

Control cable | TPE | Chainflex® CF9-UL







36 10,000,000
Cycles guaranteed

5 x d
Bend radius E-Chain®







1312 ft
Travel distance E-Chain®

- For very high mechanical load requirements
- TPE outer jacket
- Oil and bio-oil resistant
- Flame retardant
- PVC-free
- Low-temperature-flexibility
- Hydrolysis and microbe-resistant

Dynamic Information

	Bend radius	E-Chain® linear	min. 5 x d
		flexible	min. 4 x d
		fixed	min. 3 x d
	Temperature	E-Chain® linear	-31 °F to +212 °F (-35 °C to +100 °C)
		flexible	-49 °F to +212 °F (-45 °C to +100 °C)
		fixed	-58 °F to +212 °F (-50 °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 3.281ft (1m) cable length, Class 2

Cable structure

	Conductors	Conductor consisting of bare copper wires (according to DIN EN 60228).
	Conductor insulation	Mechanically high-quality TPE mixture.
	Conductor construction	Number of conductors < 12: Conductors cabled in a layer with short pitch length. Number of conductors ≥ 12: Conductors combined in bundles and stranded together around a high-tensile strength core, using short pitch directions for a low-torsion cable structure.
	Color code	24-20 AWG: Color code in accordance with DIN 47100. 18-10 AWG: Black with white numbers, one conductor green-yellow. CF9-UL-02-03-INI: brown, blue, black CF9-UL-03-04-INI: brown, blue, black, white CF9-UL-03-05-INI: brown, blue, black, white, green-yellow
	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: Gray (similar to RAL 7015)
	CFRIP®	Strip 50% faster: a tear strip is molded into the outer jacket Video ► www.igus.com/CFRIP

Electrical Information

	Nominal voltage	24-22AWG: 300V 20-10AWG: 1000V
	Test voltage	2000 V (following DIN EN 50395)

Example image














Class 6.6.4.2

Basic requirements
 Travel distance
 Oil resistance
 Torsion

low	1	2	3	4	5	6	7	highest
unsupported	1	2	3	4	5	6	1,312 ft +	
none	1	2	3	4	highest			
none	1	2	3	±180°				

CF9-UL
 TPE
 5 x d

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
	Flame resistance	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	24-22 AWG: Style 10479 and 21529, 300 V, +90 °C 20-10 AWG: Style 10258 and 21387, 1000 V, +90 °C
	NFPA 79	Complies to NFPA 79-2018 chapter 12.9.
	DNV-GL	Type approval certificate No. 61 935-14 HH
	EAC	Certificate No. RU C-DE.ME77.B.01254 (TR ZU)
	CTP	Certificate No. C-DE.PB49.B.00416 (Fire protection)
	CEI	Following CEI 20-35
	Lead-free	Following 2011/65/EC (RoHS-II)
	Clean room	According to ISO Class 1. The outer jacket material of this series complies with CF34.UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1
	CE	Following 2014/35/EU

Guaranteed service life (details see page 22-23)

Cycles*	5 million	7.5 million	10 million
Temperature, from/to [°F]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-31/-13	6.8	7.5	8.5
-13/+194	5	6	7
+194/+212	6.8	7.5	8.5

* Higher number of cycles? Online lifetime calculation ► www.chainflex.com/chainflexlife

Typical application areas

- For maximum mechanical load requirements, Class 6
- Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ± 90°, with 3.281ft (1m) cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- 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



Control cable | TPE | Chainflex® CF9-UL

Strip cables 50% faster



igus® chainflex® CF9.UL

Example image

Part No.	AWG	Number of Conductors and rated cross section	Outer diameter max.		Copper index		Weight	
			[mm²]	[in.]	[mm]	[lbs/mft]	[kg/km]	[lbs/mft]
CF9-UL-02-02	24	2 x 0.25	0.20	5.0	3.4	5	18.8	28
CF9-UL-02-03-INI	24	3 x 0.25	0.22	5.5	5.4	8	21.5	32
CF9-UL-02-04	24	4 x 0.25	0.22	5.5	6.7	10	24.9	37
CF9-UL-02-06	24	6 x 0.25	0.26	6.5	10.1	15	32.3	48
CF9-UL-02-08	24	8 x 0.25	0.30	7.5	13.4	20	42.3	63
CF9-UL-02-12	24	12 x 0.25	0.33	8.5	20.2	30	62.5	93
CF9-UL-03-04-INI	22	4 x 0.34	0.24	6.0	9.4	14	28.2	42
CF9-UL-03-05-INI	22	5 x 0.34	0.26	6.5	11.4	17	34.9	52
CF9-UL-03-06	22	6 x 0.34	0.26	6.5	14.1	21	37.6	56
CF9-UL-03-08	22	8 x 0.34	0.30	7.5	18.8	28	49.7	74
CF9-UL-05-02	20	2 x 0.5	0.24	6.0	6.7	10	28.2	42
CF9-UL-05-03	20	3 x 0.5	0.26	6.5	10.1	15	34.3	51
CF9-UL-05-04	20	4 x 0.5	0.28	7.0	13.4	20	39.6	59
CF9-UL-05-05	20	5 x 0.5	0.30	7.5	16.8	25	46.4	69
CF9-UL-05-07	20	7 x 0.5	0.33	8.5	23.5	35	63.2	94
CF9-UL-05-12	20	12 x 0.5	0.45	11.5	40.3	60	112.2	167
CF9-UL-05-18	20	18 x 0.5	0.53	13.5	60.5	90	157.2	234
CF9-UL-05-25	20	25 x 0.5	0.57	14.5	83.3	124	193.5	288
CF9-UL-05-36 ¹¹⁾	20	36 x 0.5	0.73	18.5	119.6	178	301.0	448
CF9-UL-07-05	18	5 G 0.75	0.31	8.0	25.5	38	63.2	94
CF9-UL-07-07	18	7 G 0.75	0.37	9.5	35.6	53	87.4	130
CF9-UL-07-12	18	12 G 0.75	0.51	13.0	60.5	90	153.2	228
CF9-UL-07-25	18	25 G 0.75	0.65	16.5	125.0	186	274.2	408
CF9-UL-10-03	17	3 G 1.0	0.30	7.5	20.2	30	51.7	77
CF9-UL-10-04	17	4 G 1.0	0.31	8.0	26.9	40	63.2	94
CF9-UL-10-12	17	12 G 1.0	0.55	14.0	80.0	119	184.8	275
CF9-UL-10-18	17	18 G 1.0	0.65	16.5	119.6	178	264.1	393
CF9-UL-10-25	17	25 G 1.0	0.73	18.5	166.6	248	352.1	524
CF9-UL-15-04	16	4 G 1.5	0.35	9.0	40.3	60	82.0	122
CF9-UL-15-05	16	5 G 1.5	0.37	9.5	50.4	75	98.1	146
CF9-UL-15-07 ¹⁷⁾	16	7 G 1.5	0.45	11.5	69.9	104	133.7	199
CF9-UL-15-12	16	12 G 1.5	0.63	16.0	119.6	178	250.0	372
CF9-UL-15-18	16	18 G 1.5	0.75	19.0	179.4	267	359.5	535
CF9-UL-15-25	16	25 G 1.5	0.87	22.0	249.3	371	491.2	731

