

Robot

Torsion-resistant cables



chainflex® type



chainflex® cable	Jacket	Shield	Minimum bending radius, moved [factor x d]	Temperature twisted from/to [°C]	Approvals and standards	Oil-resistant	Torsion resistant v max. twisted [°/s]	a max. twisted [°/s²]	Page
Torsion-resistant cables									
New! chainflex® guarantee club – Guaranteed lifetime							► Selection table page 298		
Information torsion-resistant cables									296
Hybrid cable/Control cable									
CFROBOT9	PUR	✓	10	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 300
CF77.UL.D	PUR		6,8-7,5	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 304
CFROBOT2	PUR	✓	10	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 308
Data cable									
CFROBOT3	PUR	✓	10	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 310
Bus cable									
CFROBOT8	PUR	✓	10	-20/ +70	CE RoHS UL G ENEC	✓	✓	180	60 312
Measuring system cable									
CFROBOT4	PUR	✓	10	-25/ +80	CE RoHS REACH UL US	✓	✓	180	60 314
Fibre optic cable									
CFROBOT5	TPE		10	-20/ +80	CE RoHS REACH	✓	✓	180	60 318
Power cable/Servo cable									
CFROBOT6	PUR		10	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 320
CFROBOT7	PUR	✓	10	-25/ +80	CE RoHS REACH UL US G ENEC	✓	✓	180	60 320
CFROBOT	TPE	✓	10	-35/ +90	CE RoHS REACH UL US G ENEC	✓	✓	180	60 324

Ever more complex sequences of movements in industrial applications demand twistable and/or three-dimensional flexible cables with a long service life similar to the classic chainflex® cables for use in linear e-chainsystems®.

Wires, stranded, shields and sheathing materials must compensate both major changes in bending load and changes in diameter due to torsional movements.

For this purpose, different "soft" structural elements e.g. rayon fibres, PTFE elements or filling elements that absorb torsion forces are used in chainflex® ROBOT cables.

Special demands are made on the braided shielding in torsion cables. Torsion-optimised shield structures are chosen that can carry out the necessary compensatory movements thanks to special PTFE gliding films.

With twistable bus cables in particular, the transmission characteristics such as attenuation, cable capacity and signal quality must remain within very tight tolerance ranges over the whole service life.

This is achieved through the use of particularly torsion-optimised insulating materials and mechanical attenuation elements with matching capacity values.

The highly abrasion-resistant, halogen-free and flame-resistant PUR sheathing mixture in motor, hybrid/control cables and bus cables protects the torsion-optimised stranded elements from possible damage.

The highly abrasion-resistant, halogen-free TPE-sheath mixture matches the special requirements of the twistable FOC and individual wires, and also protects the stranded elements.

Unlike cables for linear e-chainsystems®, the "mechanical stress" for these cables is in the combination of bending, torsion and centrifugal forces that cannot usually be determined by design in advance or during use by means of measurement.

For this reason, and unlike the situation with linear e-chain® applications, a clear "yes/no" statement cannot be made about the possibility of using a certain cable in torsion applications.

To enable evaluation to take place nevertheless, based on sensible and comparable test results, the igus® "torsion test standard" was developed.

According to this standard, all chainflex® ROBOT cables of a triflex® R energy chain® are twisted with a fixed-point distance of one metre and a torsion of +/- 180° at least 3 million times. In addition, a test is carried out on a test bench with a chain length of approx. 2500 mm with 270° torsion with an extreme load through centrifugal forces and heavy blows such as those that can occur with an industrial robot.



All the non-shielded, gusset-filled extruded standard chainflex® control cables of the series CF5, CF77.UL.D and CF 9 correspond to the above-mentioned igus® standard and have been approved for use in torsion applications.

The following twistable CFROBOT cable types are currently available:

- Hybrid/Control cables
- Motor/Servo cables
- Bus/Data cables
- FOC cables

We can also offer you chainflex® ROBOT cables pre-fitted with the plug-in connectors of your choice as readycable®, or as a ready-to-install readychain® cable assembly.

Test data

► Page 61 or www.igus.eu/test15



1030 types from stock no cutting costs ...

