Bus cables

chainflex® types

chainflex® cable	Jacket	Shield	Bend radius min., e-chain® [factor x d]	Temperature, e-chain® from/to [°C]	Approvals and standards	oil-resistant	torsion resistant	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Page	
Bus cables												
Exclusive! chainflex® guarantee – guaranteed lifetime											▶ Selection table page 166	
Selection matrix for chainflex® Bus cables											168	
Information and selection matrix for chainflex® Ethernet cables											170	
CF888	PVC		15	+5/ +70				3		20	172	
CFBUS.PVC	PVC		12.5	+5/ +70		✓		3	2	30	174	New
CF898	iguPUR		15	-20/ +80		✓		3		20	178	New
CFBUS.PUR	PUR		12.5	-20/ +70		✓		3	2	30	182	New
CFBUS	TPE		10-12.5	-35/ +70		✓		10	6	100	186	New
CF11.LC	TPE		10	-35/ +70		✓		10	6	100	192	
CF11.LC.D	TPE		10	-35/ +70		✓		10	6	100	196	
CF14.CAT5	TPE		10	-35/ +70		✓		10	6	100	200	

chainflex® guarantee ▶▶ Guaranteed lifetime (1)

	chainflex® cable	Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	Bend radius min. [factor x d]	Bend radius min. [factor x d]	Bend radius min. [factor x d]	Page
Bus cables							5 million (1 million) double strokes *	7.5 million (3 million) double strokes *	10 million (5 million) double strokes *	
	CF888	+5 / +15	3		20	≤ 10	17.5	18.5	19.5	172
		+15 / +60					15	16	17	
		+60 / +70					17.5	18.5	19.5	
	CFBUS.PVC New!	+5 / +15	3	2	30	≤ 20	15	16	17	174
		+15 / +60					12.5	13.5	14.5	
		+60 / +70					15	16	17	
	CF898 New!	-20 / -10	3		20	≤ 10	17.5	18.5	19.5	178
		-10 / +60					15	16	17	
		+60 / +70					17.5	18.5	19.5	
	CFBUS.PUR New!	-20 / -10	3	2	30	≤ 20	15	16	17	182
		-10 / +60					12.5	13.5	14.5	
		+60 / +70					15	16	17	
	CFBUS.001-.049 New! CFBUS.060	-35 / -25	10	6	100	≤ 400	12.5	13.5	14.5	186
		-25 / +60					10	11	12	
		+60 / +70					12.5	13.5	14.5	
	CFBUS.050-.055 CFBUS.065-.070	-35 / -25	10	6	100	≤ 400	15	16	17	186
		-25 / +60					12.5	13.5	14.5	
		+60 / +70					15	16	17	
	CF11.LC	-35 / -25	10	6	100	≤ 400	12.5	13.5	14.5	192
		-25 / +60					10	11	12	
		+60 / +70					12.5	13.5	14.5	
	CF11.LC.D	-35 / -25	10	6	100	≤ 400	12.5	13.5	14.5	196
		-25 / +60					10	11	12	
		+60 / +70					12.5	13.5	14.5	
	CF14.CAT5	-35 / -25	10	6	100	≤ 400	12.5	13.5	14.5	200
		-25 / +60					10	11	12	
		+60 / +70					12.5	13.5	14.5	

(1) Exclusive! Guaranteed lifetime for this series according to the guarantee conditions ▶ Page 22-25

* Guaranteed lifetime, higher number of double strokes possible.
Figures in brackets refer to chainflex® M cables

The right cable for every bus system …
Product range of chainflex® Bus cables at a glance

Bus types

	PVC 15 x d	PVC oil-res. 12,5 x d	iguPUR 15 x d	PUR 12,5 x d	TPE UL 10-12,5 x d	TPE Hal 10 x d	Torsion 10 x d	High tensile 50 m freely hanging
DVI					chainflex® CFBUS page 186			
CC Link		New chainflex® CFBUS.PVC page 174		New chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186			
Ethercat*	chainflex® CF888 page 172	chainflex® CFBUS.PVC page 174	chainflex® CF898 page 178	chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186	chainflex® CF14.CAT5 page 200	chainflex® CFROBOT8 page 396	
Ethernet*	chainflex® CF888 page 172	New chainflex® CFBUS.PVC page 174	chainflex® CF898 page 178	New chainflex® CFBUS.PUR page 182	New chainflex® CFBUS page 186	chainflex® CF14.CAT5 page 200	New chainflex® CFROBOT8 page 396	chainflex® CFSPECIAL.182 page 414
Profinet*	chainflex® CF888 page 172	chainflex® CFBUS.PVC page 174	chainflex® CF898 page 178	chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186		chainflex® CFROBOT8 page 396	
USB		chainflex® CFBUS.PVC page 174		chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186			
FireWire		chainflex® CFBUS.PVC page 174		chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186			
CAN-Bus	chainflex® CF888 page 172	chainflex® CFBUS.PVC page 174	chainflex® CF898 page 178	chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186	CF11.LC page 192 CF11.LC.D page 196	chainflex® CFROBOT8 page 396	
ASI			New chainflex® CF898 page 178					
Device Net					chainflex® CFBUS page 186			
Interbus					chainflex® CFBUS page 186	chainflex® CF11.LC page 192		
Profibus	chainflex® CF888 page 172	chainflex® CFBUS.PVC page 174	chainflex® CF898 page 178	chainflex® CFBUS.PUR page 182	chainflex® CFBUS page 186	CF11.LC page 192 CF11.LC.D page 196	chainflex® CFROBOT8 page 396	chainflex® CFSPECIAL.182 page 414

Mechanical Performance

* Detailed selection for Ethernet types on page 171

*** Details for chainflex® Ethernet cables to be found on page 170!**

	Bus system/ chainflex® type	Jacket	Number of cores and conductor nominal cross section [mm²]	Page
	Profibus (1x2x0.64 mm)		**150 Ohm**	
	CF888.001	PVC	(2x0.25)C	172
	CFBUS.PVC.001	PVC	(2x0.25)C	174
	CF898.001	iguPUR	(2x0.25)C	178
	CFBUS.PUR.001	PUR	(2x0.25)C	182
	CFBUS.001	TPE	(2x0.25)C	186
	CFBUS.002	TPE	(2x0.25)C+4x1.5	186
	CFBUS.003	TPE	(2x0.25)C+3G0.75	186
	CF11.02.02.02.PBA.LC	TPE	(4x0.25)C	192
	CF11.02.01.02.PBA.LC.D	TPE	(2x0.25)C	196
	CF11.02.02.07.03.PBA.LC.D	TPE	(2x0.25)C+3x0.75	196
	CF11.02.02.15.04.PBA.LC.D	TPE	(2x0.25)C+4x1.5	196
	CFROBOT8.001	PUR	(2x0.35)	396
	CFSPECIAL.182.001	PUR	(2x0.25)C	414
	Interbus		**100 Ohm**	
	CFBUS.010	TPE	(3x(2x0.25))C	186
	CFBUS.011	TPE	(3x(2x0.25)+(3G1.0))C	186
	CF11.02.03.02.10.03.IB-S	TPE	(3x(2x0.25)+(3G1.0))C	192
	CF11.02.03.02.IB-S	TPE	(3x(2x0.25))C	192
	CAN-Bus		**120 Ohm**	
	CF888.021	PVC	(2x0.5)C	172
	CFBUS.PVC.021	PVC	(2x0.5)C	174
	CFBUS.PVC.022	PVC	(4x0.5)C	174
	CF898.021	iguPUR	(2x0.5)C	178
	CFBUS.PUR.021	PUR	(2x0.5)C	182
	CFBUS.PUR.022	PUR	(4x0.5)C	182
	CFBUS.020	TPE	(4x0.25)C	186
	CFBUS.021	TPE	(2x0.5)C	186
	CFBUS.022	TPE	(4x0.5)C	186
	CF11.05.01.02.LC	TPE	(2x0.5)C	192
	CF11.05.02.02.LC	TPE	(4x0.5)C	192
	CF11.02.02.02.LC.D	TPE	(4x0.25)C	196
	CF11.05.01.02.LC.D	TPE	(2x0.5)C	196
	CFROBOT8.022	PUR	(4x0.5)	396
	Device-Net		**120 Ohm**	
	CFBUS.030	TPE	((2xAWG24)C+2xAWG22)C	186
	CFBUS.031	TPE	((2xAWG18)C+2xAWG15)C	186
	CC-Link		**110 Ohm**	
New	CFBUS.PVC.035	PVC	(3x0.5)C	174
New	CFBUS.PUR.035	PUR	(3x0.5)C	182
	CFBUS.035	TPE	(3xAWG20)C	186
	Ethernet/CAT5		**100 Ohm**	
	CFBUS.PVC.040	PVC	(4x0.25)C	174
	CFBUS.PUR.040	PUR	(4x0.25)C	182
	CFBUS.040	TPE	(4x0.25)C	186
	CFBUS.044	TPE	(4x(2x0.15))C	186
	CF14.01.04.02.CAT5	TPE	(4x(2x0.15))C	200
	CF14.02.02.02.CAT5	TPE	(4x0.25)C	200

