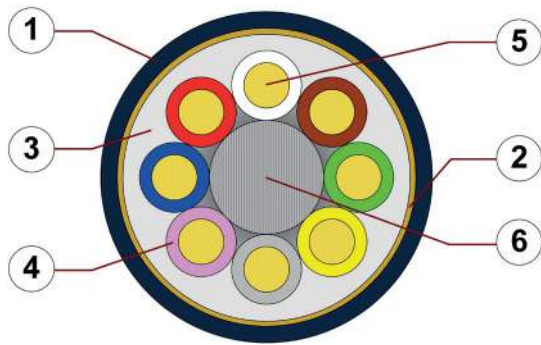


# Data sheet

## chainflex® CF99



Control cable (Class 7.5.4.1) ● For heaviest duty applications and especially small radii down to 4 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

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

„00000 m\*\* igus chainflex CF99.--.--① -----② 300/500V EAC CE UKCA

RoHS-II conform [www.igus.de](http://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 **CF99.01.02 (2x0.14)C 300 V/300 V ...**



Example image

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Example image

### Dynamic information

|  |                        |                                      |   |
|--|------------------------|--------------------------------------|---|
|  | <b>Bend radius</b>     | e-chain® linear<br>flexible<br>fixed | minimum 4 x d<br>minimum 4 x d<br>minimum 3 x d   |
|  | <b>Temperature</b>     | e-chain® linear<br>flexible<br>fixed | -35 °C up to +90 °C<br>-50 °C up to +90 °C (following DIN EN 60811-504)<br>-55 °C up to +90 °C (following DIN EN 50305) |
|  | <b>v max.</b>          | unsupported<br>gliding               | 10 m/s<br>6 m/s   |
|  | <b>a max.</b>          |                                      | 100 m/s <sup>2</sup>  |
|  | <b>Travel distance</b> |                                      | 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                   | 20 million                 | 30 million                 | 40 million                 |
|----------------------------------|----------------------------|----------------------------|----------------------------|
| <b>Temperature, from/to [°C]</b> | <b>R min. [factor x d]</b> | <b>R min. [factor x d]</b> | <b>R min. [factor x d]</b> |
| -35/-25                          | 5                          | 6                          | 7                          |
| -25/+80                          | 4                          | 5                          | 6                          |
| +80/+90                          | 5                          | 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

|  |                        |           |
|--|------------------------|-----------|
|  | <b>Nominal voltage</b> | 300/300 V |
|  | <b>Testing voltage</b> | 1500 V    |



# Data sheet












## chainflex® CF99



Control cable (Class 7.5.4.1) ● For heaviest duty applications and especially small radii down to 4 x d ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

### 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>UL verified</b>    | Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“              |
|    | <b>EAC</b>            | Certificate No. RU C-DE.ME77.B.00300/19   |
|   | <b>REACH</b>          | In accordance with regulation (EC) No. 1907/2006 (REACH)  |
|  | <b>Lead-free</b>      | Following 2011/65/EC (RoHS-II/RoHS-III)   |
|  | <b>Cleanroom</b>      | 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 |
|  | <b>CE</b>             | Following 2014/35/EU  |
|  | <b>UKCA</b>           | In accordance with the valid regulations of the United Kingdom (as at 08/2021)  |



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



Example image

# Data sheet

## chainflex® CF99

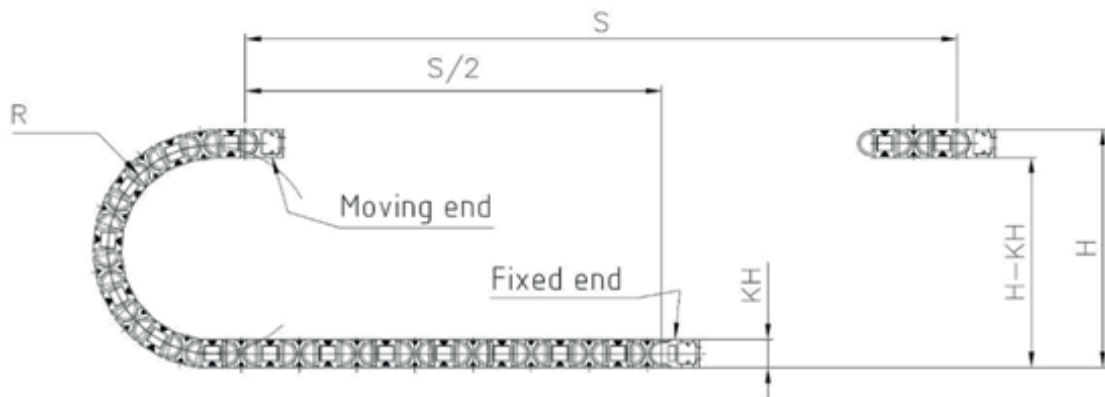


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### Typical lab test setup for this cable series

|                    |                                      |
|--------------------|--------------------------------------|
| 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 <sup>2</sup> |



### Typical application areas

- For heaviest duty applications and especially small radii down to 4 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



Example image

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Example image

### Technical tables:

#### Mechanical information

| Part No.   | Number of cores and conductor nominal cross section [mm <sup>2</sup> ] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------|--|------------------------------|----------------------|----------------|
| CF99.01.02 | (2x0.14)C  | 6.0                          | 12                   | 37             |
| CF99.01.04 | (4x0.14)C  | 6.5                          | 17                   | 47             |
| CF99.01.08 | (8x0.14)C  | 8.0                          | 29                   | 76             |
| CF99.02.04 | (4x0.25)C  | 7.0                          | 24                   | 60             |
| CF99.03.08 | (8x0.34)C  | 9.5                          | 45                   | 108            |

**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 <sup>2</sup> ] | 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.



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### Design table

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



Example image



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### 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