(for up to 10 cuts of the same type)

... no minimum order quantity ...

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












New!	chainflex® cables	Temperature, from/to [°C]	v max. [°/s]		a max. [°/s ²]		Torsion max. [°]		Torsion max. [°]		Page	
			twisted		twisted		5 million cycles *		7,5 million cycles *			10 million cycles *
Torsion-resistant cables												
	CFROBOT9	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	300
	CF77.UL.D	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	304
	CFROBOT2	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	308
	CFROBOT3	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	310
	CFROBOT8	-25 / -15 -15 / +60 +60 / +70	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	312
	CFROBOT4	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	314
	CFROBOT5	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	318
	CFROBOT6	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	320
	CFROBOT7	-25 / -15 -15 / +70 +70 / +80	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	320
	CFROBOT	-35 / -25 -15 / +80 +80 / +90	180		60		±150 ±180 ±150		±90 ±120 ±90		±30 ±60 ±30	324

⁽¹⁾ New! Guaranteed lifetime for these series according to the "chainflex® guarantee club" conditions ► Page 22-25

* Guaranteed lifetime, higher number of cycles possible.

PUR Hybrid cable, twistable | CFROBOT9








- for twistable loads
- PUR outer jacket
- unshielded/shielded
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	Mechanically high-quality TPE mixture.
	Core identification	► Schedule Delivery Program
	Element shield	Extremely torsion resistant tinned braided copper shield. Coverage approx. 85% optical.
	Outer jacket	Low-adhesion, halogen-free, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 100 m for gliding applications, Class 6 ± 180°, with 1 m cable length
	Torsion	
	UV-resistant	High
	Nominal voltage	300/500 V (following DIN VDE 0245).
	Testing voltage	2000 V (following DIN VDE 0281-2).
	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	CEI	Following CEI 20-35

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Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	UL/CSA	> 0,5 mm²: Style 10493 and 20317, 300 V, 80 °C ≤ 0,5 mm²: Style 10467 and 20317, 300 V, 80 °C
	NFPA	Following NFPA 79-2012 chapter 12.9
	Clean room	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00396
	EAC	Certified according to N° TC RU C-DE.ME77.B.00960

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*	5 million		7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90
-15 / +70	180	60	±180	±120
+70 / +80			±150	±90

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling, spindle drives



igus® chainflex® cables in application of a multi-dimensional moving energy chain triflex® R for 6-axis robots.

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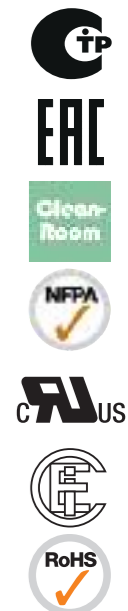





Image exemplary.

Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]	Part No.	Core group	Colour code
CFROBOT9.001	5 G 1,0 + (2 x 1,0)C	10,5	86	142	CFROBOT9.001	5G1,0 (2x1,0)C	Cores white with black numerals 1-4, one core green-yellow Cores white with black numerals 5-6
CFROBOT9.002	2x3x0,75 + (3x0,75)C	11,5	82	145	CFROBOT9.002	6G0,75 (3x0,75)C	Cores white with black numerals 4-9 Cores white with black numerals 1-3
CFROBOT9.003	2x0,5 + (2x0,5)C	10,0	29	80	CFROBOT9.003	2x0,5 (2x0,5)C	blue, black white, brown
CFROBOT9.004	16 G 1,0 + (2 x 1,0)C	16,0	207	324	CFROBOT9.004	16G1,0 (2x1,0)C	Cores white with black numerals 1-4, 7-17, one core green-yellow Cores white with black numerals 5-6
CFROBOT9.005	23 G 1,0 + (2 x 1,0)C	19,5	286	462	CFROBOT9.005	23G1,0 (2x1,0)C	Cores white with black numerals 1-4, 7-24, one core green-yellow Cores white with black numerals 5-6
CFROBOT9.006	24 G 1,0 + (2 x 1,0)C	20,0	299	476	CFROBOT9.006	24G1,0 (2x1,0)C	Cores white with black numerals 1-4, 7-25, one core green-yellow Cores white with black numerals 5-6
CFROBOT9.007	(15x(2x0,25)C+(4x0,25)C)C	18,5	245	384	CFROBOT9.007	15x(2x0,25)C (4x0,25)C	Colour code in accordance with DIN 47100 white/green/brown/yellow (CAN-Bus)
CFROBOT9.010	(4x(2x0,25)C)C	10,5	66	120	CFROBOT9.010	4x(2x0,25)C	white/brown, green/yellow, grey/pink, blue/red

(1) Delivery time upon inquiry.

