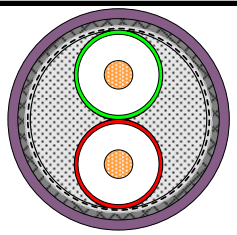
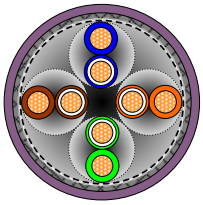
chainflex® M illion cable works.

CF888

PVC - e-chain® - Bus cable for flexible load requirements (class 3.1.1): shielded as well as flame-retardant.

Overview

Bus system	Profibus	Ethernet (CAT5e / GigE / PoE)
Part. No.	CF888.001	CF888.045
Example drawing	 (see the chapter belonging to the cable for details)	 (see the chapter belonging to the cable for details)

Core design:

Conductor: Wire strand consisting of bare copper wires (following DIN EN 60228).

Core insulation: According to bus specification.

Core identification: According to bus specification.

Shield design:

Material: Braid made of tinned copper wires combined with an aluminium clad plastic foil.

Shield coverage (optical): approx. 60 %(Braid) → 100 %(Foil)

Jacket design:

Outer jacket: Low-adhesion mixture on the basis of PVC adapted to suit the requirements in e-chains®.

- flame-retardant (following IEC 60332-1-2, CEI 20-35, VW-1 & FT-1)
- silicon-free (following PV 3.10.7 - status 1992)
- lead-free (following 2011/65/EU (RoHS-II))
- UV-resistance: Low

Colour outer jacket: Red lilac (similar to RAL 4001)

Cable marking (Black):

„00000 m“* igus chainflex CF888.---① -----② E310776 cRUus AWM
Style 2560 VW-1 AWM I/II A/B 60°C 30V FT-1 CE ---③ conform RoHS-II
conform www.igus.de +++ chainflex cable works +++

***Length printing:** Not calibrated. Only intended as an orientation aid.*
① / ②: Cable identification according to part no. (see technical table for details).
Ex.: CF888.001: ⇒ …chainflex CF888.001 (2x0,25)C CE…
③: Printing according to bus specification (inclusive wave resistance).
Ex.: CF888.001: ⇒ …CE 150 OHM Profibus conform…

General mechanical values:

(for individual details see technical table)

Double strokes *		1 million
Temperature (from/to) [°C]	Travel distance (TD)	Min. bending radius for e-chain® use [Factor multiplied by outer diameter (d)] (Ex.: CF888.001 at 20°C: 15,0 x 8,0 mm ➔ Min. bending radius 120,0 mm)
+5 / +15	≤ 6 m (unsupported)	17,5
+15 / +60		15,0
+60 / +70		17,5

✱: Minimum guarantee lifetime of the cable under the specified conditions.
The installation of the cable is recommended within the middle temperature range.

Temperature range	-20 °C ←	+5 °C ←	+15 °C ←→ +60 °C	→ +70 °C
Min. bending radius for fixed installation	15,0 x d	12,5 x d	10,0 x d	12,5 x d
Torsion (at 1 m cable length)	---	±0 °	±15 °	±0 °

General electrical values:

(for individual details see technical table)

Nominal voltage: 50 V

Test voltage: 500 V (core / core) & 500 V (core / shild) following DIN EN 50289-1-3

Certifications: cRUus: (E310776: Style 1589 & 2560, 30 V / 60 °C)

Guidelines: CE, NFPA (following 79-2012 chapter 12.9), EAC & TR (CTP)

Date	Author
26 Jun. 2014	D. Borsberg

Subject to misprints and errors.
Technical modifications are possible at any time.
Please refer regarding the availability of the items also the information in the latest chainflex® catalogue.

+++ chainflex® cable works +++
igus® chainflex® M CF888
Image exemplary
www.igus.de

chainflex® M illion cable works.

CF888

PVC - e-chain® - Bus cable for flexible load requirements (class 3.1.1): shielded as well as flame-retardant.

Dynamic values:

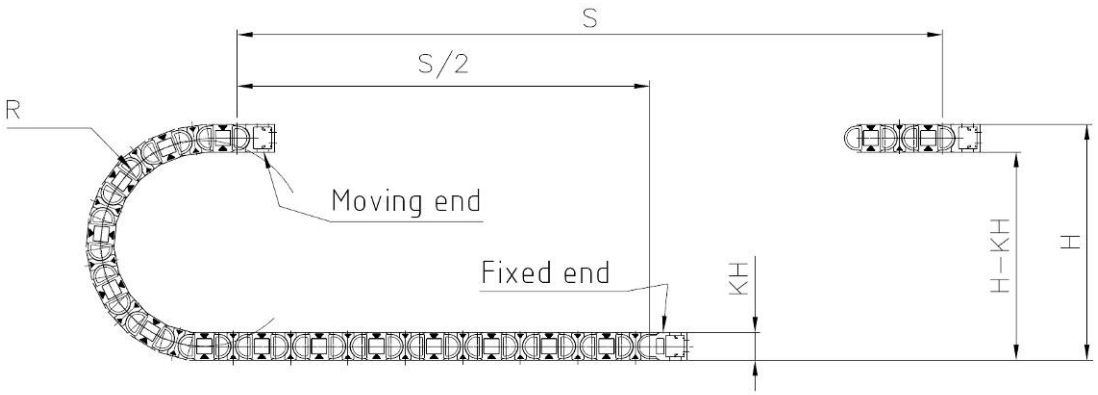
Max. speed for e-chain® use:** **Unsupported (up to 6 m):** v = 3 m / s

