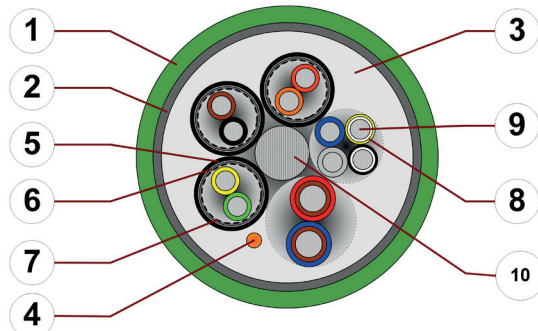


# Data sheet

## chainflex® CF113.D



Measuring system cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant



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

**Example image**  
For detailed overview please see design table

### Cable structure

	<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>	Aluminum/Polyester tape and 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>	Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
	<b>Outer jacket</b>	Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). <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\*\*\* igus chainflex CF113.---.D① -----② E310776 cRUus

AWM Style -----③ VW-1 AWM I/II A/B 80°C 300V FT1 DNV-GL TAE00003X4

EAC/CTP CE DESINA RoHS-II conform [www.igus.de](http://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 related chapter).

Example: ... chainflex **CF113.007.D (4x0.34)C E310776** ...



Example image

# Data sheet

## chainflex® CF113.D








Measuring system cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant



Example image

### 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>	-25 °C up to +80 °C -40 °C up to +80 °C (following DIN EN 60811-504) -50 °C up to +80 °C (following DIN EN 50305)
	<b>v max.</b>	<b>unsupported</b> <b>gliding</b>	10 m/s 5 m/s
	<b>a max.</b>		50 m/s <sup>2</sup>
	<b>Travel distance</b>		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

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



# Data sheet





## chainflex® CF113.D



Measuring system cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

### Properties and approvals



	<b>UV resistance</b>	Medium
	<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
	<b>Offshore</b>	MUD-resistant following NEK 606 - status 2009
	<b>Flame retardant</b>	According to IEC 60332-1-2, FT1, VW-1
	<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/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF113.D">www.igus.eu/CF113.D</a>
	<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
	<b>DNV-GL</b>	Type approval certificate No. TAE00003X4
	<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 CF77. UL.05.12.D - 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



Example image

# Data sheet

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### Properties and approvals

#### UL/CSA AWM Details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
CF113.001.D	10467	20233	300	80
CF113.002.D	10467	20233	300	80
CF113.003.D	10467	20233	300	80
CF113.004.D	10467	20233	300	80
CF113.005.D	10467	20233	300	80
CF113.006.D	10467	20233	300	80
CF113.007.D	10467	20233	300	80
CF113.008.D	10467	20233	300	80
CF113.009.D	10467	20233	300	80
CF113.010.D	10467	20233	300	80
CF113.011.D	10467	20233	300	80
CF113.013.D	10467	20233	300	80
CF113.014.D	10467	20233	300	80
CF113.015.D	10467	20233	300	80
CF113.016.D	10467	20233	300	80
CF113.017.D	10467	20233	300	80
CF113.018.D	10467	20233	300	80
CF113.019.D	10467	20233	300	80
CF113.022.D	10467	20233	300	80
CF113.025.D	10467	20233	300	80
CF113.027.D	10467	20233	300	80
CF113.028.D	11602	20233	300	80
CF113.029.D	10467	20233	300	80
CF113.031.D	10467	20233	300	80
CF113.032.D	10467	20233	300	80
CF113.033.D	10467	20233	300	80
CF113.036.D	10467	20233	300	80
CF113.037.D	10467	20233	300	80
CF113.038.D	10467	20233	300	80
CF113.040.D	10467	20233	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® CF113.D



