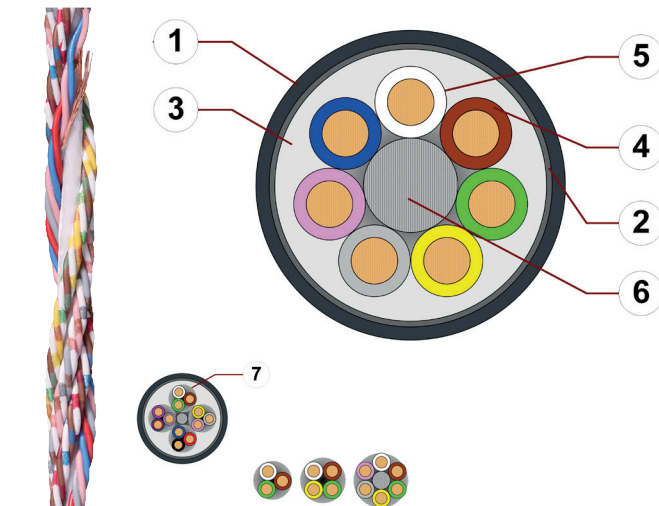


Data sheet

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



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



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**

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

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/s²
	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)



Example image

igus® chainflex® CF2

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
	NFPA	Following NFPA 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



Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section [mm²]	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

igus® chainflex® CF2

Data sheet

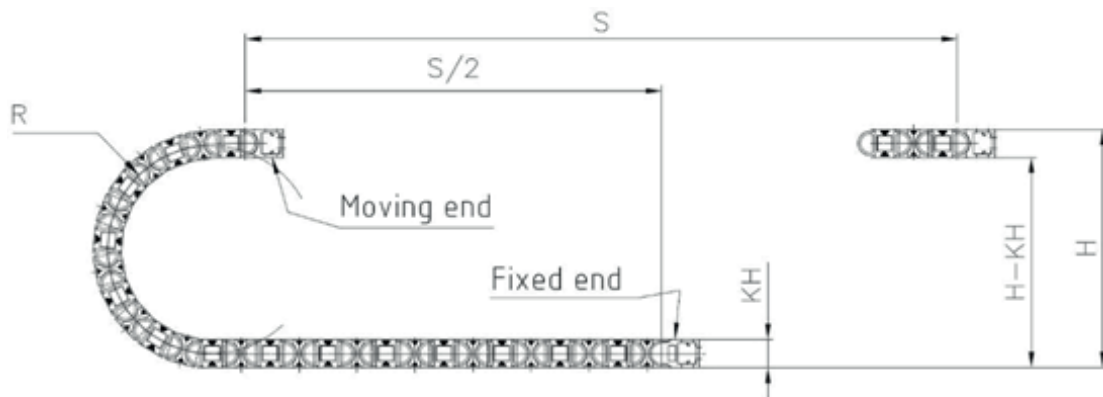
chainflex® CF2



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

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/packages machines, quick handling, indoor cranes, refrigerating sector



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
● Shielded ● Oil-resistant and coolant-resistant ● Flame retardant ● Notch-resistant
● Hydrolysis and microbe-resistant

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	(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 [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.



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
 • Shielded • Oil-resistant and coolant-resistant • Flame retardant • Notch-resistant
 • Hydrolysis and microbe-resistant

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

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

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
19	white-pink
20	pink-brown
21	white-blue

Conductor no.	Colours according to DIN ISO 47100
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
37	grey-blue
38	pink-blue
39	grey-red
40	pink-red
41	grey-black
42	pink-black

Conductor no.	Colours according to DIN ISO 47100
43	blue-black
44	red-black
45	white-brown-black
46	yellow-green-black
47	grey-pink-black
48	red-blue-black
49	white-green-black
50	brown-green-black
51	white-yellow-black
52	yellow-brown-black
53	white-grey-black
54	grey-brown-black
55	white-pink-black
56	pink-brown-black
57	white-blue-black
58	brown-blue-black
59	white-red-black
60	brown-red-black
61	black-white



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



Example image