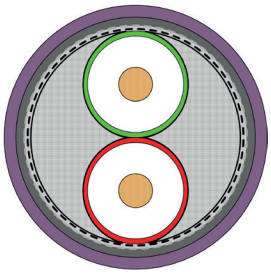
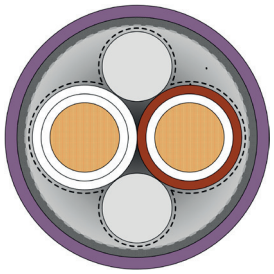
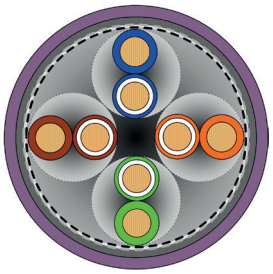
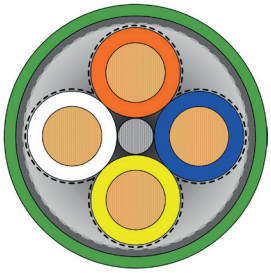
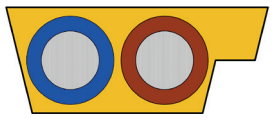
Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

Profibus	CAN-Bus	Ethernet (CAT5/CAT5e/GigE/PoE)
CF898.001	CF898.021	CF898.045
		

Profinet (Type C)	AS-Interface
CF898.060	CF898.082-CF898.083
	

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Example image

Cable structure

Conductor	Conductor consisting of bare copper wires (according to DIN EN 60228).
Core insulation	According to bus specification.
Core structure	According to bus specification.
Core identification	According to bus specification. ▶ Product range table
Overall shield	Braiding made of tinned copper wires. Coverage approx. 60 % optical
Outer jacket	Low-adhesion iguPUR mixture, adapted to suit the requirements in e-chains®. **Colour:** Red lilac (similar to RAL 4001), Variants ▶ Product range table **Printing:** black

„00000 m“* igus chainflex M CF898.---① ---② ---③ EAC/CTP CE ---④

---⑤ 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 of the UL style (see related chapter).
④ Printing: DESINA (only if DESINA is fulfilled).
⑤ Printing according to bus specification (inclusive wave resistance).
Example: ... chainflex **CF898.001 (2x0.25)C** ...

Guaranteed service life according to guarantee conditions

Double strokes	1 million	3 million	5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-20/-10	17.5	18.5	19.5
-10/+60	15	16	17
+60/+70	17.5	18.5	19.5

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

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Example image

Properties and approvals

UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 50363-10-2), Class 3
Flame retardant	**CF898.001-CF898.060:** According to IEC 60332-1-2, FT1, VW-1 **CF898.082-CF898.083:** According to IEC 60332-1-2, FT2
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	See table UL/CSA AWM for details
NFPA	**CF898.001-CF898.060:** 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)
CE	Following 2014/35/EU

Properties and approvals

UL/CSA AWM Details

Part No.	UL style core insulation	UL style outer jacket	UL Voltage Rating	UL Temperature Rating
			[V]	[°C]
CF898.001	1589	20236	30	80
CF898.021	10578	21161	300	80
CF898.045	11602	21161	300	80
CF898.060	11602	21161	300	80
CF898.082	-	21866	90	80
CF898.083	-	21866	90	80

