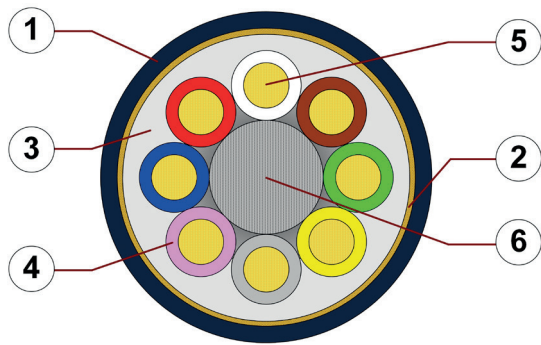# Data sheet
chainflex® CF299

igus®

Data cable (Class 7.5.4.1) ● For heaviest duty applications and especially small radii down to 4 x d ● TPE outer jacket ● Shielded ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

1. **Outer jacket:** Pressure extruded, halogen-free TPE mixture
2. **Overall shield:** Extremely bending resistant braiding made of alloy wires.
3. **Inner jacket:** Pressure extruded, gusset-filling TPE mixture
4. **Core insulation:** Mechanically high-quality TPE mixture
5. **Conductor:** Conductor consisting of a highly flexible special alloy
6. **Strain relief:** Tensile stress-resistant centre element

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36 month guarantee

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

Example image
For detailed overview please see design table

Cable structure

Conductor	Conductor consisting of a highly flexible special alloy.	
Core insulation	Mechanically high-quality TPE mixture.	
Core structure	Cores wound in a layer with especially short pitch length.	
Core identification	Colour code in accordance with DIN 47100	
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.	
Overall shield	Extremely bending resistant braiding made of alloy 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: Steel-blue (similar to RAL 5011) Printing: white	

„00000 m"* igus chainflex CF299.--.--① -----② EAC CE

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 ... **CF299.01.08** ... **(8x0.14)C** ... **EAC** ...

Example image

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Dynamic information

Bend radius	e-chain® linear	minimum 4 x d	
	flexible	minimum 4 x d	
	fixed	minimum 3 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/s^2	
Travel distance		Short, very fast applications with small radii and tight design space, 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	20 million	30 million	40 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	5	6	7
-25/+80	4	5	6
+80/+90	5	6	7

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	300/300 V	
Testing voltage	1500 V	

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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"	
EAC	Certificate No. RU C-DE.ME77.B.02806 (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	
CE	Following 2014/35/EU	

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Typical lab test setup for this cable series

Test bend radius R	ca. 15 - 28 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

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Example image

Typical application areas

- For heaviest duty applications and especially small radii down to 4 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 5
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Pick and place machines, automatic doors, Clean room, very quick handling

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CFRIP

c UL us LISTED

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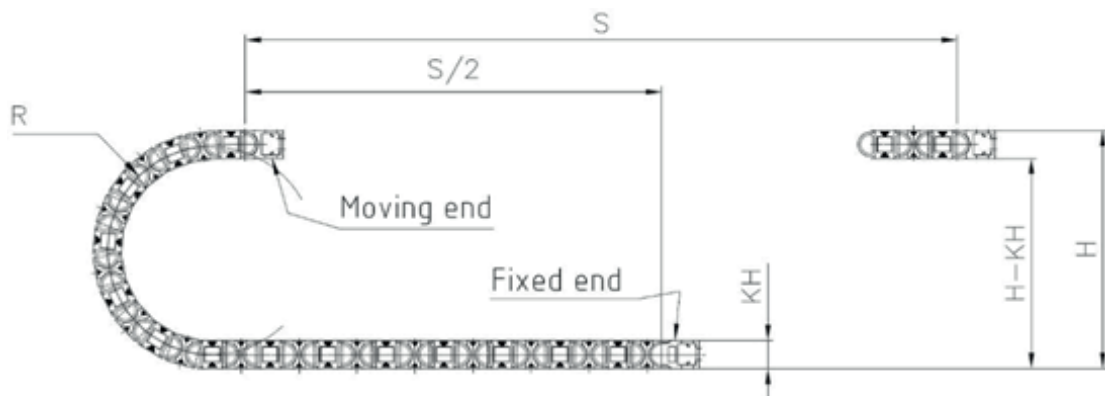DNV-GL

EAC

REACH

RoHS

Clean-Room

DESINA

CE

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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]
CF299.01.02	(2x0.14)C	6.0	17	37
CF299.01.04	(4x0.14)C	6.5	22	47
CF299.01.08	(8x0.14)C	8.5	35	80
CF299.02.04	(4x0.25)C	7.0	32	56
CF299.02.07	(7x0.25)C	8.5	46	82

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 [mm²]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
0.14	140	2.5
0.25	80	5

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
CF299.XX.02	2		CF299.XX.07	7	
CF299.XX.04	4		CF299.XX.08	8	

Example image

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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	Conductor no.	Colours according to DIN ISO 47100
1	white	22	brown-blue	43	blue-black
2	brown	23	white-red	44	red-black
3	green	24	brown-red	45	white-brown-black
4	yellow	25	white-black	46	yellow-green-black
5	grey	26	brown-black	47	grey-pink-black
6	pink	27	grey-green	48	red-blue-black
7	blue	28	yellow-grey	49	white-green-black
8	red	29	pink-green	50	brown-green-black
9	black	30	yellow-pink	51	white-yellow-black
10	violet	31	green-blue	52	yellow-brown-black
11	grey-pink	32	yellow-blue	53	white-grey-black
12	red-blue	33	green-red	54	grey-brown-black
13	white-green	34	yellow-red	55	white-pink-black
14	brown-green	35	green-black	56	pink-brown-black
15	white-yellow	36	yellow-black	57	white-blue-black
16	brown-yellow	37	grey-blue	58	brown-blue-black
17	white-grey	38	pink-blue	59	white-red-black
18	brown-grey	39	grey-red	60	brown-red-black
19	white-pink	40	pink-red	61	black-white
20	white-brown	41	grey-black		
21	white-blue	42	pink-black		

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Example image

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