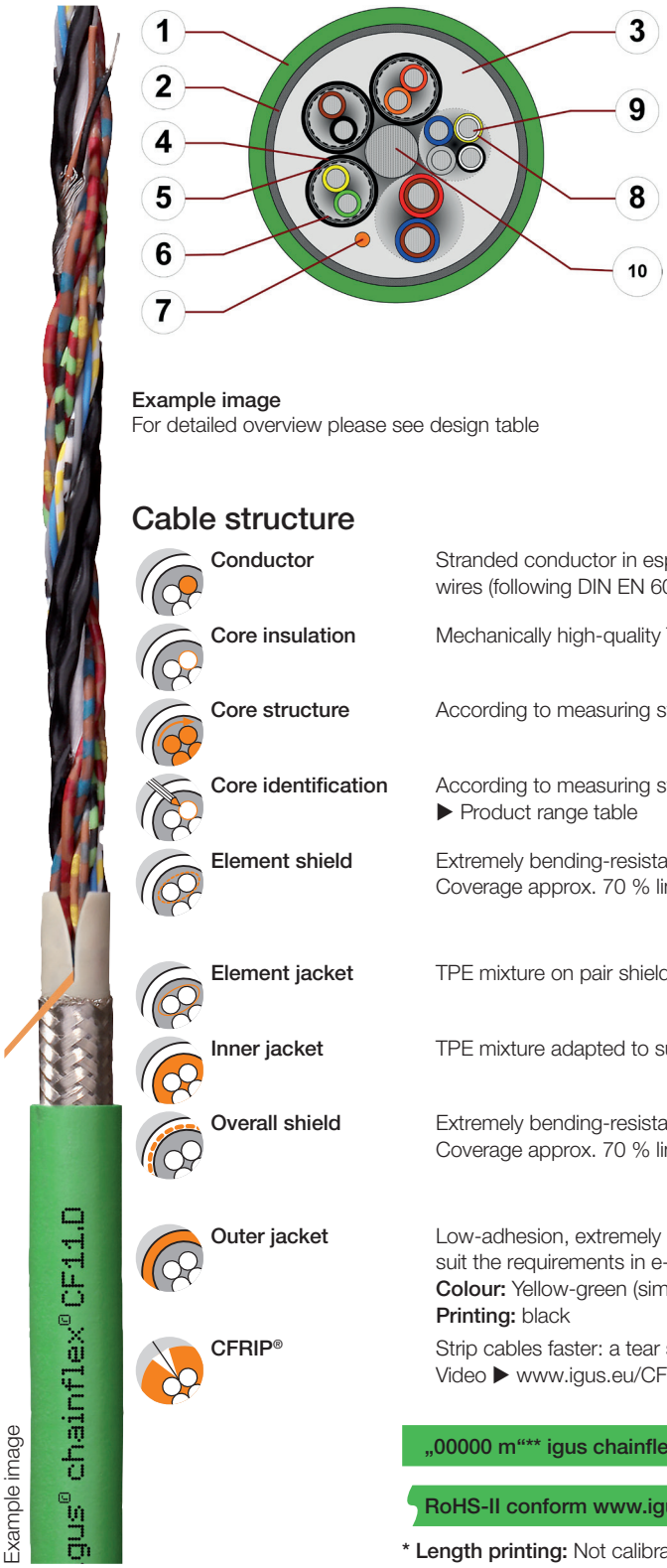
Data sheet
chainflex® CF11.D

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



Example image
For detailed overview please see design table

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

Cable structure

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. ▶ Product range table
Element shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
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 approx. 70 % linear, approx. 90 % optical
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 EAC CE DESINA**

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 **CF11.007.D (4x0.34)C 50V** ...

Example image

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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	-35 °C up to +90 °C
	flexible	-50 °C up to +90 °C (following DIN EN 60811-504)
	fixed	-55 °C up to +90 °C (following DIN EN 50305)
v max.	unsupported	10 m/s
	gliding	6 m/s
a max.		100 m/s²
Travel distance		Unsupported travel distances and up to 400 m 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	10 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	10	11	12
-25/+80	7.5	8.5	9.5
+80/+90	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	50 V
Testing voltage	500 V

