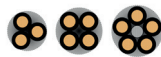
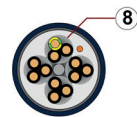
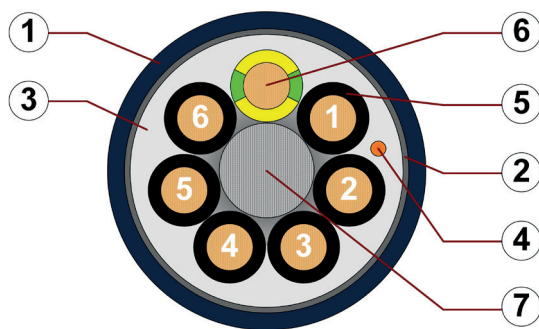


Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) • For heaviest duty applications • TPE outer jacket
 • Shielded • Oil and bio-oil resistant • PVC and halogen-free • Low-temperature-flexible
 • Hydrolysis and microbe-resistant



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

Cores < 0.75mm²: Colour code in accordance with DIN 47100.
Cores ≥ 0.75mm²: Black cores with white numbers, one green-yellow core.
CF10.03.05.INI: brown, blue, black, white, green-yellow



Inner jacket

TPE 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, 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



CFRIP®

Strip cables faster: a tear strip is moulded into the inner jacket
 Video ► www.igus.eu/CFRIP

1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
4. CFRIP: Tear strip for faster cable stripping
5. Core insulation: Mechanically high-quality TPE mixture
6. Conductor: Stranded conductor in especially bend-resistant version consisting of bare copper wires
7. Strain relief: Tensile stress-resistant centre element
8. 12 cores or more: Bundles with optimised pitch length and pitch direction



„00000 m** igus chainflex CF10.--.---① -----② 300/500V E310776

RU AWM Style -----③ 90°C ---V④ RoHS-II conform CE

www.igus.eu +++ chainflex cable works +++

* **Length printing:** Not calibrated. Only intended as an orientation aid.

① / ② Cable identification according to Part No. (see technical table).

③ / ④ Printing of UL information (see related chapter).

Example: ... chainflex **CF10.01.12 (12x0.14)C 300 V/500 V ...**






Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) • For heaviest duty applications • 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 5 x d minimum 4 x d minimum 3 x d
	Temperature	e-chain® linear flexible fixed	-35°C up to +100°C -50°C up to +100°C (following DIN EN 60811-504) -55°C up to +100°C (following DIN EN 50305)
	v max.	unsupported gliding	10m/s 6m/s
	a max.		100m/s²
	Travel distance	Unsupported travels and up to 400m for gliding applications, Class 6	



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	12.5 million
Temperature, from/to [°C]	R min. [x d]	R min. [x d]	R min. [x d]
-35/-25	6.8	7.5	8.5
-25/+90	5	6	7
+90/+100	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) Cores < 0.5mm²: 300V (following UL) Cores ≥ 0.5mm²: 1000V (following UL)
	Testing voltage	2000V (following DIN EN 50395)



Example image



Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket
 ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible
 ● Hydrolysis and microbe-resistant



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
	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 AWM	Details see table UL AWM
	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
	Dry cleanroom	Tested in „dry cleanroom“ according to DIN EN ISO 14644-1, Report No. IG 2405-1526
	CE	Following 2014/35/EU

Properties and approvals

UL 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	12-18	11884	22357	300	90
0,25	4-25	11884	22357	300	90
0,34	5	11884	22357	300	90
0,5	4-25	11886	22351	1000	90
0,75	4-25	11886	22351	1000	90
1	2-25	11886	22351	1000	90
1,5	4-18	11886	22351	1000	90
2,5	4-12	11886	22351	1000	90
4	4-5	11886	22351	1000	90



