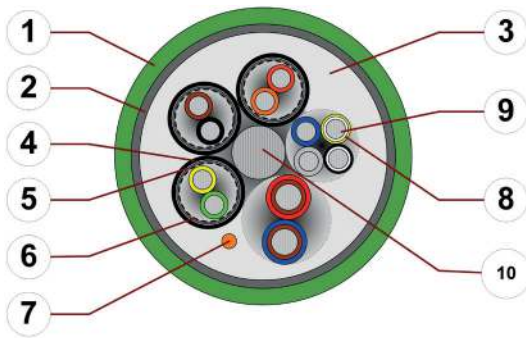


# Data sheet

## 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

	<b>Conductor</b>	Stranded conductor in especially bending-resistant version consisting of tinned copper wires (following DIN EN 60228).
	<b>Core insulation</b>	Mechanically high-quality TPE mixture.
	<b>Core structure</b>	According to measuring system specification.
	<b>Core identification</b>	According to measuring system specification. ▶ Product range table
	<b>Element shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
	<b>Element jacket</b>	TPE mixture on pair shielding adapted to suit the requirements in e-chains®.
	<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
	<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
	<b>Outer jacket</b>	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. <b>Colour:</b> Yellow-green (similar to RAL 6018) <b>Printing:</b> black
	<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ▶ <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

„00000 m<sup>\*\*\*\*</sup> igus chainflex CF11.---.D① -----② E310776

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

[www.igus.eu](http://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



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

### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	minimum 7.5 x d minimum 6 x d minimum 4 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	-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)
	<b>v max.</b>	<b>unsupported</b> <b>gliding</b>	10 m/s 6 m/s
	<b>a max.</b>		100 m/s <sup>2</sup>
	<b>Travel distance</b>		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		12.5 million	
	< 10 m	≥ 10 m	< 10 m	≥ 10 m	< 10 m	≥ 10 m
Temperature from/to [°C]	R min. [factor x d]		R min. [factor x d]		R min. [factor 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

	<b>Nominal voltage</b>	50 V 300 V (following UL)
	<b>Testing voltage</b>	500 V



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 ● Hydrolysis and microbe-resistant



### Properties and approvals

	<b>UV resistance</b>	Medium
	<b>Oil resistance</b>	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
	<b>Silicone-free</b>	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
	<b>Halogen-free</b>	Following DIN EN 60754
	<b>UL verified</b>	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
	<b>UL AWM</b>	Details see table UL AWM
	<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00295/19 (TR ZU)
	<b>REACH</b>	In accordance with regulation (EC) No. 1907/2006 (REACH)
	<b>Lead-free</b>	Following 2011/65/EC (RoHS-II/RoHS-III)
	<b>Cleanroom</b>	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
	<b>DESINA</b>	According to VDW, DESINA standardisation
	<b>CE</b>	Following 2014/35/EU
	<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)



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



Example image

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## 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

### 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



Example image



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



# Data sheet

## chainflex® CF11.D

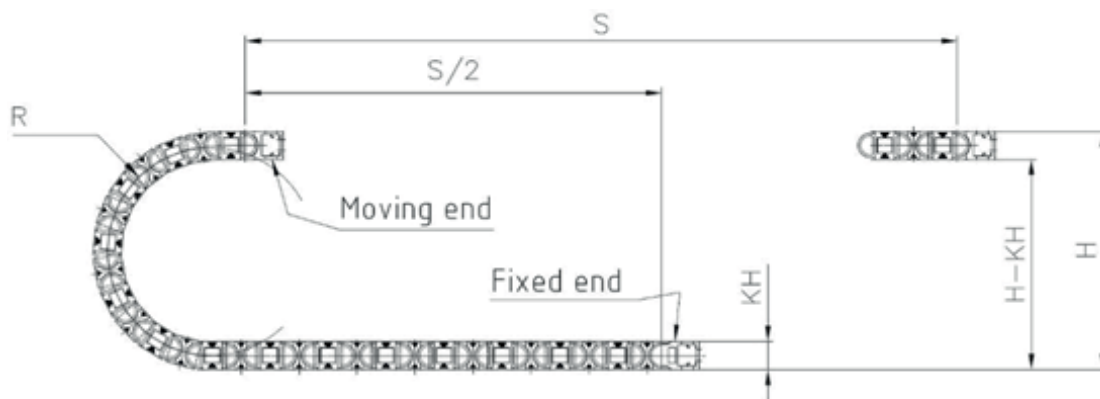


Measuring system cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Hydrolysis and microbe-resistant



### 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 <sup>2</sup>



### 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



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



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 ● Hydrolysis and microbe-resistant



### Technical tables:

#### Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	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 <sup>2)</sup>	(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 <sup>4)</sup>	(4x(2x0.14)+(4x0.14)C+4x1.0)C	10.0	100	126
CF11.018.D <sup>4)</sup>	(2x(2x0.25)+2x0.5)C	6.5	41	51
CF11.019.D <sup>4)</sup>	(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 <sup>5)</sup>	3x(2x0.14)C+(3x0.14)C	8.0	35	71
CF11.033.D <sup>5)</sup>	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
CF11.040.D <sup>11)</sup>	(3x(4x0.14)+(2x0.14+2x0.34)+2x1.5)C	10.0	88	130

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

<sup>4)</sup> Manufactured without inner jacket

<sup>5)</sup> manufactured without overall shield

<sup>11)</sup> 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



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



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 ● Hydrolysis and microbe-resistant

### Technical tables:

#### Electrical information

Conductor nominal cross section [mm <sup>2</sup> ]	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.



Example image



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



# Data sheet

## chainflex® CF11.D

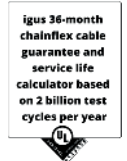


Measuring system cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Hydrolysis and microbe-resistant

### 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)	

Example image  
igus® chainflex® CF11.D





# 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

### Konstruktionstabelle

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



Example image  
igus® chainflex® CF11.D



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



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### Konstruktionstabelle

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	

Example image  
igus® chainflex® CF11.D



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



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### Konstruktionstabelle

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	



Example image



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



# 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

### Konstruktionstabelle

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	white-grey, grey	



Example image



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

