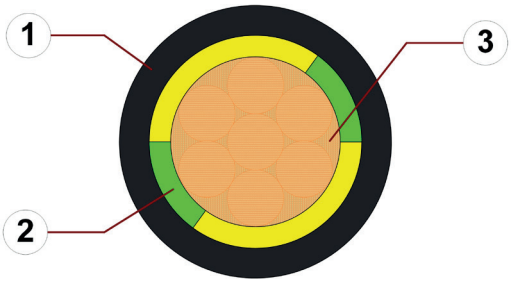
Data sheet
chainflex® CFPE

Spindle cable/Single core (Class 6.6.4.2) ● For extremely heavy duty applications ● TPE outer jacket ● Oil and bio-oil resistant ● Flame-retardant ● UV-resistant ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded, flame-retardant TPE mixture
2. Core insulation: Mechanically high-quality TPE mixture
3. Conductor: Conductor rope in especially bending-stable version consisting of bare copper wires

Example image

Example image
For detailed overview please see design table

Cable structure

Conductor	Conductor cable consisting of pre-leads (following DIN EN 60228).
Core insulation	Mechanically high-quality TPE mixture.
Core identification	Green-yellow
Outer jacket	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Signal black (similar to RAL 9004) Printing: white

„00000 m“* igus chainflex CFPE.---.--① -----② 600/1000V E310776

cЯUus AWM Style 21218 VW-1 AWM I/II A/B 80°C 1000V FT1 DNV TAE00003XC

EAC CE UKCA 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 **CFPE.40.01 1G4.0 600/1000V** ...

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Dynamic information

Bend radius	e-chain® linear	minimum 7.5 x d
	flexible	minimum 6 x d
	fixed	minimum 4 x d
Temperature	e-chain® linear	-35°C up to +90°C
	flexible	-45°C up to +90°C (following DIN EN 60811-504)
	fixed	-50°C up to +90°C (following DIN EN 50305)
v max.	unsupported	10m/s
	gliding	6m/s
a max.		100m/s²
Travel distance		Unsupported travels and up to 400m and more for gliding applications, Class 6
Torsion		Torsion ±90°, with 1m 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	7.5 million	10 million
Temperature, from/to [°C]	R min. [x d]	R min. [x d]	R min. [x d]
-35/-25	10	11	12
-25/+80	7.5	8.5	9.5
+80/+90	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

Nominal voltage	600/1000V (following DIN VDE 0298-3) 1000V (following UL)
Testing voltage	4000V (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
Flame-retardant	According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
PTFE-free	The design of these products does not contain PTFE
UL-verified	Certificate No. V293650: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	See table UL/CSA Details
NFPA	Following NFPA 79-2018, chapter 12.9
DNV	Type Approval Certificate TAE00003XC (Issue 04/2025)
REACH	In accordance with regulation (EC) No. 1907/2006 (REACH). ⚠ Parts of this chainflex® series contain a concentration of decabromodiphenylethane (DBDPE, CAS No. 84852-53-9) that exceeds the threshold of 0.1 percentage by weight (% w/w). DBDPE has been included in the candidate list of the Reach Regulation (EC) No. 1907/2006. **Note:** The use of the product is still permitted. Inclusion in the candidate list **does not constitute a ban**, but only an obligation to provide this information. DBDPE-free alternative products with UL approval for this series ▶ CFPE.ZH
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 CF34.UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1
CE	Following 2014/35/EU

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Example image

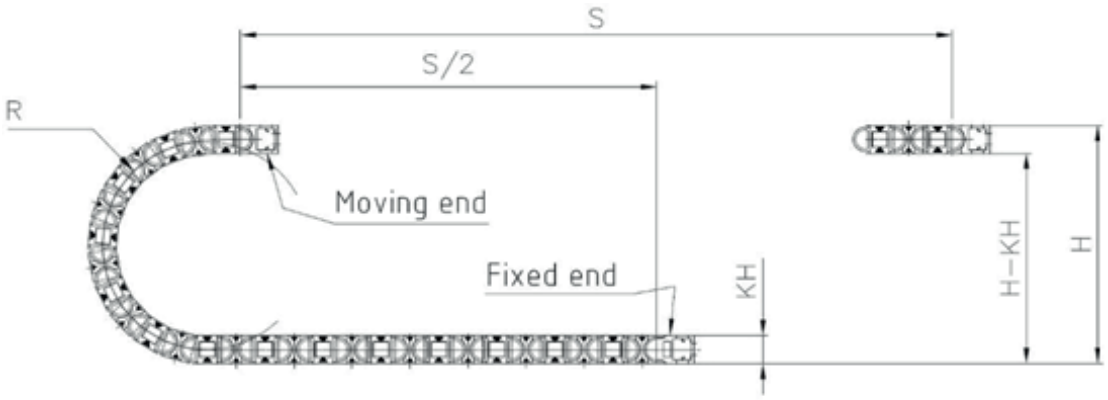
Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section mm²	Number of cores	UL style core insulation	UL style outer jacket	UL Voltage Rating V	UL Temperature Rating °C
1.5	1	10492	11804	1000	80
2.5	1	10492	11804	1000	80
4	1	10492	11804	1000	80
6	1	10492	11804	1000	80
10	1	10492	11804	1000	80
16	1	10492	21218	1000	80
25	1	10492	21218	1000	80
35	1	10492	21218	1000	80
50	1	10492	21218	1000	80
70	1	10492	21218	1000	80
95	1	10492	21218	1000	80

Typical lab test setup for this cable series

Test bend radius R	approx. 28 - 125 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 / s²



Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ±90°, with 1m cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, outdoor cranes, low-temperature applications

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Example image

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]
CFPE.15.01	1G1.5	4.5	16	31
CFPE.25.01	1G2.5	5.5	25	42
CFPE.40.01	1G4.0	6.0	41	59
CFPE.60.01	1G6.0	7.0	61	83
CFPE.100.01	1G10	7.5	100	124
CFPE.160.01	1G16	9.5	159	195
CFPE.250.01	1G25	11.5	248	294
CFPE.350.01	1G35	12.5	347	395
CFPE.500.01	1G50	14.5	495	551
CFPE.700.01	1G70	16.5	725	813
CFPE.950.01	1G95	20.0	936	1080

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]
1.5	13.3	25
2.5	7.98	34
4	4.95	46
6	3.3	58
10	1.91	81
16	1.21	110
25	0.78	144
35	0.56	179
50	0.39	228
70	0.28	285
95	0.21	348

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

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

PTFE FREE

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Technical tables:

Short circuit capacity (I_{thz}) according to DIN VDE 0298-4 (at T_{Leiter} = 80 °C and $T_{Kurzschluss}$ = 250 °C)

Conductor nominal cross section (S_n) mm²	Short circuit capacity (I_{thz}) [kA] t_k = 1 s	Short circuit capacity (I_{thz}) [kA] t_k = 0,5 s
1.5	0.22	0.31
2.5	0.37	0.52
4	0.59	0.84
6	0.89	1.26
10	1.49	2.10
16	2.38	3.37
25	3.72	5.26
35	5.21	7.37
50	7.45	10.53
70	10.43	14.75
95	14.15	20.01

J_{thr}: Short-time current density = 149 A/mm²
S_n: Nominal cross section
t_{kr}: Rated short-circuit duration = 1 s
t_k: Short-circuit duration
T_{Leiter}: Conductor temperature
$T_{Kurzschluss}$: Short-circuit temperature

$$I_{thz} = J_{thr} \bullet S_n \bullet \sqrt{\frac{t_{kr}}{t_k}}$$

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