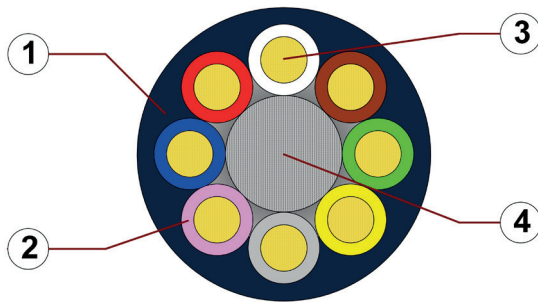# Data sheet
chainflex® CF98.PLUS

igus®

Control cable (Class 7.5.4.2) ● For heaviest duty applications and especially small radii down to 3 x d ● TPE outer jacket ● Oil and bio-oil resistant ● PVC and halogen-free ● Low-temperature-flexible ● Hydrolysis and microbe-resistant

1. Outer jacket: Pressure extruded, gusset-filling, halogen-free TPE mixture
2. Core insulation: Mechanically high-quality TPE mixture
3. Conductor: Conductor consisting of a highly flexible special alloy
4. Strain relief: Tensile stress-resistant centre element

Guarantee igus chainflex 4 YEARS — up to 4 years guarantee

igus 4-year 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. **CF98.PLUS.02.03.INI:** brown, blue, black **CF98. PLUS.03.04.INI:** brown, blue, black, white
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 CF98.PLUS.--.--① -----② 300/500V   CE

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 **CF98.PLUS.01.02 2x0.14 300 V/500 V** ...

REACH

RoHS

clean-room

DESINA

CE

Example image
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Dynamic information

	Bend radius	e-chain® linear	minimum 3 x d
		flexible	minimum 3 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/s²	
	Travel distance	Short, very fast applications with small radii and tight design space, Class 5	
	Torsion	± 90°, with 1 m cable length, Class 2	

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	40 million	100 million
Temperature, from/to [°C]	R min. [x d]	R min. [x d]	R min. [x d]
-35/-25	4	6	7
-25/+80	3	5	6
+80/+90	4	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	300/500 V (following DIN VDE 0298-3)
	Testing voltage	2000 V (following DIN EN 50395)

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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
	PFAS-free	Use of PFAS-free materials according to the content of the REACH directive and its rules for the production and processing of chemical substances
	UL verified	Certificate No. V293560: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
	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

Example image

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Typical lab test setup for this cable series

Test bend radius R	approx. 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

Typical application areas

● For heaviest duty applications and especially small radii down to 3 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
● Torsion ± 90°, with 1 m cable length, Class 2
● Indoor and outdoor applications, UV-resistant
● Pick and place machines, automatic doors, Clean room, very quick handling

Example image
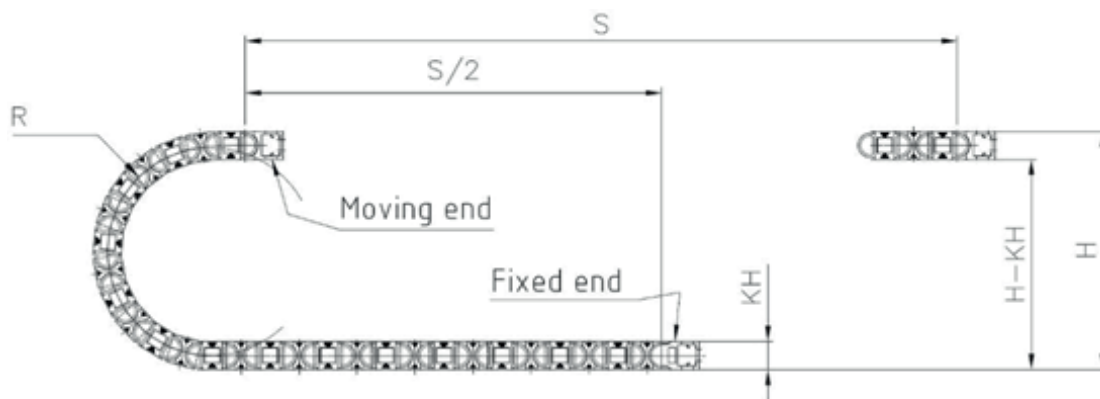igus® chainflex® CF98.PLUS

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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]
CF98.PLUS.01.02	2x0.14	4.5	4	18
CF98.PLUS.01.03	3x0.14	4.5	6	20
CF98.PLUS.01.04	4x0.14	5.0	7	25
CF98.PLUS.01.08	8x0.14	6.5	15	45
CF98.PLUS.02.03.INI	3x0.25	5.0	10	29
CF98.PLUS.02.04	4x0.25	5.5	14	36
CF98.PLUS.02.08	8x0.25	7.5	29	68
CF98.PLUS.03.04.INI	4x0.34	6.0	15	38
CF98.PLUS.05.04	4x0.5	6.0	32	53

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	88	5
0.34	72	7
0.5	50	10

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
CF98.PLUS. XX.02	2		CF98.PLUS. XX.04.INI	4	
CF98.PLUS. XX.03	3		CF98.PLUS. XX.07	7	
CF98.PLUS. XX.03.INI	3		CF98.PLUS. XX.08	8	
CF98.PLUS. XX.04	4				

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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

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