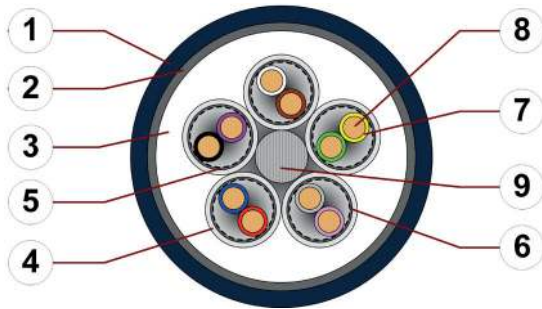


# Data sheet

## chainflex® CF12



Data cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket  
 ● Double-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: Highly flexible shield consisting of galvanized steel wire braid.
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. Core insulation: Mechanically high-quality TPE mixture
8. Conductor: Stranded conductor in especially bend-resistant version consisting of bare copper wires
9. 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 bare copper wires (following DIN EN 60228).
	<b>Core insulation</b>	Mechanically high-quality TPE mixture.
	<b>Core structure</b>	Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths.
	<b>Core identification</b>	<b>Cores &lt; 0.5 mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100 <b>Cores ≥ 0.5 mm<sup>2</sup>:</b> Black cores with white numbers.
	<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>	Highly flexible shield consisting of galvanized steel wire braid. 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®. Colour: Steel-blue (similar to RAL 5011) Printing: white

„00000 m\*\* igus chainflex CF12.--.--.02① ---② E310776

RU AWM Style 22357 90°C 300V EAC CE UKCA 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 CF12.02.04.02 (4x(2x0.25)C) EAC ...



Example image

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### Dynamic information

	<b>Bend radius</b>	e-chain® linear flexible fixed	minimum 10 x d minimum 8 x d minimum 5 x d
	<b>Temperature</b>	e-chain® linear flexible fixed	-35 °C up to +100 °C -50 °C up to +100 °C (following DIN EN 60811-504) -55 °C up to +100 °C (following DIN EN 50305)
	<b>v max.</b>	unsupported gliding	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
<b>Temperature. from/to [°C]</b>	<b>R min. [factor x d]</b>	<b>R min. [factor x d]</b>	<b>R min. [factor x d]</b>
-35/-25	12.5	13.5	14.5
-25/+90	10	11	12
+90/+100	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

	<b>Nominal voltage</b>	300/300 V (following DIN VDE 0298-3) 300 V (following UL)
	<b>Testing voltage</b>	1500 V (following DIN EN 50395)



Example image













# Data sheet

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### Properties and approvals

-  **UV resistance** High
-  **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“
-  **UL AWM** Details see table UL AWM
-  **EAC** Certificate No. RU C-DE.ME77.B.00300/19
-  **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
-  **CE** Following 2014/35/EU
-  **UKCA** 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



### Properties and approvals

UL AWM details

Conductor nominal cross section [mm <sup>2</sup> ]	Number of cores	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
0.25	8	11884	22357	300	90
0.5	6-28	11884	22357	300	90
1	12	11884	22357	300	90



Example image

# Data sheet

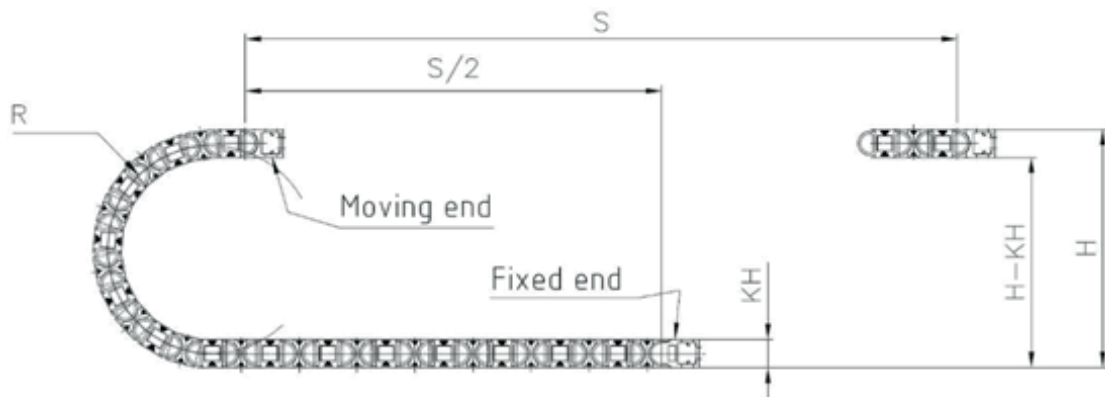
## chainflex® CF12



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### Typical lab test setup for this cable series

Test bend radius R	approx. 100 - 200 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 heaviest 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, UV-resistant
- For maximum EMC protection
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications



Example image



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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]
CF12.02.04.02	(4x(2x0.25)C)C	11.5	52	172
CF12.05.03.02	(3x(2x0.5)C)C	13.5	65	224
CF12.05.04.02	(4x(2x0.5)C)C	14.5	83	267
CF12.05.06.02	(6x(2x0.5)C)C	17.0	128	376
CF12.05.08.02	(8x(2x0.5)C)C	20.5	163	503
CF12.05.10.02	(10x(2x0.5)C)C	22.5	203	605
CF12.05.14.02	(14x(2x0.5)C)C	22.5	297	679
CF12.10.06.02	(6x(2x1.0)C)C	20.0	198	529

**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

#### Electrical information

Conductor nominal cross section [mm <sup>2</sup> ]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
0.25	79	5
0.5	39	10
1	19.5	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.	Number of cores	Core design	Part No.	Number of cores	Core design
CF12.XX.03.02	3x2		CF12.XX.08.02	8x2	
CF12.XX.04.02	4x2		CF12.XX.10.02	10x2	
CF12.XX.06.02	6x2		CF12.XX.14.02	14x2	



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



Example image  
 igus® chainflex® CF12

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### Colour code in accordance with DIN 47100

Conductor no.	Colours according to DIN ISO 47100	Conductor no.	Colours according to DIN ISO 47100
1	white	19	white-pink
2	brown	20	pink-brown
3	green	21	white-blue
4	yellow	22	brown-blue
5	grey	23	white-red
6	pink	24	brown-red
7	blue	25	white-black
8	red	26	brown-black
9	black	27	grey-green
10	violet	28	yellow-grey
11	grey-pink	29	pink-green
12	red-blue	30	yellow-pink
13	white-green	31	green-blue
14	brown-green	32	yellow-blue
15	white-yellow	33	green-red
16	yellow-brown	34	yellow-red
17	white-grey	35	green-black
18	grey-brown	36	yellow-black



Example image



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

