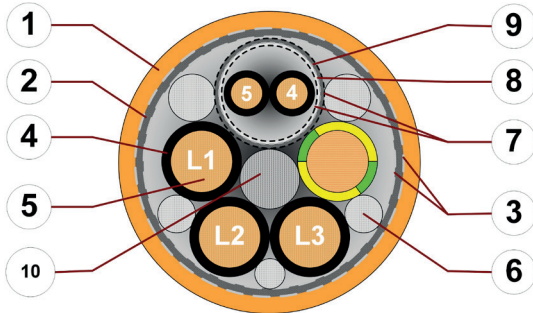


# Data sheet

## chainflex® CF270.UL.D



Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded  
 ● Oil resistant and coolant-resistant ● Notch-resistant ● Flame retardant ● Hydrolysis and  
 microbe-resistant ● PVC and halogen-free



1. Outer jacket: Pressure extruded PUR mixture
2. Overall shield: Bending-resistant braiding made of tinned copper wires.
3. Banding: Plastic fleece
4. Core insulation: Mechanically high-quality, especially low-capacitance TPE mixture
5. Conductor: Especially bending-resistant version consisting of bare copper wires
6. Filling: Plastic yarns
7. Element banding: Plastic foil
8. Shield foil: Aluminium-coated polyester foil
9. Element shield: Bending-resistant braiding made of tinned copper wires.
10. Strain relief: Tensile stress-resistant centre element

**Example image**  
 For detailed overview please see design table

### Cable structure

	<b>Conductor</b>	Stranded conductor in bending-resistant version consisting of bare copper wires (following DIN EN 60228).
	<b>Core insulation</b>	Mechanically high-quality, especially low-capacitance TPE mixture.
	<b>Core structure</b>	Power cores and control pair elements wound with a short pitch length around a high tensile strength centre element.
	<b>Core identification</b>	<p><b>Power cores:</b> Black cores with white numbers, one green-yellow core.</p> <p>1. Core: U / L1 / C / L+</p> <p>2. Core: V / L2</p> <p>3. Core: W / L3 / D / L-</p> <p><b>1 Control pair:</b> Black cores with white numbers.</p> <p>1. Control core: 4 2. Control core: 5</p> <p><b>2 Control pairs:</b> Black cores with white numbers.</p> <p>1. Control core: 5 2. Control core: 6</p> <p>3. Control core: 7 4. Control core: 8</p>
	<b>Element shield</b>	Bending-resistant braiding made of tinned copper wires.
	<b>Intermediate layer</b>	Foil taping over the outer layer.
	<b>Overall shield</b>	Bending-resistant braiding made of tinned copper wires. Coverage approx. 55 % linear, approx. 80 % optical
	<b>Outer jacket</b>	Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). <b>Colour:</b> Pastel orange (similar to RAL 2003) <b>Printing:</b> black

„00000 m\*\* igus chainflex CF270.UL.-.-.-.D① ---② 600/1000V E310776

cRUs AWM Style 21223 VW-1 AWM I/II A/B 80°C 1000V FT1 EAC/CTP

CE DESINA 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).  
 Example: ... chainflex CF270.UL.15.15.02.01.D (4G1.5+(2x1.5)C)C 600/1000V ...



Example image

# Data sheet

## chainflex® CF270.UL.D








Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Notch-resistant ● Flame retardant ● Hydrolysis and microbe-resistant ● PVC and halogen-free



Example image

igus® chainflex® CF270.UL.D

### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	minimum 10 x d minimum 8 x d minimum 5 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	-25 °C up to +80 °C -40 °C up to +80 °C (following DIN EN 60811-504) -50 °C up to +80 °C (following DIN EN 50305)
	<b>v max.</b>	<b>unsupported</b> <b>gliding</b>	10 m/s 2 m/s
	<b>a max.</b>		50 m/s <sup>2</sup>
	<b>Travel distance</b>		Unsupported travels and up to 10 m for gliding applications, Class 2



These values are based on specific applications or tests. They do not represent the limit of what is technically feasible.

### Guaranteed service life according to guarantee conditions

Double strokes	5 million	7.5 million	10 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-25/-15	12.5	13.5	14.5
-15/+70	10	11	12
+70/+80	12.5	13.5	14.5

Minimum guaranteed service life of the cable under the specified conditions.  
The installation of the cable is recommended within the middle temperature range.

