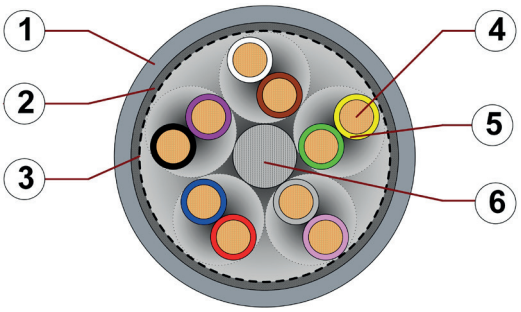
Data sheet
chainflex® CF211

Data cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded ● Twisted pair ● 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. Banding: Plastic foil
4. Conductor: Very finely stranded special cores of particularly high-flex design made of bare copper wires
5. Core insulation: Mechanically high-quality TPE mixture
6. Strain relief: Tensile stress-resistant centre element

Example image
For detailed overview please see design table

Cable structure

Conductor	Very finely stranded special conductors of particularly bending resistant design made of bare copper wires.
Core insulation	Mechanically high-quality TPE mixture.
Core structure	Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths.
Core identification	Colour code in accordance with DIN 47100
Intermediate layer	Foil taping over the outer layer.
Overall shield	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: Silver-grey (similar to RAL 7001) Printing: black

„00000 m“* igus chainflex CF211.--.--.02① -----② E310776 cЯUus

AWM Style 2464 VW-1 AWM I/II A/B 80°C 300V 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 **CF211.02.04.02 (4x(2x0.25))C E310776** ...

Guarantee igus chainflex 4 YEARS up to 4 years guarantee

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

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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	5 m/s
	gliding	3 m/s
a max.		50 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. [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	300/300 V (following DIN VDE 0298-3) 300 V (following UL)
Testing voltage	1500 V (following DIN EN 50395)

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Example image

Properties and approvals

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)
PFAS-free	Use of PFAS-free materials according to the content of the REACH directive and its rules for the production and processing of chemical substances
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 details
NFPA	Following NFPA 79-2018, chapter 12.9
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 CF240.02.24 - 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]
0.25	2-28	10493	2464	300	80
0.34	6-16	10493	2464	300	80
0.5	2-28	10493	2464	300	80

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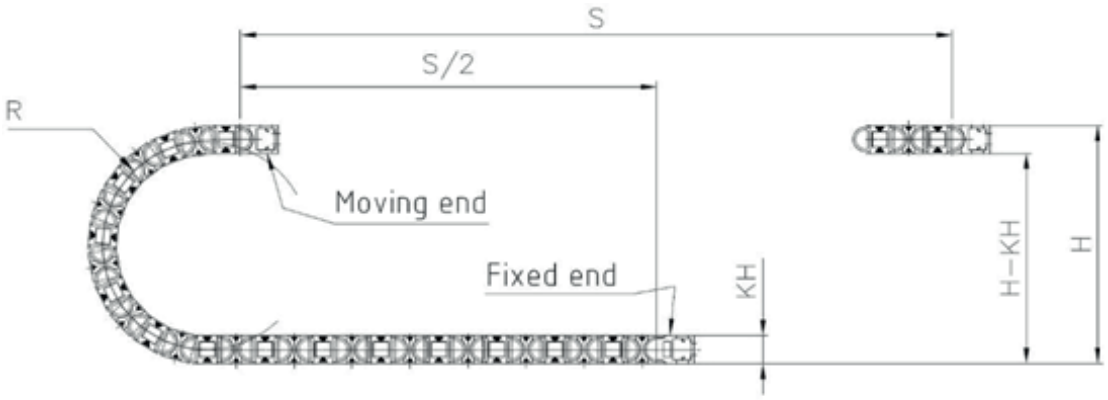
Example image

Typical lab test setup for this cable series

Test bend radius R	approx. 35 - 75 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, 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]
CF211.02.01.02	(2x0.25)C	5.0	18	33
CF211.02.02.02 [2)]	(2x(2x0.25))C	6.0	25	51
CF211.02.03.02	(3x(2x0.25))C	7.0	36	63
CF211.02.04.02	(4x(2x0.25))C	7.5	44	76
CF211.02.05.02	(5x(2x0.25))C	8.5	52	92
CF211.02.06.02	(6x(2x0.25))C	9.0	62	105
CF211.02.08.02	(8x(2x0.25))C	10.5	78	137
CF211.02.10.02	(10x(2x0.25))C	12.0	90	170
CF211.02.14.02	(14x(2x0.25))C	12.0	119	204
CF211.03.03.02	(3x(2x0.34))C	8.0	44	86
CF211.03.08.02	(8x(2x0.34))C	12.0	102	206
CF211.05.01.02	(2x0.5)C	6.0	26	51
CF211.05.02.02 [2)]	(2x(2x0.5))C	7.0	46	90
CF211.05.03.02	(3x(2x0.5))C	9.0	61	109
CF211.05.04.02	(4x(2x0.5))C	9.5	74	125
CF211.05.05.02	(5x(2x0.5))C	11.0	91	153
CF211.05.06.02	(6x(2x0.5))C	11.5	103	189
CF211.05.08.02	(8x(2x0.5))C	13.0	137	234
CF211.05.10.02	(10x(2x0.5))C	15.5	181	326
CF211.05.14.02	(14x(2x0.5))C	16.0	193	341

[2)] The chainflex® types marked with 2) are cables designed as a star-quad.

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]
0.25	79	5
0.34	57	7
0.5	39	10

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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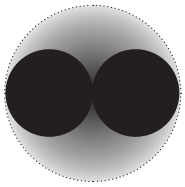
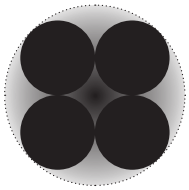
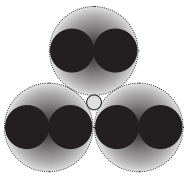
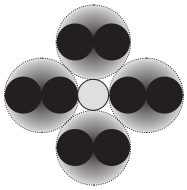
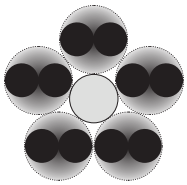
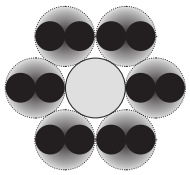
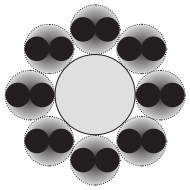
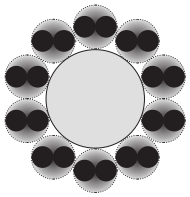
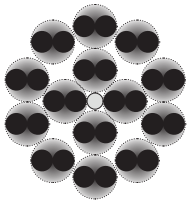
Example image

Design table

Part No.	Number of cores	Core design
CF211.XX.01.02	2	
CF211.XX.02.02	4	
CF211.XX.03.02	3x2	
CF211.XX.04.02	4x2	
CF211.XX.05.02	5x2	

Part No.	Number of cores	Core design
CF211.XX.06.02	6x2	
CF211.XX.08.02	8x2	
CF211.XX.10.02	10x2	
CF211.XX.14.02	14x2	

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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

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