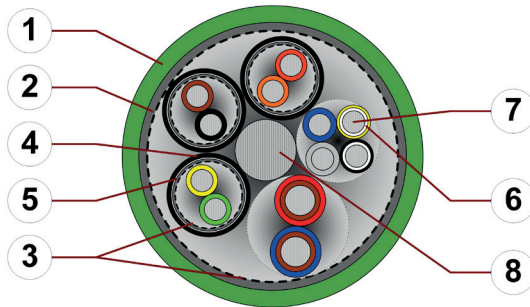


Data sheet

chainflex® CF211



Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
● Shielded ● Oil-resistant ● Flame-retardant



1. Outer jacket: Pressure extruded, oil-resistant PVC mixture
2. Overall shield: Extremely bending-stable braid made of tinned copper wires
3. Banding: Plastic foil
4. Element jacket: Mechanically high-quality TPE mixture
5. Element shield: Extremely bending-stable wrapping made of tinned copper wires
6. Core insulation: Mechanically high-quality TPE mixture
7. Conductor: Fine-wire strand in highly bending-stable version consisting of tinned copper wires
8. 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 tinned copper wires.
	Core insulation	Mechanically high-quality TPE mixture.
	Core structure	According to measuring system specification.
	Core identification	According to measuring system specification. ► Design table
	Element shield	Extremely bending-resistant, tinned copper cover. Coverage approx. 90 % optical
	Element jacket	TPE mixture on pair shielding adapted to suit the requirements in e-chains®.
	Intermediate layer	Foil taping over the outer layer.
	Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55%, optical approx. 80%
	Outer jacket	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Yellow-green (similar to RAL 6018) Printing: black

„00000 m“*** igus chainflex CF211.----① -----② E310776 cЯUus AWM

Style -----③ 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).

③ Printing of the UL Style (see certifications for details).

Example: ... chainflex **CF211.011 (4x(2x0.34)+4x0.5)C E310776 ...**



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Dynamic information

	Bend radius	e-chain® linear flexible fixed	minimum 10 x d minimum 8 x d minimum 5 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	5m/s 3m/s
	a max.		30m/s ²
	Travel distance	Unsupported travels and up to 10m for gliding applications, 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]	R min. [x d]	R min. [x d]	R min. [x d]
+5/+15	12.5	13.5	14.5
+15/+60	10	11	12
+60/+70	12.5	13.5	14.5

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	50V 300V (following UL)
	Testing voltage	500V



Example image



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chainflex® CF211



Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
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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)
	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)
	Lead-free	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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Example image

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Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
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Eigenschaften und Zulassungen

UL/CSA AWM Details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
CF211.001	10467	2464	300	80
CF211.002	10467	2464	300	80
CF211.004	10467	2464	300	80
CF211.006	10467	2464	300	80
CF211.007	10467	2464	300	80
CF211.009	10467	2464	300	80
CF211.010	10467	2464	300	80
CF211.011	10467	2464	300	80
CF211.014	10467	2464	300	80
CF211.015	10467	2464	300	80
CF211.016	10467	2464	300	80
CF211.017	10467	2464	300	80
CF211.018	10467	2464	300	80
CF211.019	10467	2464	300	80
CF211.022	10467	2464	300	80
CF211.023	10467	2464	300	80
CF211.024	10467	2464	300	80
CF211.027	10467	2464	300	80
CF211.028	11602	20601	300	80
CF211.030	10467	2464	300	80
CF211.032	10467	2464	300	80
CF211.033	10467	2464	300	80
CF211.036	10467	2464	300	80
CF211.037	10467	2464	300	80
CF211.038	10467	2464	300	80
CF211.039	10467	2464	300	80
CF211.041	10467	2464	300	80
CF211.042	10467	2464	300	80



