum 3 x d minimum 3 x d minimum 3 x d |
|  | Temperature | e-chain® linear flexible fixed | -35 °C up to +90 °C -50 °C up to +90 °C (following DIN EN 60811-504) -55 °C up to +90 °C (following DIN EN 50305) |
|  | v max. | unsupported gliding | 10 m/s 6 m/s |
|  | a max. | | 100 m/s ² |
|  | Travel distance | | Short, very fast applications with small radii and tight design space, Class 5 |



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 | 40 million | 100 million |
|---------------------------|---------------------|---------------------|---------------------|
| Temperature, from/to [°C] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| -35/-25 | 4 | 6 | 7 |
| -25/+80 | 3 | 5 | 6 |
| +80/+90 | 4 | 6 | 7 |

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 | 300/300 V |
|  | Testing voltage | 1500 V |



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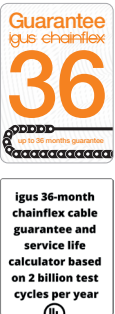


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Properties and approvals

| | | |
|--|----------------|---|
| | 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“ |
| | EAC | Certificate No. RU C-DE.ME77.B.00300/19 |
| | 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 |
| | UKCA | In accordance with the valid regulations of the United Kingdom (as at 08/2021) |



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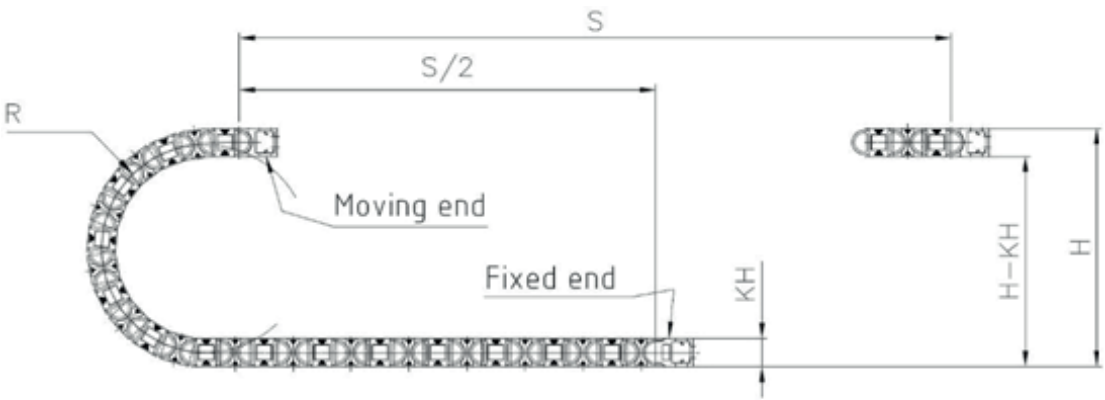


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Typical lab test setup for this cable series

| | |
|--------------------|--------------------------------------|
| Test bend radius R | approx. 15 - 28 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 and especially small radii down to 3 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 5
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Pick and place machines, automatic doors, Clean room, very quick handling



igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



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Technical tables:

Mechanical information

| Part No. | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|-----------------|--|---------------------------------|-------------------------|-------------------|
| CF99.PLUS.01.02 | (2x0.14)C | 6.0 | 12 | 39 |
| CF99.PLUS.01.04 | (4x0.14)C | 6.5 | 16 | 48 |
| CF99.PLUS.01.08 | (8x0.14)C | 8.0 | 28 | 76 |
| CF99.PLUS.02.04 | (4x0.25)C | 7.0 | 23 | 60 |
| CF99.PLUS.03.08 | (8x0.34)C | 9.5 | 45 | 111 |

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 [mm²] | Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km] | Max. current rating at 30 °C [A] |
|--|---|-------------------------------------|
| 0.14 | 140 | 2,5 |
| 0.25 | 88 | 5 |
| 0.34 | 72 | 7 |

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



igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



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Design table

| Part No. | Number of cores | Core design |
|-----------------|-----------------|-------------|
| CF99.PLUS.XX.02 | 2 | |
| CF99.PLUS.XX.04 | 4 | |
| CF99.PLUS.XX.07 | 7 | |
| CF99.PLUS.XX.08 | 8 | |



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Colour code in accordance with DIN 47100

| Conductor no. | Colours according to DIN ISO 47100 |
|---------------|------------------------------------|
| 1 | white |
| 2 | brown |
| 3 | green |
| 4 | yellow |
| 5 | grey |
| 6 | pink |
| 7 | blue |
| 8 | red |
| 9 | black |
| 10 | violet |
| 11 | grey-pink |
| 12 | red-blue |
| 13 | white-green |
| 14 | brown-green |
| 15 | white-yellow |
| 16 | yellow-brown |
| 17 | white-grey |
| 18 | grey-brown |

| Conductor no. | Colours according to DIN ISO 47100 |
|---------------|------------------------------------|
| 19 | white-pink |
| 20 | pink-brown |
| 21 | white-blue |
| 22 | brown-blue |
| 23 | white-red |
| 24 | brown-red |
| 25 | white-black |
| 26 | brown-black |
| 27 | grey-green |
| 28 | yellow-grey |
| 29 | pink-green |
| 30 | yellow-pink |
| 31 | green-blue |
| 32 | yellow-blue |
| 33 | green-red |
| 34 | yellow-red |
| 35 | green-black |
| 36 | yellow-black |



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