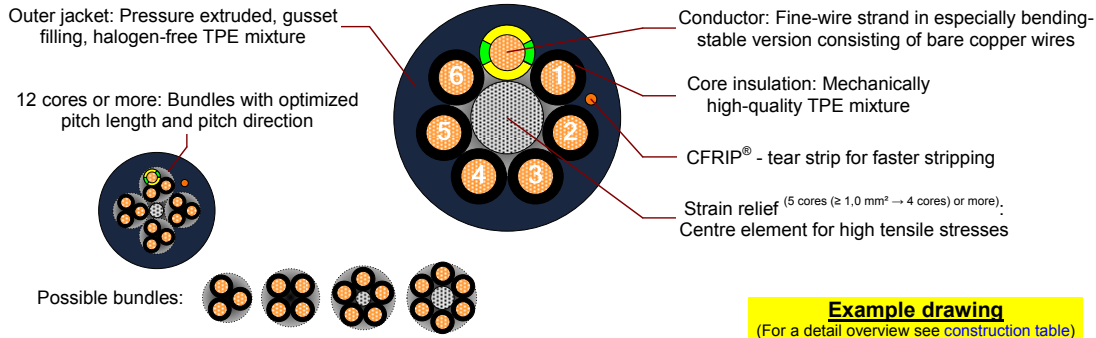


TPE - e-chain[®] - control cable for maximum load requirements (class 7.6.4): oil- and biooil-resistant, PVC- and halogen-free, hydrolysis- and microbe-resistant as well as UV-resistant.



Example drawing
(For a detail overview see [construction table](#))

Core design:

- Conductor:** Fine-wire strand in especially bending-stable version consisting of bare copper wires (following DIN EN 60228).
- Core insulation:** Mechanically high-quality TPE mixture.
- Core identification:** ≤ 0,5 mm²: Colour code in accordance with DIN 47100. (see [colour code table](#))
 ≥ 0,75 mm²: Black cores with white numerals & one core greenyellow*.
 * 3 cores and more. (Not CF9.15.06.O.PE)
 CF9.XX.XX.INI: Colour code in accordance to INI-Standard. (see [colour code table](#))

Jacket design:

- Outer jacket:** Low-adhesion mixture on the basis of TPE, especially abrasion-stable and highly bending-stable, adapted to suit the requirements in e-chains[®].
- oil-resistant (following DIN EN 60811-2-1)
 - biooil-resistant (following VDMA 24568 (tested by DEA with Plantocut 8 S-MB))
 - PVC- and halogen-free (following DIN EN 50267-2-1)
 - hydrolysis-resistant (following DIN VDE 0282 Part 10 - A)
 - microbe-resistant (following DIN EN 50396)
 - 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: High

Colour outer jacket: Steel blue (similar to RAL 5011)

Cable marking (White): „00000 m^{***} igus chainflex CF9.---.---^① ---^② 300/500V 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.: CF9.01.03: ⇒ ...igus chainflex CF9.01.03 3x0,14 300/500V...

General mechanical values:

(for individual details see [technical table](#))

Guaranteed lifetime for this series according to the "chainflex [®] guarantee club" conditions (see chainflex [®] catalogue and www.igus.eu/chainflex-guarantee)				
		5 million	7,5 million	10 million
Double strokes*				
Temperature (from/to) [°C]	Travel distance (TD)	Min. bending radius for e-chain [®] use [Factor multiplied by outer diameter (d)] (Ex.: CF9.01.03 at 20°C: 5,0 x 4,0 mm → Min. bending radius 20,0 mm)		
-35 / -25	> 400 m	6,8	7,5	8,5
-25 / +90		5,0	6,0	7,0
+90 / +100		6,8	7,5	8,5

*: 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 ←	-35 °C ←	-25 °C ↔ +90 °C	→ +100 °C
Min. bending radius for fixed installation	6,8 x d	5,0 x d	4,0 x d	5,0 x d
Torsion (at 1 m cable length)	---	±45 °	±90 °	±45 °

TPE - e-chain[®] - control cable for maximum load requirements (class 7.6.4): oil- and biooil-resistant, PVC- and halogen-free, hydrolysis- and microbe-resistant as well as UV-resistant.

