

Bus cable | PUR | chainflex® CFROBOT8

World premiere!
CAT5e to CAT7
for Torsion

- For torsion applications
- PUR outer jacket
- Shielded
- Oil and coolant-resistant
- Flame retardant
- Notch-resistant
- Hydrolysis and microbe-resistant

Dynamic information

	Bend radius	e-chain® twisted	minimum 10 x d
		flexible	minimum 8 x d
	Temperature	e-chain® twisted	-25 °C to +70 °C
		flexible	-40 °C to +70 °C (following DIN EN 60811-504)
	v max.	flexible	-50 °C to +70 °C (following DIN EN 50305)
		fixed	-50 °C to +70 °C (following DIN EN 50305)
	a max.	twisted	180 %/s
		twisted	60 %/s²
	Travel distance	Robots and multi-axis movements, Class 3	
	Torsion	± 180°, with 1 m cable length, Class 3	

Cable structure

	Conductor	Stranded conductor in especially bending-resistant design consisting of bare copper wires (following DIN EN 60228).
	Core insulation	According to bus specification.
	Core structure	According to bus specification.
	Core identification	According to bus specification. ► Product range table
	Intermediate layer	Foil taping over the outer layer.
	Overall shield	Torsion resistant tinned braided copper shield. Coverage approx. 80 % optical
	Outer jacket	Low-adhesion, highly abrasion-resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). Colour: Steel-blue (similar to RAL 5011)

Electrical information

	Nominal voltage	50 V
	Testing voltage	500 V

Class 6.1.3.3

Basic requirements	low	1	2	3	4	5	6	7	highest
Travel distance	unsupported	1	2	3	4	5	6	7	> 400 m
Oil resistance	none	1	2	3	4	5	6	7	highest
Torsion	none	1	2	3	4	5	6	7	±180°

Properties and approvals

	UV resistance	High.
	Oil resistance	Oil-resistant (following DIN EN 50363-10-2), Class 3.
	Flame retardant	According to IEC 60332-1-2, CEI 20-35, FT1
	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992).
	UL/CSA	Style 1589 and 20236, 30 V, 80 °C
	EAC	Certificate no. RU C-DE.ME77.B.01218 (TR ZU)
	CTP	Certificate no. C-DE.PB49.B.00416 (Fire safety)
	CEI	Following CEI 20-35.
	Lead-free	Following 2011/65/EU (RoHS-II).
	Cleanroom	According to ISO Class 1. Outer jacket material complies with CF27.07.05.02.01.D, tested by IPA according to standard 14644-1.
	CE	Following 2014/35/EU.

Guaranteed lifetime according to guarantee conditions (Page 22-23)

Cycles*	5 million		7.5 million		10 million	
	Temperature, from/to [°C]	Torsion max. [°/m]	Temperature, from/to [°C]	Torsion max. [°/m]	Temperature, from/to [°C]	Torsion max. [°/m]
-25/-15	±150	-25/-15	±90	-25/-15	±30	
-15/+60	±180	-15/+60	±120	-15/+60	±60	
+60/+70	±150	+60/+70	±90	+60/+70	±30	

* Higher number of cycles? Online lifetime calculation: www.igus.eu/chainflexlife

Typical mechanical application areas

- For extremely heavy duty applications with torsional movements
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV resistant
- Especially for robots and multi-axis movements
- Robots, Handling, spindle drives

igus® chainflex® CFROBOT8.045

Example image

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]	Part No.	Characteristic wave impedance approx. Ω	Core group	Colour code
Profibus								
CFROBOT8.001	(2x0.35)C	8.0	29	62	CFROBOT8.001	150	(2x0.35)C	red, green
CAN-Bus								
CFROBOT8.022	(4x0.5)C	7.5	43	72	CFROBOT8.022	120	(4x0.5)C	white, green, brown, yellow(star-quad stranding)
DeviceNet								
New CFROBOT8.030	(2xAWG24)C+(2xAWG22)C	9.5	31	75	CFROBOT8.030	120	(2xAWG24)C 2xAWG22	white/blue red, black
Ethernet/CAT5e								
CFROBOT8.045	4x(2x0.14)C	8.5	39	69	CFROBOT8.045	100	4x(2x0.14)C	white-green/green, white-orange/orange, white-blue/blue, white-brown/brown
Ethernet/CAT6								
CFROBOT8.049	4x(2x0.14)C	8.5	38	68	CFROBOT8.049	100	4x(2x0.14)C	white-green/green, white-orange/orange, white-blue/blue, white-brown/brown
Ethernet/CAT6A								
CFROBOT8.050	4x(2x0.15)C	10.5	54	127	CFROBOT8.050	100	4x(2x0.15)C	white-green/green, white-orange/orange, white-blue/blue, white-brown/brown
Ethernet/CAT7								
CFROBOT8.052	4x(2x0.15)C	10.5	55	129	CFROBOT8.052	100	4x(2x0.15)C	white-green/green, white-orange/orange, white-blue/blue, white-brown/brown
Profinet								
EtherCAT → CFROBOT8.060	(2x(2x0.34))C	8.5	36	70	CFROBOT8.060	100	(2x(2x0.34))C	white/blue, yellow/orange

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

Technical note on bus cables

chainflex® bus cables have been specially developed and tested for continuously moving use in e-chains®. Depending on the material used for the outer jacket and on the underlying construction principle, the bus cables are designed for different mechanical requirements and resistance to diverse media. The cables have been electrically designed in such a way that, on the one hand, the electrical requirements of the respective bus specification are reliably met and, on the other, that greater value is placed on a high degree of EMC reliability.

It is also ensured that the electrical values remain stable over the long term in spite of permanent movement. The overall quality of transmission in a complete bus communication system, however, is not solely dependent on the cable used. What is also essential is that all components (electronic parts, connecting system and cable) are precisely matched to each other and that the maximum transmission lengths, which are dependent on the respective system, are adhered to with regard to the data transmission rates needed. A cable is thus not solely responsible for the reliable transmission of signals. igus® advises you when you are designing your bus system so that all these factors are taken into account and, with extensive tests, helps you to ensure the process reliability of your system from the very beginning.



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