	Bus system/ chainflex® type	Jacket	Number of cores and conductor nominal cross section [mm²]	Page
	Ethernet/CAT5e		**100 Ohm**	
	CF888.045	PVC	(4x(2x0.14))C	172
	CFBUS.PVC.045	PVC	(4x(2x0.15))C	174
	CF898.045	iguPUR	(4x(2x0.14))C	178
	CFBUS.PUR.045	PUR	(4x(2x0.15))C	182
	CFBUS.045	TPE	(4x(2x0.15))C	186
	CFROBOT8.045	PUR	4x(2x0.14)C	396
	CFSPECIAL.182.045	PUR	(4x(2x0.15))C	414
	Ethernet/CAT6		**100 Ohm**	
New	CFBUS.PVC.049	PVC	(4x(2x0.15))C	174
New	CFBUS.PUR.049	PUR	(4x(2x0.15))C	182
New	CFBUS.049	TPE	(4x(2x0.15))C	186
New	CFROBOT8.049	PUR	4x(2x0.14)C	396
	Ethernet/CAT6A		**100 Ohm**	
	CFBUS.PVC.050	PVC	4x(2x0.20)C	174
	CFBUS.PUR.050	PUR	4x(2x0.20)C	182
	CFBUS.050	TPE	(4x(2x0.15)C)C	186
New	CFROBOT8.050	PUR	4x(2x0.15)C	396
	Ethernet/CAT7		**100 Ohm**	
New	CFBUS.PVC.052	PVC	(4x(2x0.15)C)C	174
New	CFBUS.PUR.052	PUR	(4x(2x0.15)C)C	182
	CFBUS.052	TPE	(4x(2x0.15)C)C	186
New	CFROBOT8.052	PUR	4x(2x0.15)C	396
	FireWire IEEE 1394a/b		**100 Ohm**	
	CFBUS.PVC.056	PVC	(2x(2x0.15)C+2x0.38)C	174
	CFBUS.PUR.056	PUR	(2x(2x0.15)C+2x0.38)C	182
	CFBUS.055	TPE	2x(2x0.15)C+2x(0.34)C	186
	Profinet		**100 Ohm**	
	CF888.060	PVC	(4x0.38)C	172
	CFBUS.PVC.060	PVC	(4x0.38)C	174
	CF898.060	iguPUR	(4x0.38)C	178
	CFBUS.PUR.060	PUR	(4x0.38)C	182
	CFBUS.060	TPE	(4x0.38)C	186
	CFROBOT8.060	PUR	(2x(2x0.34))C	396
	USB		**90 Ohm**	
	CFBUS.065	TPE	((2xAWG28)+2xAWG20)C	186
	CFBUS.066	TPE	((2xAWG24)+2xAWG20)C	186
	USB 3.0		**90 Ohm**	
	CFBUS.PVC.068	PVC	(2x(2xAWG28)+2x(2xAWG28)C)C	174
	CFBUS.PUR.068	PUR	(2x(2xAWG28)+2x(2xAWG28)C)C	182
	DVI		**100 Ohm**	
	CFBUS.070	TPE	(4x(2xAWG28)C+(2xAWG28)+3xAWG28)C	186
	ASI BUS (Flachleitungen)			
	CF898.080 (gelb)	iguPUR	2x1.5	178
	CF898.081 (schwarz)	iguPUR	2x1.5	178
New	CF898.082 (gelb)	iguPUR	2x2.5	178
New	CF898.083 (schwarz)	iguPUR	2x2.5	178

1,244 types from stock … no cutting costs*
… no minimum order quantity … *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable …
… up to 10 mio. double strokes guaranteed …

chainflex®
Bus cables

For all data volumes and types of movement ...
Networking your machine with chainflex® Ethernet cables

In our catalogue range you will find the right Ethernet solution for every type of motion. We have prepared for you a wide range of products sold by the metre and a wide variety of cables with connectors. That you obtain all cables with a guarantee of 36 months and up to 10 million double strokes is natural for chainflex and for you, a matter of great safety.

We support you in three aspects in the crosslinking of the machine with Ethernet cables that have been developed, manufactured and tested for high quality:

1. For your system, we offer Ethernet cables from CAT5 to CAT7 so that you have the right solution for all data volumes. With that you can safely use Bus systems such as Ethernet/IP, Profinet, EtherCAT, Sercos and many other derivatives. Due to the individual gradation of classes, very large savings options or opportunities arise due to a trendsetting cabling of the system.

2. By taking into account your individual, mechanical stress in your application, we enable more customised solutions. Thus there are cable series for large and small bending radii for linear movements in energy chains or torsional movements on the robot. We can offer you a reasonably priced PVC solution, an oil-resistant PUR cable or a solution with highly abrasion-resistant TPE. Also, special requests for long travels or high tensile strength versions for hanging applications or rolling solutions are a standard business for us.

3. The third major advantage we can offer you is the various ways in which you can use the cables. We deliver on drums or in coils of your desired length, of course, without any cutting costs. If it helps, we attach connectors and mark the cable as it is important for you. We do this from a quantity of 1 and would be happy to use your individual measurements and designs. Of course you can also have your Ethernet cable in the complete system with chain and attachment part. Tell us how you would like it and we shall deliver what you want.

Our online tools also enable you to reduce process costs. igus® delivers from stock in 24-48 hours! Also, see our website.

www.chainflex.eu/ethernet

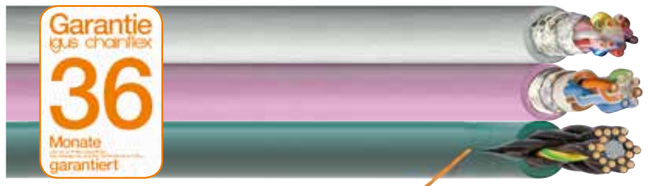
CFROBOT8.052 CAT7
PUR Bus cable, twistable
page 396

Always find the Ethernet cable that works for less.
Selection table for the largest range of flexible Ethernet cables

Electrical Performance

	PVC 15 x d	PVC ölbest. 12,5 x d	iguPUR 15 x d	PUR 12,5 x d	TPE UL 10 x d	TPE Hal 10 x d	Torsion ± 180°/m	High tensile 50 m feely hanging
CAT7 10 GBit 600 MHz		New page 174 chainflex® CFBUS.PVC.052		New page 182 chainflex® CFBUS.PUR.052	chainflex® CFBUS.052 page 186		New page 396 chainflex® CFROBOT8.052	
CAT6A 10 GBit 500 MHz		chainflex® CFBUS.PVC.050 page 174		chainflex® CFBUS.PUR.050 page 182	chainflex® CFBUS.050 page 186		New page 396 chainflex® CFROBOT8.050	
CAT6 1 GBit 250 MHz		New page 174 chainflex® CFBUS.PVC.049		New page 182 chainflex® CFBUS.PUR.049	New page 186 chainflex® CFBUS.049		New page 396 chainflex® CFROBOT8.049	
CAT5e 1 GBit 100 MHz	chainflex® CF888.045 page 172	chainflex® CFBUS.PVC.045 page 174	chainflex® CF898.045 page 178	chainflex® CFBUS.PUR.045 page 182	chainflex® CFBUS.045 page 186	chainflex® CF14.01.04.02. CAT5 page 200	chainflex® CFROBOT8.045 page 396	chainflex® CFSPECIAL. 182.045 page 414
Profinet 100 MBit 100 MHz	chainflex® CF888.060 page 172	chainflex® CFBUS.PVC.060 page 174	chainflex® CF898.060 page 178	chainflex® CFBUS.PUR.060 page 182	chainflex® CFBUS.060 page 186		chainflex® CFROBOT8.060 page 396	
CAT5 100 MBit 100 MHz		chainflex® CFBUS.PVC.040 page 174		chainflex® CFBUS.PUR.040 page 182	chainflex® CFBUS.040 page 186	chainflex® CF14.02.02.02.CAT5 page 200		