General electrical values:

(for individual details see [technical table](#))

Nominal voltage:	Mainly:	300 / 500 V
	≥ 10,0 mm²:	450 / 750 V
	CF9.25.18:	600 / 1000 V
	⇒	following DIN VDE 0245
Test voltage:		2 kV (following VDE 0281-2)
Guidelines:		CE, EAC

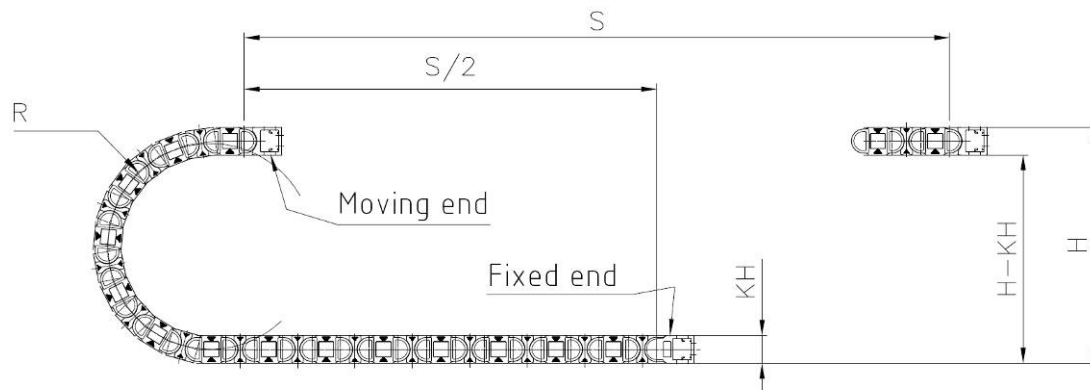
Dynamic values:

Max. speed for e-chain[®] use:***	Unsupported:	$v = 10 \text{ m / s}$	Gliding (up to 400 m and more):	$v = 6 \text{ m / s}$
Max. acceleration for e-chain[®] use:***		$a = 100 \text{ m / s}^2$		

*** 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. 18 - 125 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 / s ²



e-chain[®] - control cable for maximum load requirements:

- especially abrasion stable
- almost unlimited resistance to oil, also with biooils
- for unsupported travel distances and up to 400 m and more in gliding applications
- UV-resistant
- CE, RoHS-II, EAC

Typical application areas:

Indoor and outdoor applications.
Storage and retrieval units for high-bay warehouses, machining units / machine tools, quick handling, clean room, semiconductor insertion, ship to shore, outdoor cranes, low-temperature applications.

**TPE - e-chain® - control cable for maximum load requirements (class 7.6.4):
oil- and biooil-resistant, PVC- and halogen-free, hydrolysis- and microbe-
resistant as well as UV-resistant.**