Example image

Data sheet

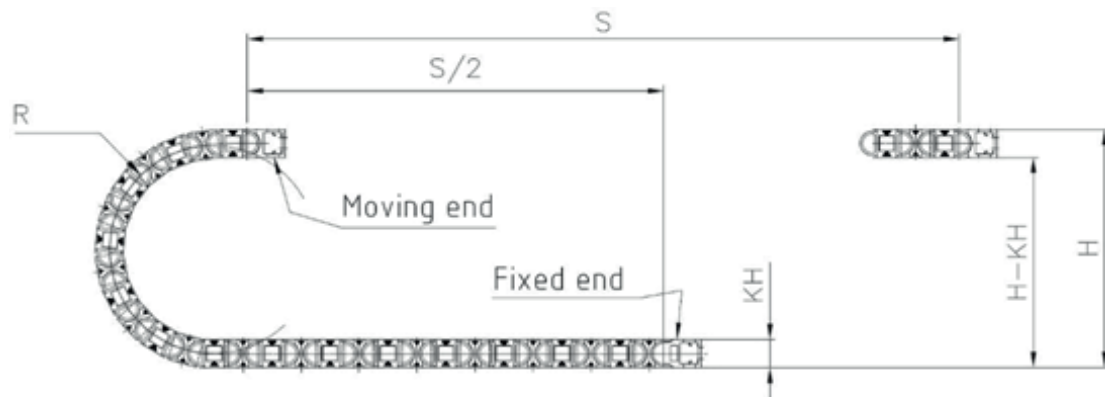
chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket
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Typical lab test setup for this cable series

Test bend radius R	approx. 28 - 100 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 heavy-duty applications, Class 7
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, ship to shore, outdoor cranes, low-temperature applications

Example image



Data sheet

chainflex® CF10



Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket
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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]
CF10.01.12	(12x0.14)C	7.5	37	78
CF10.01.18	(18x0.14)C	9.5	63	119
CF10.02.04	(4x0.25)C	6.5	24	49
CF10.02.08	(8x0.25)C	8.0	40	79
CF10.02.12	(12x0.25)C	9.5	65	122
CF10.02.25	(25x0.25)C	12.0	110	211
CF10.03.05.INI	(5x0.34)C	7.0	33	63
CF10.05.04	(4x0.5)C	7.0	37	70
CF10.05.05	(5x0.5)C	7.5	44	81
CF10.05.07	(7x0.5)C	8.5	58	104
CF10.05.12	(12x0.5)C	12.0	107	198
CF10.05.18	(18x0.5)C	13.5	144	261
CF10.05.25	(25x0.5)C	15.0	186	332
CF10.07.04	(4G0.75)C	7.5	49	86
CF10.07.05	(5G0.75)C	8.0	58	102
CF10.07.07	(7G0.75)C	9.5	90	147
CF10.07.12	(12G0.75)C	12.5	139	244
CF10.07.20	(20G0.75)C	15.5	210	350
CF10.07.25	(25G0.75)C	17.0	255	443
CF10.10.02	(2x1.0)C	7.5	38	72
CF10.10.03	(3G1.0)C	7.5	48	84
CF10.10.04	(4G1.0)C	8.0	60	100
CF10.10.05	(5G1.0)C	8.5	72	118
CF10.10.07	(7G1.0)C	10.0	110	172
CF10.10.12	(12G1.0)C	13.5	175	294
CF10.10.18	(18G1.0)C	16.0	244	404
CF10.10.25	(25G1.0)C	19.0	323	550
CF10.15.04	(4G1.5)C	9.0	94	141
CF10.15.05	(5G1.5)C	9.5	111	163
CF10.15.07 ¹⁷⁾	(7G1.5)C	11.5	148	224
CF10.15.12	(12G1.5)C	15.0	240	373
CF10.15.18	(18G1.5)C	18.5	365	568

¹⁷⁾ When using the cables with „7G1.5mm²“ and „G2.5mm²“ minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



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



Data sheet

chainflex® CF10



- Control cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket
 ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible
 ● 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]
CF10.25.04	(4G2.5)C	11.0	140	209
CF10.25.07 ¹⁷⁾	(7G2.5)C	13.5	227	335
CF10.25.12	(12G2.5)C	19.5	402	636
CF10.40.04	(4G4.0)C	12.5	205	287
CF10.40.05 ¹¹⁾	(5G4.0)C	13.5	254	351

¹¹⁾ Phase-out model

¹⁷⁾ When using the cables with „7G1.5mm²“ and „G2.5mm²“ minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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	5
0.34	57	7
0.5	39	10
0.75	26	14
1	19.5	17
1.5	13.3	21
2.5	8	30
4	4.95	41

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
CF10.XX.02	2		CF10.XX.08	8	
CF10.XX.03	3		CF10.XX.12	4x3	
CF10.XX.04	4		CF10.XX.18	6x3	
CF10.XX.05.INI	5		CF10.XX.20	5x4	
CF10.XX.05	5		CF10.XX.25	5x5	
CF10.XX.07	7				



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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