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core x = without earth core

 **Order example: CFROBOT9.001 – in your desired length (0,5 m steps)**
CFROBOT9 chainflex® series .001 Code nominal cross section

 **prices** price list online
www.chainflex.eu/CFROBOT

 **delivery time** despatched in
24 hours or today

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PUR Control cable, twistable | CF77.UL.D















- for twistable loads
- PUR outer jacket
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant
- PVC-free/halogen-free

	Conductor	Fine-wire stranded conductor consisting of bare copper wires (following EN 60228)
	Core insulation	Mechanically high-quality TPE mixture.
	Core stranding	Number of cores < 12: cores stranded in a layer with short pitch length. Number of cores ≥ 12: cores combined in bundles and stranded together around a centre for high tensile stresses with adapted, short pitch lengths and pitch directions, especially low-torsion structure.
	Core identification	Cores < 0,5 mm²: Colour code in accordance with DIN 47100 Cores ≥ 0,5 mm²: Cores black with white numerals, one core green-yellow CF77.UL.03.04.INI: brown, blue, black, white
	Outer jacket	Low-adhesion, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Window grey (similar to RAL 7040) CF77.UL.03.04.INI: Colour: Colza yellow (similar to RAL 1021)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 100 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	Medium
	Nominal voltage	Number of cores < 12: 300/500 V Number of cores < 12 (0,25-0,34): 300/300 V Number of cores ≥ 12: 300/300 V (following DIN VDE 0245)
	Testing voltage	2000 V (following DIN VDE 0281-2)

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Class 5.6.3 (5 high load requirements 6 travel distance twisted 3 oil-resistant)

	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3
	Offshore	MUD-resistant following NEK 606 – status 2009
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992)
	Halogen-free	Following EN 50267-2-1
	UL/CSA	Style 10493 and 20233, 300 V, 80 °C
	NFPA	Following NFPA 79-2012 chapter 12.9
	CEI	Following CEI 20-35
	CE	Following 2006/95/EG
	DESINA	According to VDW, DESINA standardisation
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF77.UL.05.12.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00396
	EAC	Certified according to N° TC RU C-DE.ME77.B.00960

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*			5 million	7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90	±30
-15 / +70	180	60	±180	±120	±60
+70 / +80			±150	±90	±30

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications with average sun radiation
- especially for robots and movements in the 3D range
- robots, handling, spindle drives

... no minimum order quantity ...

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Image exemplary.

Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF77.UL.02.04.D	4 x 0,25	5,5	11	35
CF77.UL.03.04.INI	4 x 0,34	5,5	17	40
CF77.UL.05.04.D	4 G 0,5	6,0	22	44
CF77.UL.05.05.D	5 G 0,5	6,5	28	52
CF77.UL.05.07.D	7 G 0,5	8,0	41	80
CF77.UL.05.12.D	12 G 0,5	10,0	66	132
CF77.UL.05.18.D	18 G 0,5	12,0	99	184
CF77.UL.05.25.D	25 G 0,5	14,0	138	247
CF77.UL.05.30.D	30 G 0,5	15,0	165	325
CF77.UL.07.03.D	3 G 0,75	6,5	24	55
CF77.UL.07.04.D	4 G 0,75	7,0	32	64
CF77.UL.07.05.D	5 G 0,75	7,5	40	75
CF77.UL.07.07.D	7 G 0,75	8,5	56	106
CF77.UL.07.12.D	12 G 0,75	12,0	96	192
CF77.UL.07.18.D	18 G 0,75	13,5	143	260
CF77.UL.07.20.D	20 G 0,75	14,5	159	292
CF77.UL.07.25.D	25 G 0,75	16,0	198	368
CF77.UL.07.36.D	36 G 0,75	18,5	297	524
CF77.UL.07.42.D ⁽¹⁾	42 G 0,75	21,0	365	604
CF77.UL.10.02.D	2 x 1,0	6,5	22	54
CF77.UL.10.03.D	3 G 1,0	6,5	32	65
CF77.UL.10.04.D	4 G 1,0	7,0	43	79
CF77.UL.10.05.D	5 G 1,0	8,0	53	97
CF77.UL.10.07.D	7 G 1,0	9,0	74	119
CF77.UL.10.12.D	12 G 1,0	12,5	127	234
CF77.UL.10.18.D	18 G 1,0	15,0	191	339
CF77.UL.10.25.D	25 G 1,0	17,0	264	452
CF77.UL.10.42.D	42 G 1,0	22,5	462	708

