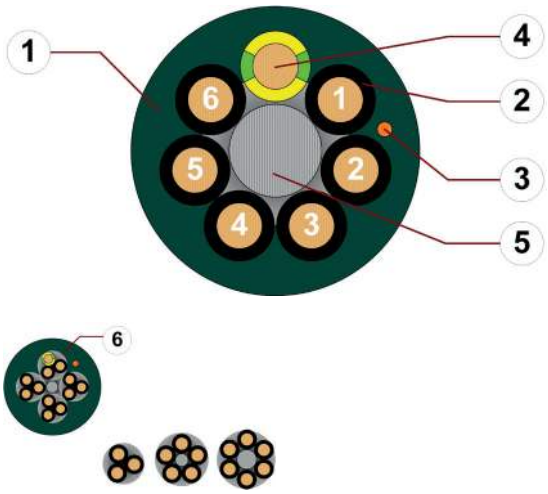
Data sheet
chainflex® CF5

Control cable (Class 5.5.2.2) ● For heavy duty applications ● PVC outer jacket ● Oil-resistant ● Flame retardant

Example image



1. Outer jacket: Pressure extruded, gusset-filling, oil-resistant PVC mixture
2. Core insulation: Mechanically high-quality TPE or PVC mixture
3. CFRIP: Tear strip for faster cable stripping
4. Conductor: Fine-wire stranded conductor consisting of bare copper wires
5. Strain relief: Tensile stress-resistant centre element
6. 12 cores or more: Bundles with optimised pitch length and pitch direction

Example image
For detailed overview please see design table

Cable structure

Conductor	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
Core insulation	**Cores ≤ 0.5 mm²:** Mechanically high-quality TPE mixture. **Cores ≥ 0.75 mm²:** Mechanically high-quality PVC 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 ≤ 0.34 mm²:** Colour code in accordance with DIN 47100. **Cores ≥ 0.5 mm²:** Black cores with white numbers, one green-yellow core.
Outer jacket	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Moss green (similar to RAL 6005) Printing: white
CFRIP®	Strip cables faster: a tear strip is moulded into the outer jacket Video ▶ www.igus.eu/CFRIP

„00000 m“** igus chainflex CF5.--.--① -----② 300/500V E310776

cЯUus AWM Style 2570 VW-1 AWM I/II A/B 80°C 600V FT1 EAC CE UKCA

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 **CF5.02.36 36x0.25 300 V/500 V** ...

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Dynamic information

Bend radius	**e-chain® linear**	minimum 6.8 x d
	flexible	minimum 5 x d
	fixed	minimum 4 x d
Temperature	**e-chain® linear**	+5 °C up to +70 °C
	flexible	-5 °C up to +70 °C (following DIN EN 60811-504)
	fixed	-15 °C up to +70 °C (following DIN EN 50305)
v max.	**unsupported**	10 m/s
	gliding	5 m/s
a max.		80 m/s²
Travel distance		Unsupported travels and up to 100 m for gliding applications, Class 5
Torsion		± 90°, with 1 m cable length, Class 2

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]	< 10 m R min. [factor x d]	≥ 10 m R min. [factor x d]	< 10 m R min. [factor x d]	≥ 10 m R min. [factor x d]	< 10 m R min. [factor x d]	≥ 10 m R min. [factor x d]
+5/+15	7.5	10	8.5	11	9.5	12
+15/+60	6.8	7.5	7.8	8.5	8.8	9.5
+60/+70	7.5	10	8.5	11	9.5	12

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) 600 V (following UL)
Testing voltage	2000 V (following DIN EN 50395)

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Example image

Properties and approvals

UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 50363-4-1), Class 2
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)
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	Details see table UL/CSA AWM
NFPA	Following NFPA 79-2018, chapter 12.9
EAC	Certificate No. RU C-DE.ME77.B.00300/19
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 2, material/cable tested by IPA according to ISO standard 14644-1
CE	Following 2014/35/EU
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

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]
0.25	36	10492	2570	600	80
0.34	15-25	10492	2570	600	80
0.5	2-30	10492	2570	600	80
0.75	3-42	11113	2570	600	80
1	3-25	11113	2570	600	80
1.5	3-36	11113	2570	600	80
2.5	4-25	11113	2570	600	80

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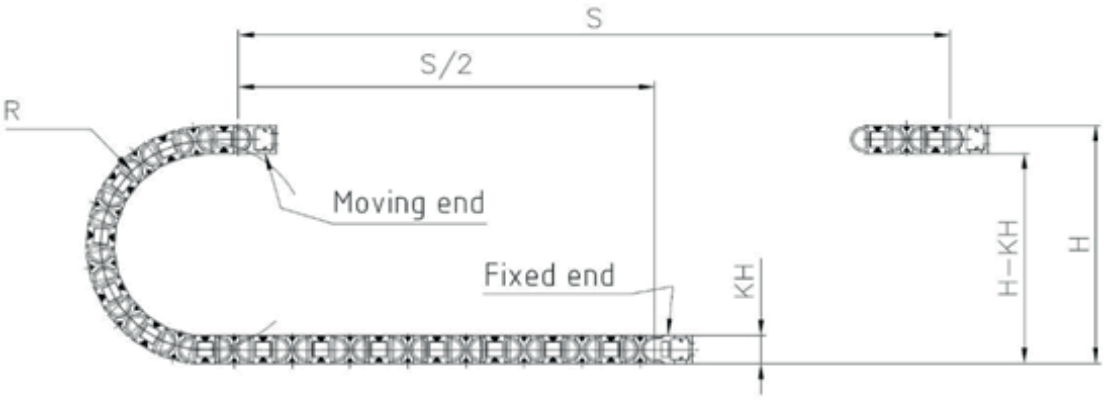
Example image

