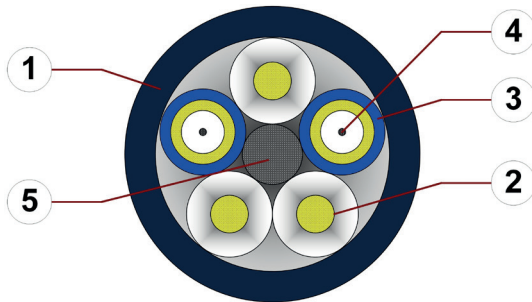


Data sheet

chainflex® CFROBOT5



Fibre Optic Cable (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
 ● Oil and bio-oil-resistant ● UV-resistant ● Low-temperature-flexible
 ● Hydrolysis and microbe-resistant ● PVC and halogen-free



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Filling: Aramid damper for high tensile stresses
3. Subcable jacket: LSZH („Low smoke & zero halogen“) Material
4. Fibre: Glass optical fibre (GOF)
5. Bend protection: Fibre-reinforced plastic rod (GRP rod)

Example image

For detailed overview please see design table

Cable structure



Conductor

50/12 µm, 62.5/125µm bending-resistant solid glass fibre optic cores, with aramid strain relief elements.



Core structure

FOC cores wound with high-tensile aramid dampers around a glass-fibre reinforced plastic central element.



Core identification

► Design table



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 CFROBOT5.---① -----② 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 CFROBOT5.501 2x50/125 ...



igus 4-year
chainflex cable
guarantee and
service life
calculator based
on 2 billion test
cycles per year









Data sheet

chainflex® CFROBOT5



Fibre Optic Cable (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
 ● Oil and bio-oil-resistant ● UV-resistant ● Low-temperature-flexible
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Dynamic information

	Bend radius	flexible twisted fixed	minimum 10 x d minimum 5 x d
	Temperature	flexible twisted fixed	-35°C up to +80°C -55°C up to +80°C (following DIN EN 50305)
	v max.	twisted	180°/s
	a max.	twisted	60°/s ²
	Travel distance	Robots and multi-axis movements, Class 1	
	Torsion	Torsion ±180°, with 1m cable length, Class 3	

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.

Example image














Data sheet

chainflex® CFROBOT5



Fibre Optic Cable (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
 ● Oil and bio-oil-resistant ● UV-resistant ● Low-temperature-flexible
 ● Hydrolysis and microbe-resistant ● PVC and halogen-free

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
	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
	Halogen-free	Following DIN EN 60754
	PTFE-free	The design of these products does not contain PTFE
	UL-verified	Certificate No. V293650: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
	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 CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
	Dry cleanroom	Tested in „dry cleanroom“ according to DIN EN ISO 14644-1, Report No. IG 2405-1526
	CE	Following 2014/35/EU



Example image

Data sheet

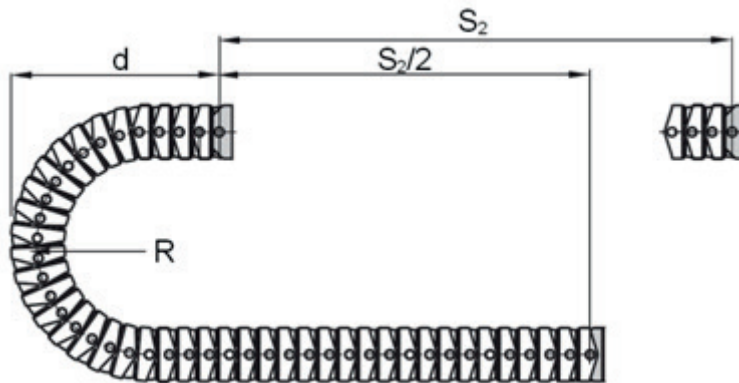
chainflex® CFROBOT5



Fibre Optic Cable (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
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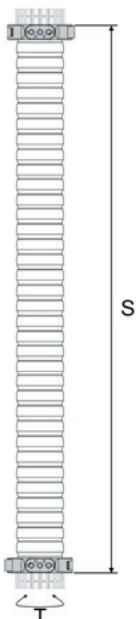
Typical lab test setup for this cable series

Test bend radius R	approx. 115 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



Data sheet

chainflex® CFROBOT5



Fibre Optic Cable (Class 6.1.4.3) ● For torsion applications ● TPE outer jacket
 ● Oil and bio-oil-resistant ● UV-resistant ● Low-temperature-flexible
 ● Hydrolysis and microbe-resistant ● PVC and halogen-free

Typical application areas

- For heaviest duty applications with torsion movements, Class 6
- Especially for robots and multi-axis movements, Class 1
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion $\pm 180^\circ$, with 1m cable length, Class 3
- Indoor and outdoor applications, UV-resistant
- Robots, handling

Technical tables:

Mechanical information

Part No.	Number of fibres Fibre diameter Conductor nominal cross section	Outer diameter (d) max. [mm]	Weight [kg/km]
CFROBOT5.500 ¹⁾	2x62.5/125	8.5	53
CFROBOT5.501	2x50/125	8.5	53

¹⁾ Phase-out model

Note: The given outer diameters are maximum values and may tend toward lower tolerance limits.

Technical tables:

Optical features

Fibre diameter [μm]	Wave length [nm]	Bandwidth [MHz x km]	Attenuation [dB/km]
62.5/125	650	≥ 200	≤ 3.0
62.5/125	850	≥ 500	≤ 0.7
50/125	650	≥ 500	≤ 2.5
50/125	850	≥ 500	≤ 0.7

Example image



Data sheet

chainflex® CFROBOT5



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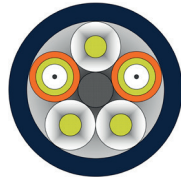


Design table

Fibre diameter: 62.5/125

Part No. (No. of cores)	Core design
----------------------------	-------------

CFROBOT5.500
(2x62.5/125)

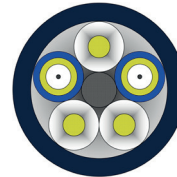


Design table

Fibre diameter: 50/125

Part No. (No. of cores)	Core design
----------------------------	-------------

CFROBOT5.501
(2x50/125)



igus 4-year
chainflex cable
guarantee and
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Example image