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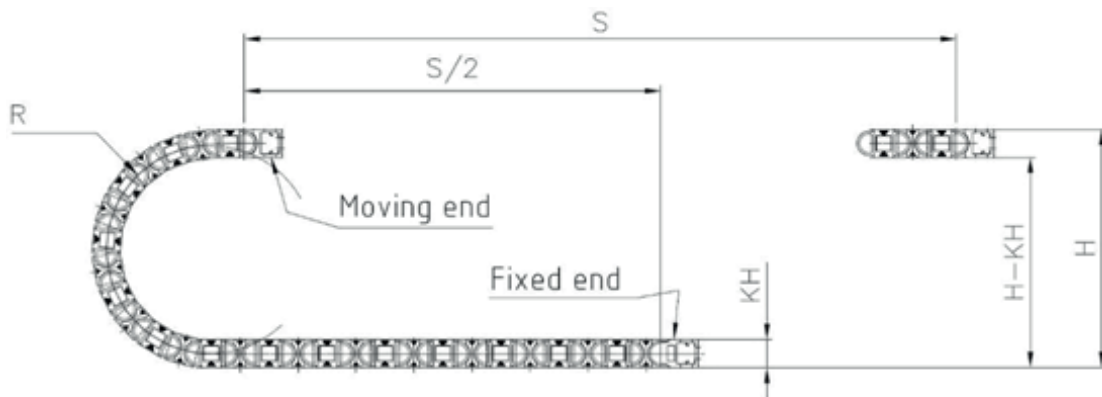
Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
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Example image

Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 135 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 medium duty applications, Class 4
- Unsupported travels and up to 10m for gliding applications, Class 2
- 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/packages machines, handling, indoor cranes, wood/stone processing



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Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
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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]
CF211.001	(3x(2x0.14)C+(4x0.14)+(2x0.5))C	9.0	64	100
CF211.002	(3x(2x0.14)C+2x(0.5)C)C	9.5	66	106
CF211.004	(2x(2x(2x0.14))+(4x0.14)C+(4x0.5))C	10.0	70	115
CF211.006	(3x(2x0.14)C+(4x0.14)+(4x0.25)+(2x0.5))C	10.0	76	122
CF211.007	(4x0.34)C	5.5	25	45
CF211.009	(4x(2x0.25)+2x0.5)C	8.0	49	79
CF211.010	(4x(2x0.25)+2x1.0)C	8.5	61	92
CF211.011	(4x(2x0.34)+4x0.5)C	9.5	72	109
CF211.014	(4x(2x0.25)C+(2x0.5))C	10.5	77	124
CF211.015	(4x(2x0.14)+4x0.5)C	8.5	54	86
CF211.016	(3x(2x0.25)C)C	9.0	51	89
CF211.017	(4x(2x0.14)+(4x0.14)C+4x1.0)C	10.0	92	134
CF211.018	(2x(2x0.25)+2x0.5)C	6.5	34	54
CF211.019	(3x(2x0.25)C+(3x0.25)+2x1.0)C	10.0	86	125
CF211.022	((2x0.25)+5x0.5)C	7.0	46	71
CF211.023	(2x(2x0.25)+(2x0.34))C	7.0	39	60
CF211.024	((4x0.14)+2x(2x0.34))C	7.0	36	61
CF211.027	(5x(2x0.14)+2x0.5)C	8.0	45	75
CF211.028	(2x(2x0.15)+(2x0.38))C	7.5	40	77
CF211.030	(3x(2x0.25)C+2x(2x0.25))C	8.5	60	87
CF211.032 ⁵⁾	3x(2x0.14)C+(3x0.14)C	8.0	35	79
CF211.033 ⁵⁾	4x(2x0.14)C+2x(1.0)C	9.5	64	112
CF211.036	(5x(2x0.25))C	8.0	42	69
CF211.037	(6x(2x0.25))C	8.5	51	83
CF211.038	(3x(2x0.14)+(2x0.34))C	7.5	33	62
CF211.039	(4x(2x0.14)C+2x(0.5)C)C	10.0	77	125
CF211.041	(2x(2x0.18)+5x0.5)C	7.5	49	79
CF211.042	(3x(2x0.18)+6x0.5)C	8.5	62	98

⁵⁾ Manufactured without overall shield

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



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Measuring system cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket
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Technical tables:

Electrical information

Conductor nominal cross section [mm ²]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Maximum current rating at 30 °C [A]
0.14	145.0	2.5
0.15	146.0	2.5
0.18	105.0	3
0.25	85.0	5
0.34	62.0	7
0.38	60.0	7
0.5	42.0	10
1.0	21.0	17

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

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Design table

Part No.	Core group	Colour code	Core design
CF211.001	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	(4x0.14)	grey/blue/white-yellow/white-black	
	(2x0.5)	brown-red, brown-blue	
CF211.002	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	2x(0.5)C	black, red	
CF211.004	2x(2x(2x0.14))	(brown/green)/(yellow/violet), (grey/pink)/(red/black)	
	(4x0.14)C	yellow-black/red-black/green-black/blue-black	
	(4x0.5)	brown-green/white-green/blue/white	
CF211.006	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	(4x0.14)	grey/blue/white-yellow/white-black	
	(4x0.25)	brown-yellow/brown-grey/green-black/green-red	
	(2x0.5)	brown-red, brown-blue	
CF211.007	4x0.34	white, green, brown, yellow (Star-quad)	
CF211.009	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
	2x0.5	white, brown	
CF211.010	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
	2x1.0	white, brown	



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Design table

Part No.	Core group	Colour code	Core design
CF211.011	4x(2x0.34)	black/brown, red/orange, green/yellow, blue/violet	
	4x0.5	black-white, red-white, yellow-white, blue-white	
CF211.014	4x(2x0.25)C	white/brown, green/yellow, grey/pink, blue/red	
	(2x0.5)	black no. 1/black no. 2	
CF211.015	4x(2x0.14)	brown/green, yellow/violet, grey/pink, red/black	
	4x0.5	blue, white, brown-green, white-green	
CF211.016	3x(2x0.25)C	white/brown, green/yellow, grey/pink	
CF211.017	4x(2x0.14)	red/black, brown/green, yellow/violet, grey/pink	
	(4x0.14)C	blue-black/yellow-black/red-black/green-black	
	4x1.0	white-green, brown-green, blue, white	
CF211.018	2x(2x0.25)	red/black, grey/pink	
	2x0.5	white, brown	
CF211.019	3x(2x0.25)C	brown/green, grey/pink, red/black	
	(3x0.25)	blue/violet/yellow	
	2x1.0	white, brown	



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Design table

Part No.	Core group	Colour code	Core design
CF211.022	(2x0.25)	white/brown	
	5x0.5	green, yellow, grey, pink, blue	
CF211.023	2x(2x0.25)	white/brown, green/yellow	
	(2x0.34)	blue/red	
CF211.024	(4x0.14)	yellow/grey/violet/pink	
	2x(2x0.34)	white-green/white, brown-green/blue	
CF211.027	5x(2x0.14)	brown/green, yellow/grey, white/violet, red/black, pink/blue	
	2x0.5	white-green, white-red	
CF211.028	2x(2x0.15)	green/yellow, pink/blue	
	(2x0.38)	red/black	
CF211.030	3x(2x0.25)C	white/brown, green/yellow, grey/pink	
	2x(2x0.25)	blue/red, black/violet	
CF211.032	3x(2x0.14)C	green/black, yellow/black, red/black	
	(3x0.14)C	grey/pink/black	



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Design table

Part No.	Core group	Colour code	Core design
CF211.033	4x(2x0.14)C	yellow/black, red/black, blue/black, green/black	
	2x(1.0)C	white, brown	
CF211.036	5x(2x0.25)	white/brown, green/yellow, grey/pink, blue/red, black/violet	
CF211.037	6x(2x0.25)	white/brown, green/yellow, grey/pink, blue/red, black/violet, grey-pink/red-blue	
CF211.038	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	(2x0.34)	blue/red	
CF211.039	(4x(2x0.14)C)	green/yellow, grey/pink, blue/red, black/violet	
	2x(0.5)C	white, brown	
CF211.041	2x(2x0.18)	white/brown, black/violet	
	5x0.5	blue, violet, green, yellow, grey	
CF211.042	3x(2x0.18)	white/black, red/white, black/red	
	6x0.5	black no. 1, black no. 2, black no. 3, red no. 4, red no. 5, red no. 6	



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Example image