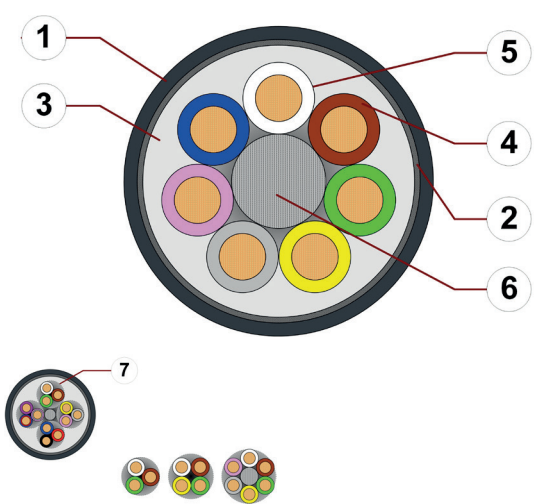


Data sheet

chainflex® CF2










- Control cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket
 ● Shielded ● Oil-resistant and coolant-resistant ● Flame retardant ● Notch-resistant
 ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded PUR mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling PVC mixture
4. Core insulation: Mechanically high-quality TPE mixture
5. Conductor: Stranded conductor in especially bend-resistant version consisting of bare copper wires
6. Strain relief: Tensile stress-resistant centre element
7. 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 | Colour code in accordance with DIN 47100. |
|  | Inner jacket | PVC mixture adapted to suit the requirements in e-chains®. |
|  | Overall shield | Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 % |
|  | Outer jacket | Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2) Colour: Anthracite grey (similar to RAL 7016) Printing: white |

„00000 m^{***} igus chainflex CF2.-.-① ---② 300/500V E310776 cЯ Uus

AWM Style 20317 VW-1 AWM I/II A/B 80°C 300V FT-1 EAC/CTP CE

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 **CF2.01.04 (4x0.14)C 300/500 V**



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



Example image

Data sheet

chainflex® CF2








Control cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket
 ● Shielded ● Oil-resistant and coolant-resistant ● Flame retardant ● Notch-resistant
 ● Hydrolysis and microbe-resistant



Example image
igus® chainflex® CF2

Dynamic information

| | | | |
|---|------------------------|---|---|
|  | Bend radius | e-chain® linear flexible fixed | min. 5 x d min. 4 x d min. 3 x d |
|  | Temperature | e-chain® linear flexible fixed | -20 °C up to +80 °C -40 °C up to +80 °C (following DIN EN 60811-504) -50 °C up to +80 °C (following DIN EN 50305) |
|  | v max. | unsupported gliding | 10 m/s 5 m/s |
|  | a max. | | 80 m/s ² |
|  | Travel distance | | Unsupported travels and up to 100 m for gliding applications, 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 | 7.5 million | 10 million |
|---------------------------|---------------------|---------------------|---------------------|
| Temperature, from/to [°C] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| -20/-10 | 6.8 | 7.5 | 8.5 |
| -10/+70 | 5 | 6.8 | 7.5 |
| +70/+80 | 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) 300 V (following UL) |
|  | Testing voltage | 2000 V (following DIN EN 50395) |



Data sheet

chainflex® CF2



- Control cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket
- Shielded ● Oil-resistant and coolant-resistant ● Flame retardant ● Notch-resistant
- Hydrolysis and microbe-resistant

Properties and approvals

- UV resistance** High
- Oil resistance** Oil-resistant (following DIN EN 50363-10-2), Class 3
- Offshore** MUD-resistant following NEK 606 - status 2009
- Flame retardant** According to IEC 60332-1-2, FT1, VW-1
- Silicone-free** Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
- UL verified** Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
- UL/CSA AWM** See table UL/CSA AWM for details
- NFFPA** Following NFFPA 79-2018, chapter 12.9
- 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 CF77. UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1
- CE** Following 2014/35/EU



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



Properties and approvals

UL/CSA 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 | 4-36 | 10493 | 20317 | 300 | 80 |
| 0.25 | 4-48 | 10493 | 20317 | 300 | 80 |