Mechanical Performance



HIghly flexible chainflex® cables
- 1,244 cables from stock
- Tested in seven jacket materials
- No cutting costs, from 1 m
- 36 months or 10 million double strokes guarantee*
- Approvals and certificates

Harnessed cables readycable®
- New: More than 400 harnessed Ethernet cables
- In seven jacket materials
- 36 months or 10 million double strokes guarantee*
- Shipped in 24h**
- In desired length, with centimetre accuracy

Assembled e-chainsystems® readychain®
- Customised and ready to connect according to your specifications
- From the base solution to complex systems
- Optional with assembly rack
- From batch size 1 to series production
- Assembly service by experts

* Depending on what happens first. Up to 5 million double strokes for the highly affordable chainflex® M cables. The number of double strokes depends on installation and cable quality. This is described in the current catalogue, in the data sheets and in the service life calculator at www.igus.de/chainflexlife.

** Delivery time means time until shipping of goods.

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

PVC Bus cable | CF888

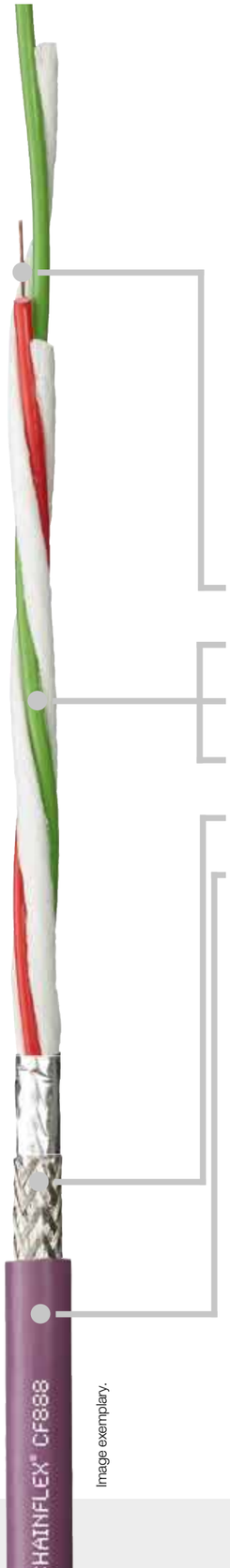


Image exemplary.

- For flexing applications
- PVC outer jacket
- Shielded
- Flame-retardant

Dynamic Information

Bend radius	**e-chain®**	minimum 15 x d
	flexible	minimum 12 x d
	fixed	minimum 8 x d
Temperature	**e-chain®**	+5 °C to +70 °C
	flexible	-5 °C to +70 °C (following DIN EN 60811-504)
	fixed	-15 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	3 m/s
a max.	20 m/s²	
Travel distance	Unsupported travel distances up to 10 m, Class 1	

Cable structure

Conductor	Conductor consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Overall shield	Braiding made of tinned copper wires. Coverage optical approx. 60 %
Outer jacket	Low-adhesion mixture on the basis of PVC, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

Properties and approvals

Flame retardant	**CF888.001-CF888.020:** According to IEC 60332-1-2, CEI 20-35, FT-1 **CF888.021-CF888.060:** According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	**CF888.001-CF888.020:** Style 1589 and 2560, 30 V, 60 °C **CF888.021-CF888.060:** Style 1598 and 2571, 30 V, 80 °C
EAC	Certified according to no. TC RU C-DE.ME77.B.01559
CTP	Certified according to no. C-DE.PB49.B.00449

Class 3.1.1.1

Requirements	low	1 2 **3** 4 5 6 7 highest
Travel distance	unsupported	**1** 2 3 4 5 6 400 m +
Oil resistance	none	**1** 2 3 4 highest
Torsion	none	**1** 2 3 ±180°

Lead-free — Following 2011/65/EC (RoHS-II)

CE — Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*				1 million	3 million	5 million
Temperature, from/to [°C]	v max. [m/s] unsupported	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
+5 / +15				17.5	18.5	19.5
+15 / +60	3	20	≤ 10	15	16	17
+70 / +70				17.5	18.5	19.5

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For flexing applications
- Without influence of oil
- Preferably indoor applications
- Especially for unsupported travels
- Wood/stone processing, packaging industry, supply systems, handling, adjusting equipment

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
Profibus (1x2x0.64 mm)				
CF888.001	(2x0.25)C	8.0	19	62
CAN-Bus				
CF888.021	(2x0.5)C	8.5	26	82
Ethernet/CAT5e				
CF888.045	(4x(2x0.14))C	7.5	27	68
Profinet				
EtherCAT **CF888.060** [16]	(4x0.34)C	7.0	27	58

[16] Colour outer jacket: Yellow-green (RAL 6018)
Other types on request.
Note: The mentioned outer 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
Profibus			
CF888.001	150	(2x0.25)C	red, green
CAN-Bus			
CF888.021	120	(2x0.5)C	white, brown
Ethernet/CAT5e			
CF888.045	100	(4x(2x0.14))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Profinet			
CF888.060	100	(4x0.34)C	white, orange, blue, yellow (star-quad stranding)

EPLAN download, configurators ▶ www.igus.eu/CF888

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 5 mio. double strokes guaranteed ...

PVC Bus cable | CFBUS.PVC

New!

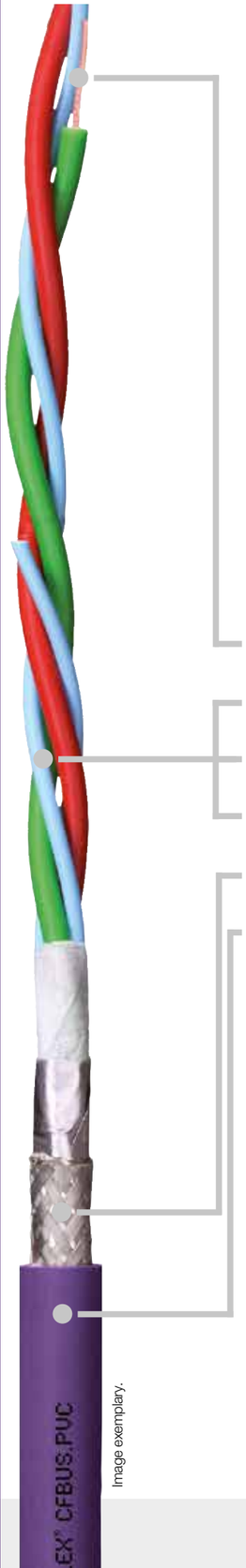


Image exemplary.