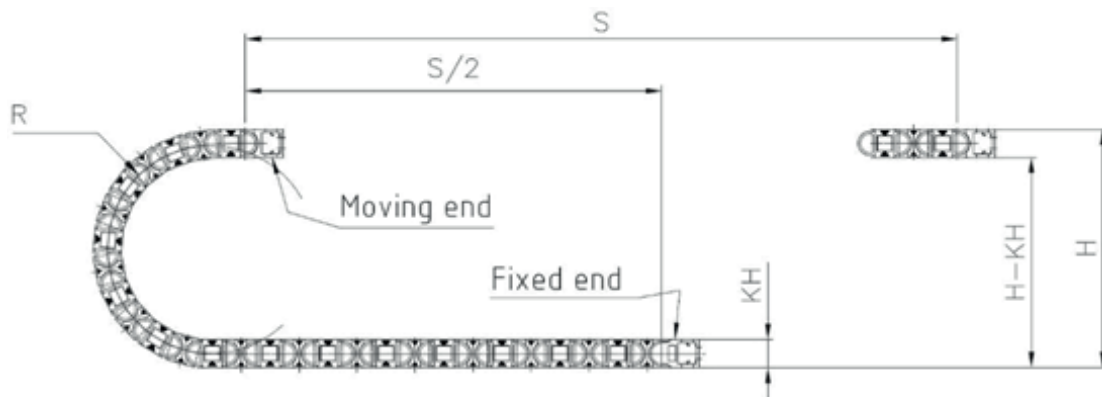
Measuring system cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant



Example image

### 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 100 m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- 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



# Data sheet

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### 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]
CF113.001.D	(3x(2x0.14)C+(4x0.14)+(2x0.5))C	10.0	71	137
CF113.002.D	(3x(2x0.14)C+2x(0.5)C)C	10.0	74	144
CF113.003.D	(3x(2x0.14)+2x1.0)C	8.0	56	103
CF113.004.D	(2x(2x(2x0.14)))+(4x0.14)C+(4x0.5))C	11.0	78	152
CF113.005.D	(4x(2x0.14)+4x0.5)C	9.0	60	115
CF113.006.D	(3x(2x0.14)C+(4x0.14)+(4x0.25)+(2x0.5))C	11.0	85	158
CF113.007.D <sup>2)</sup>	(4x0.34)C	6.5	31	54
CF113.008.D	(3x(2x0.25))C	7.5	36	76
CF113.009.D	(4x(2x0.25)+2x0.5)C	8.5	57	99
CF113.010.D	(4x(2x0.25)+2x1.0)C	9.0	68	122
CF113.011.D	(4x(2x0.34)+4x0.5)C	10.0	81	142
CF113.013.D	(3x(2x0.14)C+2x0.5)C	9.0	62	121
CF113.014.D	(4x(2x0.25)C+(2x0.5))C	11.0	86	163
CF113.015.D	(4x(2x0.14)+4x0.5)C	9.0	60	114
CF113.016.D	(3x(2x0.25)C)C	10.0	60	126
CF113.017.D <sup>4)</sup>	(4x(2x0.14)+(4x0.14)C+4x1.0)C	10.0	100	150
CF113.018.D <sup>4)</sup>	(2x(2x0.25)+2x0.5)C	6.5	41	65
CF113.019.D <sup>4)</sup>	(3x(2x0.25)C+(3x0.25)+2x1.0)C	10.0	93	143
CF113.022.D	((2x0.25)+5x0.5)C	8.0	54	94
CF113.025.D	(3x(2x0.14)C+(2x0.5)C)C	10.0	72	141
CF113.027.D	(5x(2x0.14)+2x0.5)C	9.0	52	105
CF113.028.D <sup>4)</sup>	(2x(2x0.20)+(2x0.38))C	7.5	44	69
CF113.029.D	(5x(2x0.25)C+(2x0.25+2x0.5))C	12.0	105	192
CF113.031.D	(2x(2x0.25)C+2x1.0)C	9.5	69	133
CF113.032.D <sup>5)</sup>	3x(2x0.14)C+(3x0.14)C	8.5	35	82
CF113.033.D <sup>5)</sup>	4x(2x0.14)C+2x(1.0)C	9.5	64	111
CF113.036.D	(5x(2x0.25))C	8.5	51	103
CF113.037.D	(6x(2x0.25))C	9.0	58	114
CF113.038.D	(3x(2x0.14)+(2x0.34))C	8.5	36	87
CF113.040.D	(3x(4x0.14)+(2x0.14+2x0.34)+2x1.5)C	10.0	88	155

<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

**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



# Data sheet

## chainflex® CF113.D



Measuring system cable (Class 6.5.3.1) ● For extremely heavy duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● 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	150.0	2.5
0.2	94.0	3.5
0.25	90.0	5
0.34	63.0	7
0.38	54.0	7
0.5	42.0	10
1.0	23.0	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.