### Electrical information

	<b>Nominal voltage</b>	600/1000 V (following DIN VDE 0298-3)
	<b>Testing voltage</b>	4000 V (following DIN EN 50395)


















# Data sheet

## chainflex® CF270.UL.D



Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded  
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 microbe-resistant ● PVC and halogen-free

### 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 retardant</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 DIN EN 60754
	<b>UL/CSA</b>	Style 10989 and 21223, 1000 V, 80 °C
	<b>NFFPA</b>	Following NFFPA 79-2012, chapter 12.9
	<b>EAC</b>	Certificate No. RU C-DE.ME77.B.02324 (TR ZU)
	<b>CTP</b>	Certificate No. C-DE.PB49.B.00420 (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 CF77. UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1
	<b>DESINA</b>	According to VDW, DESINA standardisation
	<b>CE</b>	Following 2014/35/EU



Example image



# Data sheet

## chainflex® CF270.UL.D

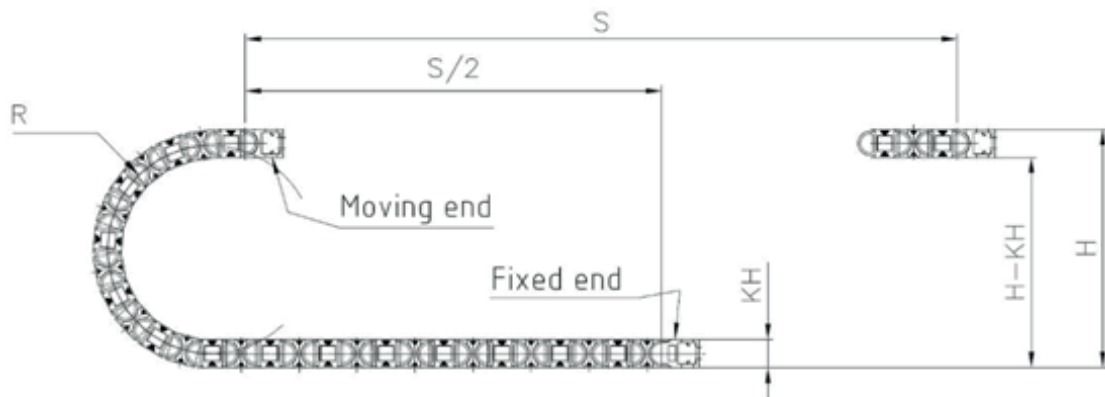


Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded ● Oil resistant and coolant-resistant ● Notch-resistant ● Flame retardant ● Hydrolysis and microbe-resistant ● PVC and halogen-free



### Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 300 mm
Test travel S	approx. 1 - 15 m
Test duration	minimum 2 - 4 million double strokes
Test speed	approx. 0.5 - 2 m / s
Test acceleration	approx. 0.5 - 1.5 m / s <sup>2</sup>



### Typical application areas

- For medium duty applications, Class 4
- Unsupported travel distances and up to 10 m for gliding applications, Class 2
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications without direct solar radiation
- Machining units/machine tools, low temperature applications



Example image

igus® chainflex® CF270.UL.D

# Data sheet

## chainflex® CF270.UL.D



Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded  
 ● Oil resistant and coolant-resistant ● Notch-resistant ● Flame retardant ● Hydrolysis and  
 microbe-resistant ● PVC and halogen-free

### Technical tables:

#### Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
<b>1 Control pair shielded</b>				
CF270.UL.15.15.02.01.D	(4G1.5+(2x1.5)C)C	12.0	154	253
CF270.UL.25.15.02.01.D	(4G2.5+(2x1.5)C)C	14.0	210	292
CF270.UL.40.15.02.01.D	(4G4.0+(2x1.5)C)C	15.0	281	429
CF270.UL.60.15.02.01.D	(4G6.0+(2x1.5)C)C	16.5	375	531
CF270.UL.100.15.02.01.D	(4G10+(2x1.5)C)C	20.5	593	858
CF270.UL.160.15.02.01.D	(4G16+(2x1.5)C)C	24.0	873	1251
CF270.UL.250.15.02.01.D <sup>11)</sup>	(4G25+(2x1.5)C)C	28.5	1340	1599
<b>2 Control pairs shielded</b>				
CF270.UL.07.03.02.02.D	(4G0.75+2x(2x0.34)C)C	11.5	110	201
CF270.UL.10.07.02.02.D	(4G1.0+2x(2x0.75)C)C	13.0	147	256
CF270.UL.15.07.02.02.D	(4G1.5+2x(2x0.75)C)C	13.5	174	298
CF270.UL.25.15.02.02.D	(4G2.5+2x(2x1.5)C)C	16.0	268	421
CF270.UL.40.15.02.02.D	(4G4.0+2x(2x1.5)C)C	17.0	340	520
CF270.UL.60.15.02.02.D	(4G6.0+2x(2x1.5)C)C	18.5	438	644
CF270.UL.100.15.02.02.D	(4G10+2x(2x1.5)C)C	22.5	645	960
CF270.UL.160.15.02.02.D	(4G16+2x(2x1.5)C)C	26.0	920	1333
CF270.UL.250.15.02.02.D <sup>11)</sup>	(4G25+2x(2x1.5)C)C	28.5	1393	1874

