TPE Control cable | CF9

Image exemplary.

- For maximum mechanical load requirements
- TPE outer jacket
- Oil-resistant
- Bio-oil-resistant
- PVC-free/halogen-free
- Low-temperature-flexibility
- Hydrolysis/microbe-resistant

CFRIP® Strip cables 50 % faster

DESIGN AWARD 2016

Dynamic Information

Bend radius	**E-Chain®**	min. 5 x d
	flexible	min. 4 x d
	fixed	min. 3 x d
Temperature	**E-Chain®**	-31 °F to +212 °F (-35 °C to +100 °C)
	flexible	-58 °F to +212 °F (-50 °C to +100 °C)
	fixed	-67 °F to +212 °F (-55 °C to +100 °C)
v max.	**unsupported**	32.81 ft/s (10 m/s)
	gliding	19.69 ft/s (6 m/s)
a max.		328.1 ft/s² (100 m/s²)
Travel distance		Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6
Torsion		± 90°, with 3.281 ft (1 m) cable length

Cable structure

Conductor Conductor consisting of bare copper wires (according to EN 60228).

Conductor insulation Mechanically high-quality TPE mixture.

Conductor construction
No. of conductors < 12: Conductors cabled in a layer with short pitch length.
No. of conductors ≥ 12: Conductors combined in bundles and cabled together around a high-tensile strength core, using short pitch lengths and specific pitch directions for a low-torsion cable structure.

Color code
24-20 AWG: Color code in accordance with DIN 47100.
18-2 AWG: Black with white numbers, one conductor green-yellow.
CF9-02-03-INI: brown, blue, black
CF9-03-04-INI: brown, blue, black, white
CF9-02-05-INI: brown, blue, black, white, green-yellow
CF9-03-16-07-03-INI:
(22 AWG): violet/red/gray/red-blue, green/gray-pink/white-green/white-yellow, white-gray/black/yellow-brown/brown-green, white/yellow/pink/gray-brown
(18 AWG): blue/green-yellow/brown

Outer jacket Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in E-Chains®. Color: Dark Blue (RAL 5011)

CFRIP® Strip cables 50% faster: The tear strip is in the outer jacket
Video ▶ www.igus.com/CFRIP

Class 7.6.4.2

Requirements	low	1	2	3	4	5	6	**7**	highest
Travel distance	unsupported	1	2	3	4	5	**6**	1,312 ft +	
Oil-resistance	none	1	2	3	**4**	highest			
Torsion	none	1	**2**	3	±180°				

Electrical Information

Nominal voltage 300 V

Testing voltage 2000 V (following DIN EN 50396)

Properties and approvals

UV resistance High

Oil resistance Oil resistant (following DIN EN 60811-404), bio-oil resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4

Silicon-free Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)

Halogen-free Following EN 50267-2-1

EAC Certified according to no. TC RU C-DE.ME77.B.01254

Lead-free Following 2011/65/EC (RoHS-II)

Cleanroom According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1

CE Following 2014/35/EG

Guaranteed lifetime according to guarantee conditions (Page 22-25)

Cycles*					5 million	7.5 million	10 million
Temperature, from/to [°F]	v max. [ft/s] unsupported	v max. [ft/s] gliding	a max. [ft/s^2]	Travel distance [ft]	*R* min. [factor x d]	*R* min. [factor x d]	*R* min. [factor x d]
-31 / -13	32.81	19.69	328.1	> 1312	6.8	7.5	8.5
-13 / +194					5	6	7
+194 / +212					6.8	7.5	8.5

* Higher number of cycles possible - please ask for your individual calculation.

Typical application areas

- For maximum mechanical load requirements
- Indoor and outdoor applications, UV-resistant
- Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more
- 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

Test data ▶ Page 58

TPE Control cable | CF9

Class 7.6.4.2

Requirements	low	1 2 3 4 5 6 **7** highest
Travel distance	unsupported	1 2 3 4 5 **6** 1,312 ft +
Oil-resistance	none	1 2 3 **4** highest
Torsion	none	1 **2** 3 ±180°

CF9
TPE
5 x d

Strip cables 50 % faster

Image exemplary.