Example image



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### Design table

Part No.	Core group	Colour code	Core design
CF113.001.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	
CF113.002.D	3x(2x0.14)C	green/yellow, black/brown, red/orange	
	2x(0.5)C	black, red	
CF113.003.D	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	2x1.0	blue, red	
CF113.004.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	
CF113.005.D	4x(2x0.14)	white/brown, green/yellow, grey/pink, blue/red	
	4x0.5	black, violet, grey-pink, red-blue	
CF113.006.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	
CF113.007.D	4x0.34	white, green, brown, yellow(Star-quad)	



Example image  
igus® chainflex® CF113.D



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





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## chainflex® CF113.D



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### Design table

Part No.	Core group	Colour code	Core design
CF113.008.D	3x(2x0.25)	white/brown, green/yellow, grey/pink	
	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
CF113.009.D	2x0.5	white, brown	
	4x(2x0.25)	brown/green, blue/violet, grey/pink, red/black	
CF113.010.D	2x1.0	white, brown	
	4x(2x0.34)	black/brown, red/orange, green/yellow, blue/violet	
CF113.011.D	4x0.5	black-white, red-white, yellow-white, blue-white	
	3x(2x0.14)C	white/brown, green/yellow, grey/pink	
CF113.013.D	2x0.5	blue, red	
	4x(2x0.25)C	white/brown, green/yellow, grey/pink, blue/red	
CF113.014.D	(2x0.5)	black no. 1/black no. 2	
	4x(2x0.14)	brown/green, yellow/violet, grey/pink, red/black	
CF113.015.D	4x0.5	blue, white, brown-green, white-green	



Example image



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### Design table



Part No.	Core group	Colour code	Core design
CF113.016.D	3x(2x0.25)C	white/brown, green/yellow, grey/pink	
	4x(2x0.14)	red/black, brown/green, yellow/violet, grey/pink	
CF113.017.D	(4x0.14)C	blue-black/yellow-black/red-black/green-black	
	4x1.0	white-green, brown-green, blue, white	
CF113.018.D	2x(2x0.25)	red/black, grey/pink	
	2x0.5	white, brown	
CF113.019.D	3x(2x0.25)C	brown/green, grey/pink, red/black	
	(3x0.25)	blue/violet/yellow	
CF113.022.D	2x1.0	white, brown	
	(2x0.25)	white/brown	
CF113.025.D	5x0.5	green, yellow, grey, pink, blue	
	3x(2x0.14)C	green/yellow, blue/red, grey/pink	
CF113.027.D	(2x0.5)C	white/brown	
	5x(2x0.14)	brown/green, yellow/grey, white/violet, red/black, pink/blue	
	2x0.5	white-green, white-red	



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



# Data sheet

## chainflex® CF113.D



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Part No.	Core group	Colour code	Core design
CF113.028.D	2x(2x0.20)	green/yellow, pink/blue	
	(2x0.38)	red/black	
CF113.029.D	5x(2x0.25)C	white/brown, green/yellow, grey/pink, blue/red, black/violet	
	(2x0.25+2x0.5)	grey-pink/brown-green/white-green/red-blue	
CF113.031.D	2x(2x0.25)C	white/brown, green/yellow	
	2x1.0	black no. 1, black no. 2	
CF113.032.D	3x(2x0.14)C	green/black, yellow/black, red/black	
	(3x0.14)C	grey/pink/black	
CF113.033.D	4x(2x0.14)C	yellow/black, red/black, blue/black, green/black	
	2x(1.0)C	white, brown	
CF113.036.D	5x(2x0.25)	white/brown, green/yellow, grey/pink, blue/red, black/violet	



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



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Textirahmen\_

Part No.	Core group	Colour code	Core design
CF113.037.D	6x(2x0.25)	white/brown, green/yellow, grey/pink, blue/red, black/violet, grey-pink/red-blue	
CF113.038.D	3x(2x0.14)	white/brown, green/yellow, grey/pink	
	(2x0.34)	blue/red	
CF113.040.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	



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

