Data sheet
chainflex® CF140.UL

Control cable (Class 4.4.1.1) ● **For medium duty applications** ● **PVC outer jacket** ● **Shielded** ● **Flame retardant**

1. Outer jacket: Pressure extruded PVC mixture
2. Overall shield: Bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling PVC mixture
4. CFRIP: Tear strip for faster cable stripping
5. Core insulation: Mechanically high-quality TPE mixture
6. Conductor: Fine-wire strand consisting of bare copper wires
7. Strain relief: Tensile stress-resistant centre element
8. 12 cores or more: Bundles with optimised pitch length and pitch direction

Example image
For detailed overview please see design table

Cable structure

Conductor	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).	
Core insulation	Mechanically high-quality TPE mixture.	
Core structure	**Number of cores < 12:** Cores wound in a layer with short pitch length. **Number of cores ≥ 12:** Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.	
Core identification	**Cores < 0.5 mm²:** Colour code in accordance with DIN 47100. **Cores ≥ 0.5 mm²:** Black cores with white numbers, one green-yellow core.	
Inner jacket	PVC mixture adapted to suit the requirements in e-chains®.	
Overall shield	Bending-resistant braiding made of tinned copper wires. Coverage approx. 55 % linear, approx. 80 % optical	
Outer jacket	Low-adhesion PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Silver-grey (similar to RAL 7001) Printing: black	
CFRIP®	Strip cables faster: a tear strip is moulded into the inner jacket Video ▶ www.igus.eu/CFRIP	

„00000 m"** igus chainflex CF140.--.--.UL① -----② ---/---V③ E310776

cЯUus AWM Style 20200 VW-1 AWM I/II A/B 60°C 300V FT1   EAC/CTP

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).
③ Printing of nominal voltage (see general electrical values).
Example: ... chainflex **CF140.02.12.UL (12x0.25)C 300 V/500 V** ...

Guarantee igus chainflex 4 YEARS up to 4 years guarantee

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

CFRIP   iF DESIGN AWARD 2016

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NFPA

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DNV-GL

EAC

REACH

RoHS

clean-room

DESINA

CE

11/2023

Example image

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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	+5 °C up to +70 °C	
	flexible	-5 °C up to +70 °C (following DIN EN 60811-504)	
	fixed	-15 °C up to +70 °C (following DIN EN 50305)	
v max.	unsupported	3 m/s	
	gliding	2 m/s	
a max.		20 m/s^2	
Travel distance		Unsupported travels and up to 50 m for gliding applications, Class 4	

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	
	< 10 m	≥ 10 m	< 10 m	≥ 10 m	< 10 m	≥ 10 m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	10	12.5	11	13.5	12	14.5
+15/+60	7.5	10	8.5	11	9.5	12
+60/+70	10	12.5	11	13.5	12	14.5

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

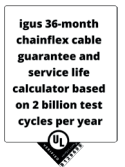|		
Nominal voltage	300/500 V (following DIN VDE 0298-3)	
	300 V (following UL)	
Testing voltage	2000 V (following DIN EN 50395)	

Example image
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Properties and approvals

	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)
PFAS FREE	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	UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
cULus	UL/CSA AWM	Details see table UL AWM
NFPA	NFPA	Following NFPA 79-2018, chapter 12.9
EAC	EAC	Certificate No. RU C-DE.ME77.B.00300/19
REACH	REACH	In accordance with regulation (EC) No. 1907/2006 (REACH)
RoHS	Lead-free	Following 2011/65/EC (RoHS-II/RoHS-III)
clean-room	Cleanroom	According to ISO Class 1. The outer jacket material of this series complies with CF130.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
CE	CE	Following 2014/35/EU

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]
0.25	12	10493	20200	300	60
0.34	5	10493	20200	300	60
0.5	3-36	10493	20200	300	60
0.75	3-25	10493	20200	300	60
1	2-25	10493	20200	300	60
1.5	3-36	10493	20200	300	60
2.5	3-4	10493	20200	300	60

Example image

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Control cable (Class 4.4.1.1) ● For medium duty applications ● PVC outer jacket ● Shielded ● Flame retardant

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Typical lab test setup for this cable series

Test bend radius R	approx. 48 - 300 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 medium duty applications, Class 4
● Unsupported travel distances and up to 50 m for gliding applications, Class 4
● Without influence of oil, Class 1
● No torsion, Class 1
● Preferably indoor applications
● Wood/stone processing, Packaging industry, supply systems, Handling, adjusting equipment