(1) Delivery time upon inquiry.

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.

G = with green-yellow earth core x = without earth core


Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF77.UL.15.03.D	3 G 1,5	7,5	48	86
CF77.UL.15.04.D	4 G 1,5	8,0	64	105
CF77.UL.15.05.D	5 G 1,5	8,5	80	125
CF77.UL.15.07.D ⁽¹⁷⁾	7 G 1,5	10,5	111	174
CF77.UL.15.12.D	12 G 1,5	14,0	191	308
CF77.UL.15.18.D	18 G 1,5	17,0	286	477
CF77.UL.15.25.D	25 G 1,5	19,5	396	630
CF77.UL.15.36.D ⁽¹⁾	36 G 1,5	23,5	594	891
CF77.UL.15.42.D ⁽¹⁾	42 G 1,5	26,5	729	1040
CF77.UL.25.03.D	3 G 2,5	8,5	80	124
CF77.UL.25.04.D	4 G 2,5	9,5	106	155
CF77.UL.25.05.D	5 G 2,5	10,5	132	192
CF77.UL.25.07.D ⁽¹⁷⁾	7 G 2,5	12,5	185	270
CF77.UL.40.04.D ⁽¹⁾	4 G 4,0	11,5	185	257

(1) Delivery time upon inquiry.

(17) Using the cables with "7 G 1,5 mm²" and "7 G 2,5 mm²" it is essential: bending radius 17 x d with travel distance ≥ 5 m. When the travel distance is not less than 5 m, a bending radius not less than 17 x d has to be used.

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.

G = with green-yellow earth core x = without earth core

 Order example: CF77.UL.10.03.D – in your desired length (0,5 m steps)
CF77.UL.D chainflex® series .10 Code nominal cross section .03 Number of cores

 prices price list online
www.chainflex.eu/CF77R

 delivery time despatched in
24 hours or today

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(for up to 10 cuts of the same type)



PUR Control cable, twistable | CFROBOT2








- for twistable loads
- PUR outer jacket
- shielded
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	Mechanically high-quality TPE mixture.
	Core identification	Cores black with white numerals, one core green-yellow.
	Element shield	Extremely torsion resistant tinned braided copper shield. Coverage approx. 85% optical.
	Outer jacket	Low-adhesion, halogen-free, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s ²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	300/500 V (following DIN VDE 0245)
	Testing voltage	2000 V (following DIN VDE 0281-2)
	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	UL/CSA	Style 10493 and 20317, 300 V, 80 °C

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1030 types from stock no cutting costs ...
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Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	NFPA	Following NFPA 79-2012 chapter 12.9
	CEI	Following CEI 20-35
	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00396
	EAC	Certified according to N° TC RU C-DE.ME77.B.00960

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*	5 million	7,5 million	10 million
Temperature, from/to [°C]			
v max. [°/s] tordiert			
a max. [°/s ²] tordiert			
Torsion max. [°]			
Torsion max. [°]			
Torsion max. [°]			
-25 / -15	±150	±90	±30
-15 / +70	±180	±120	±60
+70 / +80	±150	±90	±30


* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- Robots, handling, spindle drives

Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFROBOT2.07.04.C ⁽¹⁾	(4 G 0,75)C	8,5	45	84
CFROBOT2.07.05.C	(5 G 0,75)C	8,5	54	94
CFROBOT2.07.07.C	(7 G 0,75)C	10,0	75	130
CFROBOT2.07.12.C ⁽¹⁾	(12 G 0,75)C	14,0	131	219
CFROBOT2.07.18.C	(18 G 0,75)C	16,5	197	321

(1) Delivery time upon inquiry.
Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core x = without earth core

 **Order example: CFROBOT2.07.05.C in your desired length (0,5 m steps)**
CFROBOT2 chainflex® series .07 Code nominal cross section .05 Number of cores .C shielded

 **prices** price list online
www.chainflex.eu/CFROBOT

 **delivery time** despatched in 24 hours or today



















... no minimum order quantity ...