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chainflex® CF898

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Example image

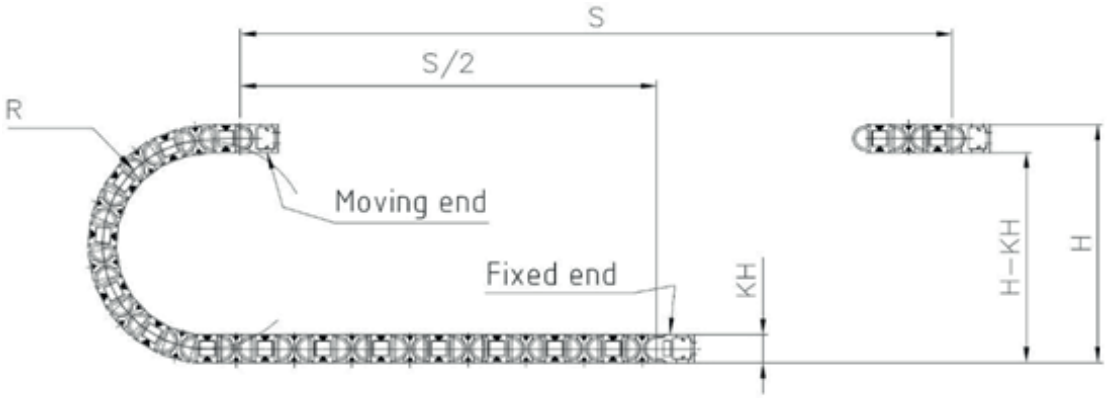
Dynamic information

Bend radius	e-chain® linear	min. 15 x d
	flexible	min. 12 x d
	fixed	min. 8 x d
Temperature	e-chain® linear	-20 °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.	unsupported	3 m/s
a max.		20 m/s²
Travel distance		Unsupported travel distances up to 10 m, Class 1

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

Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 100 mm
Test travel S/S$_2$	approx. 1 - 15 m
Test duration	minimum 2 - 4 million double strokes
Test speed	approx. 0,5 - 2 m / s
Test acceleration	approx. 0.5 - 1.5 m / s²



Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- With influence of oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications without direct solar radiation
- Machining units/machine tools, low temperature applications

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

Technical tables:

Mechanical information

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	18	56
CAN-Bus				
CF898.021	(2x0.5)C	8.5	24	80
Ethernet/CAT5e				
CF898.045	(4x(2x0.14))C	7.0	25	54
Profinet				
CF898.060 [13]	(4x0.34)C	7.0	25	58
ASI BUS (flat cables)				
CF898.082 [14]	2x2.5		50	82
CF898.083 [15]	2x2.5		50	79

[13] Colour outer jacket: Yellow-green (RAL 6018)
[14] Colour outer jacket: Yellow (RAL 1021)
[15] Colour outer jacket: Jet black (RAL 9005)
G = with green-yellow earth core
x = without earth core
Note: The given outer diameters are maximum values and may tend toward lower tolerance limits.

Guarantee igus chainflex 36 month guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

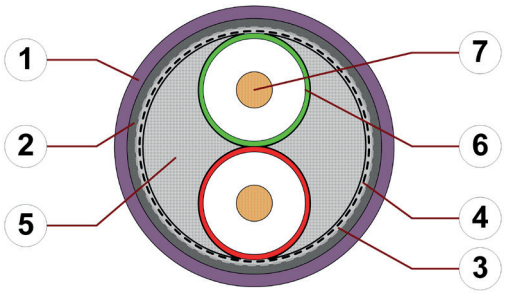
Example image

Profibus

CF898.001

Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic foil
5. Filler: Plastic yarns
6. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
7. Conductor: Stranded conductor consisting of bare copper wires

Example image
For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CF898.001	2x0.25	red, green	

Guarantee igus chainflex 36 month guarantee

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Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

Profibus

CF898.001

Electrical information

(Cable structure please see previous page)

Part No.	CF898.001
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 (at 3-16 MHz)

Line attenuation approx. [dB/100m]

Part No.	0.01 MHz	0.04 MHz	4 MHz	16 MHz
CF898.001	0.3	0.4	2.5	5.2

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]
0.25	88	5

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

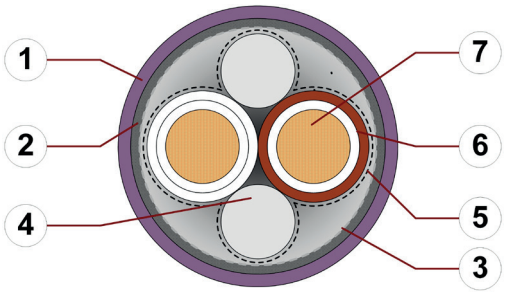
Example image

CAN-Bus

CF898.021

Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Filler: Plastic dummy
5. Banding: Plastic foil
6. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
7. Conductor: Stranded conductor consisting of bare copper wires

Example image
For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CF898.021	2x0.5	white, brown	

Guarantee igus chainflex 36 month guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

CAN-Bus

CF898.021

Electrical information

(Cable structure please see previous page)

Part No.	CF898.021
Nominal voltage	50 V 300 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 (at 1 MHz)

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	39	10

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

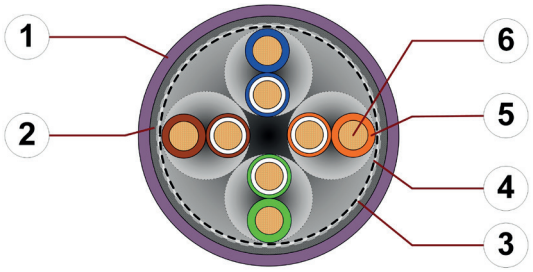
Example image

Ethernet (CAT5/CAT5e/GigE/PoE)

