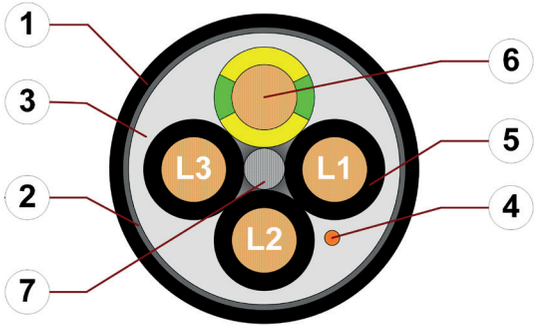
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Data sheet
chainflex® CF31

Motor cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded ● Oil-resistant ● Flame retardant



Example image



1. Outer jacket: Pressure extruded, oil-resistant PVC mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling PVC mixture
4. CFRIP: Tear strip for faster cable stripping
5. Core insulation: Mechanically high-quality, especially low-capacitance TPE mixture
6. Conductor: Especially bending-stable version consisting of bare copper wires
7. Strain relief: Tensile stress-resistant centre element

Example image
For detailed overview please see design table

Cable structure

Conductor	**Cores < 10 mm²:** Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228). **Cores ≥ 10 mm²:** Conductor cable consisting of pre-leads (following DIN EN 60228).
Core insulation	Mechanically high-quality, especially low-capacitance TPE mixture.
Core structure	Cores wound with a short pitch length around a high tensile strength centre element.
Core identification	Black cores with white numbers, one green-yellow core. 1. Core: U / L1 / C / L+ 2. Core: V / L2 3. Core: W / L3 / D / L- 4. Core: 4 / N
Inner jacket	PVC mixture adapted to suit the requirements in e-chains®.
Overall shield	Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
Outer jacket	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Jet black (similar to RAL 9005) Printing: white
CFRIP®	Strip cables faster: a tear strip is moulded into the inner jacket Video ▶ www.igus.eu/CFRIP

„00000 m“* igus chainflex CF31.--.--① ----② 600/1000V E310776

cЯUus AWM Style 2570 VW-1 AWM I/II A/B 80°C 1000V FT1 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 ... **CF31.15.04** ... **(4G1.5)C** ... **600/1000V** ...

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Example image

Dynamic information

Bend radius		e-chain® linear	minimum 7.5 x d
		flexible	minimum 6 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	

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]
+5/+15	10	11	12
+15/+60	7.5	8.5	9.5
+60/+70	10	11	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	600/1000 V (following DIN VDE 0298-3)
Testing voltage	4000 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, CEI 20-35, FT1, VW-1
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	Style 10492 and 2570, 1000 V, 80 °C
NFPA	Following NFPA 79-2012, chapter 12.9
EAC	Certificate No. RU C-DE.ME77.B.02324 (TR ZU)
CTP	Certificate No. C-DE.PB49.B.00420 (Fire protection)
CEI	Following CEI 20-35
Lead-free	Following 2011/65/EC (RoHS-II)
Clean room	According to ISO Class 2. The outer jacket material of this series complies with CF5.10.07 - tested by IPA according to standard DIN EN ISO 14644-1
CE	Following 2014/35/EU

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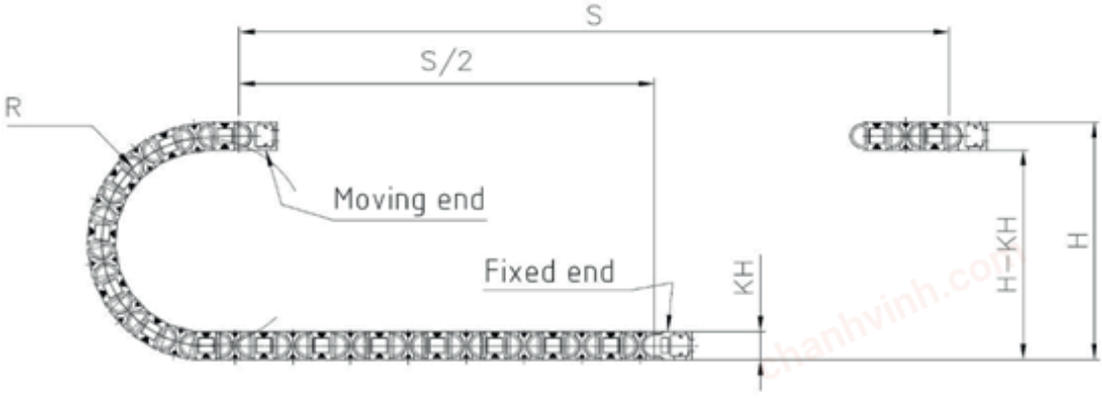
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Example image

Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 300 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 5
- Unsupported travel distances and up to 100 m for gliding applications, Class 5
- Light oil influence, Class 2
- No torsion, Class 1
- 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]
CF31.15.04	(4G1.5)C	10.5	89	163
CF31.25.04	(4G2.5)C	12.0	133	241
CF31.25.05	(5G2.5)C	13.0	163	284
CF31.40.04	(4G4.0)C	13.5	203	314
CF31.40.05	(5G4.0)C	15.0	263	383
CF31.60.04	(4G6.0)C	16.0	298	467
CF31.60.05	(5G6.0)C	18.0	361	538
CF31.100.04	(4G10)C	20.5	505	762
CF31.100.05	(5G10)C	22.5	637	910
CF31.160.04	(4G16)C	23.5	763	1069
CF31.250.04	(4G25)C	28.5	1163	1629
CF31.350.04	(4G35)C	32.5	1592	2183
CF31.500.04	(4G50)C	37.5	2244	3001
CF31.700.04	(4G70)C	43.0	3203	3834

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]	Maximum current rating at 30 °C (following DIN VDE 0298-4) [A]
1.5	13.3	21
2.5	7.98	30
4	4.95	41
6	3.3	53
10	1.91	74
16	1.21	99
25	0.78	131
35	0.56	162
50	0.39	202
70	0.28	250

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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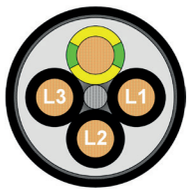
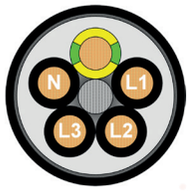
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Example image

Design table

Part No.	Number of cores	Core design
CF31.XX.04	4	
CF31.XX.05	5	

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