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PUR Data cable, twistable | CFROBOT3









- for twistable loads
- PUR outer jacket
- shielded
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	Mechanically high-quality TPE mixture.
	Core identification	Colour code in accordance with DIN 47100
	Inner jacket	PUR mixture adapted to suit the requirements in energy chains®.
	Overall shield	Extremely torsion resistant tinned braided copper shield. Coverage approx. 85% optical.
	Outer jacket	Low-adhesion, halogen-free, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	300/500 V (following DIN VDE 0245).
	Testing voltage	2000 V (following DIN VDE 0281-2).
	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	UL/CSA	Style 10497 and 20911, 300 V, 90 °C
	NFPA	Following NFPA 79-2012 chapter 12.9
	CEI	Following CEI 20-35
	CE	Following 2006/95/EC
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00396
	EAC	Certified according to N° TC RU C-DE.ME77.B.00960

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*			5 million	7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90	±30
-15 / +70	180	60	±180	±120	±60
+70 / +80			±150	±90	±30

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- Robots, handling, spindle drives

Delivery program Part No.	Number of cores and conductor nominal cross section [mm²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFROBOT3.02.06.02	(6x(2x0,25))C	12,0	64	171
CFROBOT3.05.05.02	(5x(2x0,5))C	13,0	90	223

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core x = without earth core



















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PUR Bus cable, twistable | CFROBOT8







- for twistable loads
- PUR outer jacket
- shielded
- oil-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	According to bus specification
	Core stranding	According to bus specification
	Core identification	According to bus specification ▶ Schedule delivery program
	Intermediate layer	Foil taping over the external layer.
	Overall shield	Torsion resistant tinned braided copper shield. Coverage approx. 80% optical.
	Outer jacket	Low-adhesion, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains®. Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -20 °C to +70 °C fixed -25 °C to +70 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	50 V
	Testing voltage	500 V
	Oil	Oil-resistant (following DIN EN 50363 -10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	CE	Following 2006/95/EG
	Lead free	Following 2002/95/EG (RoHS).
	UL	> 0,25 mm²: Style 1589 and 20963, 30 V, 80 °C ≤ 0,25 mm²: Style 1589 and 20236, 30 V, 80 °C
	CTP	Certified according to N° C-DE.PB49.V.00396
	EAC	Certified according to N° TC RU C-DE.ME77.B.00963

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ▶ Page 22-25

Cycles*	5 million		7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±30
-15 / +60	180	60	±180	±60
+60 / +70			±150	±30

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil, also with bio-oils
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling, spindle drives

Delivery program Part No.	Number of cores and conductor nominal cross section [mm²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFROBOT8.001 (Profibus)	(2x0,35)C	8,0	29	62
CFROBOT8.022 (Can-Bus)	(4x0,5)C	7,0	43	72
CFROBOT8.045 (GigE)	4x(2x0,14)C	8,5	39	69
CFROBOT8.060 (Profinet)	(2x(2x,34))C	8,5	36	70

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core x = without earth core



















Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
CFROBOT8.001	150	(2x0,35)C	red, green
CFROBOT8.022	120	(4x0,5)C	white, green, brown, yellow (star-quad stranding)
CFROBOT8.045	100	(4x(2x0,14)C)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
CFROBOT8.060	100	(2x(2x0,34))C	white/blue, yellow/orange

... no minimum order quantity ...

