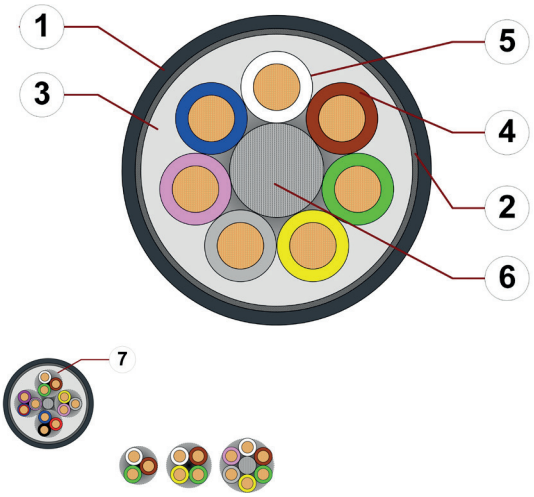
Data sheet
chainflex® CF2

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



Example image
For detailed overview please see design table

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

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 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** ...

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Example image

Dynamic information

Bend radius	**e-chain® linear**	minimum 5 x d
	flexible	minimum 4 x d
	fixed	minimum 3 x d
Temperature	**e-chain® linear**	-20°C up to +80°C
	flexible	-40°C up to +80°C (following DIN EN 60811-504)
	fixed	-50°C up to +80°C (following DIN EN 50305)
v max.	**unsupported**	10m/s
	gliding	5m/s
a max.		80m/s²
Travel distance		Unsupported travels and up to 100m 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. [x d]	R min. [x d]	R min. [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	300/500V (following DIN VDE 0298-3) 300V (following UL)
Testing voltage	2000V (following DIN EN 50395)

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Example image

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 2016
Flame-retardant	According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
PTFE-free	The design of these products does not contain PTFE
UL-verified	Certificate No. V293650: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	Details see table UL AWM
NFPA	Following NFPA 79-2018, chapter 12.9
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

Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section [mm²]	Number of cores	UL style core insultation	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

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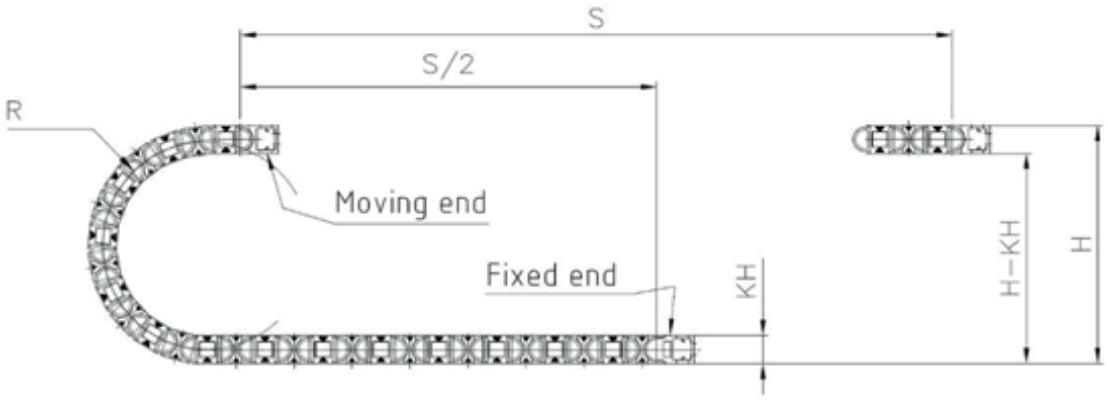
Example image

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 heavy-duty applications, Class 6
- Unsupported travels and up to 100m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications
- Storage and retrieval units, machining units/packaging machines, quick handling, indoor cranes, refrigeration sector

Guarantee igus chainflex 4 YEARS up to 4 years guarantee

igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

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Example image

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]
CF2.01.04 [11]	(4x0.14)C	6.5	18	49
CF2.01.08 [11]	(8x0.14)C	7.5	31	66
CF2.01.12 [11]	(12x0.14)C	9.5	51	102
CF2.01.18 [11]	(18x0.14)C	10.5	56	135
CF2.01.24 [3] [11]	(24x0.14)C	11.5	68	162
CF2.01.36 [11]	(36x0.14)C	14.5	92	240
CF2.02.04 [11]	(4x0.25)C	7.0	25	59
CF2.02.08 [11]	(8x0.25)C	8.0	43	84
CF2.02.18 [11]	(18x0.25)C	12.0	100	173
CF2.02.48 [11]	(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.
[11] Phase-out model

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	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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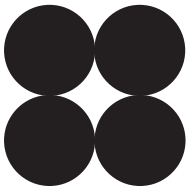
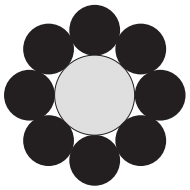
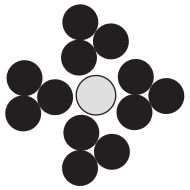
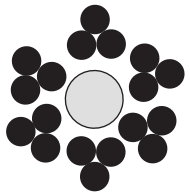
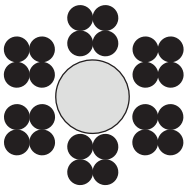
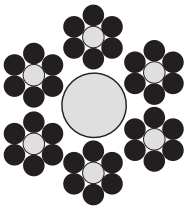
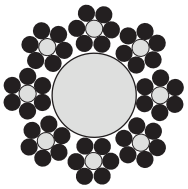
Example image

Design table

Part No.	Number of cores	Core design
CF2.XX.04	4	
CF2.XX.08	8	
CF2.XX.12	4x3	
CF2.XX.18	6x3	

Part No.	Number of cores	Core design
CF2.XX.24	6x4	
CF2.XX.36	6x6	
CF2.XX.48	8x6	

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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

Guarantee igus chainflex 4 YEARS up to 4 years guarantee

igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year