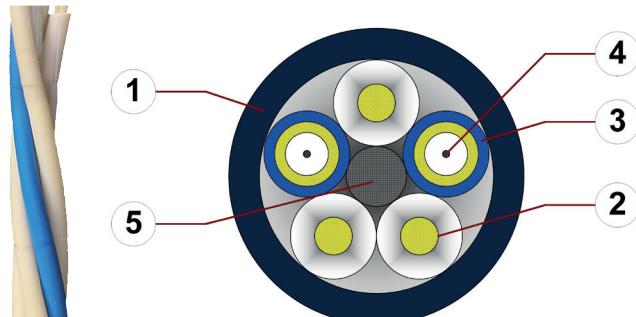


Data sheet chainflex® CFROBOT5



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)



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

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 ...



Example image

Data sheet chainflex® CFROBOT5



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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

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- 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



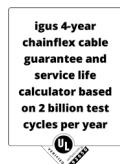
Dry cleanroom

Tested in „dry cleanroom“ according to DIN EN ISO 14644-1, Report No. IG 2405-1526



CE

Following 2014/35/EU



Example image

igus® chainflex® CFROBOT 5

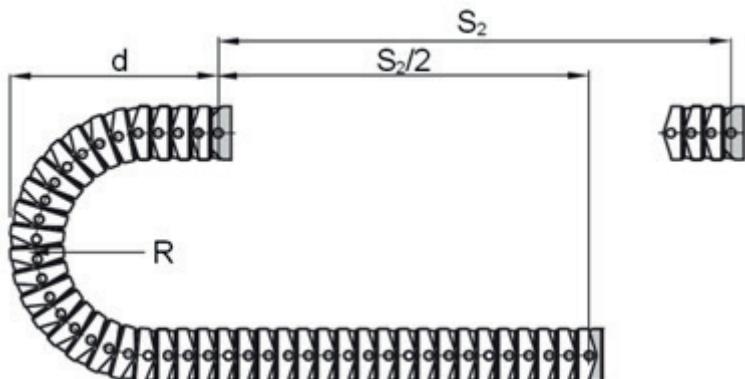
Data sheet chainflex® CFROBOT5



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 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

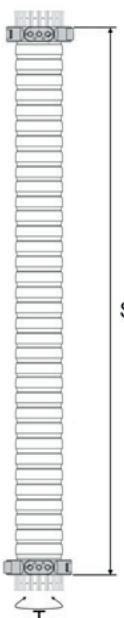


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Typical lab test setup (torsion) for this cable series

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® chainflex® CFROBOT 5
12/2025

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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



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Technical tables:

Mechanical information

Part No.	Number of fibres Fibre diameter	Conductor nominal cross section	Outer diameter (d) max.	Weight
			[mm]	[kg/km]
CFROBOT5.500 ¹¹⁾	2x62.5/125		8.5	53
CFROBOT5.501	2x50/125		8.5	53

¹¹⁾ 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



igus® chainflex® CFROBOT 5



Data sheet chainflex® CFROBOT5



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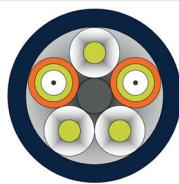
Design table

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)



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Example image