- For medium duty applications
- PVC outer jacket
- Shielded
- Oil-resistant
- Flame-retardant

CAT7 Ethernet for the e-chain®

Dynamic Information

Bend radius	e-chain®	minimum 12.5 x d
	flexible	minimum 10 x d
	fixed	minimum 7 x d
Temperature	e-chain®	+5 °C to +70 °C
	flexible	-5 °C to +70 °C (following DIN EN 60811-504)
	fixed	-15 °C to +70 °C (following DIN EN 50305)
v max.	unsupported	3 m/s
	gliding	2 m/s
a max.	30 m/s²	
Travel distance	Unsupported travel distances and up to 20 m for gliding applications, Class 3	

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Overall shield	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55 %, optical approx. 80 %
Outer jacket	Low-adhesion, oil-resistant mixture on the basis of PVC, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

Properties and approvals

UV resistance	High
Oil resistance	Oil-resistant (following DIN EN 50363-4-1), Class 2
Flame retardant	According to IEC 60332-1-2, CEI 20-35, FT-1, VW-1

EPLAN download, configurators ▶ www.igus.eu/CFBUSPVC

Class 4.3.2.1

Requirements	low	1	2	3	**4**	5	6	7	highest
Travel distance	unsupported	1	2	**3**	4	5	6	400 m +	
Oil resistance	none	1	**2**	3	4	highest			
Torsion	none	**1**	2	3	±180°				

Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	Style 1598 and 2571, 30 V, 80 °C
NFPA	Following NFPA 79-2012 chapter 12.9
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
CTP	Certified according to no. C-DE.PB49.B.00416
CEI	Following CEI 20-35
Lead-free	Following 2011/65/EC (RoHS-II)
Clean room	According to ISO Class 1. Outer jacket material complies with CF240.02.24, tested by IPA according to standard 14644-1
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	10 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
+5 / +15					15	16	17
+15 / +60	3	2	30	≤ 20	12.5	13.5	14.5
+60 / +70					15	16	17

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For medium duty applications
- Light oil influence
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Unsupported travel distances and up to 20 m for gliding applications
- Machining units/packaging machines, handling, indoor cranes

PVC | iguPUR | PUR | TPE

PVC Bus cable | CFBUS.PVC

New!

Class 4.3.2.1

Requirements	low	1 2 3 **4** 5 6 7 highest
Travel distance	unsupported	1 2 **3** 4 5 6 400 m +
Oil resistance	none	1 **2** 3 4 highest
Torsion	none	**1** 2 3 ±180°

CFBUS.PVC
PVC
12.5 x d

Image exemplary.

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
Profibus (1x2x0.64 mm)				
CFBUS.PVC.001	(2x0.25)C	8.5	27	77
CAN-Bus				
CFBUS.PVC.021	(2x0.5)C	8.5	33	87
CFBUS.PVC.022 [2]	(4x0.5)C	8.5	46	97
CC-Link				
CFBUS.PVC.035	(3x0.5)C	8.0	42	84
Ethernet/CAT5				
EtherCAT **CFBUS.PVC.040** [2]	(4x0.25)C	6.5	30	69
Ethernet/CAT5e				
CFBUS.PVC.045	(4x(2x0.15))C	7.5	35	69
Ethernet/CAT6				
CFBUS.PVC.049	(4x(2x0.15))C	7.5	35	69
Ethernet/CAT6A				
CFBUS.PVC.050	4x(2x0.20)C	9.5	69	124
Ethernet/CAT7				
CFBUS.PVC.052	(4x(2x0.15)C)C	9.5	89	136
FireWire IEEE 1394b				
CFBUS.PVC.056	(2x(2x0.15)C+2x0.38)C	9.0	62	99
Profinet				
EtherCAT **CFBUS.PVC.060** [2] [16]	(4x0.38)C	7.0	35	69
USB 3.0				
CFBUS.PVC.068	(2x(2xAWG28)+2x(2xAWG28)C)C	7.0	41	69

Part No.	Charact. wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CFBUS.PVC.001	150	(2x0.25)C	red, green
CAN-Bus			
CFBUS.PVC.021	120	(2x0.5)C	white, brown
CFBUS.PVC.022	120	(4x0.5)C	white, green, brown, yellow (star-quad stranding)
CC-Link			
CFBUS.PVC.035	110	(3x0.5)C	white, blue, yellow
Ethernet/CAT5			
CFBUS.PVC.040	100	(4x0.25)C	white, green, brown, yellow (star-quad stranding)
Ethernet/CAT5e			
CFBUS.PVC.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6			
CFBUS.PVC.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6A			
CFBUS.PVC.050	100	4x(2x0.20)C	white/blue, white/orange, white/green, white/brown
Ethernet/CAT7			
CFBUS.PVC.052	100	(4x(2x0.15)C)C	white/blue, white/orange, white/green, white/brown
FireWire IEEE 1394b			
CFBUS.PVC.056	100	(2x(2x0.15)C 2x0.38	orange/blue, blue/red black, white
Profinet			
CFBUS.PVC.060	100	(4x0.38)C	white, orange, blue, yellow (star-quad stranding)
USB 3.0			
CFBUS.PVC.068	90	2x(2xAWG28) 2x(2xAWG28)C	red/black, green/white-green blue/yellow, orange/violet

[16] Colour outer jacket: Yellow-green (RAL 6018)
The chainflex® types marked with ([2]) are cables designed as a star-quad.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Order example: CFBUS.PVC.052 – In your desired length (0.5 m steps)
CFBUS.PVC chainflex® series .052 Code Bus Typ

Online order ▶ www.chainflex.eu/CFBUSPVC

Delivery time 24h or today.
Delivery time means time until shipping of goods.

EPLAN download, configurators ▶ www.igus.eu/CFBUSPVC

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

New!

iguPUR Bus cable | CF898

Class 3.1.3.1

Requirements	low	1	2	**3**	4	5	6	7	highest
Travel distance	unsupported	**1**	2	3	4	5	6		400 m +
Oil resistance	none	1	2	**3**	4				highest
Torsion	none	**1**	2	3					±180°

CF898
iguPUR
15 x d

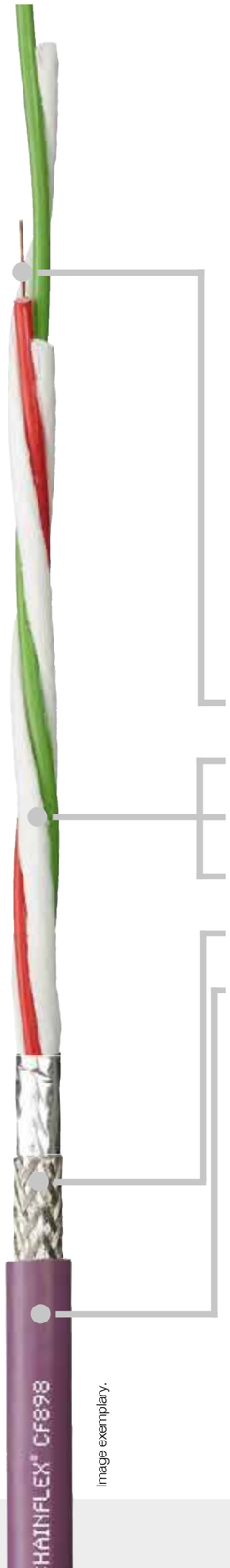


Image exemplary.

- For flexing applications
- iguPUR outer jacket
- Oil-resistant
- Shielded
- Flame-retardant

Dynamic Information

Bend radius	**e-chain®**	minimum 15 x d
	flexible	minimum 12 x d
	fixed	minimum 8 x d
Temperature	**e-chain®**	-20 °C to +70 °C
	flexible	-40 °C to +70 °C (following DIN EN 60811-504)
	fixed	-50 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	3 m/s
a max.		20 m/s²
Travel distance		Unsupported travel distances up to 10 m, Class 1

Cable structure

Conductor	Conductor consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Overall shield	Braiding made of tinned copper wires. Coverage optical approx. 60 %
Outer jacket	Low-adhesion mixture on the basis of iguPUR, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

Properties and approvals

UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 50363-10-2), Class 3
Flame retardant	**CF898.001-CF898.020:** According to IEC 60332-1-2, CEI 20-35, FT-1 **CF898.021-CF898.060:** According to IEC 60332-1-2, CEI 20-35, FT-1, VW-1 **CF898.080-CF898.083:** According to IEC 60332-1-2, CEI 20-35, FT-2
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	**CF898.001-CF898.020:** Style 1589 and 20236, 30 V, 80 °C **CF898.021-CF898.060:** Style 1598 and 20236, 30 V, 80 °C **CF898.080-CF898.081:** Style 10493 and 20549, 300 V, 80 °C **CF898.082-CF898.083:** Style 21866, 90 V, 80 °C
EAC	Certified according to no. TC RU C-DE.ME77.B.01559
CTP	Certified according to no. C-DE.PB49.B.00449
Lead-free	Following 2011/65/EC (RoHS-II)
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*				1 million	3 million	5 million
Temperature, from/to [°C]	v max. [m/s] unsupported	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-20 / -10	3	20	≤ 10	17.5	18.5	19.5
-10 / +70				15	16	17
+70 / +80				17.5	18.5	19.5

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For flexing applications
- With influence of oil
- Indoor and outdoor applications without direct solar radiation
- Especially for unsupported travels
- Machining units/machine tools, low temperature applications

EPLAN download, configurators ► www.igus.eu/CF898

PVC | iguPUR | PUR | TPE

iguPUR Bus cable | CF898

New!

