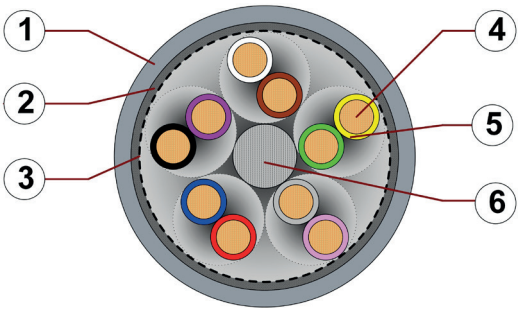
Data sheet
chainflex® CF211.PUR

Data cable (Class 5.5.3.1) ● For heavy duty applications ● PUR outer jacket ● Shielded ● twisted pair ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Example image



1. Outer jacket: Pressure extruded PUR mixture
2. Overall shield: Aluminum/Polyester tape and 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	Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
Outer jacket	Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). **Colour:** Window-grey (similar to RAL 7040) **Printing:** black

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

AWM Style 20233 VW-1 AWM I/II A/B 80°C 300V FT1 DNV-GL 13 656-14 HH

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 **CF211.PUR.02.04.02 (4x(2x0.25))C E310776** ...

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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	-25 °C up to +80 °C
	flexible	-40 °C up to +80 °C (following DIN EN 60811-504)
	fixed	-50 °C up to +80 °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. [factor x d]	R min. [factor x d]	R min. [factor x d]
-25/-15	10	11	12
-15/+70	7.5	8.5	9.5
+70/+80	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)
Testing voltage	1500 V (following DIN EN 50395)

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Example image

Properties and approvals

UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 50363-10-2), Class 3
Offshore	MUD-resistant following NEK 606 - status 2009
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)
Halogen-free	Following DIN EN 60754
UL/CSA	Style 10493 and 20233, 300 V, 80 °C
NFPA	Following NFPA 79-2012, chapter 12.9
DNV-GL	Type approval certificate No. 13 656-14 HH
EAC	Certificate No. RU C-DE.ME77.B.01254 (TR ZU)
CTP	Certificate No. C-DE.PB49.B.00449 (Fire protection)
CEI	Following CEI 20-35
Lead-free	Following 2011/65/EC (RoHS-II)
Clean room	According to ISO Class 1. The outer jacket material of this series complies with CF77. UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1
CE	Following 2014/35/EU

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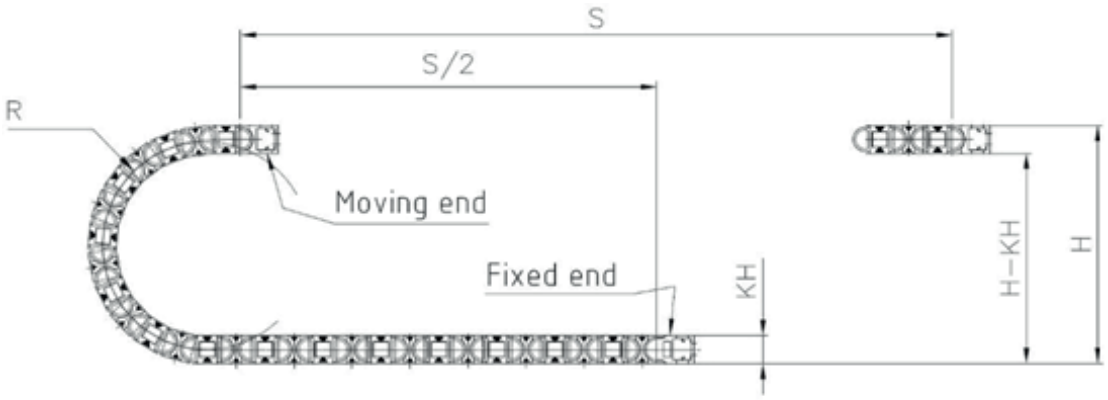
Example image