Example image



Data sheet

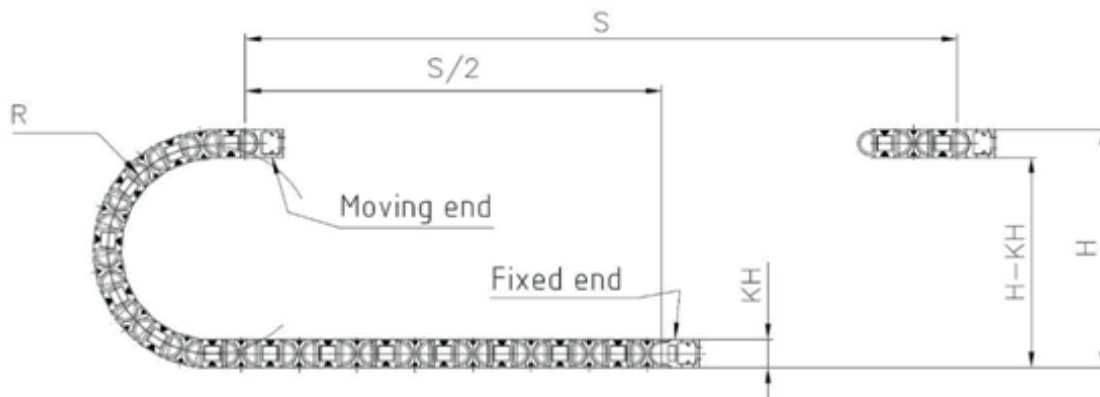
chainflex® CF2



- Control cable (Class 6.5.3.1)
- For extremely heavy duty applications
- PUR outer jacket
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Typical lab test setup for this cable series

| | |
|------------------------------|--------------------------------------|
| Test bend radius R | approx. 28 - 75 mm |
| Test travel S/S ₂ | 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 6
- Unsupported travels and up to 100 m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, quick handling, indoor cranes, refrigerating sector



Example image



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chainflex® CF2



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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] |
|-------------------------|--|------------------------------|----------------------|----------------|
| CF2.01.04 | (4x0.14)C | 6.5 | 18 | 49 |
| CF2.01.08 | (8x0.14)C | 7.5 | 31 | 66 |
| CF2.01.12 | (12x0.14)C | 9.5 | 51 | 102 |
| CF2.01.18 | (18x0.14)C | 10.5 | 56 | 135 |
| CF2.01.24 ³⁾ | (24x0.14)C | 11.5 | 68 | 162 |
| CF2.01.36 | (36x0.14)C | 14.5 | 92 | 240 |
| CF2.02.04 | (4x0.25)C | 7.0 | 25 | 59 |
| CF2.02.08 | (8x0.25)C | 8.0 | 43 | 84 |
| CF2.02.18 | (18x0.25)C | 12.0 | 100 | 173 |
| CF2.02.24 ³⁾ | (24x0.25)C | 13.5 | 124 | 305 |
| CF2.02.48 | (48x0.25)C | 17.5 | 191 | 387 |

³⁾ The chainflex® types marked with a 3) refer to cables that are based on a bundling of 4 cores each. Due to their excellent electrical properties (star-quad with especially minimum crosstalk), these cables can virtually be used in all cases in which otherwise twisted-pair cables are required.

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 | 4 |

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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Data sheet

chainflex® CF2



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Design table

| Part No. | Number of cores | Core design | Part No. | Number of cores | Core design |
|-----------|-----------------|-------------|-----------|-----------------|-------------|
| CF2.XX.04 | 4 | | CF2.XX.24 | 6x4 | |
| CF2.XX.08 | 8 | | CF2.XX.36 | 6x6 | |
| CF2.XX.12 | 4x3 | | CF2.XX.48 | 8x6 | |
| CF2.XX.18 | 6x3 | | | | |



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



Example image

igus® chainflex® CF2

Data sheet

chainflex® CF2



- Control cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket
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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 | Conductor no. | Colours according to DIN ISO 47100 |
|---------------|------------------------------------|---------------|------------------------------------|---------------|------------------------------------|
| 1 | white | 22 | brown-blue | 43 | blue-black |
| 2 | brown | 23 | white-red | 44 | red-black |
| 3 | green | 24 | brown-red | 45 | white-brown-black |
| 4 | yellow | 25 | white-black | 46 | yellow-green-black |
| 5 | grey | 26 | brown-black | 47 | grey-pink-black |
| 6 | pink | 27 | grey-green | 48 | red-blue-black |
| 7 | blue | 28 | yellow-grey | 49 | white-green-black |
| 8 | red | 29 | pink-green | 50 | brown-green-black |
| 9 | black | 30 | yellow-pink | 51 | white-yellow-black |
| 10 | violet | 31 | green-blue | 52 | yellow-brown-black |
| 11 | grey-pink | 32 | yellow-blue | 53 | white-grey-black |
| 12 | red-blue | 33 | green-red | 54 | grey-brown-black |
| 13 | white-green | 34 | yellow-red | 55 | white-pink-black |
| 14 | brown-green | 35 | green-black | 56 | pink-brown-black |
| 15 | white-yellow | 36 | yellow-black | 57 | white-blue-black |
| 16 | yellow-brown | 37 | grey-blue | 58 | brown-blue-black |
| 17 | white-grey | 38 | pink-blue | 59 | white-red-black |
| 18 | grey-brown | 39 | grey-red | 60 | brown-red-black |
| 19 | white-pink | 40 | pink-red | 61 | black-white |
| 20 | pink-brown | 41 | grey-black | | |
| 21 | white-blue | 42 | pink-black | | |



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



Example image

igus® chainflex® CF2