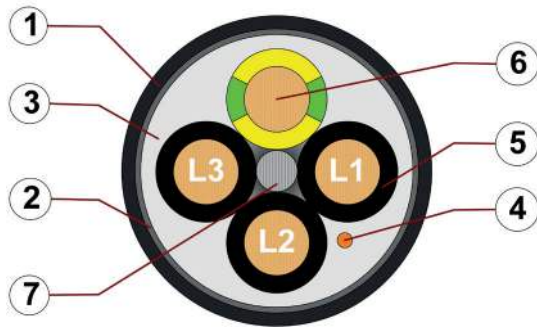


# Data sheet

## chainflex® CF35.UL



Motor cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket  
 ● Shielded ● Oil and bio-oil resistant ● Flame retardant ● UV-resistant ● Hydrolysis and  
 microbe-resistant



1. Outer jacket: Pressure extruded, flame-retardant TPE mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
4. CFRIP: Tear strip for faster cable stripping
5. Core insulation: Mechanically high-quality, especially low-capacitance XLPE mixture
6. Conductor: Especially bending-stable version consisting of bare copper wires
7. Strain relief: Tensile stress-resistant centre element

**Example image**  
 For detailed overview please see design table

### Cable structure

	<b>Conductor</b>	<b>Cores &lt; 10 mm<sup>2</sup>:</b> Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228). <b>Cores ≥ 10 mm<sup>2</sup>:</b> Conductor cable consisting of pre-leads (following DIN EN 60228).
	<b>Core insulation</b>	Mechanically high-quality, especially low-capacitance XLPE mixture.
	<b>Core structure</b>	Cores wound with a short pitch length around a high tensile strength centre element.
	<b>Core identification</b>	Black cores with white numbers, one green-yellow core. 1. Core: U / L1 / C / L+ 2. Core: V / L2 3. Core: W / L3 / D / L- 4. Core: 4 / N
	<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
	<b>Overall shield</b>	Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
	<b>Outer jacket</b>	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
	<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

„00000 m<sup>4</sup> igus chainflex CF35.UL--① ----② 600/1000V E310776

cRUus AWM Style ③ VW-1 AWM I/II A/B 90°C 1000V FT1 DNV-GL TAE00003X9

EAC/CTP CE RoHS-II conform [www.igus.de](http://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 the UL style (see related chapter).  
 Example: ... chainflex **CF35.UL.15.04 (4G1.5)C 600/1000V ...**



Example image

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### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	minimum 7.5 x d minimum 6 x d minimum 4 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	-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)
	<b>v max.</b>	<b>unsupported</b> <b>gliding</b>	10 m/s 6 m/s
	<b>a max.</b>		80 m/s <sup>2</sup>
	<b>Travel distance</b>		Unsupported travel distances and up to 400 m for gliding applications, Class 6



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

	<b>Nominal voltage</b>	600/1000 V (following DIN VDE 0298-3) 1000 V (following UL)
	<b>Testing voltage</b>	4000 V (following DIN EN 50395)



Example image















# Data sheet

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 microbe-resistant

### Properties and approvals

	<b>UV resistance</b>	High
	<b>Oil resistance</b>	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
	<b>Flame retardant</b>	According to IEC 60332-1-2, FT1, VW-1
	<b>Silicone-free</b>	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
	<b>UL verified</b>	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
	<b>UL/CSA AWM</b>	See table UL/CSA AWM for details
	<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
	<b>DNV-GL</b>	Type approval certificate No. TAE00003X9
	<b>EAC</b>	Certificate No. RU C-DE.ME77.B.02324 (TR ZU)
	<b>CTP</b>	Certificate No. C-DE.PB49.B.00420 (Fire protection)
	<b>REACH</b>	In accordance with regulation (EC) No. 1907/2006 (REACH)
	<b>Lead-free</b>	Following 2011/65/EC (RoHS-II/RoHS-III)
	<b>Cleanroom</b>	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
	<b>CE</b>	Following 2014/35/EU



Example image

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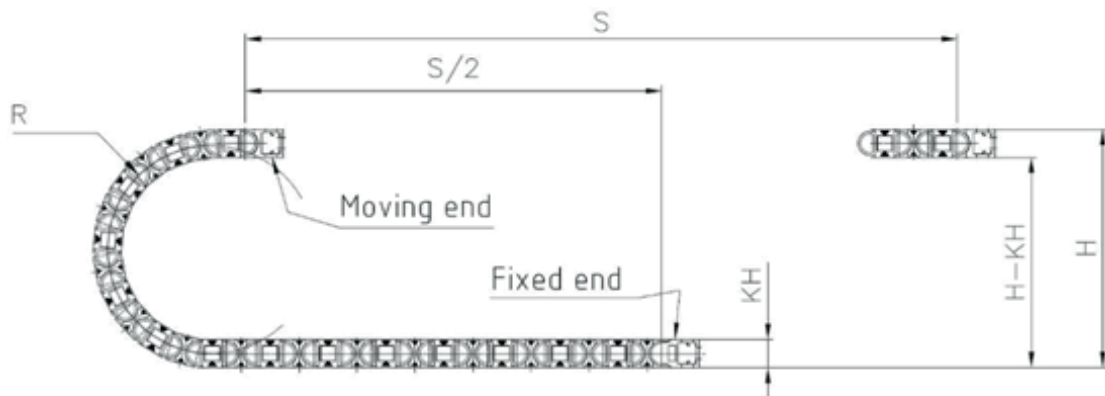
### Properties and approvals

#### UL/CSA AWM Details

Conductor nominal cross section [mm <sup>2</sup> ]	Number of cores	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
0.5	4	30052	22022	1000	90
0.75	4	30052	22022	1000	90
1.5	4	30052	22022	1000	90
2.5	4	30052	22021	1000	90
4	4	30052	22021	1000	90
6	3-4	30052	22021	1000	90
10	4	30052	22021	1000	90
16	4	30052	22021	1000	90
25	3-4	30052	22021	1000	90

### 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 / s<sup>2</sup>



### 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
- No torsion, Class 1
- 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

Example image



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



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### Technical tables:

#### Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF35.UL.05.04	(4G0.5)C	7.5	42	79
CF35.UL.07.04	(4G0.75)C	8.0	58	90
CF35.UL.15.04	(4G1.5)C	10.0	89	146
CF35.UL.25.04	(4G2.5)C	11.5	133	207
CF35.UL.40.04	(4G4.0)C	13.0	203	290
CF35.UL.60.04	(4G6.0)C	16.0	288	423
CF35.UL.100.04	(4G10)C	18.5	468	632
CF35.UL.160.04	(4G16)C	23.0	738	974
CF35.UL.250.04	(4G25)C	27.5	1153	1481
CF35.UL.60.03.O.PE <sup>1)</sup>	(3x6.0)C	14.5	229	344
CF35.UL.250.03.O.PE <sup>1)</sup>	(3x25)C	24.5	880	1163

<sup>1)</sup> Phase-out model

**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 <sup>2</sup> ]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
0.5	39	11
0.75	26	14
1.5	13.3	21
2.5	7.98	30
4	4.95	41
6	3.3	53
10	1.91	74
16	1.21	99
25	0.78	131

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  
 igus® chainflex® CF35.UL



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### Design table

Part No.	Number of cores	Core design
CF35.UL.XX.03.O.PE	3	
CF35.UL.XX.04	4	



Example image



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

