chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant





























chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant

Cable structure



Conductor

Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).



Guarantee igus chainflex

Core insulation

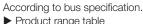
According to bus specification.

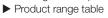


Core identification

Core structure

According to bus specification.





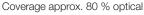




Overall shield

Foil taping over the outer layer.

Torsion resistant tinned braided copper shield.







Outer jacket

Low-adhesion, halogen-free, 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)

Printing: white







"00000 m"* igus chainflex CFROBOT8.PLUS---① -----② E310776 cЯUus AWM Style 20236 VW-1 AWM I/II A/B 80°C 30V FT1 EAC/ CTP CE UKCA --- 3 conform



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).
- 3 Printing according to bus specification (inclusive wave resistance). Example: ... chainflex CFROBOT8.PLUS.001 (2x0.25)C ...

Guaranteed service life according to guarantee conditions

	g g		
Cycles	5 million	7.5 million	10 million
Temperature, from/to [°C]	Torsion max. [°/m]	Torsion max. [°/m]	Torsion max. [°/m]
-25/-15	±330	±240	±150
-15/+60	±360	±270	±180
+60/+70	±330	±240	±150

Minimum guaranteed service life of the cable under the specified conditions. The installation of the cable is recommended within the middle temperature range.











chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

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, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame



Silicone-free Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)



Halogen-free Following DIN EN 60754



PFAS-freeUse of PFAS-free materials according to the content of the REACH directive and its





UL verifiedCertificate No. B129699: "igus 36-month chainflex cable guarantee and service life





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.00295/19 (TR ZU)



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 CF77.

UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1



Following 2014/35/EU



UL/CSA AWM Details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
CFROBOT8.PLUS.001	1598	21161	30	80
CFROBOT8.PLUS.022	1598	21161	30	80
CFROBOT8.PLUS.045	1598	21161	30	80
CFROBOT8.PLUS.049	1598	21161	30	80
CFROBOT8.PLUS.050	11321	21161	30	80
CFROBOT8.PLUS.052	11321	21161	30	80
CFROBOT8.PLUS.060	1589	21161	30	80





























chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Dynamic information

E E

Bend radius e-

e-chain® twisted min. 10 x d flexible min. 8 x d fixed min. 5 x d

°C

Temperature e-chain® twisted -25 °C up to +70 °C

flexible-40 °C up to +70 °C (following DIN EN 60811-504) **fixed**-50 °C up to +70 °C (following DIN EN 50305)



v max.

twisted

360 °/s



a max.

twisted

60 °/s²



Travel distance

Robots and multi-axis movements, Class 1



Torsion

Torsion ±360°, with 1 m cable length, Class 4

These values are based on specific applications or tests. They do not represent the limit of what is technically feasible.

NF.

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, Class 3
- Torsion ±360°, with 1 m cable length, Class 4, Class 4
- Indoor and outdoor applications, UV-resistant
- robots, Handling, spindle drives





























chainflex® CFROBOT8.PLUS



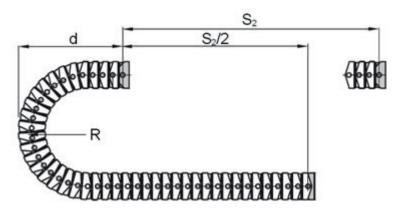
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Typical lab test setup for this cable series

Test bend radius R approx. 63 - 75 mm **Test travel S/S**₂ approx. 1 - 12 m

Test duration minimum 1.5 - 3 million double strokes

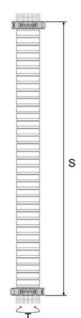
Test speedapprox. 0.5 m/sTest accelerationapprox. 1.5 m/s²





Torsion T $\pm 360^{\circ}$ /m Length 3D e-chain® 1 m

Test duration (torsion)min. 3 - 5 million cyclesTest speed (torsion)approx. 80 - 120 °/sTest acceleration (torsion)approx. 40°/s²































chainflex® CFROBOT8.PLUS

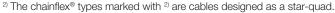


Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Technical tables:

