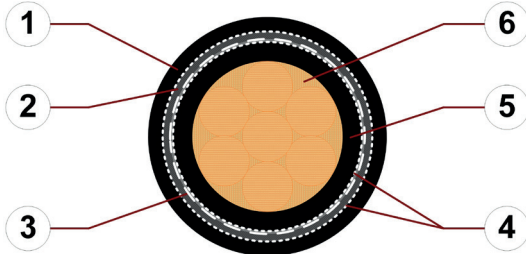


Data sheet

chainflex® CFROBOT



- Spindle cable/Single core (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
 ● Shielded ● Oil and bio-oil-resistant ● PVC-free ● UV-resistant ● Flame retardant
 ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded, flame-retardant TPE mixture
2. Overall shield: Extremely torsion-resistant wrapping made of tinned copper wires
3. Banding: Gliding PTFE foil
4. Banding: Cotton yarns over the core and under the overall shield
5. Core insulation: Mechanically high-quality TPE mixture
6. 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	Extremely bend-resistant cable.
	Core insulation	Mechanically high-quality TPE mixture.
	Overall shield	Extremely torsion-resistant tinned wound copper shield. Coverage optical approx. 90 %
	Outer jacket	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Jet black (similar to RAL 9005) Printing: white

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

cRUus AWM Style 21387 VW-1 AWM I/II A/B 90°C 1000V FT1 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 CFROBOT.035 (1x10)C 600/1000V



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



Example image

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Dynamic information

	Bend radius	e-chain® twisted flexible fixed	min. 10 x d min. 8 x d min. 5 x d
	Temperature	e-chain® twisted flexible fixed	-35 °C up to +90 °C -45 °C up to +100 °C (following DIN EN 60811-504) -50 °C up to +100 °C (following DIN EN 50305)
	v max.	twisted	180 °/s
	a max.	twisted	60 °/s ²
	Travel distance	Robots and 3D movements, Class 1	

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

Cycles	5 million	7.5 million	10 million
Temperature, from/to [°C]	Torsion max. [°/m]	Torsion max. [°/m]	Torsion max. [°/m]
-35/-25	±150	±90	±30
-25/+70	±180	±120	±60
+70/+80	±150	±90	±30

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

igus® chainflex® CFROBOT














Data sheet

chainflex® CFROBOT



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 ● Hydrolysis and microbe-resistant

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
-  **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
-  **CE** Following 2014/35/EU



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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]
10	1	10258	21387	1000	90
16	1	10258	21387	1000	90
25	1	10258	21387	1000	90
35	1	10258	21387	1000	90

Example image

igus® chainflex® CFROBOT

Data sheet

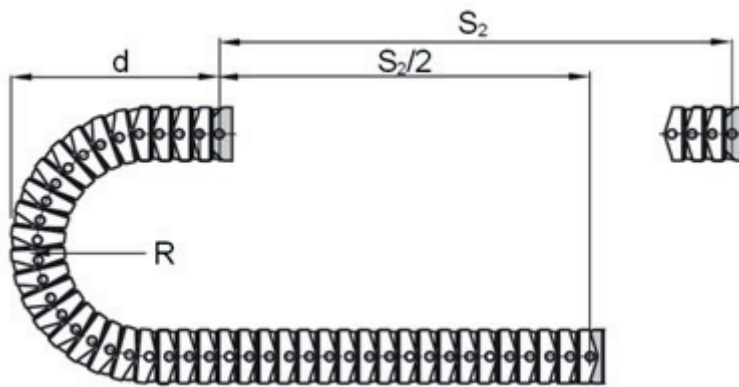
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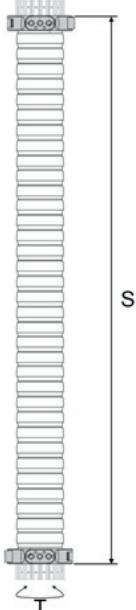
Typical lab test setup for this cable series

Test bend radius R	approx. 100 - 175 mm
Test travel S/S ₂	approx. 1 - 12 m
Test duration	minimum 1.5 - 3 million double strokes
Test speed	approx. 0.5 m/s
Test acceleration	approx. 1.5 m/s ²



Typical lab test setup (torsion) for this cable series

Torsion range T	±180°/m
Length 3D e-chain®	1 m
Test duration (torsion)	minimum 3 - 5 million cycles
Test speed (torsion)	approx. 80 - 120 °/s
Test acceleration (torsion)	approx. 40°/s ²



Example image



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



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Example image
igus® chainflex® CFROBOT

Typical application areas

- For heaviest duty applications with torsion movements, Class 6
- Especially for robots and 3D movements, Class 1
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ±180°, with 1m cable length, Class 3
- Indoor and outdoor applications, UV-resistant
- Robots, Handling, spindle drives

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]
CFROBOT.035	(1x10)C	10.5	125	194
CFROBOT.036	(1x16)C	12.0	189	269
CFROBOT.037	(1x25)C	14.5	298	392
CFROBOT.038	(1x35)C	15.5	403	528

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]	Maximum current rating at 30 °C [A]
10	1.91	81
16	1.21	110
25	0.78	144
35	0.554	179

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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