

Data sheet

chainflex® CF898

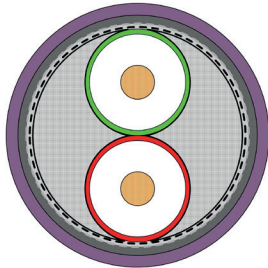


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant



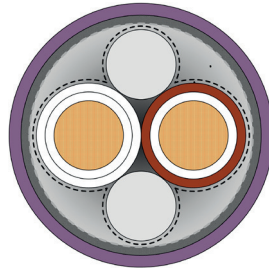
Profibus

CF898.001



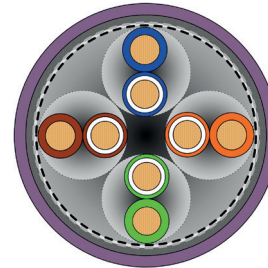
CAN-Bus

CF898.021



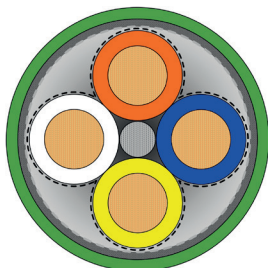
Ethernet (CAT5/CAT5e/GigE/PoE)

CF898.045



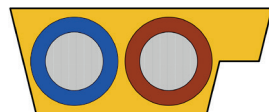
Profinet (Type C)

CF898.060



AS-Interface

CF898.082-CF898.083



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



Example image

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Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
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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.
► Design 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 ► Table Mechanical information
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. [x d]	R min. [x d]	R min. [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.



Example image

igus® chainflex® CF898.045

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Properties and approvals

	UV resistance	Medium
	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 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)
	PTFE-free	The design of these products does not contain PTFE
	UL-verified	Certificate No. V293650: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
	UL/CSA AWM	See table UL/CSA AWM for details
	NFPA	CF898.001-CF898.060: Following NFPA 79-2018, chapter 12.9
	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 [V]	UL Temperature Rating [°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
CF898.061.FC	11602	21161	300	80
CF898.082	-	21866	90	80
CF898.083	-	21866	90	80



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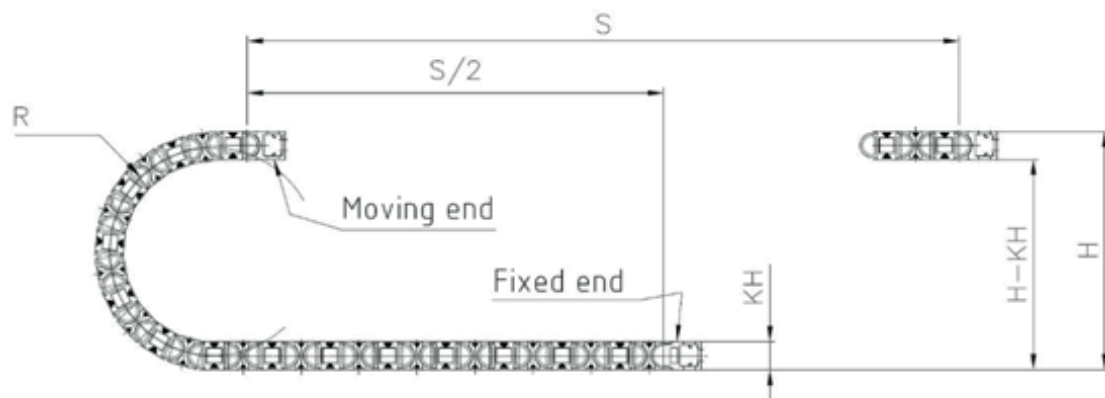
Dynamic information

	Bend radius	e-chain® linear flexible fixed	minimum 15 x d minimum 12 x d minimum 8 x d
	Temperature	e-chain® linear flexible fixed	-20°C up to +70°C -40°C up to +70°C (following DIN EN 60811-504) -50°C up to +70°C (following DIN EN 50305)
	v max.	unsupported	3m/s
	a max.		20m/s ²
	Travel distance		Unsupported travels up to 10m, 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/S₂	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 / s ²