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 / s²



Typical application areas

- For heavy duty applications, Class 5
- Unsupported travel distances and up to 100 m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications with average sun radiation
- Machining units/machine tools, Storage and retrieval units for high-bay warehouses, Packaging industry, quick handling, refrigerating sector

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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.PUR.02.01.02	(2x0.25)C	5.0	16	29
CF211.PUR.02.02.02 [2)]	(2x(2x0.25))C	6.0	23	38
CF211.PUR.02.03.02	(3x(2x0.25))C	7.0	32	62
CF211.PUR.02.04.02	(4x(2x0.25))C	7.5	40	65
CF211.PUR.02.05.02	(5x(2x0.25))C	8.5	48	81
CF211.PUR.02.06.02	(6x(2x0.25))C	9.0	56	97
CF211.PUR.02.08.02	(8x(2x0.25))C	10.5	70	124
CF211.PUR.02.10.02	(10x(2x0.25))C	12.0	90	155
CF211.PUR.02.14.02	(14x(2x0.25))C	12.0	108	175
CF211.PUR.03.03.02	(3x(2x0.34))C	8.0	44	81
CF211.PUR.03.08.02	(8x(2x0.34))C	12.0	91	147
CF211.PUR.05.01.02	(2x0.5)C	5.5	24	40
CF211.PUR.05.02.02 [2)]	(2x(2x0.5))C	7.0	37	59
CF211.PUR.05.03.02	(3x(2x0.5))C	9.0	55	98
CF211.PUR.05.04.02	(4x(2x0.5))C	9.5	67	118
CF211.PUR.05.05.02	(5x(2x0.5))C	10.5	83	149
CF211.PUR.05.06.02	(6x(2x0.5))C	11.5	91	174
CF211.PUR.05.08.02	(8x(2x0.5))C	13.0	125	211
CF211.PUR.05.10.02	(10x(2x0.5))C	15.0	170	265
CF211.PUR.05.14.02	(14x(2x0.5))C	15.0	187	288

[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]	Maximum current rating at 30 °C (following DIN VDE 0298-4) [A]
0.25	79.0	5
0.34	57.0	7
0.5	39.0	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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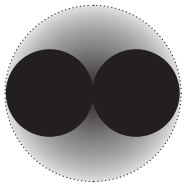
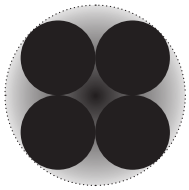
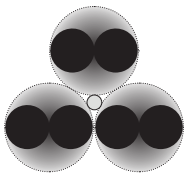
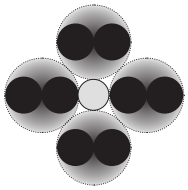
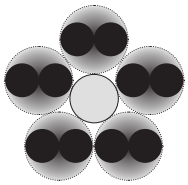
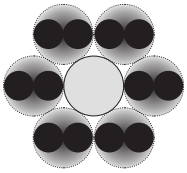
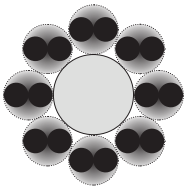
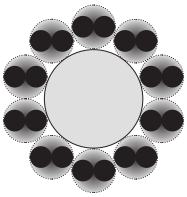
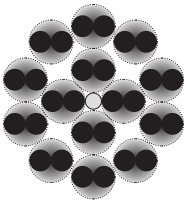
Example image

Design table

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

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

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Example image

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	brown-yellow
17	white-grey
18	brown-grey
19	white-pink
20	white-brown
21	white-blue

Conductor no.	Colours according to DIN ISO 47100
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
37	grey-blue
38	pink-blue
39	grey-red
40	pink-red
41	grey-black
42	pink-black

Conductor no.	Colours according to DIN ISO 47100
43	blue-black
44	red-black
45	white-brown-black
46	yellow-green-black
47	grey-pink-black
48	red-blue-black
49	white-green-black
50	brown-green-black
51	white-yellow-black
52	yellow-brown-black
53	white-grey-black
54	grey-brown-black
55	white-pink-black
56	pink-brown-black
57	white-blue-black
58	brown-blue-black
59	white-red-black
60	brown-red-black
61	black-white