Class 3.1.3.1

Requirements	low	1	2	**3**	4	5	6	7	highest
Travel distance	unsupported	**1**	2	3	4	5	6		400 m +
Oil resistance	none	1	2	**3**	4				highest
Torsion	none	**1**	2	3					±180°

CF898
iguPUR
15 x d

Image exemplary.

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
Profibus (1x2x0.64 mm)				
CF898.001	(2x0.25)C	8.0	19	58
CAN-Bus				
CF898.021	(2x0.5)C	8.5	26	82
Ethernet/CAT5e				
CF898.045	(4x(2x0.14))C	7.5	27	64
Profinet				
EtherCAT **CF898.060** [16]	(4x0.34)C	7.0	27	60
ASI BUS (flat cables)				
CF898.080	2x1.5	acc. to ASI	32	64
CF898.081	2x1.5	acc. to ASI	32	64
CF898.082	2x2.5	acc. to ASI	50	78
CF898.083	2x2.5	acc. to ASI	50	78

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CF898.001	150	(2x0.25)C	red, green
CAN-Bus			
CF898.021	120	(2x0.5)C	white, brown
Ethernet/CAT5e			
CF898.045	100	(4x(2x0.14))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Profinet			
CF898.060	100	(4x0.38)C	white, orange, blue, yellow (star-quad stranding)
ASI BUS			
CF898.080	-	2x1.5	blue, brown
CF898.081	-	2x1.5	blue, brown
CF898.082	-	2x2.5	blue, brown
CF898.083	-	2x2.5	blue, brown

[16] Colour outer jacket: Yellow-green (RAL 6018) **Other types on request.**
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 5 mio. double strokes guaranteed ...

New!

PUR Bus cable | CFBUS.PUR

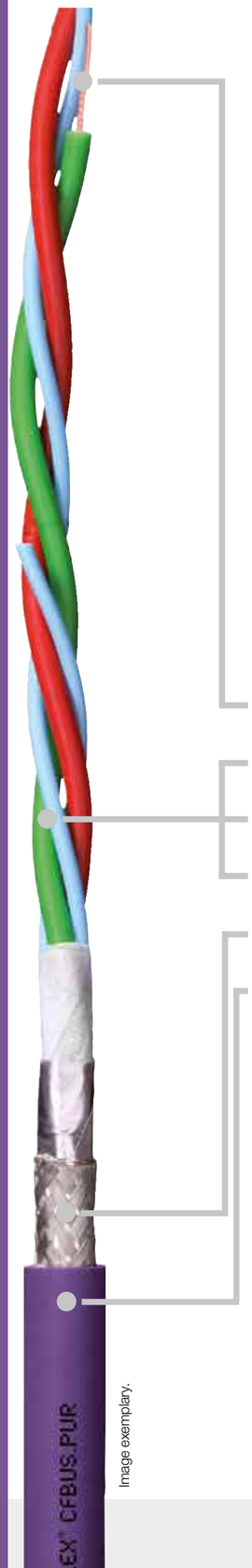


Image exemplary.

- For medium duty applications
- PUR outer jacket
- Shielded
- Oil-resistant and coolant-resistant
- Notch-resistant
- PVC-free/halogen free
- Flame-retardant
- Hydrolysis and microbe-resistant

CAT7 Ethernet for the e-chain®

Dynamic Information

Bend radius	**e-chain®**	minimum 12.5 x d
	flexible	minimum 10 x d
	fixed	minimum 7 x d
Temperature	**e-chain®**	-20 °C to +70 °C
	flexible	-40 °C to +70 °C (following DIN EN 60811-504)
	fixed	-50 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	3 m/s
	gliding	2 m/s
a max.	30 m/s²	
Travel distance	Unsupported travel distances and up to 20 m for gliding applications, Class 3	

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Overall shield	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55 %, optical approx. 80 %
Outer jacket	Low-adhesion, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

EPLAN download, configurators ▶ www.igus.eu/CFBUSPUR

Class 4.3.3.1

Requirements	low	1	2	3	**4**	5	6	7	highest
Travel distance	unsupported	1	2	**3**	4	5	6	400 m +	
Oil resistance	none	1	2	**3**	4	highest			
Torsion	none	**1**	2	3	±180°				

CFBUS.PUR
PUR
12.5 x d

Properties and approvals

UV resistance	Medium
Oil resistance	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, FT-1, VW-1
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
Halogen-free	Following DIN EN 60754
UL/CSA	Style 1598 and 20236, 30 V, 80 °C
NFPA	Following NFPA 79-2012 chapter 12.9
DNV-GL	Certified according to GL type testing – Certificate no.: 61 937-14 HH
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
CTP	Certified according to no. C-DE.PB49.B.00416
CEI	Following CEI 20-35
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	7.5 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-20 / -10					15	16	17
-10 / +60	3	2	30	≤ 20	12.5	13.5	14.5
+60 / +70					15	16	17

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For medium duty applications
- Almost unlimited resistance to oil
- Indoor and outdoor applications without direct solar radiation
- Unsupported travel distances and up to 20 m for gliding applications
- Machining units/machine tools, low temperature applications

PVC | iguPUR | PUR | TPE

PUR Bus cable | CFBUS.PUR

New!

Class 4.3.3.1

Requirements	low	1	2	3	**4**	5	6	7 highest
Travel distance	unsupported	1	2	**3**	4	5	6	400 m +
Oil resistance	none	1	2	**3**	4	highest		
Torsion	none	**1**	2	3	±180°			

CFBUS.PUR
PUR
12.5 x d

Image exemplary.

	Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
	Profibus (1x2x0.64 mm)				
	CFBUS.PUR.001	(2x0.25)C	8.5	27	74
	CAN-Bus				
	CFBUS.PUR.021	(2x0.5)C	8.5	33	83
	CFBUS.PUR.022 [2]	(4x0.5)C	8.5	46	93
	CC-Link				
New	**CFBUS.PUR.035**	(3x0.5)C	8.0	42	79
	Ethernet/CAT5				
EtherCAT	**CFBUS.PUR.040** [2]	(4x0.25)C	6.5	30	68
	Ethernet/CAT5e				
	CFBUS.PUR.045	(4x(2x0.15))C	7.5	35	68
	Ethernet/CAT6				
New	**CFBUS.PUR.049**	(4x(2x0.15))C	7.5	35	68
	Ethernet/CAT6A				
	CFBUS.PUR.050	4x(2x0.20)C	9.5	69	122
	Ethernet/CAT7				
New	**CFBUS.PUR.052**	(4x(2x0.15)C)C	9.5	89	129
	FireWire IEEE 1394b				
	CFBUS.PUR.056	(2x(2x0.15)C+2x0.38)C	9.0	62	94
	Profinet				
EtherCAT	**CFBUS.PUR.060** [2] [16]	(4x0.38)C	7.0	35	66
	USB 3.0				
	CFBUS.PUR.068	(2x(2xAWG28)+2x(2xAWG28)C)C	7.0	41	66