Typical lab test setup for this cable series

Test bend radius R	approx. 38 - 200 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 / s²



Typical application areas

- For heavy duty applications, Class 5
- Unsupported travel distances and up to 100 m for gliding applications, Class 5
- Light oil influence, Class 2
- Torsion ± 90°, with 1 m cable length, Class 2
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, quick handling, indoor cranes

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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]
CF5.02.36	36x0.25	15.0	99	209
CF5.03.15	15x0.34	11.0	55	113
CF5.03.18	18x0.34	12.0	67	143
CF5.03.25	25x0.34	14.0	92	194
CF5.05.02	2x0.5	6.0	11	38
CF5.05.03	3G0.5	6.0	16	41
CF5.05.04	4G0.5	6.5	21	47
CF5.05.05	5G0.5	7.0	25	59
CF5.05.07	7G0.5	8.0	36	78
CF5.05.12	12G0.5	11.0	61	131
CF5.05.18	18G0.5	13.0	91	190
CF5.05.25	25G0.5	16.0	124	281
CF5.05.30	30G0.5	18.0	149	325
CF5.07.03	3G0.75	6.5	23	54
CF5.07.04	4G0.75	7.0	32	67
CF5.07.05	5G0.75	7.5	39	82
CF5.07.07	7G0.75	9.0	56	115
CF5.07.12	12G0.75	12.5	91	189
CF5.07.18	18G0.75	15.0	134	269
CF5.07.25	25G0.75	17.5	190	384
CF5.07.36	36G0.75	22.0	267	587
CF5.07.42	42G0.75	23.5	313	745
CF5.10.03	3G1.0	6.5	31	56
CF5.10.04	4G1.0	7.0	41	78
CF5.10.05	5G1.0	8.0	50	94
CF5.10.07	7G1.0	9.5	74	130
CF5.10.12	12G1.0	13.0	119	227
CF5.10.18	18G1.0	16.5	179	306
CF5.10.25	25G1.0	19.5	248	487

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

Data sheet
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Example image

Part No.	Number of cores and conductor nominal cross section	Outer diameter (d) max.	Copper index	Weight
	[mm²]	[mm]	[kg/km]	[kg/km]
CF5.15.03	3G1.5	7.5	46	74
CF5.15.04	4G1.5	8.0	61	105
CF5.15.05	5G1.5	9.0	75	127
CF5.15.07 [17]	7G1.5	10.5	105	180
CF5.15.12	12G1.5	15.0	179	264
CF5.15.18	18G1.5	19.5	267	478
CF5.15.25	25G1.5	21.5	371	645
CF5.15.36	36G1.5	26.5	529	960
CF5.25.04	4G2.5	10.0	96	170
CF5.25.05	5G2.5	11.0	120	200
CF5.25.07 [17]	7G2.5	13.0	169	279
CF5.25.12	12G2.5	18.5	284	480
CF5.25.18	18G2.5	23.5	427	765
CF5.25.25	25G2.5	27.5	591	1054

[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

Guarantee igus chainflex 36 up to 36 months guarantee

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

CFRIP

c UL us LISTED

c UL us

NFPA

CLP A

DNV

EAC

REACH

RoHS

clean-room

DESINA

CE

UK CA

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Example image

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]
0.25	79	4
0.34	57	5
0.5	39	8
0.75	26	12
1	19.5	15
1.5	13.3	18
2.5	8	26

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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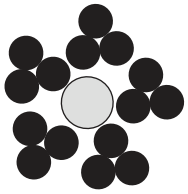
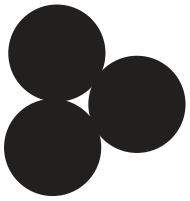
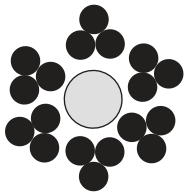
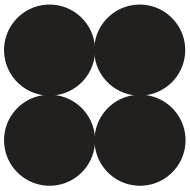
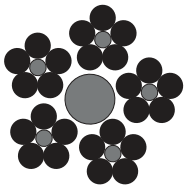
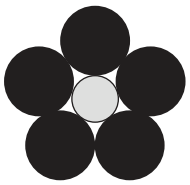
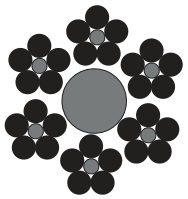
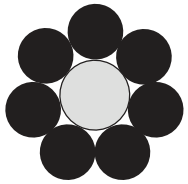
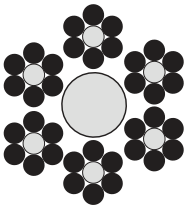
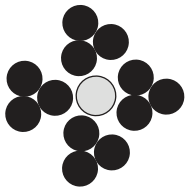
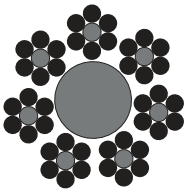
Example image

Design table

Part No.	Number of cores	Core design	Part No.	Number of cores	Core design
CF5.XX.02	2		CF5.XX.15	5x3	
CF5.XX.03	3		CF5.XX.18	6x3	
CF5.XX.04	4		CF5.XX.25	5x5	
CF5.XX.05	5		CF5.XX.30	6x5	
CF5.XX.07	7		CF5.XX.36	6x6	
CF5.XX.12	4x3		CF5.XX.42	7x6	

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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