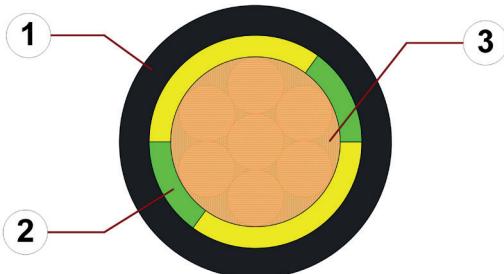


Data sheet chainflex® CFPE



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



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 cable consisting of pre-leads (following DIN EN 60228).

Mechanically high-quality TPE mixture.

Green-yellow

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

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

EAC/CTP 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 ... CFPE.40.01 ... 1G4.0 ... 600/1000V ...



Example image

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Dynamic information

	Bend radius	e-chain® linear flexible fixed	minimum 7.5 x d minimum 6 x d minimum 4 x d
	Temperature	e-chain® linear flexible fixed	-35 °C up to +90 °C -45 °C up to +90 °C (following DIN EN 60811-504) -50 °C up to +90 °C (following DIN EN 50305)
	v max.	unsupported gliding	10 m/s 6 m/s
	a max.		100 m/s ²
	Travel distance		Unsupported travel distances and up to 400 m for gliding applications, Class 6
	Torsion		Torsion ± 90°, with 1 m cable length



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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]
-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	600/1000 V (following DIN VDE 0298-3) 1000 V (following UL)
	Testing voltage	4000 V (following DIN EN 50395)

Example image



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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, FT1, VW-1



Silicone-free

Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)



UL verified

Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“



UL/CSA AWM

See table UL/CSA AWM for details



NFPA

Following NFPA 79-2018, chapter 12.9



DNV-GL

Type approval certificate No. TAE00003XC



EAC

Certificate No. RU C-DE.ME77.B.02324 (TR ZU)



CTP

Certificate No. C-DE.PB49.B.00420 (Fire protection)



REACH

In accordance with regulation (EC) No. 1907/2006 (REACH)



RoHS

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



Example image



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Properties and approvals

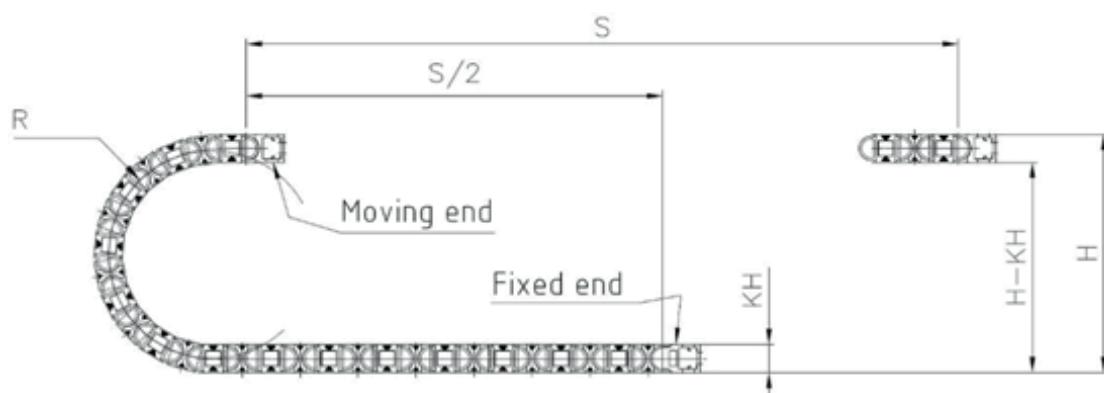
UL/CSA AWM Details

Conductor nominal cross section mm ²	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 / s ²



Example image

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Typical application areas

- For extremely heavy 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
- Torsion $\pm 90^\circ$, with 1 m cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications



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Technical tables:

Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm ²]	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 [mm ²]	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.



Example image



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Technical tables:

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

Leiternennquerschnitt (S_n) mm ²	Short circuit capacity (I_{thz}) [kA] $t_k = 1 \text{ s}$	Short circuit capacity (I_{thz}) [kA] $t_k = 0,5 \text{ s}$
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



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Example image