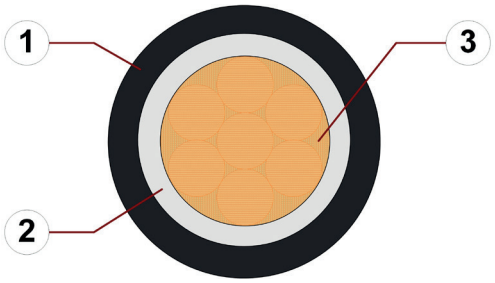
Data sheet
chainflex® CF300.UL.D

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

Example image



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
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.
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 CF300.UL.--.--.D① ----② 600/1000V E310776

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

DNV-GL TAE00003XC EAC/CTP CE DESINA RoHS-II conform

*** Length printing:** Not calibrated. Only intended as an orientation aid.
① / ② Cable identification according to Part No. (see technical table).
Example: ... chainflex ... **CF300.UL.40.01.D** ... **1x4.0** ... **600/1000V** ...

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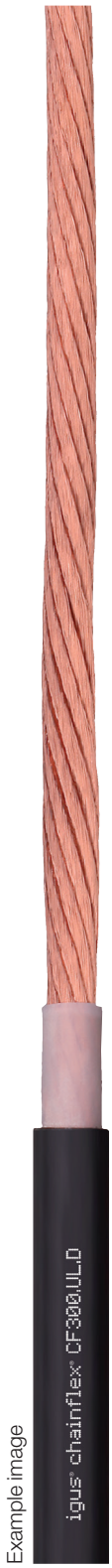

Example image

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/s²
Travel distance		Unsupported travel distances and up to 400 m for gliding applications, Class 6
Torsion		Torsion ± 90°, with 1 m cable length

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)

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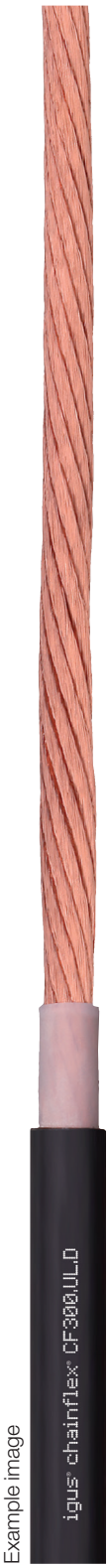

Example image

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)
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

Guarantee igus chainflex 36 month guarantee

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

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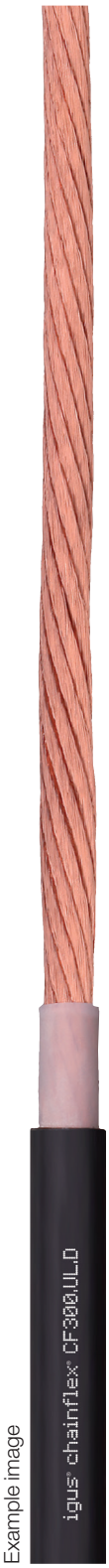


Example image

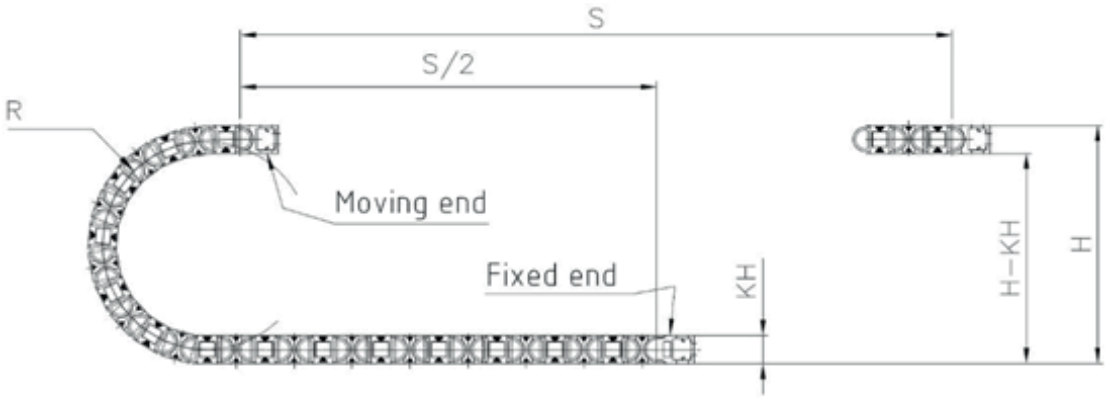
Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section mm²	Number of cores	UL style core insultation	UL style outer jacket	UL Voltage Rating V	UL Temperature Rating °C
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
120	1	10492	21218	1000	80
150	1	10492	21218	1000	80
185	1	10492	21218	1000	80

Typical lab test setup for this cable series

Test bend radius R	approx. 55 - 250 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



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Example image

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 ± 90°, 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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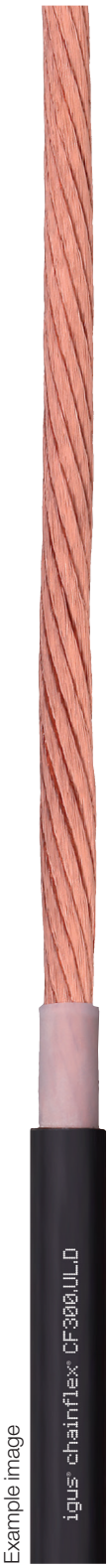

Example image

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]
CF300.UL.40.01.D	1x4.0	6.0	41	59
CF300.UL.60.01.D	1x6.0	7.0	61	83
CF300.UL.100.01.D	1x10	7.5	100	124
CF300.UL.160.01.D	1x16	9.5	159	195
CF300.UL.250.01.D	1x25	11.5	248	294
CF300.UL.350.01.D	1x35	12.5	347	395
CF300.UL.500.01.D	1x50	14.5	495	551
CF300.UL.700.01.D	1x70	16.5	710	769
CF300.UL.950.01.D	1x95	20.0	936	1042
CF300.UL.1200.01.D	1x120	21.5	1184	1295
CF300.UL.1500.01.D	1x150	23.5	1469	1579
CF300.UL.1850.01.D	1x185	26.5	1928	2052

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]
4	4.95	46
6	3.3	58
10	1.91	81
16	1.21	110
25	0.78	144
35	0.556	179
50	0.39	228
70	0.28	285
95	0.21	348
120	0.16	394
150	0.13	466
185	0.11	532

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

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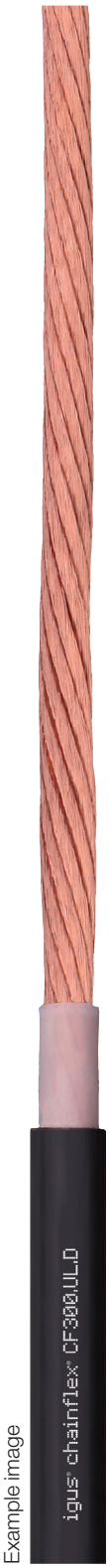

Example image

Technical tables:

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

Leiternennquerschnitt (S_n) mm²	Short circuit capacity (I_{thz}) [kA] t_k = 1 s	Short circuit capacity (I_{thz}) [kA] t_k = 0,5 s
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
120	17.88	25.28
150	22.35	31.60
185	27.56	38.98

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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