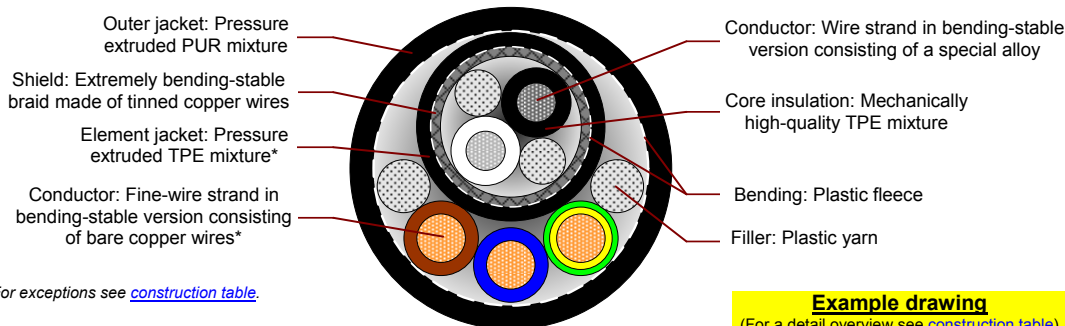


PUR - e-chain[®] - thermocouple cable for high load requirements (class 5.4.3): shielded, oil- and coolant-resistant, PVC- and halogen-free, hydrolysis- and microbe-resistant as well as notch-resistant.



Core design:

Conductor:	Thermocouples: Wire strand in bending-stable version consisting of a special alloy.
	Energy cores: Fine-wire strand in bending-stable version consisting of bare copper wires.
Core insulation:	Mechanically high-quality TPE mixture.
Core identification:	Thermocouples: In accordance with the IEC 584-3 colour code for thermocouples. (see colour code table)
	Energy cores: brown, blue & yellowgreen

Shield design:

Material:	Extremely bending-stable braid made of tinned copper wires.
Shield coverage:	Linear: approx. 70 % Optical: approx. 90 %

Jacket design:

Element jacket:	TPE mixture adapted to suit the requirements in e-chains [®] .
Outer jacket:	Low-adhesion mixture on the basis of PUR (following DIN VDE 0281-10), highly abrasion- and bending-stable, adapted to suit the requirements in e-chains [®] . - oil-resistant (following DIN EN 50363-10-2) - coolant-resistant - PVC- and halogen-free (following DIN EN 50267-2-1) - hydrolysis- and microbe-resistant - MUD-resistant (following NEK 606 - status 2009) - silicon-free (following PV 3.10.7 - status 1992) - lead-free (following 2011/65/EU (RoHS-II)) - clean room ISO class 1 (following DIN ISO 14644-1 tested by IPA) - UV-resistance: Medium

Colour outer jacket:	In accordance with the IEC 584-3 colour code for thermocouples. (see colour code table)
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Cable marking (Black or White):

„00000 m“*** igus chainflex CFTHERMO.-...^①^② Thermocouple

Type -^③ CE 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.: CFTHERMO.J.001: ⇒ ...chainflex CFTHERMO.J.001 (2x0,23)C Th...

③: Printing according to thermocouple type.

Ex.: CFTHERMO.J.001: ⇒ ...Thermocouple Type - J CE...

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.

Date	Author
26 Jun. 2014	D. Gorsberg

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**PUR - e-chain[®] - thermocouple cable for high load requirements (class 5.4.3):
shielded, oil- and coolant-resistant, PVC- and halogen-free, hydrolysis- and
microbe-resistant as well as notch-resistant.**

General mechanical values:
(for individual details see [technical table](#))

Double strokes *		5 million	
Temperature (from/to) [°C]	Travel distance (TD)	Min. bending radius for e-chain [®] use [Factor multiplied by outer diameter (d)]	
		TD < 10 m	TD ≥ 10 m
-20 / -10	≤ 50 m	15,0	17,5
-10 / +70		12,5	15,0
+70 / +80		15,0	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	-40 °C ←	-20 °C ←	-10 °C ↔ +70 °C	→ +80 °C
Min. bending radius for fixed installation	12,5 x d	10,0 x d	7,5 x d	10,0 x d
Torsion (at 1 m cable length)	---	±0 °	±30 °	±0 °

General electrical values:
(For individual details see [technical table](#))

Nominal voltage: Energy cores: 300 / 300 V (following DIN VDE 0245)
Test voltage: 1,5 kV
Guidelines: CE, EAC & TR (CTP)