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PUR Measuring system cable, twistable | CFROBOT4







- for twistable loads
- PUR outer jacket
- shielded
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	Mechanically high-quality TPE mixture.
	Core identification	According to measuring system specification ► Schedule Delivery Program
	Element shield	Extremely torsion resistant tinned braided copper shield. Coverage approx. 85% optical.
	Overall shield	Torsion resistant tinned braided copper shield. Coverage approx. 80% optical.
	Outer jacket	Low-adhesion, halogen-free, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	50 V
	Testing voltage	500 V
	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	UL/CSA	Style 1589 and 20236, 30 V, 80 °C
	NFPA	Following NFPA 79-2012 chapter 12.9
	CEI	Following CEI 20-35
	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*			5 million	7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90	±30
-15 / +70	180	60	±180	±120	±60
+70 / +80			±150	±90	±30

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling, spindle drives

... no minimum order quantity ...

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Image exemplary.


Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]	Part No.	Core group	Colour code
CFROBOT4.001	(3x(2x0,14)C+(4x0,14)+(2x0,5)C)	10,5	65	119	CFROBOT4.001	3x(2x0,14)C 4x0,14 2x0,5	green/yellow, black/brown, red/orange grey, blue, white-yellow, white-black brown-red, brown-blue
CFROBOT4.002 ⁽¹⁾	(3x(2x0,14)C+2x(0,5)C)C	10,5	70	122	CFROBOT4.002 ⁽¹⁾	3x(2x0,14)C 2x(0,5)C	green/yellow, black/brown, red/orange black, red
CFROBOT4.006	(3x(2x0,14)C+(4x0,14)+(4x0,22)+(2x0,5)C)	11,5	78	143	CFROBOT4.006	3x(2x0,14)C (4x0,14) (4x0,22) (2x0,5)	brown/green, blue/violet, grey/pink, red/black white, brown brown/green, violet/yellow, grey/pink, red/black blue, white, brown-green, white-green
CFROBOT4.009	(4x(2x0,25)+(2x0,5)C)	9,5	51	93	CFROBOT4.009	4x(2x0,25) 2x0,5	green/yellow, pink/blue red, black
CFROBOT4.015	(4x(2x0,14)+4x0,5)C	9,0	52	96	CFROBOT4.015	4x(2x0,14) 4x0,5	green/yellow, brown/black, red/orange grey/blue/white-yellow/white-black
CFROBOT4.028 ⁽¹⁶⁾	(2x(2x0,20)+(2x0,38)C)	7,5	47	75	CFROBOT4.028 ⁽¹⁶⁾	2x(2x0,20) (2x0,38)	brown-yellow/brown-grey/green-black/green-red brown-red/brown-blue

(1) Delivery time upon inquiry.

(16) Colour outer jacket: Yellow green (similar to RAL 6018)

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.

G = with green-yellow earth core x = without earth core

 **Order example: CFROBOT4.009 – in your desired length (0,5 m steps)**
CFROBOT4 chainflex® series .009 Code Measuring system

 **prices** price list online
www.chainflex.eu/CFROBOT

 **delivery time** despatched in
24 hours or today

















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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

... no minimum order quantity ...
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TPE Fibre optic cable, twistable | CFROBOT5

- for twistable loads
- TPE outer jacket
- oil-resistant
- biooil-resistant
- UV-resistant
- low-temperature-flexible
- hydrolysis-resistant and microbe-resistant

	Fibre cable	50/125 µm, 62.5/125 µm special fixed wire elements with aramide strain relief.
	Core stranding	FOC wires stranded with high-tensile aramide dampers around the GRP central element.
	Core identification	► Schedule Delivery Program
	Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in energy chains®. Colour: Jet black (similar to RAL 9005)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -20 °C to +80 °C fixed -25 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Oil	Oil-resistant (following DIN EN 60811-2-1), biooil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4.
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF9.15.07, tested by IPA according to standard 14644-1

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 7.6.4 (7 maximum load requirements 6 travel distance twisted 4 oil-resistant)

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*			5 million	7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90	±30
-15 / +70	180	60	±180	±120	±60
+70 / +80			±150	±90	±30

* higher number of cycles possible


Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling

Delivery program Part No.	Number of fibres	Fibre diameter approx. [µm]	External diameter max. [mm]	Weight [kg/km]
CFROBOT5.500	2	62,5/125	8,5	87
CFROBOT5.501	2	50/125	8,5	87

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.

