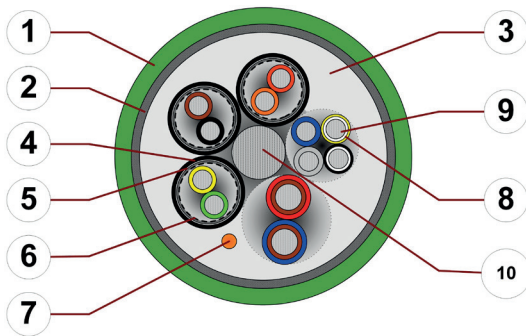


Data sheet

chainflex® CF11.D



Measuring system cable (Class 6.6.4.1) ● For extremely heavy duty applications
 ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free
 ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
4. Element jacket: Mechanically high-quality TPE mixture
5. Element shield: Extremely bending-resistant braiding made of tinned copper wires
6. Banding: Plastic foil
7. CFRIP: Tear strip for faster cable stripping
8. Core insulation: Mechanically high-quality TPE mixture
9. Conductor: Fine-wire strand in especially bending-stable version consisting of tinned copper wires
10. Strain relief: Tensile stress-resistant centre element

Example image
 For detailed overview please see design table

Leitungsaufbau

	Conductor	Stranded conductor in especially bending-resistant version consisting of tinned copper wires (following DIN EN 60228).
	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 braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
	Element jacket	TPE mixture on pair shielding adapted to suit the requirements in e-chains®.
	Inner jacket	TPE 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, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Yellow-green (similar to RAL 6018) Printing: black
	CFRIP®	Strip cables faster: a tear strip is moulded into the inner jacket Video ► www.igus.eu/CFRIP

„00000 m**** igus chainflex CF11.---.D① -----② E310776

RU AWM Style 22355 80°C 300V CE DESINA RoHS-II conform

www.igus.eu +++ 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 CF11.007.D (4x0.34)C 50V ...



Data sheet

chainflex® CF11.D



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Dynamic information

	Bend radius	e-chain® linear flexible fixed	minimum 6.8 x d minimum 5 x d minimum 4 x d
	Temperature	e-chain® linear flexible fixed	-35°C up to +90°C -50°C up to +90°C (following DIN EN 60811-504) -55°C up to +90°C (following DIN EN 50305)
	v max.	unsupported gliding	10m/s 6m/s
	a max.		100m/s ²
	Travel distance		Unsupported travels and up to 400m and more for gliding applications, Class 6

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		12.5 million	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature. from/to [°C]	R min. [x d]		R min. [x d]		R min. [x d]	
-35/-25	8.5	10	9.5	11	10.5	12
-25/+80	6.8	7.5	7.5	8.5	8.5	9.5
+80/+90	8.5	10	9.5	11	10.5	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	50V 300V (following UL)
	Testing voltage	500V



Data sheet

chainflex® CF11.D



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Properties and approvals

	UV resistance	Medium
	Oil resistance	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
	Halogen-free	Following DIN EN 60754
	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 AWM	Details see table UL AWM
	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 CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
	Dry cleanroom	Tested in „dry cleanroom“ according to DIN EN ISO 14644-1, Report No. IG 2405-1526
	DESINA	According to VDW, DESINA standardisation
	CE	Following 2014/35/EU



Data sheet

chainflex® CF11.D



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Properties and approvals

UL AWM details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
CF11.001.D	10467	22355	300	80
CF11.002.D	10467	22355	300	80
CF11.003.D	10467	22355	300	80
CF11.004.D	10467	22355	300	80
CF11.005.D	10467	22355	300	80
CF11.006.D	10467	22355	300	80
CF11.007.D	10467	22355	300	80
CF11.008.D	10467	22355	300	80
CF11.009.D	10467	22355	300	80
CF11.010.D	10467	22355	300	80
CF11.011.D	10467	22355	300	80
CF11.012.D	10467	22355	300	80
CF11.013.D	10467	22355	300	80
CF11.014.D	10467	22355	300	80
CF11.015.D	10467	22355	300	80
CF11.016.D	10467	22355	300	80
CF11.017.D	10467	22355	300	80
CF11.018.D	10467	22355	300	80
CF11.019.D	10467	22355	300	80
CF11.021.D	10467	22355	300	80
CF11.022.D	10467	22355	300	80
CF11.025.D	10467	22355	300	80
CF11.027.D	10467	22355	300	80
CF11.028.D	10467	22355	300	80
CF11.031.D	10467	22355	300	80
CF11.032.D	10467	22355	300	80
CF11.033.D	10467	22355	300	80
CF11.038.D	10467	22355	300	80
CF11.040.D	10467	22355	300	80



