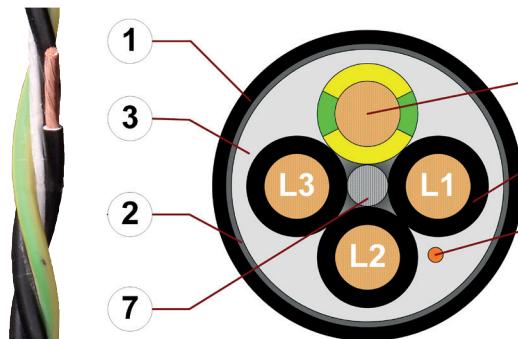


Data sheet chainflex® CF31



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



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 XLPE 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 XLPE 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

Extremely bending-resistant braiding made of tinned copper wires.

Coverage linear approx. 70%, optical approx. 90%



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

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



CFRIP®

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

caRUs AWM Style 20886 VW-1 AWM I/II A/B 90°C 1000V FT1 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 ...

Example image
igus® chainflex® CF31



Data sheet chainflex® CF31



Motor cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded
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Dynamic information



Bend radius

e-chain® linear
flexible
fixed

minimum 7.5 x d
minimum 6 x d
minimum 4 x d



Temperature

e-chain® linear
flexible
fixed

+5°C up to +70°C
-5°C up to +70°C (following DIN EN 60811-504)
-15°C up to +70°C (following DIN EN 50305)



v max.

unsupported
gliding

10m/s
5m/s



a max.

80m/s²



Travel distance

Unsupported travels and up to 100m for gliding applications, Class 5



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



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]
+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

600/1000V (following DIN VDE 0298-3)
1000V (following UL)



Testing voltage

4000V (following DIN EN 50395)

Example image

igus® chainflex® CF31

Data sheet chainflex® CF31



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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)
	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/CSA AWM
	NFPA	Following NFPA 79-2018, chapter 12.9
	REACH	In accordance with regulation (EC) No. 1907/2006 (REACH)
	RoHS	Following 2011/65/EC (RoHS-II/RoHS-III)
	Cleanroom	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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chainflex cable
guarantee and
service life
calculator based
on 2 billion test
cycles per year



Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section [mm ²]	Number of cores	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
1.5	4	30052	20886	1000	90
2.5	4-5	30052	20886	1000	90
4	4-5	30052	20886	1000	90
6	4-5	30052	20886	1000	90
10	4-5	30052	20886	1000	90
16	4	30052	20886	1000	90
25	4	30052	20886	1000	90
35	4	30052	20886	1000	90
50	4	30052	20886	1000	90
70	4	30052	20886	1000	90

Example image

igus® chainflex® CF31



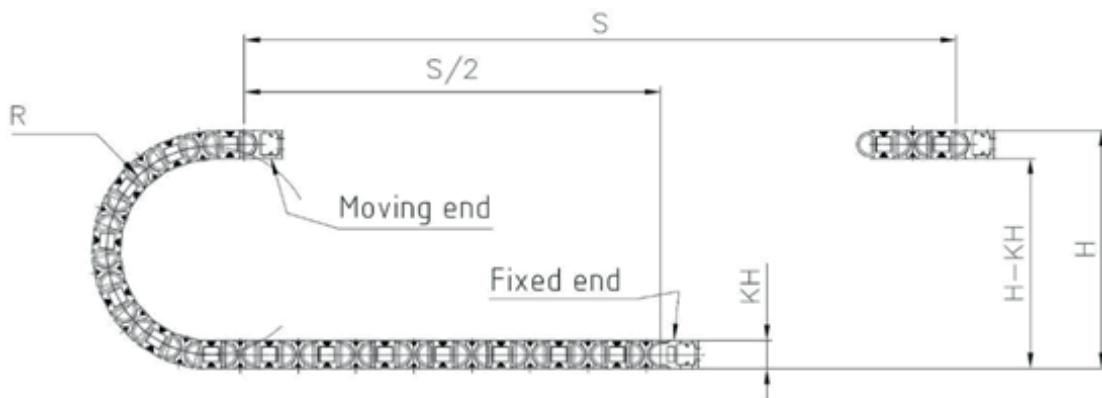
Data sheet chainflex® CF31

igus®

Motor cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded
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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



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chainflex cable
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service life
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on 2 billion test
cycles per year



Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 100m 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, machining units/packaging machines, quick handling, indoor cranes



Example image

Data sheet

chainflex® CF31



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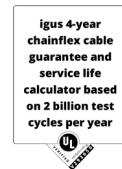


Technical tables:

Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm ²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF31.15.04	(4G1.5)C	10.0	89	157
CF31.25.04	(4G2.5)C	11.5	133	221
CF31.25.05	(5G2.5)C	13.0	163	271
CF31.40.04	(4G4.0)C	13.0	203	300
CF31.40.05	(5G4.0)C	14.5	258	354
CF31.60.04	(4G6.0)C	16.0	288	455
CF31.60.05	(5G6.0)C	17.0	356	532
CF31.100.04	(4G10)C	18.5	468	670
CF31.100.05	(5G10)C	21.5	609	857
CF31.160.04	(4G16)C	23.0	738	1035
CF31.250.04	(4G25)C	27.5	1153	1586
CF31.350.04	(4G35)C	31.0	1592	2104
CF31.500.04	(4G50)C	36.5	2224	2902
CF31.700.04	(4G70)C	43.0	3203	4173

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 [mm ²]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
1.5	13.3	19
2.5	7.98	27
4	4.95	37
6	3.3	48
10	1.91	69
16	1.21	92
25	0.78	121
35	0.56	152
50	0.39	191
70	0.28	239

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Data sheet chainflex® CF31

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Design table

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



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