

# Control cable | TPE | Chainflex® CF10-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
- Shielded
- Oil and bio-oil resistant
- Flame retardant
- PVC-free
- Low-temperature-flexibility
- Hydrolysis and microbe-resistant

## Dynamic Information

 <b>Bend radius</b>	<b>E-Chain® linear</b>	min. 5 x d
	<b>flexible</b>	min. 4 x d
	<b>fixed</b>	min. 3 x d
 <b>Temperature</b>	<b>E-Chain® linear</b>	-31 °F to +212 °F (-35 °C to +100 °C)
	<b>flexible</b>	-49 °F to +212 °F (-45 °C to +100 °C)
	<b>fixed</b>	-58 °F to +212 °F (-50 °C to +100 °C)
 <b>v max.</b>	<b>unsupported</b>	32.81 ft/s (10 m/s)
	<b>gliding</b>	19.69 ft/s (6 m/s)
 <b>a max.</b>		328.1 ft/s <sup>2</sup> (100 m/s <sup>2</sup> )
 <b>Travel distance</b>		Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6

## Cable structure

 <b>Conductors</b>	Conductor consisting of bare copper wires (according to DIN EN 60228).
 <b>Conductor insulation</b>	Mechanically high-quality TPE mixture.
 <b>Conductor construction</b>	<b>Number of conductors &lt; 12:</b> Conductors cabled in a layer with short pitch length. <b>Number of conductors ≥ 12:</b> Conductors combined in bundles and stranded together around a high-tensile strength core, using short pitch directions for a low-torsion cable structure.
 <b>Color code</b>	<b>24-20 AWG:</b> Color code in accordance with DIN 47100. <b>18-12 AWG:</b> Black with white numbers, one conductor green-yellow.
 <b>Inner jacket</b>	TPE mixture adapted to suit the requirements in E-Chains®.
 <b>Overall shield</b>	Extremely bending-resistant tinned copper braid. 90 % optical coverage
 <b>Outer jacket</b>	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)
 <b>CFRIP®</b>	Strip 50% faster: a tear strip is molded into the inner jacket Video ► <a href="http://www.igus.com/CFRIP">www.igus.com/CFRIP</a>

## Electrical Information














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

Example image

Basic 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°				

# Class 6.6.4.1

## Properties and approvals

 <b>UV resistance</b>	High
 <b>Oil resistance</b>	Oil resistant (following DIN EN 60811-404), bio-oil resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
 <b>Flame resistance</b>	According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
 <b>Silicone-free</b>	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
 <b>UL/CSA</b>	<b>24 AWG:</b> Style 10479 and 21529, 300 V, +90 °C <b>20-12 AWG:</b> Style 10258 and 21387, 1000 V, +90 °C
 <b>NFPA 79</b>	Complies to NFPA 79-2018 chapter 12.9.
 <b>DNV-GL</b>	Type approval certificate No. 61 935-14 HH
 <b>EAC</b>	Certificate No. RU C-DE.ME77.B.01254 (TR ZU)
 <b>CTP</b>	Certificate No. C-DE.PB49.B.00416 (Fire protection)
 <b>CEI</b>	Following CEI 20-35
 <b>Lead-free</b>	Following 2011/65/EC (RoHS-II)
 <b>Clean room</b>	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
 <b>CE</b>	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](http://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
- 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



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Strip cables 50% faster



Example image

Part No.	AWG	Number of Conductors and rated cross section	Outer diameter max.		Copper index		Weight	
			[mm <sup>2</sup> ]	[in.]	[mm]	[lbs/mft]	[kg/km]	[lbs/mft]
CF10-UL-02-04	24	4 x 0.25	0.28	7.0	17.5	26	45.0	67
CF10-UL-02-08	24	8 x 0.25	0.35	9.0	26.2	39	68.5	102
CF10-UL-02-12	24	12 x 0.25	0.41	10.5	44.3	66	104.2	155
CF10-UL-02-25	24	25 x 0.25	0.51	13.0	75.3	112	169.3	252
CF10-UL-05-04	20	4 x 0.5	0.33	8.5	26.2	39	65.2	97
CF10-UL-05-05	20	5 x 0.5	0.35	9.0	30.2	45	73.2	109
CF10-UL-05-12	20	12 x 0.5	0.51	13.0	73.9	110	168.7	251
CF10-UL-05-25	20	25 x 0.5	0.65	16.5	128.3	191	273.5	407
CF10-UL-07-03 <sup>11)</sup>	18	3 G 0.75	0.33	8.5	28.2	42	69.9	104
CF10-UL-07-04	18	4 G 0.75	0.35	9.0	34.3	51	80.6	120
CF10-UL-07-05	18	5 G 0.75	0.39	10.0	47.7	71	102.1	152
CF10-UL-07-07	18	7 G 0.75	0.43	11.0	63.2	94	132.4	197
CF10-UL-07-12	18	12 G 0.75	0.57	14.5	99.5	148	223.1	332
CF10-UL-07-20	18	20 G 0.75	0.67	17.0	147.8	220	313.8	467
CF10-UL-07-25	18	25 G 0.75	0.75	19.0	193.5	288	401.8	598
CF10-UL-10-02	17	2 x 1.0	0.33	8.5	26.9	40	69.2	103
CF10-UL-10-03	17	3 G 1.0	0.35	9.0	33.6	50	79.3	118
CF10-UL-10-04	17	4 G 1.0	0.39	10.0	49.7	74	102.8	153
CF10-UL-10-05	17	5 G 1.0	0.41	10.5	58.5	87	118.3	176
CF10-UL-10-07	17	7 G 1.0	0.47	12.0	75.9	113	155.2	231
CF10-UL-10-12 <sup>11)</sup>	17	12 G 1.0	0.59	15.0	127.0	189	255.3	380
CF10-UL-10-18	17	18 G 1.0	0.75	19.0	190.2	283	381.0	567
CF10-UL-10-25	17	25 G 1.0	0.85	21.5	245.3	365	502.0	747
CF10-UL-15-04	16	4 G 1.5	0.41	10.5	65.9	98	127.0	189
CF10-UL-15-05	16	5 G 1.5	0.45	11.5	77.9	116	148.5	221
CF10-UL-15-07 <sup>17)</sup>	16	7 G 1.5	0.51	13.0	103.5	154	194.2	289
CF10-UL-15-12	16	12 G 1.5	0.71	18.0	168.7	251	340.0	506
CF10-UL-15-18	16	18 G 1.5	0.85	21.5	260.1	387	500.6	745
CF10-UL-25-04	14	4 G 2.5	0.47	12.0	97.4	145	178.7	266
CF10-UL-25-07 <sup>17)</sup>	14	7 G 2.5	0.59	15.0	157.2	234	285.6	425
CF10-UL-25-12	14	12 G 2.5	0.85	21.5	280.2	417	549.0	817
CF10-UL-40-04	12	4 G 4.0	0.53	13.5	143.1	213	242.6	361