Iviechanica	linformation

Part No.	Number of cores and conductor nominal cross section	Outer diameter (d) max.	Copper index	Weight
	[mm²]	[mm]	[kg/km]	[kg/km]
Profibus (1x2x0,64 mm)				
CFROBOT8.PLUS.001	(2x0.25)C	9.0	30	80
CAN Bus				
CFROBOT8.PLUS.022	(4x0.5)C	9.0	47	103
Ethernet/CAT5e/PoE				
CFROBOT8.PLUS.045	(4x(2x0.15))C	7.5	32	67
Ethernet/CAT6/PoE				
CFROBOT8.PLUS.049	(4x(2x0.15))C	7.5	32	67
Ethernet/CAT6A				
CFROBOT8.PLUS.050	4x(2x0.15)C	10.5	49	115
Ethernet/CAT7				
CFROBOT8.PLUS.052	4x(2x0.15)C	10.5	49	115
Profinet				
CFROBOT8.PLUS.060 2)	Ether cat (4x0.34)C	7.0	32	64



G = with green-yellow earth core

 \mathbf{x} = without earth core

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





























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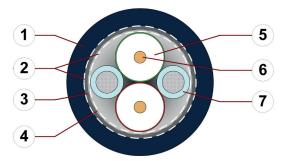
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Profibus

CFROBOT8.PLUS.001

Cable structure

(Electrical information please see next page)



- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic foil with aluminium clad on both sides
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Filler: Platic yarns with extruded TPE jacket



























Example image

For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Core design
CFROBOT8.PLUS.001	(2x0.25)C	red, green	

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Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Profibus

CFROBOT8.PLUS.001

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.001
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	150 ± 15 Ω (1-20 MHz)

Conductor nominal cross section	Maximum conductor resistance at 20 (following DIN EN 50289-1-2) [Ω/km]	°C Maximum cui (following DIN	•
• •	• •		
0.25	78		5































chainflex® CFROBOT8.PLUS



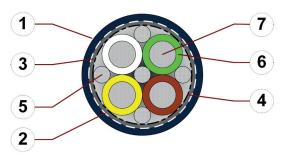
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant

CAN-Bus

CFROBOT8.PLUS.022

Cable structure

(Electrical information please see next page)



- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall banding: Plastic fleece
- 3. Overall shield: Torsion resistant tinned braided copper shield
- 4. Banding: Gliding PTFE foil
- 5. Filler: Plastic yarns
- 6. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- 7. Conductor: Fine-wire strand in especially bending-stable version consisting of tinned copper wires

























Example image

For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CFROBOT8.PLUS.022	(4x0.5)C	white, green, brown, yellow (Star-quad)	

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chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Profibus

CFROBOT8.PLUS.022

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.022
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	120 ± 12 Ω (0,425-1 MHz)
Operating capacity (following DIN EN 50289-1-5)	40 pF/m

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)	
[mm²]	[Ω/km]	[A]	
0.5	44	10	































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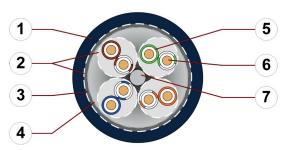
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant

Ethernet (CAT5/CAT5e/GigE/PoE)

CFROBOT8.PLUS.045

Cable structure

(Electrical information please see next page)



- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall/element banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic yarns
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- 6. Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Strain relief: Tensile stress-resistant centre element

























Example image

For detailed overview please see design table

Design table

CFROBOT8.PLUS.045 (4x(2x0.15))C white-blue/blue, white-orange/orange, white-green/green, white-brown/brown	Part No.	Core group	Colour code	Core design
	CFROBOT8.PLUS.045	(4x(2x0.15))C	orange, white-green/green,	

chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant

Ethernet (CAT5/CAT5e/GigE/PoE)

CFROBOT8.PLUS.045

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.045
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω (1-100 MHz)
Operating capacity	47 pF/m
Nominal Velocity of Propagation (NVP)	73 %

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.15	149	2.5





























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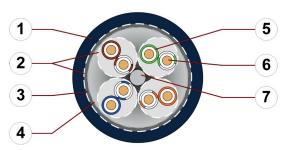
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant Hydrolysis and microbe-resistant