CF898.045

Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic foil
5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
6. Conductor: Stranded conductor consisting of bare copper wires

Example image
For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CF898.045	4x(2x0.14)	white-blue/blue, white-orange/ orange, white-green/green, white-brown/brown	

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igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

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chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

Ethernet (CAT5/CAT5e/GigE/PoE)

CF898.045

Electrical information

(Cable structure please see previous page)

Part No.	CF898.045
Nominal voltage	50 V 300 V (following UL)
Testing voltage (following DIN EN 50289-1-3)	500 V
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 25 Ω
Operating capacity	47 pF/m
Nominal Velocity of Propagation (NVP)	67 %

Line attenuation approx. [dB/100m]

Part No.	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
CF898.045	3.2	6.0	9.5	12.1	13.6	17.1	14.8	32.0

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]
0.14	145	2.5

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

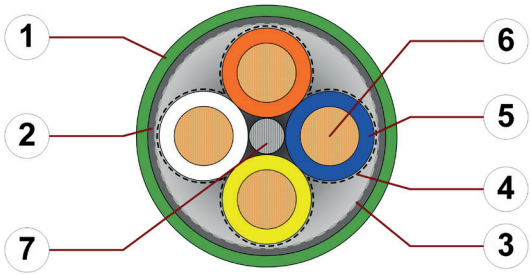
Example image

Profinet (Type C)

CF898.060

Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded iguPUR mixture
2. Overall shield: Braiding made of tinned copper wires
3. Shield foil: Aluminium clad plastic foil
4. Banding: Plastic foil
5. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
6. Conductor: Stranded conductor consisting of bare copper wires
7. Filler: Plastic yarns

Example image
For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CF898.060	4x0.34	white, orange, blue, yellow (Star-quad)	

Guarantee igus chainflex 36 month guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

Profinet (Type C)
CF898.060

Electrical information
(Cable structure please see previous page)

Part No.	CF898.060
Nominal voltage	50 V 300 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
Operating capacity	53 pF/m
Nominal Velocity of Propagation (NVP)	67 %

Line attenuation approx. [dB/100m]

Part No.	1 MHz	4 MHz	10 MHz	16 MHz	20 MHz	31.25 MHz	62.5 MHz	100 MHz
CF898.060	3.2	6.0	9.5	12.1	13.6	17.1	14.8	32.0

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]
0.34	59	7

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

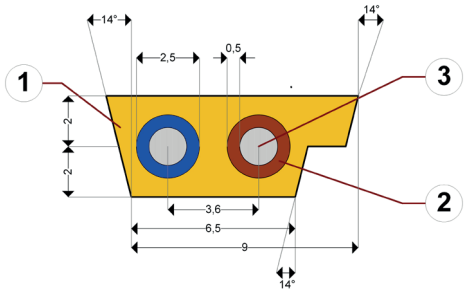
Example image

AS-Interface

CF898.082-CF898.083

Cable structure

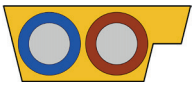
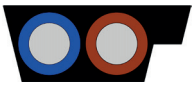
(Electrical information please see next page)



1. Outer jacket: Pressure extruded PUR mixture
2. Core insulation: Mechanically high quality TPE mixture (according to bus specification)
3. Conductor: Fine-wire strand made of tinned copper wires

Example image
For detailed overview please see design table

Design table

Part No.	Core group	Colour code	Drawing
CF898.082	2x2.5	blue, brown	
CF898.083	2x2.5	blue, brown	

Data sheet
chainflex® CF898

Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant ● Shielded ● Flame retardant

Example image

AS-Interface

CF898.082-CF898.083

Electrical information

(Cable structure please see previous page)

Part No.	CF898.082	CF898.083
Nominal voltage	50 V 90 V (in Anlehnung an UL)	
Testing voltage (following DIN EN 50289-1-3)	500 V	
Characteristic wave impedance (following DIN EN 50289-1-11)	100 ± 15 Ω	
Operating capacity	<75 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]**
2.5	9.0	30

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

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CF898.001 CF898.060 CF898.082 CF898.083 CF898.021 CF898.045