<sup>11)</sup> Phase-out model

<sup>17)</sup> When using the cables with „7 G 1.5 mm<sup>2</sup>“ and „7 G 2.5 mm<sup>2</sup>“ 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 6.6.4.1

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°				

CF10-UL  
 TPE  
 5 x d



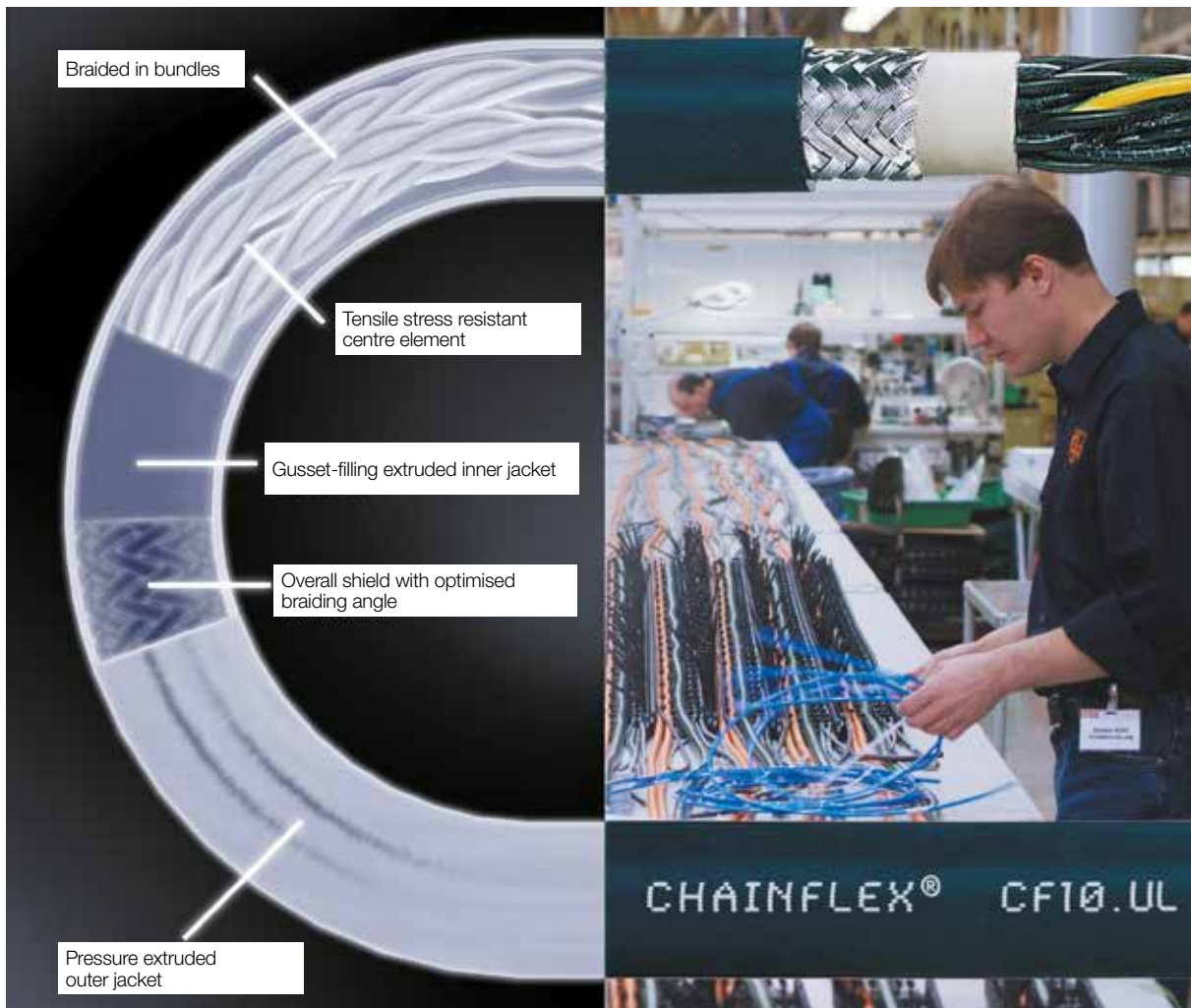
**Order example: CF10-UL-02-04 – To your desired length**  
 CF10-UL Chainflex® series -02 Code nominal cross section -04 Number of conductors



Online order ► [www.chainflex.com/CF10-UL](http://www.chainflex.com/CF10-UL)



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



The special cable structure of Chainflex® CF10.UL guarantees quality – offered by igus® fully harnessed.