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



Data sheet

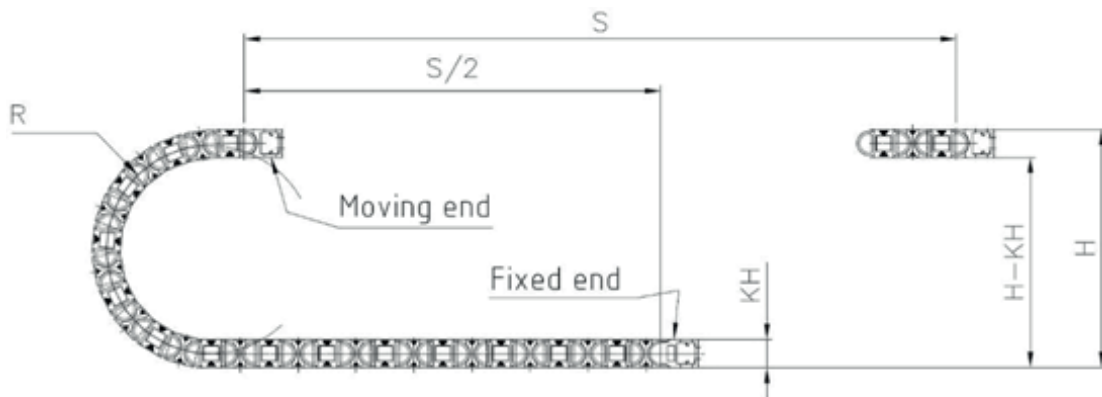
chainflex® CF11.D



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Typical lab test setup for this cable series

Test bend radius R	approx. 55 - 100 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 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications without direct sun radiation
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, indoor cranes, low temperature applications

Example image



Data sheet

chainflex® CF11.D



Measuring system cable (Class 6.6.4.1) ● For extremely heavy duty applications
 ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free
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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]
CF11.001.D	(3x(2x0.14)C+(4x0.14)+(2x0.5))C	10.0	71	119
CF11.002.D	(3x(2x0.14)C+2x(0.5)C)C	10.0	74	125
CF11.003.D	(3x(2x0.14)+2x1.0)C	8.0	56	86
CF11.004.D	(2x(2x(2x0.14))+(4x0.14)C+(4x0.5))C	11.0	78	127
CF11.005.D	(4x(2x0.14)+4x0.5)C	9.0	60	97
CF11.006.D	(3x(2x0.14)C+(4x0.14)+(4x0.25)+(2x0.5))C	10.5	85	139
CF11.007.D ²⁾	(4x0.34)C	6.0	31	48
CF11.008.D	(3x(2x0.25))C	7.5	36	60
CF11.009.D	(4x(2x0.25)+2x0.5)C	8.5	57	91
CF11.010.D	(4x(2x0.25)+2x1.0)C	9.0	68	105
CF11.011.D	(4x(2x0.34)+4x0.5)C	10.0	81	124
CF11.012.D	(3x(2x0.14)C+(3x0.14)C+(4x0.14)+(2x0.14+2x0.5))C	11.0	89	140
CF11.013.D	(3x(2x0.14)C+2x0.5)C	9.0	62	104
CF11.014.D	(4x(2x0.25)C+(2x0.5))C	11.0	86	138
CF11.015.D	(4x(2x0.14)+4x0.5)C	9.0	60	97
CF11.017.D ⁴⁾	(4x(2x0.14)+(4x0.14)C+4x1.0)C	10.0	100	126
CF11.018.D ⁴⁾	(2x(2x0.25)+2x0.5)C	6.5	41	51
CF11.019.D ⁴⁾	(3x(2x0.25)C+(3x0.25)+2x1.0)C	10.0	93	120
CF11.021.D	((4x0.25)+3x(2x0.25+2x0.5))C	10.0	88	130
CF11.022.D	((2x0.25)+5x0.5)C	7.5	54	79
CF11.025.D	(3x(2x0.14)C+(2x0.5)C)C	10.0	72	123
CF11.027.D	(5x(2x0.14)+2x0.5)C	8.5	52	88
CF11.028.D	(2x(2x0.20)+(2x0.38))C	7.5	44	63
CF11.031.D	(2x(2x0.25)C+2x1.0)C	9.5	69	116
CF11.032.D ^{4) 5)}	3x(2x0.14)C+(3x0.14)C	8.0	35	71
CF11.033.D ^{4) 5)}	4x(2x0.14)C+2x(1.0)C	9.5	64	104
CF11.038.D	(3x(2x0.14)+(2x0.34))C	8.0	36	71