Part No.	Bandwidth with 650 nm [MHz x km]	Attenuation with 650 nm [dB/km]	Bandwidth with 1300 nm [MHz x km]	Attenuation with 1300 nm [dB/km]	Colour code
CFROBOT5.500	≥ 200	≤ 3,0	≥ 500	≤ 0,7	orange with white numbers
CFROBOT5.501	≥ 500	≤ 2,5	≥ 500	≤ 0,7	blue with white numbers

 **Order example: CFROBOT5.501 – in your desired length (0,5 m steps)**
CFROBOT5 chainflex® series .501 Code Type of fibres

 **prices** price list online
www.chainflex.eu/CFROBOT

 **delivery time** despatched in 24 hours or today

















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PUR Power cable, twistable | CFROBOT6/7










- for twistable loads
- PUR outer jacket
- unshielded/shielded
- oil-resistant and coolant-resistant
- notch-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following EN 60228).
	Core insulation	Mechanically high-quality TPE mixture.
	Core identification	Energy conductor: Cores black with white numerals, one core green-yellow ▶ Schedule delivery program 2 signal pairs: Cores black with white numerals. 1. control core: 5 2. control core: 6 3. control core: 7 4. control core: 8 4 signal pairs: Colour code in accordance with DIN 47100
	Overall shield	Extremely torsion resistant tinned braided copper shield.
	Outer jacket	Coverage approx. 85% optical. Low-adhesion, halogen-free, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in energy chains® (following DIN VDE 0282 Part 10). Colour: Steel blue (similar to RAL 5011)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -25 °C to +80 °C fixed -40 °C to +80 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	600/1000 V (following DIN VDE 0250).
	Testing voltage	4000 V (following DIN VDE 0281-2).
	Oil	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 6.6.3 (6 maximum load requirements 6 travel distance twisted 3 oil-resistant)

	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	UL/CSA	Style 10492 and 21223, 1000 V, 80 °C
	NFPA	Following NFPA 79-2012 chapter 12.9
	CEI	Following CEI 20-35
	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00397
	EAC	Certified according to N° TC RU C-DE.ME77.B.00964

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ▶ Page 22-25

Cycles*			5 million	7,5 million	10 million
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-25 / -15			±150	±90	±30
-15 / +70	180	60	±180	±120	±60
+70 / +80			±150	±90	±30

* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling, spindle drives

... no minimum order quantity ...

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Image exemplary.

Delivery program Part No.	Number of cores and conductor nominal cross section [mm ²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFROBOT6.100.03 ⁽¹²⁾	3G10	16,0	317	414
CFROBOT6.160.03 ⁽¹²⁾	3G16	18,5	508	618
CFROBOT6.250.03 ⁽¹²⁾	3G25	23,0	795	962
CFROBOT6.350.03 ⁽¹²⁾	3G35	25,5	1122	1298
Without signal pair				
CFROBOT7.15.03.C ⁽¹²⁾	(3G1,5)C	8,5	64	103
CFROBOT7.15.04.C ⁽¹³⁾	(4G1,5)C	9,5	82	127
CFROBOT7.25.03.C ⁽¹²⁾	(3G2,5)C	10,0	98	147
CFROBOT7.25.04.C ⁽¹³⁾	(4G2,5)C	10,5	127	182
CFROBOT7.60.04.C ⁽¹³⁾	(4G6,0)C	15,0	296	403
2 signal pairs				
CFROBOT7.15.15.02.02.C ⁽¹⁴⁾	(4G1,5+2x(2x1,5)C)C	16,5	211	325
CFROBOT7.25.15.02.02.C ⁽¹⁴⁾	(4G2,5+2x(2x1,5)C)C	17,0	259	381
4 signal pairs				
CFROBOT7.40.02.02.04.C ⁽¹⁴⁾	(4G4+4x(2x0,25)C)C	17,0	270	384


(12) Core identification energy conductor: 1. core: 1 2. core: 2

(13) Core identification energy conductor: 1. core: 1 2. core: 2 3. core: 3

(14) Core identification energy conductor: 1. core: U / L1 / C / L+ 2. core: V / L2 3. core: W / L3 / D / L-

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.