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CFBUS.PUR.001	150	(2x0.25)C	red, green
CAN-Bus			
CFBUS.PUR.021	120	(2x0.5)C	white, brown
CFBUS.PUR.022	120	(4x0.5)C	white, green, brown, yellow (star-quad stranding)
CC-Link			
CFBUS.PUR.035	110	(3x0.5)C	white, blue, yellow
Ethernet/CAT5			
CFBUS.PUR.040	100	(4x0.25)C	white, green, brown, yellow (star-quad stranding)
Ethernet/CAT5e			
CFBUS.PUR.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6			
CFBUS.PUR.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6A			
CFBUS.PUR.050	100	4x(2x0.20)C	white/blue, white/orange, white/green, white/brown
Ethernet/CAT7			
CFBUS.PUR.052	100	(4x(2x0.15)C)C	white/blue, white/orange, white/green, white/brown
FireWire IEEE 1394b			
CFBUS.PUR.056	100	(2x(2x0.15)C 2x0.38	orange/blue, blue/red black, white
Profinet			
CFBUS.PUR.060	100	(4x0.38)C	white, orange, blue, yellow (star-quad stranding)
USB 3.0			
CFBUS.PUR.068	90	2x(2xAWG28) 2x(2xAWG28)C	red/black, green/white-green blue/yellow, orange/violet

[16] Colour outer jacket: Yellow-green (RAL 6018)
The chainflex® types marked with ([2]) are cables designed as a star-quad.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Order example: CFBUS.PUR.035 – In your desired length (0.5 m steps)
CFBUS.PUR chainflex® series .035 Code bus type

Online order ► www.chainflex.eu/CFBUSPUR

Delivery time 24h or today.
Delivery time means time until shipping of goods.

EPLAN download, configurators ► www.igus.eu/CFBUSPUR

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

New!

TPE Bus cable | CFBUS

Image exemplary.

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- Oil-resistant
- Bio-oil resistant
- Flame-retardant
- Hydrolysis and microbe-resistant

Dynamic Information

Bend radius	**e-chain®**	minimum
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain®**	-35 °C to +70 °C
	flexible	-45 °C to +70 °C (following DIN EN 60811-504)
	fixed	-50 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	10 m/s
	gliding	6 m/s
a max.	100 m/s²	
Travel distance	Unsupported travel distances and up to 400 m m and more for gliding applications, Class 6	

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion resistant and highly flexible, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

Properties and approvals

UV resistance	Medium
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

EPLAN download, configurators ► www.igus.eu/CFBUS

Class 6.6.4.1

Requirements	low	1	2	3	4	5	**6**	7	highest
Travel distance	unsupported	1	2	3	4	5	**6**		400 m +
Oil resistance	none	1	2	3	**4**				highest
Torsion	none	**1**	2	3					±180°

Flame retardant	According to IEC 60332-1-2, CEI 20-35, FT-1, VW-1
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	Schedule delivery program
NFPA	Following NFPA 79-2012 chapter 12.9
DNV-GL	Certified according to GL type testing – Certificate no.: 61 937-14 HH
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
CTP	Certified according to no. C-DE.PB49.B.00416
CEI	Following CEI 20-35
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	10 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
Part No. CFBUS.001-.045							
-35 / -25					12.5	13.5	14.5
-25 / +60	10	6	100	≤ 400	10	11	12
+60 / +70					12.5	13.5	14.5
Part No. CFBUS.050-.070							
-35 / -25					15	16	17
-25 / +60	10	6	100	≤ 400	12.5	13.5	14.5
+60 / +70					15	16	17

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For extremely heavy duty applications
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications without direct solar radiation
- Unsupported travel distances and up to 400 m and more for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, clean room, semiconductor insertion, indoor cranes, low temperature applications

Test data ► page 36

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

TPE Bus cable | CFBUS

Class 6.6.4.1

Requirements	low	1 2 3 4 5 **6** 7 highest
Travel distance	unsupported	1 2 3 4 5 **6** 400 m +
Oil resistance	none	1 2 3 **4** highest
Torsion	none	**1** 2 3 ±180°

CFBUS
TPE
10-12.5 x d

Image exemplary.

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
Profibus (1x2x0.64 mm) (Bend radius min. 10 x d) Style 1589/21371, 30 V, 80°C				
CFBUS.001	(2x0.25)C	9.0	34	86
CFBUS.002	(2x0.25)C+4x1.5	12.5	99	203
CFBUS.003	(2x0.25)C+3G0.75	11.5	58	141
Interbus (Bend radius min. 10 x d) Style 1589/21371, 30 V, 80°C				
CFBUS.010	(3x(2x0.25))C	9.0	50	90
CFBUS.011	(3x(2x0.25)+(3G1.0))C	10.5	88	142
CAN-BUS/Fieldbus (Bend radius min. 10 x d) Style 1589/21371, 30 V, 80°C				
CFBUS.020 [2]	(4x0.25)C	6.5	29	58
CFBUS.021	(2x0.5)C	8.0	41	85
CFBUS.022 [2]	(4x0.5)C	8.0	46	90
DeviceNet (Bend radius min. 10 x d) Style 1589/21371, 30 V, 80°C				
CFBUS.030 [4]	((2xAWG24)C+2xAWG22)C	7.5	37	65
CFBUS.031	((2xAWG18)C+2xAWG15)C	11.5	110	200
CC-Link (Bend radius min. 10 x d) Style 1589/21371, 30 V, 80°C				
CFBUS.035	(3xAWG20)C	9.0	46	94

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CFBUS.001	150	(2x0.25)C	red, green
CFBUS.002	150	(2x0.25)C 4x1.5	red/green black with white numerals 1-4
CFBUS.003	150	(2x0.25)C 3G0.75	red/green black, blue, green-yellow
Interbus			
CFBUS.010	100	3x(2x0.25)	white/brown, green/yellow, grey/pink
CFBUS.011	100	3x(2x0.25) 3G1.0	white/brown, green/yellow, grey/pink red, blue, green-yellow
CAN-Bus/Fieldbus			
CFBUS.020	120	(4x0.25)C	white, green, brown, yellow (star-quad stranding)
CFBUS.021	120	(2x0.5)C	white, brown
CFBUS.022	120	(4x0.5)C	white, green, brown, yellow (star-quad stranding)
DeviceNet			
CFBUS.030	120	(2xAWG24)C 2xAWG22	white/blue red, black
CFBUS.031	120	(2xAWG18)C 2xAWG15	white/blue red, black
CC-Link			
CFBUS.035	110	(3xAWG20)C	white, blue, yellow

[4] without inner jacket
[16] Colour outer jacket: Yellow-green (RAL 6018)
The chainflex® types marked with ([2]) are cables designed as a star-quad.
Other types on request.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Other types ▶ page 190

Technical note

The USB, FireWire and GigE-cables shown on these pages were developed for the ambitious industrial usage in e-chains®. High proofness to oil and lubricants is as secured as protection against electromagnetical interferences. This high mechanical service life was reached with the usage of high quality materials which even care for the electrical safeness. In single cases communication errors can occur, if very different hardware and software is combined. We recommend tests with all components and the cables before starting serial production, to get the proove for a perfect running system. Of course we support you with the details of these electrical tests. Just give us a call!

EPLAN download, configurators ▶ www.igus.eu/CFBUS

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

TPE Bus cable | CFBUS

New!

Class 6.6.4.1

Requirements	low	1	2	3	4	5	**6**	7	highest
Travel distance	unsupported	1	2	3	4	5	**6**		400 m +
Oil resistance	none	1	2	3	**4**				highest
Torsion	none	**1**	2	3					±180°

CFBUS
TPE
10-12.5 x d

Image exemplary.

	Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
	Ethernet/CAT5 (Bend radius min. 10 x d) Style 10138/21235, 300 V, 80 °C				
EtherCAT	**CFBUS.040**	(4x0.25)C	7.0	35	66
	CFBUS.044 [11]	(4x(2x0.15))C	8.5	44	88
	Ethernet/CAT5e (Bend radius min. 10 x d) Style 10138/21235, 300 V, 80 °C				
	CFBUS.045	(4x(2x0.15))C	8.5	44	88
	Ethernet/CAT6 (Bend radius min. 10 x d) Style 10138/21235, 300 V, 80 °C				
New	**CFBUS.049**	(4x(2x0.15))C	8.5	44	88
	Ethernet/CAT6A (Bend radius min. 12.5 x d) Style 1589/21371, 30 V, 80°C				
	CFBUS.050	(4x(2x0.15)C)C	10.5	87	139
	Ethernet/CAT7 (Bend radius min. 12.5 x d) Style 1589/21371, 30 V, 80°C				
	CFBUS.052	(4x(2x0.15)C)C	10.5	94	142
	FireWire 1394a (Bend radius min. 12.5 x d) Style 1589/21371, 30 V, 80 °C				
	CFBUS.055	2x(2x0.15)C+2x(0.34)C	8.0	41	84
	Profinet (Bend radius min. 10 x d) Style 10138/21235, 300 V, 80 °C				
EtherCAT	**CFBUS.060** [2) 16)]	(4x0.38)C	7.5	41	75
	USB (Bend radius min. 12.5 x d) Style 1589/21371, 30 V, 80 °C				
	CFBUS.065	((2xAWG28)+2xAWG20)C	5.5	29	46
	CFBUS.066	((2xAWG24)+2xAWG20)C	6.5	33	56
	DVI (Bend radius min. 12.5 x d) without cULus				
	CFBUS.070	(4x(2xAWG28)C+(2xAWG28)+3xAWG28)C	9.0	37	94

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Ethernet/CAT5			
CFBUS.040	100	(4x0.25)C	white, green, brown, yellow (star-quad stranding)
CFBUS.044	100	(4x(2x0.15))C	white/brown, green/yellow, grey/pink, blue/red
Ethernet/CAT5e			
CFBUS.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6			
CFBUS.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange,white-green/green, white-brown/brown
Ethernet/CAT6A			
CFBUS.050	100	(4x(2x0.15)C)C	white/blue, white/orange, white/green, white/brown
Ethernet/CAT7			
CFBUS.052	100	(4x(2x0.15)C)C	white/blue, white/orange, white/green, white/brown
FireWire 1394a			
CFBUS.055	100	2x(2x0.15)C 2x(0.34)C	orange/blue, green/red white, black
Profinet			
CFBUS.060	100	(4x0.38)C	white, orange, blue, yellow (star-quad stranding)
USB			
CFBUS.065	90	(2xAWG28) 2xAWG20	white/green red, black
CFBUS.066	90	(2xAWG24) 2xAWG20	white/green red, black
DVI			
CFBUS.070	100	4x(2xAWG28)C (2xAWG28) 3xAWG28	4 x white/yellow with element-shield in blue, black, white, red white, brown green, yellow, grey

[4] without inner jacket
[11] Phase-out model
[16] Colour outer jacket: Yellow-green (RAL 6018)
The chainflex® types marked with ([2]) are cables designed as a star-quad.
Other types on request.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Other types ▶ page 188

Technical note

The USB, FireWire and GigE-cables shown on these pages were developed for the ambitious industrial usage in e-chains®. High proofness to oil and lubricants is as secured as protection against electromagnetical interferences. This high mechanical service life was reached with the usage of high quality materials which even care for the electrical safeness. In single cases communication errors can occur, if very different hardware and software is combined. We recommend tests with all components and the cables before starting serial production, to get the proove for a perfect running system. Of course we support you with the details of these electrical tests. Just give us a call!

EPLAN download, configurators ▶ www.igus.eu/CFBUS

TPE Bus cable | CF11.LC

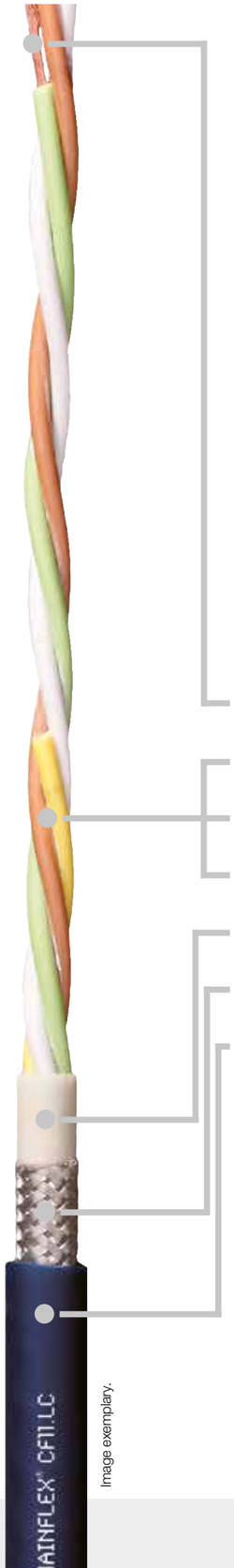


Image exemplary.

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- Oil-resistant
- Bio-oil resistant
- PVC-free/halogen free
- UV-resistant
- Hydrolysis and microbe-resistant

Dynamic Information

Bend radius	**e-chain®**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain®**	-35 °C to +70 °C
	flexible	-50 °C to +70 °C (following DIN EN 60811-504)
	fixed	-55 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	10 m/s
	gliding	6 m/s
a max.	100 m/s²	
Travel distance	Unsupported travel distances and up to 400 m m and more for gliding applications, Class 6	

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion resistant and highly flexible, adapted to suit the requirements in e-chains®. Colour: Steel-blue (similar to RAL 5011)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

EPLAN download, configurators ▶ www.igus.eu/CF11LC

Class 6.6.4.1

Requirements	low	1 2 3 4 5 **6** 7 highest
Travel distance	unsupported	1 2 3 4 5 **6** 400 m +
Oil resistance	none	1 2 3 **4** highest
Torsion	none	**1** 2 3 ±180°

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
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
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
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	10 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-35 / -25					12.5	13.5	14.5
-25 / +60	10	6	100	≤ 400	10	11	12
+60 / +70					12.5	13.5	14.5

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For extremely heavy duty applications
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV resistant
- Unsupported travel distances and up to 400 m and more for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, clean room, semiconductor insertion, outdoor cranes, low temperature applications

TPE Bus cable | CF11.LC

Class 6.6.4.1

Requirements	low 1 2 3 4 5 **6** 7 highest	
Travel distance	unsupported 1 2 3 4 5 **6** 400 m +	
Oil resistance	none 1 2 3 **4** highest	
Torsion	none **1** 2 3 ±180°	

CF11.LC
TPE
10 x d

Image exemplary.

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
Profibus				
CF11.02.02.02.PBA.LC [2]	(4x0.25)C	9.0	37	82
Interbus				
CF11.02.03.02.10.03.IB-S	(3x(2x0.25)+(3G1.0))C	10.5	88	134
CF11.02.03.02.IB-S	(3x(2x0.25))C	9.0	51	84
CAN-Bus				
CF11.05.01.02.LC	(2x0.5)C	8.0	41	80
CF11.05.02.02.LC [2]	(4x0.5)C	8.5	46	87

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CF11.02.02.02.PBA.LC	150	(4x0.25)C	green, yellow, red, brown (star-quad stranding)
Interbus			
CF11.02.03.02.10.03.IB-S	100	3x(2x0.25) (3G1.0)	white/brown, green/yellow, grey/pink red, blue, green-yellow
CF11.02.03.02.IB-S	100	(3x(2x0.25))C	white/brown, green/yellow, grey/pink
CAN-Bus			
CF11.05.01.02.LC	120	(2x0.5)C	white, brown
CF11.05.02.02.LC	120	(4x0.5)C	white, green, brown, yellow (star-quad stranding)

The chainflex® types marked with ([2]) are cables designed as a star-quad.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Order example: CF11.02.03.02.IB-S – In your desired length (0.5 m steps)
CF11.LC chainflex® series .02 Code nominal cross section .03 Number of pairs
.02 Identification pairs .IB-S Special identification

Online order ► www.chainflex.eu/CF11LC

Delivery time 24h or today.
Delivery time means time until shipping of goods.