Example image

igus® chainflex® CF140.UL

Guarantee
igus chainflex
4 YEARS
up to 4 years guarantee

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

CFRIP

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c(UL)us LISTED

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NFPA

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DNV-GL
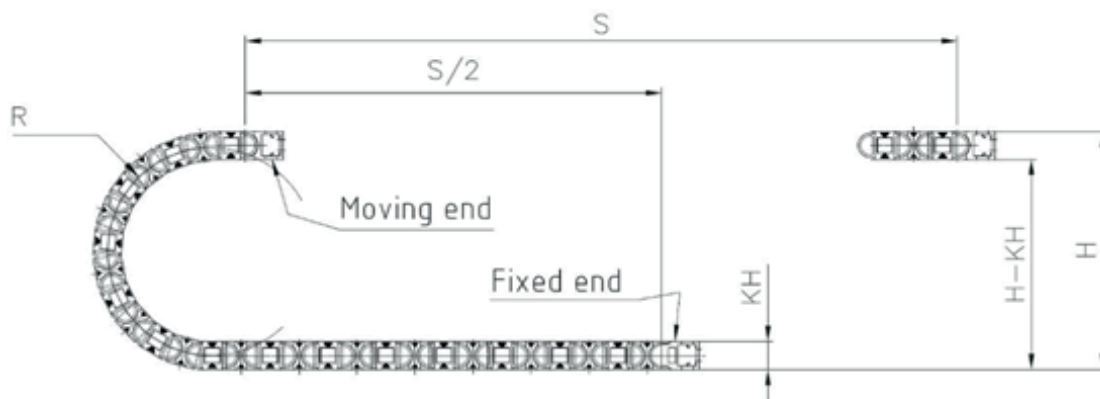
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Technical tables:

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]
CF140.02.12.UL	(12x0.25)C	10.5	72	133
CF140.03.05.UL	(5x0.34)C	7.5	36	72
CF140.05.03.UL	(3G0.5)C	7.0	33	72
CF140.05.04.UL	(4G0.5)C	7.5	38	81
CF140.05.05.UL	(5G0.5)C	8.0	45	91
CF140.05.18.UL	(18G0.5)C	14.5	147	258
CF140.05.36.UL	(36G0.5)C	18.5	258	468
CF140.07.03.UL	(3G0.75)C	8.0	42	85
CF140.07.04.UL	(4G0.75)C	8.5	51	102
CF140.07.05.UL	(5G0.75)C	9.0	61	115
CF140.07.07.UL	(7G0.75)C	10.0	83	152
CF140.07.12.UL	(12G0.75)C	13.0	136	263
CF140.07.18.UL	(18G0.75)C	15.5	194	359
CF140.07.25.UL	(25G0.75)C	18.0	261	479
CF140.10.02.UL	(2x1.0)C	8.0	35	86
CF140.10.03.UL	(3G1.0)C	8.5	51	105
CF140.10.04.UL	(4G1.0)C	9.0	62	118
CF140.10.05.UL	(5G1.0)C	9.5	74	136
CF140.10.07.UL	(7G1.0)C	10.5	104	176
CF140.10.12.UL	(12G1.0)C	14.0	166	300
CF140.10.18.UL	(18G1.0)C	16.5	240	413
CF140.10.25.UL	(25G1.0)C	19.5	325	562
CF140.15.03.UL	(3G1.5)C	9.0	68	126
CF140.15.04.UL	(4G1.5)C	9.5	86	146
CF140.15.05.UL	(5G1.5)C	9.5	108	168
CF140.15.07.UL [17]	(7G1.5)C	11.5	144	226
CF140.15.12.UL	(12G1.5)C	16.0	233	387
CF140.15.18.UL	(18G1.5)C	19.0	346	463
CF140.15.25.UL	(25G1.5)C	22.5	464	737
CF140.15.36.UL	(36G1.5)C	26.5	663	1150
CF140.25.03.UL	(3G2.5)C	10.5	106	202
CF140.25.04.UL	(4G2.5)C	11.5	140	210

[17] When using the cables with „7G1.5mm²" and „G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

Example image

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Electrical information

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Max. current rating at 30 °C
[mm²]	[Ω/km]	[A]
0.25	79	5
0.34	57	7
0.5	39	10
0.75	26	13
1	19.5	15
1.5	13.3	19
2.5	8	27

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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Design table

Part No.	Number of cores	Core design	Part No.	Number of cores	Core design
CF140.XX.02.UL	2		CF140.XX.12.UL	4x3	
CF140.XX.03.UL	3		CF140.XX.18.UL	6x3	
CF140.XX.04.UL	4		CF140.XX.25.UL	5x5	
CF140.XX.05.UL	5		CF140.XX.36.UL	6x6	
CF140.XX.07.UL	7		CF140.XX.42.UL	7x6	

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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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