

# PUR Control cable | CF77-UL-D

- For high mechanical load requirements
- PUR outer jacket
- Oil-resistant and coolant-resistant
- Notch-resistant
- PVC-free/halogen-free
- Hydrolysis/microbe-resistant

### Dynamic Information

	<b>Bend radius</b>	<b>E-Chain®</b>	min. 6.8 x d
		<b>flexible</b>	min. 5 x d
		<b>fixed</b>	min. 4 x d
	<b>Temperature</b>	<b>E-Chain®</b>	-13 °F to +176 °F (-25 °C to +80 °C)
		<b>flexible</b>	-40 °F to +176 °F (-40 °C to +80 °C)
		<b>fixed</b>	-58 °F to +176 °F (-50 °C to +80 °C)
	<b>v max.</b>	<b>unsupported</b>	32.81 ft/s (10 m/s)
		<b>gliding</b>	16.41 ft/s (5 m/s)
	<b>a max.</b>	262.5 ft/s² (80 m/s²)	
	<b>Travel distance</b>	Unsupported travel distances and for gliding applications up to 328 ft (100 m), Class 5	
	<b>Torsion</b>	± 180°, with 3.281ft (1m) cable length (except 5-core types ≥ 12 AWG Schedule delivery program)	

### Cable structure

	<b>Conductors</b>	Conductor consisting of bare copper wires (according to 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 cabled together around a high-tensile strength core, using short pitch lengths and specific pitch directions for a low-torsion cable structure.
	<b>Color code</b>	<b>24-22 AWG:</b> Color code in accordance with DIN 47100. <b>20-4 AWG:</b> Black with white numbers, one conductor green-yellow. <b>CF77-UL-03-04-INI:</b> brown, blue, black, white
	<b>Outer jacket</b>	Low-adhesion, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in E-Chains® (following DIN VDE 0282 Part 10). Color: Window-gray (similar to RAL 7040) <b>CF77-UL-03-04-INI:</b> Color: Yellow (similar to RAL 1021)

### Electrical Information

	<b>Nominal voltage</b>	<b>24-22 AWG:</b> 300 V <b>20-4 AWG:</b> 1000 V
	<b>Test voltage</b>	2000 V (following DIN EN 50396)

**Configurators** ► [www.igus.com/CF77](http://www.igus.com/CF77)

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 5.5.3.3

### Properties and approvals

	<b>UV resistance</b>	Medium
	<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
	<b>Offshore</b>	MUD-resistant following NEK 606 - status 2009
	<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>Halogen-free</b>	Following EN 50267-2-1
	<b>UL/CSA</b>	<b>24-22 AWG:</b> Style 10493 and 20233, 300 V, 80 °C <b>20-4 AWG:</b> Style 11323 and 21223, 1000 V, 80 °C
	<b>NFPA 79</b>	Complies to NFPA 79-2015 chapter 12.9
	<b>DNV-GL</b>	Certified according to GL type testing – Certificate no.: 61 935-14 HH
	<b>EAC</b>	Certified according to no. TC RU C-DE.ME77.B.01254
	<b>CTP</b>	Certified according to no. C-DE.PB49.B.00416
	<b>CEI</b>	Following CEI 20-35
	<b>Lead-free</b>	Following 2011/65/EC (RoHS-II)
	<b>Cleanroom</b>	According to ISO Class 1. Outer jacket material complies with CF77-UL-05-12-D, tested by IPA according to standard 14644-1
	<b>DESINA</b>	According to VDW, DESINA standardisation
	<b>CE</b>	Following 2014/35/EG

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

Cycles*	Temperature, from/to [°F]	Travel distance [ft]	5 million		7.5 million		10 million	
			R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-13 / +5			< 32.81 ft	≥ 32.81 ft	< 32.81 ft	≥ 32.81 ft	< 32.81 ft	≥ 32.81 ft
+5 / +158		≤ 328	6.8	7.5	7.5	8.5	8.5	9.5
+158 / +176			7.5	10	9.5	11	10.5	12

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

### Typical application areas

- For high mechanical load requirements
- Indoor and outdoor applications with average sun radiation
- Unsupported travel distances and for gliding applications up to 328 ft (100 m)
- Machining units/machine tools, Storage and retrieval units for high-bay warehouses, Packaging industry, quick handling, refrigerating sector



PUR Control cable | CF77-UL-D

Class 5.5.3.3

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°				



Image exemplary.