¹¹⁾ Phase-out model

¹⁷⁾ When using the cables with "7 G 1.5 mm²" and "7 G 2.5 mm²" minimum bend radius must be 17.5 x d with gliding travel distance ≥ 5 m.

Note: The given outer diameters are maximum values.

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

Class 6.6.4.2

Basic requirements
Travel distance
Oil resistance
Torsion

low	1	2	3	4	5	6	7	highest
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CF9-UL
TPE
5 x d



Part No.	AWG	Number of Conductors and rated cross section	Outer diameter max.		Copper index		Weight	
			[in.]	[mm]	[lbs/mft]	[kg/km]	[lbs/mft]	[kg/km]
CF9-UL-25-04	14	4 G 2.5	0.41	10.5	67.2	100	126.3	188
CF9-UL-25-05	14	5 G 2.5	0.43	11.0	83.3	124	155.2	231
CF9-UL-25-07 ¹⁷⁾	14	7 G 2.5	0.53	13.5	116.9	174	213.0	317
CF9-UL-25-12	14	12 G 2.5	0.75	19.0	199.6	297	403.2	600
CF9-UL-25-18	14	18 G 2.5	0.94	24.0	299.0	445	596.0	887
CF9-UL-25-25	14	25 G 2.5	1.06	27.0	411.2	612	773.4	1151
CF9-UL-40-04	12	4 G 4.0	0.47	12.0	106.8	159	175.4	261
CF9-UL-60-04 ¹¹⁾	10	4 G 6.0	0.55	14.0	159.9	238	244.6	364

¹¹⁾ Phase-out model

¹⁷⁾ When using the cables with "7 G 1.5 mm²" and "7 G 2.5 mm²" minimum bend radius must be 17.5 x d with gliding travel distance ≥ 5 m.

Note: The given outer diameters are maximum values.
G = with green-yellow earth core x = without earth core



Order example: **CF9-UL-02-02** – To your desired length

CF9-UL Chainflex® series -02 Code nominal cross section -02 Number of conductors

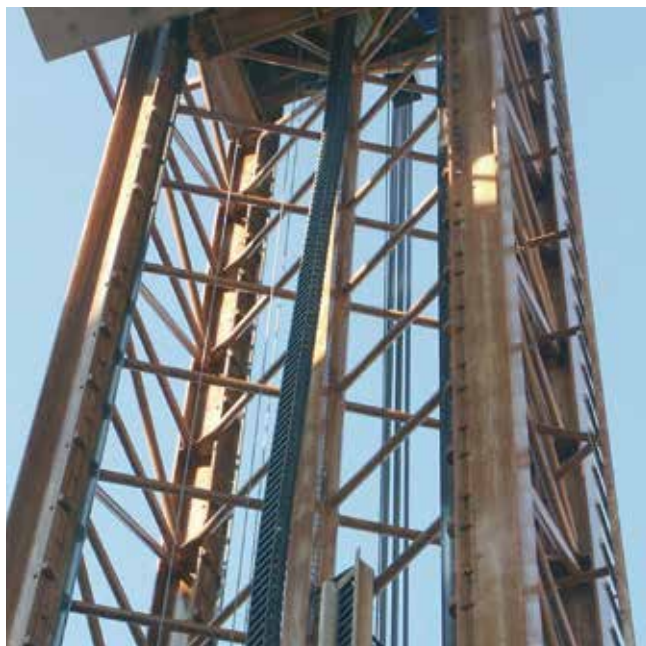


Online order ► www.chainflex.com/CF9-UL



Delivery time 24hrs or today.

Delivery time means time until goods are shipped.



igus® Chainflex® cables in a drilling application.