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

⁴⁾ Manufactured without inner jacket

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



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



Data sheet

chainflex® CF11.D



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Technical tables:

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 [A]
0.14	145.0	2.5
0.25	85.0	5
0.34	62.0	7
0.5	42.0	10
1.0	21.0	17
1.5	14.0	21

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



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



Example image

Data sheet

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Design table

Part No.	Core group	Colour code	Core design
CF11.001.D	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	(4x0.14)	grey/blue/white-yellow/white-black	
	(2x0.5)	brown-red/brown-blue	
CF11.002.D	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	2x(0.5)C	black, red	
CF11.003.D	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	2x1.0	blue, red	
CF11.004.D	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	
CF11.005.D	4x(2x0.14)	white/brown, green/yellow, grey/pink, blue/red	
	4x0.5	black, violet, grey-pink, red-blue	
CF11.006.D	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	



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Example image

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Konstruktionstabelle

Part No.	Core group	Colour code	Core design
CF11.007.D	4x0.34	white, green, brown, yellow(Star-quad)	
CF11.008.D	3x(2x0.25)	white/brown, green/yellow, grey/pink	
CF11.009.D	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
	2x0.5	white, brown	
CF11.010.D	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
	2x1.0	white, brown	
CF11.011.D	4x(2x0.34)	black/brown, red/orange, green/yellow, blue/violet	
	4x0.5	black-white, red-white, yellow-white, blue-white	
CF11.012.D	3x(2x0.14)C	green/yellow, white/grey, blue/red	
	(3x0.14)C	red/green/brown	
	(4x0.14)	grey/yellow/pink/violet	
	(2x0.14+2x0.5)	blue/brown-blue/grey/brown-red	



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Konstruktionstabelle

Part No.	Core group	Colour code	Core design
CF11.013.D	3x(2x0.14)C	white/brown, green/yellow, grey/pink	
	2x0.5	blue, red	
CF11.014.D	4x(2x0.25)C	white/brown, green/yellow, grey/pink, blue/red	
	(2x0.5)	black no. 1/black no. 2	
CF11.015.D	4x(2x0.14)	brown/green, yellow/violet, grey/pink, red/black	
	4x0.5	blue, white, brown-green, white-green	
CF11.017.D	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	
CF11.018.D	2x(2x0.25)	red/black, grey/pink	
	2x0.5	white, brown	
CF11.019.D	3x(2x0.25)C	brown/green, grey/pink, red/black	
	(3x0.25)	blue/violet/yellow	
	2x1.0	white, brown	



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Konstruktionstabelle

Part No.	Core group	Colour code	Core design
CF11.021.D	(4x0.25)	white/brown/grey/black	
	3x2x0.25	white/yellow, white/grey, black/orange	
	3x2x0.5	black no. 1/black no. 2, black no. 3/black no. 4, black no. 5/black no. 6	
CF11.022.D	(2x0.25)	white/brown	
	5x0.5	green, yellow, grey, pink, blue	
CF11.025.D	3x(2x0.14)C	green/yellow, blue/red, grey/pink	
	(2x0.5)	white/brown	
CF11.027.D	5x(2x0.14)	brown/green, yellow/grey, white/violet, red/black, pink/blue	
	2x0.5	white-green, white-red	
CF11.028.D	2x(2x0.20)	green/yellow, pink/blue	
	(2x0.38)	red/black	
CF11.031.D	2x(2x0.25)C	white/brown, green/yellow	
	2x1.0	black no. 1, black no. 2	



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Konstruktionstabelle

Part No.	Core group	Colour code	Core design
CF11.032.D	3x(2x0.14)C	green/black, yellow/black, red/black	
	(3x0.14)C	grey/pink/black	
CF11.033.D	4x(2x0.14)C	yellow/black, red/black, blue/black, green/black	
	2x(1.0)C	white, brown	
CF11.038.D	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	(2x0.34)	blue/red	



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Example image