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 sun radiation
- Machining units/machine tools, low temperature applications



Example image

igus® chainflex® CF898.045

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chainflex® CF898



Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
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Technical tables:

Mechanical information

Art.-Nr.	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
CF898.061.FC ¹³⁾	(4x0.34)C	7.0	25	72
ASI BUS (flat cables)				
CF898.082 ¹⁴⁾	According to ASI	4.0	50	82
CF898.083 ¹⁵⁾	According to ASI	4.0	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)

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

G = with green-yellow earth core **x** = without earth core



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



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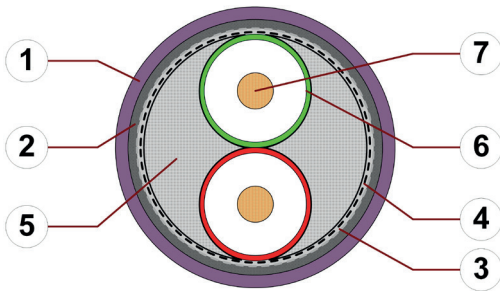


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant

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	



Example image

igus® chainflex® CF898.045

Data sheet

chainflex® CF898



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



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.



Example image

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chainflex® CF898

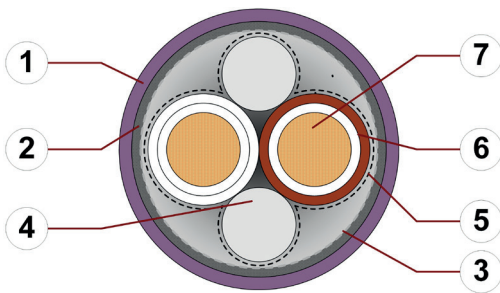


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant

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	



Example image

igus® chainflex® CF898.045

Data sheet

chainflex® CF898



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



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.



Example image

Data sheet

chainflex® CF898

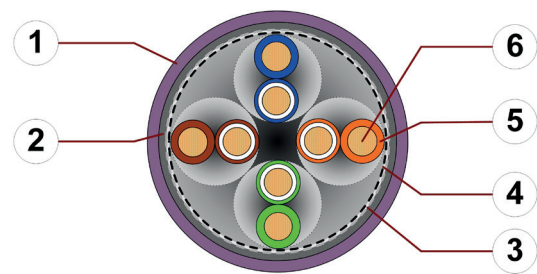


Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant

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	



Example image

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chainflex® CF898



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



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.



Example image

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chainflex® CF898



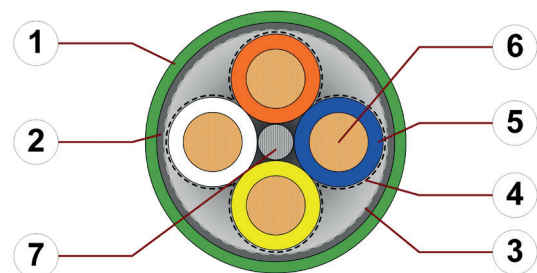
Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant

Profinet (Type C)

CF898.060-CF898.061.FC

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)	
CF898.061.FC	4x0.34	white, orange, blue, yellow (Star-quad)	



Example image

igus® chainflex® CF898.061

Data sheet

chainflex® CF898



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



Profinet (Type C)

CF898.060-CF898.061.FC

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
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.



Example image

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chainflex® CF898



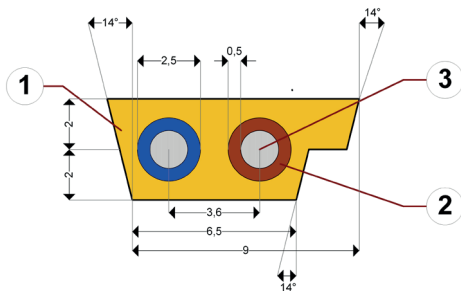
Bus cable (Class 3.1.3.1) ● For flexing applications ● iguPUR outer jacket ● Oil-resistant
● Shielded ● Flame-retardant

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	



igus 4-year
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guarantee and
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Example image

igus® chainflex® CF898.045

Data sheet

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



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.



Example image