Ethernet (CAT6/PoE)

CFROBOT8.PLUS.049

Cable structure

(Electrical information please see next page)



- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall/element banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic yarns
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- 6. Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Strain relief: Tensile stress-resistant centre element

























Example image

For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Core design
CFROBOT8.PLUS.049	(4x(2x0.15))C	white-blue/blue, white-orange/ orange, white-green/green, white-brown/brown	

chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Ethernet (CAT6/PoE)

CFROBOT8.PLUS.049

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.049
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω (1-100 MHz)
Operating capacity	47 pF/m
Nominal Velocity of Propagation (NVP)	73 %

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.15	149	2.5





























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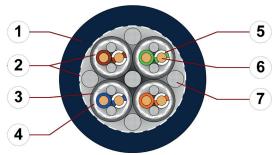
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Ethernet (CAT6A)

CFROBOT8.PLUS.050

Cable structure

(Electrical information please see next page)



Example image

For detailed overview please see design table

- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall/element banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic yarns
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Strain relief: Tensile stress-resistant centre element



























Design table

Part No.	Core group	Colour code	Core design
CFROBOT8.PLUS.050	(4x(2x0.15)C)C	white-blue/blue, white-orange/ orange, white-green/green, white-brown/brown	

chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Ethernet (CAT6A)

CFROBOT8.PLUS.050

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.050
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω (1-250 MHz) 100 ± 20 Ω (250-500 MHz)
Operating capacity	48 pF/m
Nominal Velocity of Propagation (NVP)	68 %

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.15	140	2.5





























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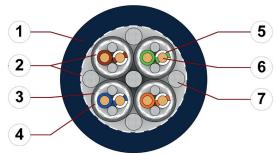
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Ethernet (CAT7)

CFROBOT8.PLUS.052

Cable structure

(Electrical information please see next page)



Example image

For detailed overview please see design table

- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall/element banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic yarns
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Strain relief: Tensile stress-resistant centre element



























Design table

Part No.	Core group	Colour code	Core design
CFROBOT8.PLUS.052	4x(2x0,15)C	white-blue/blue, white-orange/ orange, white-green/green, white-brown/brown	

11/2023

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Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Ethernet (CAT7)

CFROBOT8.PLUS.052

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.052
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω (1-250 MHz) 100 ± 20 Ω (250-600 MHz)
Operating capacity	48 pF/m
Nominal Velocity of Propagation (NVP)	68 %

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm²]	[Ω/km]	[A]
0.15	140	2,5































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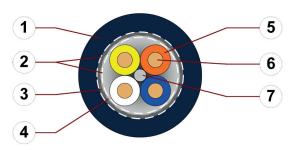
Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Profinet (Type C)

CFROBOT8.PLUS.060

Cable structure

(Electrical information please see next page)



- 1. Outer jacket: Pressure extruded PUR mixture
- 2. Overall banding: Plastic fleece
- 3. Overall shield: Torsion-resistant special braiding made of tinned copper wires
- 4. Shield foil: Plastic foil with aluminium clad on both sides
- 5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
- Conductor: Fine-wire strand in especially bending-stable version consisting of bare copper wires
- 7. Strain relief: Tensile stress-resistant centre element



























Example image

For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Core design
CFROBOT8.PLUS.060	(4x0.34)C	white, orange, blue, yellow (Star-quad)	

; ;

chainflex® CFROBOT8.PLUS



Bus cable (Class 6.1.3.4) ● For torsion applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Flame retardant ● PVC and halogen-free ● Notch-resistant ● Hydrolysis and microbe-resistant

Profinet (Type C)

CFROBOT8.PLUS.060

Electrical information

(Cable structure please see previous page)

Part No.	CFROBOT8.PLUS.060
Nominal voltage	50 V 30 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω (1-100 MHz)
Operating capacity	47 pF/m
Nominal Velocity of Propagation (NVP)	67 %

Conductor nominal cross section	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	Maximum current rating at 30 °C (following DIN VDE 0298-4)
[mm ²]	[Ω/km]	[A]
0.34	60	7



