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]
CF9.01.03	3x0,14	4,0	5	15
CF9.02.02	2x0,25	4,5	6	18
CF9.02.03.INI	3x0,25	4,5	8	22
CF9.02.06	6x0,25	5,5	16	37
CF9.02.07	7x0,25	6,5	19	44
CF9.02.08	8x0,25	6,5	22	50
CF9.02.12	12x0,25	8,0	32	73
CF9.02.18	18x0,25	9,5	48	105
CF9.02.20	20x0,25	9,5	53	111
CF9.02.25	25x0,25	11,0	66	144
CF9.02.30	30x0,25	11,5	80	170
CF9.03.04.INI	4x0,34	5,0	15	32
CF9.03.05.INI	5x0,34	5,5	18	38
CF9.03.06	6x0,34	6,0	22	45
CF9.03.08	8x0,34	7,0	29	59
CF9.03.16.07.03.INI	4x(4x0,34)+(3x0,75)	11,0	82	159
CF9.05.02	2x0,5	5,0	11	26
CF9.05.03	3x0,5	5,0	16	32
CF9.05.04	4x0,5	5,5	22	40
CF9.05.05	5x0,5	6,0	27	48
CF9.05.07	7x0,5	7,0	37	66
CF9.05.12	12x0,5	10,0	64	120
CF9.05.18	18x0,5	11,5	96	177
CF9.05.25	25x0,5	13,0	132	236
CF9.05.36	36x0,5	15,5	191	334
CF9.07.04	4G0,75	6,0	32	55
CF9.07.05	5G0,75	6,5	40	68
CF9.07.07	7G0,75	8,0	56	94
CF9.07.12	12G0,75	11,0	96	170
CF9.07.20	20G0,75	13,5	159	267
CF9.07.25	25G0,75	14,5	198	329
CF9.10.03	3G1,0	6,0	32	54
CF9.10.04	4G1,0	6,5	43	69
CF9.10.05	5G1,0	7,5	53	84
CF9.10.12	12G1,0	12,0	127	214
CF9.10.18	18G1,0	14,5	191	314
CF9.10.25	25G1,0	17,0	264	450

↪ (Table continuous on next page)

**** G ⇒ Cable contains a greenyellow core.

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

Subject to misprints and errors. Technical modifications are possible at any time.
Maybe older batches do not have all or other features.

Please refer regarding the availability of the items especially the information in the latest chainflex® catalogue.

Date	Author
16 Jul. 2014	D. Borsberg

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TPE - e-chain[®] - control cable for maximum load requirements (class 7.6.4):
oil- and biooil-resistant, PVC- and halogen-free, hydrolysis- and microbe-
resistant as well as UV-resistant.

① Part no.	② Number of cores & nominal cross section [mm ²] ^{****}	External diameter (d) ^{*****} [max. mm]	Copper index [kg / km]	Weight [kg / km]
CF9.15.02	2x1,5	6,5	32	60
CF9.15.04	4G1,5	7,5	64	90
CF9.15.05	5G1,5	8,0	81	110
CF9.15.06.O.PE	6x1,5	9,0	96	140
CF9.15.07^{*****}	7G1,5	9,5	114	151
CF9.15.12	12G1,5	13,5	191	290
CF9.15.18	18G1,5	16,5	286	445
CF9.15.25	25G1,5	20,0	396	632
CF9.15.36	36G1,5	23,5	571	839
CF9.25.04	4G2,5	9,0	106	152
CF9.25.05	5G2,5	10,0	132	197
CF9.25.07^{*****}	7G2,5	12,0	187	245
CF9.25.12	12G2,5	17,5	317	515
CF9.25.16	16G2,5	19,5	423	687
CF9.25.18	18G2,5	23,0	476	830
CF9.25.25	25G2,5	24,5	660	1059
CF9.40.04	4G4,0	10,5	170	229
CF9.40.05	4G5,0	11,5	212	285
CF9.60.04	4G6,0	12,5	254	332
CF9.60.05	5G6,0	13,5	317	410
CF9.100.04	4G10,0	16,5	423	580
CF9.160.04	4G16,0	18,0	528	719
CF9.350.04	4G35,0	28,0	1479	1769

**** G ⇒ Cable contains a green/yellow core.

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

***** Using the cables with "7G1,5 mm²" and "7G2,5 mm²" it is essential: Travel distance ≥ 5m ⇒ bending radius ≥ 17 x d

Electrical values:

Nominal cross section [mm ²] (following)	Conductor resistance [approx. Ω / km] at 20 °C		Max. current rating [A] at 30 °C*
	DIN IEC 60344		
0,14		138	2,5
0,25		79	5
0,34		57	7
0,5		39	10
0,75		26	14
1,0		19,5	17
1,5		13,3	21
2,5		8	30
4,0		4,45	41
6,0		3,3	53
10,0		1,91	74
16,0		1,21	99
35,0		0,554	162

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

TPE - e-chain[®] - control cable for maximum load requirements (class 7.6.4):
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resistant as well as UV-resistant.