Part No.	AWG	Number of Conductors and rated cross section [mm <sup>2</sup> ]	Outer diameter max.		Copper index		Weight	
			in.	mm	lbs/mft	kg/km	lbs/mft	kg/km
CF77-UL-02-04-D	24	4 x 0.25	0.22	5.5	7.4	11	23.5	35
CF77-UL-03-04-INI	22	4 x 0.34	0.24	6.0	11.4	17	26.9	40
CF77-UL-05-04-D	20	4 G 0.5	0.24	6.0	14.8	22	29.6	44
CF77-UL-05-05-D	20	5 G 0.5	0.26	6.5	18.8	28	34.9	52
CF77-UL-05-07-D	20	7 G 0.5	0.30	7.5	27.6	41	53.8	80
CF77-UL-05-12-D	20	12 G 0.5	0.39	10.0	44.3	66	88.7	132
CF77-UL-05-18-D	20	18 G 0.5	0.47	12.0	66.5	99	123.6	184
CF77-UL-05-25-D	20	25 G 0.5	0.55	14.0	92.7	138	166.0	247
CF77-UL-05-30-D	20	30 G 0.5	0.59	15.0	110.9	165	218.4	325
CF77-UL-07-03-D	18	3 G 0.75	0.26	6.5	16.1	24	37.0	55
CF77-UL-07-04-D	18	4 G 0.75	0.28	7.0	21.5	32	43.0	64
CF77-UL-07-05-D	18	5 G 0.75	0.30	7.5	26.9	40	50.4	75
CF77-UL-07-07-D	18	7 G 0.75	0.33	8.5	37.6	56	71.2	106
CF77-UL-07-12-D	18	12 G 0.75	0.47	12.0	64.5	96	129.0	192
CF77-UL-07-18-D	18	18 G 0.75	0.53	13.5	96.1	143	174.7	260
CF77-UL-07-20-D	18	20 G 0.75	0.57	14.5	106.8	159	196.2	292
CF77-UL-07-25-D	18	25 G 0.75	0.63	16.0	133.0	198	247.3	368
CF77-UL-07-36-D	18	36 G 0.75	0.75	19.0	199.6	297	352.1	524
CF77-UL-07-42-D <sup>1)</sup>	18	42 G 0.75	0.83	21.0	245.3	365	405.9	604
CF77-UL-10-02-D	17	2 x 1.0	0.26	6.5	14.8	22	36.3	54
CF77-UL-10-03-D	17	3 G 1.0	0.26	6.5	21.5	32	43.7	65
CF77-UL-10-04-D	17	4 G 1.0	0.28	7.0	28.9	43	53.1	79
CF77-UL-10-05-D	17	5 G 1.0	0.31	8.0	35.6	53	65.2	97
CF77-UL-10-07-D	17	7 G 1.0	0.35	9.0	49.7	74	80.0	119
CF77-UL-10-12-D	17	12 G 1.0	0.49	12.5	85.3	127	157.2	234
CF77-UL-10-18-D	17	18 G 1.0	0.59	15.0	128.3	191	227.8	339
CF77-UL-10-25-D	17	25 G 1.0	0.69	17.5	177.4	264	303.7	452
CF77-UL-10-42-D	17	42 G 1.0	0.89	22.5	310.4	462	475.8	708

<sup>1)</sup> 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 [mm <sup>2</sup> ]	Outer diameter max.		Copper index		Weight	
			in.	mm	lbs/mft	kg/km	lbs/mft	kg/km
CF77-UL-15-03-D	16	3 G 1.5	0.30	7.5	32.3	48	57.8	86
CF77-UL-15-04-D	16	4 G 1.5	0.31	8.0	43.0	64	70.6	105
CF77-UL-15-05-D	16	5 G 1.5	0.33	8.5	53.8	80	84.0	125
CF77-UL-15-07-D <sup>17)</sup>	16	7 G 1.5	0.41	10.5	74.6	111	116.9	174
CF77-UL-15-12-D	16	12 G 1.5	0.55	14.0	128.3	191	207.0	308
CF77-UL-15-18-D	16	18 G 1.5	0.67	17.0	192.2	286	320.5	477
CF77-UL-15-25-D	16	25 G 1.5	0.77	19.5	266.1	396	423.3	630
CF77-UL-15-36-D <sup>1)</sup>	16	36 G 1.5	0.93	23.5	399.1	594	598.7	891
CF77-UL-15-42-D <sup>1)</sup>	16	42 G 1.5	1.04	26.5	489.9	729	698.8	1040
CF77-UL-25-03-D	14	3 G 2.5	0.33	8.5	53.8	80	83.3	124
CF77-UL-25-04-D	14	4 G 2.5	0.37	9.5	71.2	106	104.2	155
CF77-UL-25-05-D	14	5 G 2.5	0.41	10.5	88.7	132	129.0	192
CF77-UL-25-07-D <sup>17)</sup>	14	7 G 2.5	0.49	12.5	124.3	185	181.4	270
New CF77-UL-25-12-D	14	12 G 2.5	0.69	17.5	213.0	317	356.1	530
CF77-UL-40-04-D <sup>1)</sup>	12	4 G 4.0	0.45	11.5	118.3	176	172.0	256
CF77-UL-40-05-D	12	5 G 4.0	0.47	12.0	142.5	212	202.9	302
CF77-UL-60-05-D	10	5 G 6.0	0.55	14.0	213.0	317	287.6	428
CF77-UL-100-05-D <sup>1)</sup>	8	5 G 10.0	0.75	19.0	354.8	528	486.5	724
CF77-UL-160-05-D	6	5 G 16.0	0.89	22.5	567.8	845	737.8	1098
CF77-UL-250-05-D <sup>1)</sup>	4	5 G 25.0	1.10	28.0	887.0	1320	1098.7	1635

<sup>1)</sup> Delivery time upon request  
<sup>17)</sup> Using the cables with "7 G 1.5 mm<sup>2</sup>" and "7 G 2.5 mm<sup>2</sup>" 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: **CF77-UL-10-03-D** – In your desired length  
**CF77-UL-D** Chainflex® series -10 Code nominal cross section -03 Number of conductors

Online order: [www.chainflex.com/CF77](http://www.chainflex.com/CF77)

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

Configurators ► [www.igus.com/CF77](http://www.igus.com/CF77)