G = with green-yellow earth core x = without earth core

 **Order example: CFROBOT6.100.03 – in your desired length (0,5 m steps)**
CFROBOT6 chainflex® series .100 Code nominal cross section .03 Number of cores

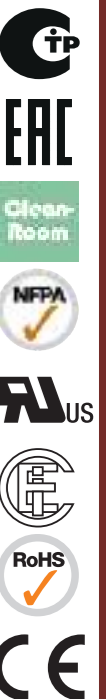
 **prices** price list online
www.chainflex.eu/CFROBOT

 **delivery time** despatched in
24 hours or today

 eplan download, configurator ► www.igus.eu/CFROBOT



















1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

... no minimum order quantity ...
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TPE Robot cable, twistable | CFROBOT







- for twistable loads
- TPE outer jacket
- shielded
- oil-resistant, biooil-resistant
- PVC-free
- UV-resistant
- flame-retardant
- hydrolysis-resistant and microbe-resistant

	Conductor	Extremely bend-resistant cable.
	Core insulation	Mechanically high-quality TPE mixture.
	Overall shield	Extremely torsion resistant tinned braided copper shield. Coverage approx. 90% optical.
	Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in energy chains®. Colour: Jet black (similar to RAL 9005)
	Bending radius	twistable minimum 10 x d moved minimum 7,5 x d fixed minimum 5 x d
	Temperature	twistable -35 °C to +90 °C fixed -40 °C to +90 °C
	v max. twisted	180°/s
	a max. twisted	60°/s²
	Travel distance	For twistable applications, but also for freely suspended travel distances and up to 10 m for gliding applications, Class 6
	Torsion	± 180°, with 1 m cable length
	UV-resistant	High
	Nominal voltage	600/1000 V (following DIN VDE 0250).
	Testing voltage	4000 V (following DIN VDE 0281-2).
	Oil	Oil-resistant (following DIN EN 60811-2-1), biooil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4.
	Flame-retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
	Silicon-free	Free from silicon which can affect paint adhesion (following PV 3.10.7 – status 1992).
	UL/CSA	Style 10258 and 21387, 1000 V, 90 °C
	NFPA	Following NFPA 79-2012 chapter 12.9

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1030 types from stock no cutting costs ...
(for up to 10 cuts of the same type)

Class 6.6.4 (6 maximum load requirements 6 travel distance twisted 4 oil-resistant)

	CEI	Following CEI 20-35
	CE	Following 2006/95/EG
	Lead free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. Outer jacket material complies with CF34.UL.25.04.D, tested by IPA according to standard 14644-1
	CTP	Certified according to N° C-DE.PB49.V.00397
	EAC	Certified according to N° TC RU C-DE.ME77.B.00964

New! Guaranteed lifetime for this series according to the "chainflex® guarantee club" conditions ► Page 22-25

Cycles*	5 million		7,5 million		10 million	
Temperature, from/to [°C]	v max. [°/s] tordiert	a max. [°/s²] tordiert	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]	Torsion max. [°]
-35 / -25			±150	±90	±30	
-15 / +80	180	60	±180	±120	±60	
+80 / +90			±150	±90	±30	


* higher number of cycles possible

Typical application area

- for maximum load requirements with torsion movements
- almost unlimited resistance to oil, also with bio-oils
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling, spindle drives

Delivery program Part No.	Number of cores and conductor nominal cross section [mm²]	External diameter max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFROBOT.035	(1 x 10,0)C	10,5	121	197
CFROBOT.036	(1 x 16,0)C	12,0	183	274
CFROBOT.037	(1 x 25,0)C	14,5	289	425
CFROBOT.038	(1 x 35,0)C	15,5	391	534
CFROBOT.039	(1 x 50,0)C	18,0	546	726

Note: The mentioned external diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core x = without earth core

 **Order example: CFROBOT.035 – in your desired length (0,5 m steps)**
CFROBOT chainflex® series .035 Code nominal cross section

 **prices price list online**
www.chainflex.eu/CFROBOT

 **delivery time despatched in 24 hours or today**

... no minimum order quantity ...

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