EPLAN download, configurators ► www.igus.eu/CF11LC

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

TPE Bus cable | CF11.LC.D

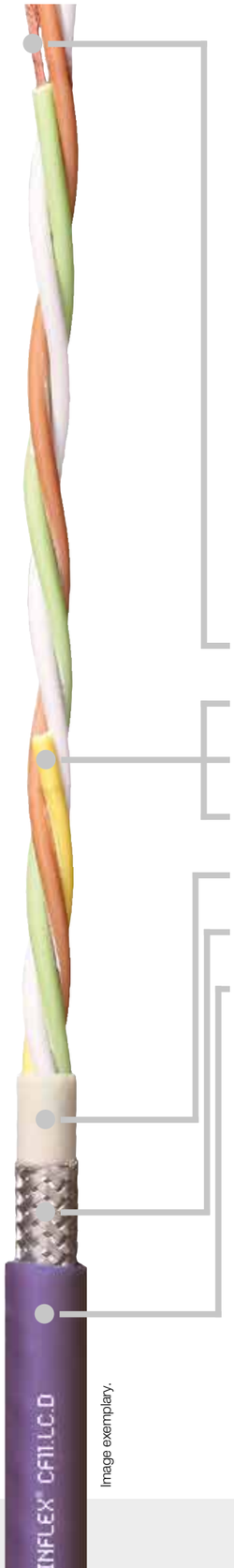


Image exemplary.

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- PVC-free/halogen free
- Oil-resistant
- Hydrolysis and microbe-resistant

Dynamic Information

Bend radius	**e-chain®**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain®**	-35 °C to +70 °C
	flexible	-50 °C to +70 °C (following DIN EN 60811-504)
	fixed	-55 °C to +70 °C (following DIN EN 50305)
v max.	**unsupported**	10 m/s
	gliding	6 m/s
a max.	100 m/s²	
Travel distance	Unsupported travel distances and up to 400 m m and more for gliding applications, Class 6	

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core stranding	According to bus specification.
Core identification	According to bus specification. Schedule delivery programm
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion resistant and highly flexible, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

EPLAN download, configurators ▶ www.igus.eu/CF11LCD

Class 6.6.4.1

Requirements	low	1 2 3 4 5 **6** 7 highest
Travel distance	unsupported	1 2 3 4 5 **6** 400 m +
Oil resistance	none	1 2 3 **4** highest
Torsion	none	**1** 2 3 ±180°

Properties and approvals

UV resistance	Medium
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
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	10 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-35 / -25					12.5	13.5	14.5
-25 / +60	10	6	100	≤ 400	10	11	12
+60 / +70					12.5	13.5	14.5

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For extremely heavy duty applications
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV resistantIndoor and outdoor applications without direct solar radiation
- Unsupported travel distances and up to 400 m and more for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, clean room, semiconductor insertion, outdoor cranes, low temperature applications

TPE Bus cable | CF11.LC.D

Class 6.6.4.1

Requirements	low 1 2 3 4 5 **6** 7 highest	
Travel distance	unsupported 1 2 3 4 5 **6** 400 m +	
Oil resistance	none 1 2 3 **4** highest	
Torsion	none **1** 2 3 ±180°	

CF11.LC.D
TPE
10 x d

Image exemplary.

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
Profibus				
CF11.02.01.02.PBA.LC.D	(2x0.25)C	9.0	34	80
CF11.02.02.07.03.PBA.LC.D	(2x0.25)C+3x0.75	11.0	58	130
CF11.02.02.15.04.PBA.LC.D	(2x0.25)C+4x1.5	13.0	94	179
CAN-Bus				
CF11.02.02.02.LC.D	(4x0.25)C	6.5	29	53
CF11.05.01.02.LC.D	(2x0.5)C	8.0	41	80

Part No.	Characte-ristic wave impedance approx. [Ω]	Core group	Colour code
Profibus			
CF11.02.01.02.PBA.LC.D	150	(2x0.25)C	red, green
CF11.02.02.07.03.PBA.LC.D	150	(2x0.25)C 3G0.75	red/green black, blue, green-yellow
CF11.02.02.15.04.PBA.LC.D	150	(2x0.25)C 4x1.5	red/green black with white numerals 1-4
CAN-Bus			
CF11.02.02.02.LC.D	120	(4x0.25)C	white, green, brown, yellow (star-quad stranding)
CF11.05.01.02.LC.D	120	(2x0.5)C	white, brown

The chainflex® types marked with (²) are cables designed as a star-quad.
Other types on request.
Note: The mentioned outer diameters are maximum values and may tend toward lower tolerance limits.
G = with green-yellow earth core **x =** without earth core

Order example: CF11.02.01.02.PBA.LC.D – **In your desired length (0.5 m steps)**
CF11.LC.D **chainflex® series** .02 **Code nominal cross section** .01 **Number of pairs**
.02 **Identification pairs** .PBA.LC.D **Special identification**

Online order ► www.chainflex.eu/CF11LCD

Delivery time 24h or today.
Delivery time means time until shipping of goods.

EPLAN download, configurators ► www.igus.eu/CF11LCD

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...

TPE Bus cable | CF14.CAT5

Image exemplary.

- **Ethernet special cable for extremely heavy duty applications**
- **TPE outer jacket**
- **Oil-resistant**
- **Bio-oil resistant**
- **PVC-free/halogen free**
- **UV-resistant**
- **Hydrolysis and microbe-resistant**

Dynamic Information

Bend radius	**e-chain®**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain®**	-35 °C to 70 °C
	flexible	-50 °C to 70 °C (following DIN EN 60811-504)
	fixed	-55 °C to 70 °C (following DIN EN 50305)
v max.	**unsupported**	10 m/s
	gliding	6 m/s
a max.	100 m/s²	
Travel distance	Unsupported travel distances and up to 400 m m and more for gliding applications, Class 6	

Cable structure

Conductor	19-wire conductor consisting of bare copper wires in especially bending-resistant braiding quality.
Core insulation	Special PP-isolation mixture.
Core stranding	2 cores each stranded in pairs with short pitch lengths, core pairs also stranded with short pitch lengths.
Core identification	Colour code in accordance with DIN 47100.
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion resistant and highly flexible, adapted to suit the requirements in e-chains®. Colour: Red lilac (similar to RAL 4001)

Electrical Information

Nominal voltage	50 V
Testing voltage	500 V

Properties and approvals

UV resistance	Medium
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)

1,244 types from stock ... no cutting costs*
... no minimum order quantity ... *(up to 10 cuts of the same type)

Class 6.6.4.1

Requirements	low	1 2 3 4 5 **6** 7 highest
Travel distance	unsupported	1 2 3 4 5 **6** 400 m +
Oil resistance	none	1 2 3 **4** highest
Torsion	none	**1** 2 3 ±180°

Halogen-free	Following DIN EN 60754
EAC	Certified according to no. TC RU C-DE.ME77.B.01218
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
DESINA	According to VDW, DESINA standardisation
CE	Following 2014/35/EU

Guaranteed lifetime according to guarantee conditions (page 22-25)

Double strokes*					5 million	7.5 million	10 million
Temperature, from/to [°C]	v max. [m/s] unsupported	v max. [m/s] gliding	a max. [m/s²]	Travel distance [m]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-35 / -25					12.5	13.5	14.5
-25 / +60	10	6	100	≤ 400	10	11	12
+60 / +70					12.5	13.5	14.5

* Higher number of double strokes possible - please ask for your individual calculation.

Typical application areas

- For extremely heavy duty applications
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications without direct solar radiation
- Unsupported travel distances and up to 400 m and more for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, clean room, semiconductor insertion, indoor cranes, low temperature applications

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max.[mm]	Copper index [kg/km]	Weight [kg/km]
Ethernet/CAT5				
CF14.01.04.02.CAT5	(4x(2x0.15))C	8.5	44	82
CF14.02.02.02.CAT5	(4x0.25)C	7.5	35	60

The chainflex® types marked with (²) are cables designed as a star-quad.
Note: The mentioned outer 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
Ethernet/CAT5			
CF14.01.04.02.CAT5	100	(4x(2x0.15))C	white/brown, green/yellow, grey/pink, blue/red
CF14.02.02.02.CAT5	100	(4x0.25)C	white, green, brown, yellow (star-quad stranding)

More CAT5/CAT6 cables ▶ page 166, CFBUS

36 month guarantee on every chainflex® cable ...
... up to 10 mio. double strokes guaranteed ...