Part No.	AWG	Number of conductors and rated cross section [mm²]	Outer diameter max.		Copper index		Weight	
			in.	mm	lbs/mft	kg/km	lbs/mft	kg/km
CF9-02-02	24	2 x 0.25	0.18	4.5	4.0	6	12.1	18
CF9-02-03-INI	24	3 x 0.25	0.18	4.5	5.4	8	14.8	22
CF9-02-06	24	6 x 0.25	0.22	5.5	10.8	16	24.9	37
CF9-02-07	24	7 x 0.25	0.26	6.5	12.8	19	29.6	44
CF9-02-08	24	8 x 0.25	0.26	6.5	14.8	22	33.6	50
CF9-02-12	24	12 x 0.25	0.31	8.0	21.5	32	49.1	73
CF9-02-18 [1)]	24	18 x 0.25	0.37	9.5	32.3	48	70.6	105
CF9-02-20	24	20 x 0.25	0.37	9.5	35.6	53	74.6	111
CF9-03-04-INI	22	4 x 0.34	0.20	5.0	10.1	15	21.5	32
CF9-03-05-INI	22	5 x 0.34	0.22	5.5	12.1	18	25.5	38
CF9-03-06	22	6 x 0.34	0.24	6.0	14.8	22	30.2	45
CF9-03-08	22	8 x 0.34	0.28	7.0	19.5	29	39.6	59
CF9-03-16-07-03-INI	22	16 x 0.34	0.43	11.0	55.1	82	106.8	159
	18	3 x 0.75						
CF9-05-02	20	2 x 0.5	0.20	5.0	7.4	11	17.5	26
CF9-05-03	20	3 x 0.5	0.20	5.0	10.8	16	21.5	32
CF9-05-04	20	4 x 0.5	0.22	5.5	14.8	22	26.9	40
CF9-05-05	20	5 x 0.5	0.24	6.0	18.1	27	32.3	48
CF9-05-07	20	7 x 0.5	0.28	7.0	24.9	37	44.3	66
CF9-05-12	20	12 x 0.5	0.39	10.0	43.0	64	80.6	120
CF9-05-18	20	18 x 0.5	0.45	11.5	64.5	96	118.9	177
CF9-05-25	20	25 x 0.5	0.51	13.0	88.7	132	158.6	236
CF9-05-36	20	36 x 0.5	0.61	15.5	128.3	191	224.4	334
CF9-07-04 [1)]	18	4 G 0.75	0.24	6.0	21.5	32	37.0	55
CF9-07-05	18	5 G 0.75	0.26	6.5	26.9	40	45.7	68
CF9-07-07	18	7 G 0.75	0.31	8.0	37.6	56	63.2	94
CF9-07-12	18	12 G 0.75	0.43	11.0	64.5	96	114.2	170
CF9-07-20	18	20 G 0.75	0.53	13.5	106.8	159	179.4	267
CF9-07-25	18	25 G 0.75	0.57	14.5	133.0	198	221.1	329
CF9-10-03	17	3 G 1.0	0.24	6.0	21.5	32	36.3	54
CF9-10-04	17	4 G 1.0	0.26	6.5	28.9	43	46.4	69
CF9-10-05	17	5 G 1.0	0.30	7.5	35.6	53	56.4	84
CF9-10-12	17	12 G 1.0	0.47	12.0	85.3	127	143.8	214
CF9-10-18	17	18 G 1.0	0.57	14.5	128.3	191	211.0	314
CF9-10-25	17	25 G 1.0	0.67	17.0	177.4	264	302.4	450

[1)] Delivery time upon request
Note: The mentioned outer diameters are maximum values.
G = with green-yellow earth core **x =** without earth core

Part No.	AWG	Number of conductors and rated cross section [mm²]	Outer diameter max.		Copper index		Weight	
			in.	mm	lbs/mft	kg/km	lbs/mft	kg/km
CF9-15-02	16	2 x 1.5	0.26	6.5	21.5	32	40.3	60
CF9-15-04	16	4 G 1.5	0.30	7.5	43.0	64	60.5	90
CF9-15-05	16	5 G 1.5	0.31	8.0	54.4	81	73.9	110
CF9-15-07 [17)]	16	7 G 1.5	0.37	9.5	76.6	114	101.5	151
CF9-15-12	16	12 G 1.5	0.53	13.5	128.3	191	194.9	290
CF9-15-18	16	18 G 1.5	0.65	16.5	192.2	286	277.5	413
CF9-15-25	16	25 G 1.5	0.79	20.0	266.1	396	424.7	632
CF9-15-36	16	36 G 1.5	0.93	23.5	383.7	571	563.8	839
CF9-25-04	14	4 G 2.5	0.35	9.0	71.2	106	102.1	152
CF9-25-05	14	5 G 2.5	0.39	10.0	88.7	132	132.4	197
CF9-25-07 [17)]	14	7 G 2.5	0.47	12.0	125.7	187	164.6	245
CF9-25-12	14	12 G 2.5	0.69	17.5	213.0	317	346.1	515
CF9-25-16	14	16 G 2.5	0.77	19.5	284.2	423	461.6	687
CF9-25-18 [7)]	14	18 G 2.5	0.91	23.0	319.9	476	557.7	830
CF9-25-25	14	25 G 2.5	0.96	24.5	443.5	660	711.6	1059
CF9-40-04	12	4 G 4.0	0.41	10.5	114.2	170	153.9	229
CF9-60-04	10	4 G 6.0	0.49	12.5	170.7	254	223.1	332
CF9-60-05	10	5 G 6.0	0.53	13.5	213.0	317	275.5	410
CF9-100-04	8	4 G 10.0	0.65	16.5	284.2	423	389.7	580
CF9-160-04	6	4 G 16.0	0.71	18.0	354.8	528	483.1	719
CF9-350-04	2	4 G 35.0	1.10	28.0	993.8	1479	1188.7	1769

[7)] Nominal voltage 600/1000 V [9)] Nominal voltage 450/750 V
[17)] Using the cables with "7 G 1.5 mm²" and "7 G 2.5 mm²" it is essential: bending radius 17 x d with travel distance ≥ 5 m.
When the travel distance is not less than 5 m, a bending radius not less than 17 x d has to be used.
Note: The mentioned outer diameters are maximum values.
G = with green-yellow earth core **x =** without earth core

Order example: CF9-25-04 – In your desired length
CF9 Chainflex® series -25 Code nominal cross section -04 Number of conductors

Online order: www.chainflex.com/CF9

Delivery time 24hr or today.
Delivery time means time until shipping of goods.

Configurators ▶ www.igus.com/CF9