Max. acceleration for e-chain® use:** a = 20 m / s^2

** *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 group:

Test bending radius R:	approx. 100 mm
Test travel S:	approx. 1 - 5 m
Test period:	min. 1,0 - 1,5 million double strokes
Test speed:	approx. 0,5 - 2 m / s
Test acceleration:	approx. 0,5 - 1,5 m / s^2



e-chain® - Bus cable for flexible load requirements:

- for 1 million movements (double strokes) in e-chains®
- for areas of application without influence of oil
- for unsupported travel distances up to 6 m
- CE, RoHS-II, cЯUus, NFPA, EAC & TR (CTP)

Typical application areas:
Preferably indoor applications.
Wood/stone processing, packaging industry, supply system, handling, adjusting equipment.

Technical tables:

Mechanical values:

① Part no.	② Number of cores & nominal cross section [mm²]	External diameter (d)*** [max. mm]	Copper index [kg / km]	Weight [kg / km]
Profibus				
CF888.001	(2x0,25)C	8,0	19	62
Ethernet (CAT5e / GigE / PoE)				
CF888.045	(4x(2x0,15))C	7,5	27	68

*** *External diameters are maximum values and may tend toward lower tolerance limits.*

Electrical values:

Nominal cross section [mm²]	Conductor resistance [approx. Ω / km] at 20 °C	Max. current rating [A] at 30 °C♦
(following)	DIN EN 50289-1-2	DIN VDE 0891-1
0,15	149	2,5
0,25	78	5

+++ chainflex® cable works +++
igus® chainflex® M CF888
Image exemplary
www.igus.de

CF888

PVC - e-chain® - Bus cable for flexible load requirements (class 3.1.1): shielded as well as flame-retardant.

- *The max. current rating depends on factors such as the individual environmental conditions and the type of installation.*



igus® chainflex® M CF888 +++ chainflex® cable works +++

Image exemplary

www.igus.de

Date	Author
26 Jun. 2014	D. Borsberg

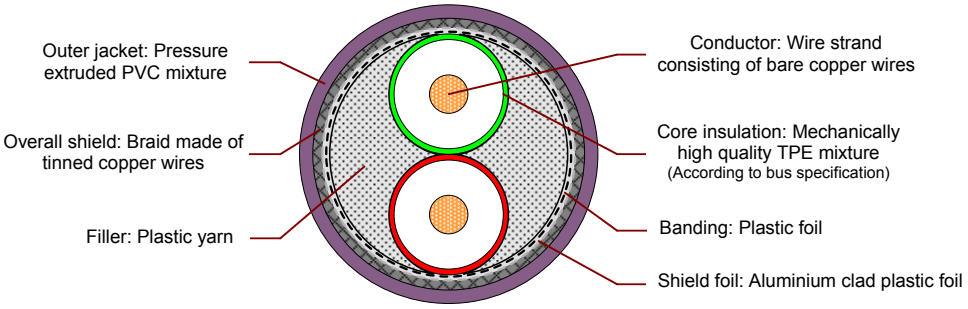
Subject to misprints and errors.
Technical modifications are possible at any time.
Please refer regarding the availability of the items also the information in the latest chainflex® catalogue.

chainflex® M illion cable works.

CF888

PVC - e-chain® - Bus cable for flexible load requirements (class 3.1.1): shielded as well as flame-retardant.

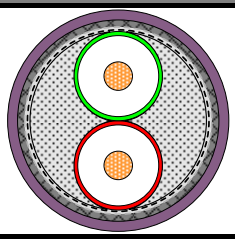
CF888.001 (Profibus)



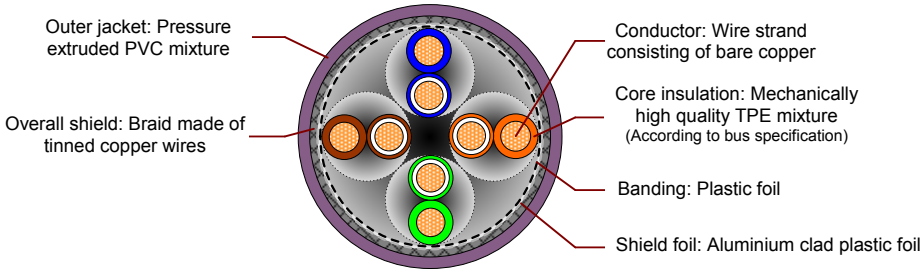
Electrical values:

Characteristic wave resistance: 150 ± 15 Ω (≥ 1 MHz) following DIN EN 50289-1-11

Construction table:

Part No.	Colour code		Cable construction
CF888.001	2x0,25	red, green	

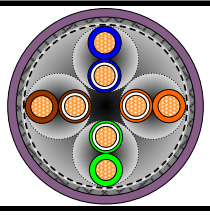
CF888.045 (Ethernet (CAT5e / GigE / PoE))



Electrical values:

Characteristic wave resistance: 100 ± 15 Ω (at 1 MHz to 250 MHz) following DIN EN 50289-1-11

Construction table:

Part No.	Colour code		Cable construction
CF888.045	4x(2x0,15)	whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown (According to EIA/TIA 568)	

(Back to overview or technical table)

Subject to misprints and errors.
Technical modifications are possible at any time.
Please refer regarding the availability of the items also the information in the latest chainflex® catalogue.

igus® chainflex® M CF888 +++ chainflex® cable works +++
Image exemplary
www.igus.de

Bus cable | PVC | chainflex® CF888

5 million Double strokes guaranteed

15 x d Bend radius, e-chain®

10 m Travel distance, e-chain®

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



Example image

Dynamic information

Bend radius	e-chain® linear	minimum 15 x d
	flexible	minimum 12 x d
	fixed	minimum 8 x d
Temperature	e-chain® linear	+5 °C up to +70 °C
	flexible	-5 °C up to +70 °C (following DIN EN 60811-504)
	fixed	-15 °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

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 PVC mixture, 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

Class 3.1.1.1

Basic 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

Flame retardant	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
UL/CSA	**CF888.001:** Style 1589 and 2560, 30 V, 60 °C **CF888.021-CF888.060:** Style 1598 and 2571, 30 V, 80 °C
NFPA	Following NFPA 79-2012, chapter 12.9
EAC	Certificate No. RU C-DE.ME77.B.01559 (TR ZU)
CTP	Certificate No. C-DE.PB49.B.00449 (Fire protection)
Lead-free	Following 2011/65/EC (RoHS-II)
CE	Following 2014/35/EU

Guaranteed service life (details see page 22-23)

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]
+5/+15	17.5	18.5	19.5
+15/+60	15	16	17
+60/+70	17.5	18.5	19.5

* Higher number of double strokes? Service life calculation online ▶ www.igus.co.uk/chainflexlife

Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- Without influence of oil, Class 1
- No torsion, Class 1
- Preferably indoor applications
- Wood/stone processing, Packaging industry, supply systems, Handling, adjusting equipment

Bus cable | PVC | chainflex® CF888

Class 3.1.1.1

Basic 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°

CF888
PVC
15 x d



Example image

Part No.	Number of cores and conductor nominal cross section	Outer diameter (d) max.	Copper index	Weight	Part No.	Characteristic wave impedance approx.	Core group	Colour code
	[mm²]	[mm]	[kg/km]	[kg/km]		[Ω]		
Profibus (1x2x0.64 mm)								
CF888.001	(2x0.25)C	8.0	18	61	**CF888.001**	150	(2x0.25)C	red, green
CAN-Bus								
CF888.021	(2x0.5)C	8.5	24	80	**CF888.021**	120	(2x0.5)C	white, brown
Ethernet/CAT5e								
CF888.045	(4x(2x0.14))C	7.5	25	66	**CF888.045**	100	(4x(2x0.14))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Profinet								
CF888.060 [2) 6)]	(4x0.34)C	7.0	25	56	**CF888.060** [2) 6)]	100	(4x0.34)C	white, orange, blue, yellow (Star-quad)

The chainflex® types marked with [2)] are cables designed as a star-quad.
[6)] Colour outer jacket: Yellow-green (RAL 6018)
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

Order example: CF888.045 – to your desired length (0.5 m steps)
CF888 chainflex® series .045 Code Bus type

Online order ▶ www.chainflex.co.uk/CF888

Delivery time 24hrs or today.
Delivery time means time until goods are shipped.

Technical note on bus cables
chainflex® bus cables have been specially developed and tested for continuously moving use in e-chains®. Depending on the material used for the outer jacket and on the underlying construction principle, the bus cables are designed for different mechanical requirements and resistance to different media. The cables have been electrically designed in such a way that, on the one hand, the electrical requirements of the respective bus specification are reliably met and, on the other, there is a high degree of EMC reliability.It is also ensured that the electrical values remain stable over the long term in spite of constant movement. The overall quality of transmission in a complete bus communication system, however, is not solely dependent on the cable used. What is also essential is that all components (electronic parts, connecting system and cable) are precisely matched to each other and that the maximum transmission lengths, which are dependent on the respective system, are adhered to with regard to the data transmission rates needed. A cable is thus not solely responsible for the reliable transmission of signals. igus® advises you when you are designing your bus system to take all these factors into account and, with its extensive tests, helps you to ensure the process reliability of your system from the very beginning.