DIN 47100 colour code:

No.	Colour	No.	Colour	No.	Colour
01	white	22	brownblue	43	blueblack
02	brown	23	whitered	44	redblack
03	green	24	brownred	45	whitebrownblack
04	yellow	25	whiteblack	46	yellowgreenblack
05	grey	26	brownblack	47	greypinkblack
06	pink	27	greygreen	48	redblueblack
07	blue	28	yellowgrey	49	whitegreenblack
08	red	29	pinkgreen	50	browngreenblack
09	black	30	yellowpink	51	whiteyellowblack
10	violet	31	greenblue	52	yellowbrownblack
11	greypink	32	yellowblue	53	whitegreyblack
12	redblue	33	greenred	54	greybrownblack
13	whitegreen	34	yellowred	55	whitepinkblack
14	browngreen	35	greenblack	56	pinkbrownblack
15	whiteyellow	36	yellowblack	57	whiteblueblack
16	yellowbrown	37	greyblue	58	brownblueblack
17	whitegrey	38	pinkblue	59	whiteredblack
18	greybrown	39	greyred	60	brownredblack
19	whitepink	40	pinkred	61	blackwhite
20	pinkbrown	41	greyblack		
21	whiteblue	42	pinkblack		





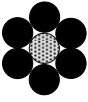
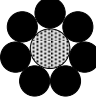
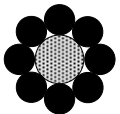
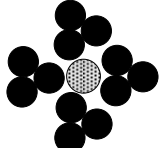
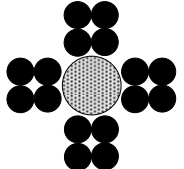
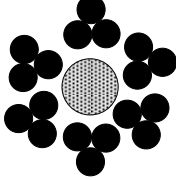
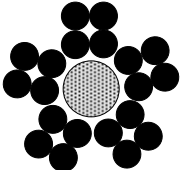
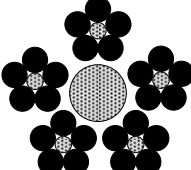
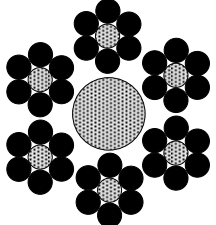
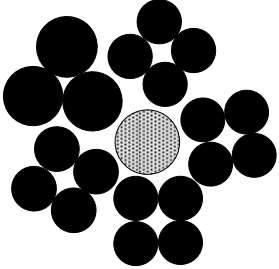
INI Standard colour code:

Part no.	Colour code
CF9.02.03.INI	brown, blue, black
CF9.03.04.INI	brown, blue, black, white
CF9.03.05.INI	brown, blue, black, white, greenyellow
CF9.03.16.07.03.INI	0,34 mm ² : violet/red/grey/redblue, green/greypink/whitegreen/whiteyellow, whitegrey/black/yellowbrown/browngreen, white/yellow/pink/greybrown 0,75 mm ² : brown/blue/greenyellow



TPE - e-chain[®] - control cable for maximum load requirements (class 7.6.4):
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resistant as well as UV-resistant.

Construction table:

Part no.	Core stranding	Part no.	Core stranding
No. of cores		No. of cores	
CF9.XX.02		CF9.XX.03 / .INI	
2		3	
CF9.XX.04 / .INI		CF9.XX.05 / .INI	
4		5	
CF9.XX.06 / .O.PE		CF9.XX.07	
6		7	
CF9.XX.08		CF9.XX.12	
8		4x3	
CF9.XX.16		CF9.XX.18	
4x4		6x3	
CF9.XX.20		CF9.XX.25	
5x4		5x5	
CF9.XX.36		CF9.03.16.07.03.INI	
6x6		4x4x0,34+3x0,75	