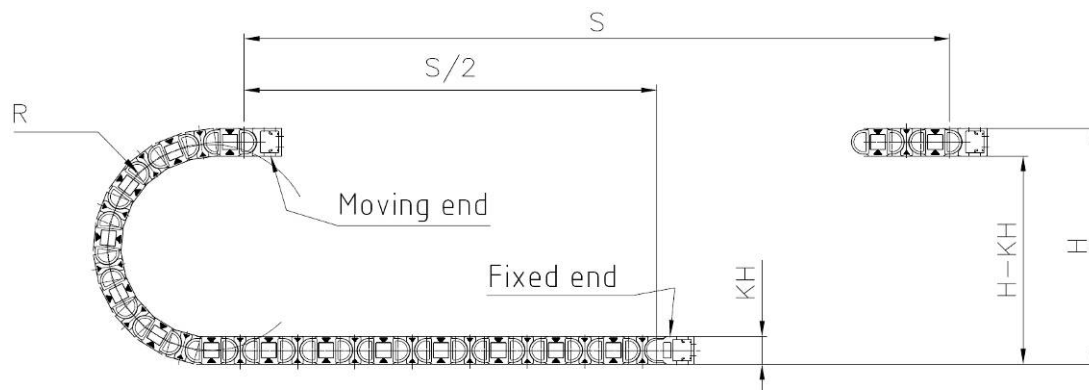
Dynamic values:

Max. speed in e-chain[®] use:*** Unsupported: v = 2 m / s Gliding (up to 50 m): v = 1 m / s
Max. acceleration in e-chain[®] use:*** a = 20 m / s²

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

Typical test setup for this cable group:

Test bending radius R: approx. 63 - 75 mm
Test travel S: approx. 1 - 15 m
Test period: min. 2 - 4 million double strokes
Test speed: approx. 0,5 - 2 m / s
Test acceleration: approx. 0,5 - 1,5 m / s²



e-chain[®] - thermocouple cable for high load requirements:

- highly abrasion-stable
- almost unlimited resistance to oil
- for unsupported travel distances and up to 50 m in gliding applications
- CE, RoHS-II, EAC & TR (CTP)

Typical application areas:

Indoor and outdoor applications with average sun radiation.
Machining units / machine tools, storage and retrieval units for high-bay warehouses, packaging industry, quick handling, refrigerating sector.

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PUR - e-chain® - thermocouple cable for high load requirements (class 5.4.3):
 shielded,oil- and coolant-resistant, PVC- and halogen-free, hydrolysis- and
 microbe-resistant as well as notch-resistant.

Technical tables:

Mechanical values:

① Part no.	② Number of cores & geometrical cross section [mm²]	External diameter (d)**** [max. mm]	Copper index [kg / km]	Weight [kg / km]
CFTHERMO.J.001	(2x0,23)C	5,5	9	36
CFTHERMO.K.001	(2x0,23)C	5,5	9	36
CFTHERMO.K.002	(2x0,23)C+3x0,5*****	7,5	26	67
CFTHERMO.T.002	(2x0,23)C+3x0,5*****	7,5	26	66

**** External diameters are maximum values and may tend toward lower tolerance limits.
 ***** The listed cross-section of the copper conductor is equivalent to the electrically effective cross-section.

Electrical values:

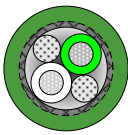
Nominal cross section [mm²]	Conductor resistance [approx. Ω / km] at 20 °C	Max. current rating [A] at 30 °C*
(following)	DIN EN 50289-1-2	DIN VDE 0298-4
0,23 (Fe)	620	
0,23 (CuNi)	2450	
0,23 (NiCr)	3270	
0,23 (Ni)	1230	
0,23 (Cu)	89	
0,5	40	10

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

IEC colour code for thermocouples:

Part No.	Thermocouple Type	Outer jacket colour	Terminal
CFTHERMO.J.00X	J	Jet Black (similar to RAL 9005)	+ : black (Fe)
			- : white (CuNi)
CFTHERMO.K.00X	K	Yellow green (similar to RAL 6018)	+ : green (NiCr)
			- : white (Ni)
CFTHERMO.T.00X	T	Clay brown (similar to RAL 8003)	+ : brown (Cu)
			- : white (CuNi)

Construction table:

Part no.	Cable construction	Part no.	Cable construction	Part no.	Cable construction
CFTHERMO.J.001		CFTHERMO.K.001			
		CFTHERMO.K.002		CFTHERMO.T.002	

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