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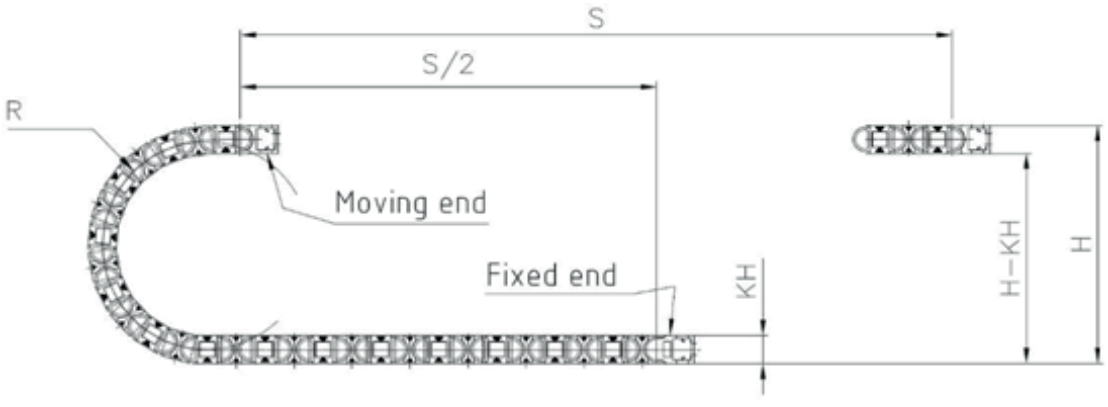
Example image

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
UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
EAC	Certificate No. RU C-DE.ME77.B.00295/19 (TR ZU)
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

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 / s²



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Example image

Typical application areas

- For extremely heavy duty applications, Class 6
- Unsupported travel distances and up to 400 m 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 solar radiation
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, indoor cranes, low temperature applications

Guarantee igus chainflex 36 up to 36 months guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

CFRIP

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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]
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
CF11.016.D	(3x(2x0.25)C)C	9.5	60	108
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 [5]	3x(2x0.14)C+(3x0.14)C	8.0	35	71
CF11.033.D [5]	4x(2x0.14)C+2x(1.0)C	9.5	64	104
CF11.034.D [5] [11]	3x(2x0.14)C+(4x0.14)C+2x(2x0.5)C	11.0	71	119
CF11.035.D [11]	(4x(2x0.25)C+2x(2x0.5))C	12.0	99	154
CF11.038.D	(3x(2x0.14)+(2x0.34))C	8.0	36	71
CF11.040.D	(3x(4x0.14)+(2x0.14+2x0.34)+2x1.5)C	10.0	88	130

[2] The chainflex® types marked with 2) are cables designed as a star-quad.
[4] Manufactured without inner jacket
[5] manufactured without overall shield
[11] Phase-out model

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

Guarantee igus chainflex 36 up to 36 months guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

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Example image

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	150.0	2.5
0.25	90.0	5
0.34	63.0	7
0.5	42.0	10
1.0	23.0	17
1.5	16.0	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.

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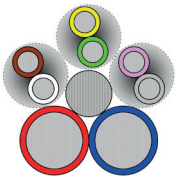
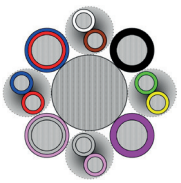
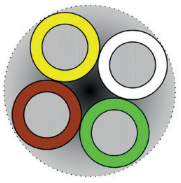
Example image

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	
CF11.007.D	4x0.34	white, green, brown, yellow(Star-quad)	

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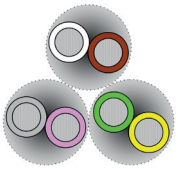
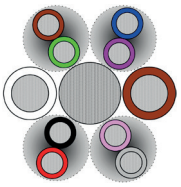
Example image

Design table

Part No.	Core group	Colour code	Core design
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	
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	

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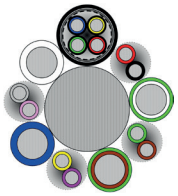
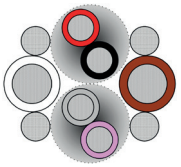
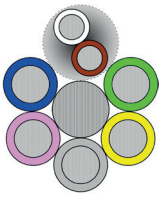
Example image

Design table

Part No.	Core group	Colour code	Core design
CF11.015.D	4x(2x0.14)	brown/green, yellow/violet, grey/pink, red/black	
	4x0.5	blue, white, brown-green, white-green	
CF11.016.D	3x(2x0.25)C	white/brown, green/yellow, grey/pink	
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	
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	

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Textrahmen_

Part No.	Core group	Colour code	Core design
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	
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	
CF11.034.D	3x(2x0.14)C	green/black, violet/black, blue/black	
	(4x0.14)C	red/yellow/black-red/black-yellow	
	2x(2x0.5)C	black/white, black/brown	

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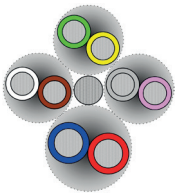
Textrahmen_

Part No.	Core group	Colour code	Core design
CF11.035.D	4x(2x0.25)C	white/brown, green/yellow, grey/pink, blue/red	
	2x(2x0.5)	black no. 1/black no. 2, black no. 3/black no. 4	
CF11.038.D	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	(2x0.34)	blue/red	
CF11.040.D	(3x(4x0.14)	black/red/white-black/white-red, green/blue/white-green/white-blue, yellow/brown/white-yellow/white-brown	
	(2x0.14+ 2x0.34)	violet/orange/white-violet/white-orange	
	2x1.5)C	white-grey, grey	