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

**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.

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



Example image



# Data sheet

## chainflex® CF270.UL.D



Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded  
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 microbe-resistant ● PVC and halogen-free



Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight max. [kg/km]
<b>without control pair</b>				
CF270.UL.07.04.D	(4G0.75)C	8.0	49	94
CF270.UL.15.04.D	(4G1.5)C	9.5	85	151
CF270.UL.25.04.D	(4G2.5)C	11.5	145	231
CF270.UL.40.04.D	(4G4.0)C	12.5	217	323
CF270.UL.60.04.D	(4G6.0)C	14.5	316	444
CF270.UL.100.04.D	(4G10)C	18.0	510	712
CF270.UL.160.04.D	(4G16)C	22.0	798	1067
CF270.UL.250.04.D	(4G25)C	25.5	1220	1595
CF270.UL.350.04.D	(4G35)C	33.0	1728	2347
<b>Spindle cable/Single core</b>				
CF270.UL.60.01.D	(1x6.0)C	7.0	70	93
CF270.UL.100.01.D	(1x10)C	8.5	110	141
CF270.UL.160.01.D	(1x16)C	9.5	170	201
CF270.UL.250.01.D	(1x25)C	11.0	261	296
CF270.UL.350.01.D	(1x35)C	13.0	363	405
CF270.UL.500.01.D	(1x50)C	15.0	514	567
CF270.UL.700.01.D	(1x70)C	17.5	736	788

**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.  
 G = with green-yellow earth core x = without earth core



Example image

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Servo cable (Class 4.2.3.1) ● For medium duty applications ● PUR outer jacket ● Shielded  
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### Electrical information

Conductor nominal cross section [mm <sup>2</sup> ]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Maximum current rating at 30 °C (following DIN VDE 0298-4) [A]
0.34	57.0	7
0.5	39.0	10
0.75	26.0	14
1.0	19.5	17
1.5	13.3	21
2.5	8.0	30
4.0	4.95	41
6.0	3.3	53
10	1.91	74
16	1.33	99
25	0.78	131

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.



Example image

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### Capacity

Part No.	Power cores		Control cores	
	Core/Core	Core/Shield	Core/Core	Core/Shield
	Capacity [approx. pF / m]	Capacity [approx. pF / m]	Capacity [approx. pF / m]	Capacity [approx. pF / m]
<b>1 Control pair shielded</b>				
CF270.UL.15.15.02.01.D	80	140	120	210
CF270.UL.25.15.02.01.D	105	185	120	210
CF270.UL.40.15.02.01.D	115	200	120	210
CF270.UL.60.15.02.01.D	120	210	120	210
CF270.UL.100.15.02.01.D	140	245	120	210
CF270.UL.160.15.02.01.D	140	245	120	210
CF270.UL.250.15.02.01.D	145	255	120	210
<b>2 Control pairs shielded</b>				
CF270.UL.07.03.02.02.D	60	105	75	130
CF270.UL.10.07.02.02.D	95	155	100	175
CF270.UL.15.07.02.02.D	80	140	100	175
CF270.UL.25.15.02.02.D	105	185	120	210
CF270.UL.40.15.02.02.D	115	200	120	210
CF270.UL.60.15.02.02.D	120	210	120	210
CF270.UL.100.15.02.02.D	140	245	120	210
CF270.UL.160.15.02.02.D	140	245	120	210
CF270.UL.250.15.02.02.D	145	255	120	210
<b>without control pair</b>				
CF270.UL.07.04.D	60	105	-	-
CF270.UL.15.04.D	80	140	-	-
CF270.UL.25.04.D	105	185	-	-
CF270.UL.40.04.D	115	200	-	-
CF270.UL.60.04.D	120	210	-	-
CF270.UL.100.04.D	140	245	-	-
CF270.UL.160.04.D	140	245	-	-
CF270.UL.250.04.D	145	255	-	-
CF270.UL.350.04.D	145	255	-	-
<b>Spindle cable/Single core</b>				
CF270.UL.60.01.D	-	430	-	-
CF270.UL.100.01.D	-	410	-	-
CF270.UL.160.01.D	-	565	-	-
CF270.UL.250.01.D	-	545	-	-
CF270.UL.350.01.D	-	610	-	-
CF270.UL.500.01.D	-	720	-	-
CF270.UL.700.01.D	-	790	-	-



Example image





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### Design table

Art.-Nr.	Number of cores	Core design
CF270.UL.XX.XX.XX.01.D	4+1x2	
CF270.UL.XX.XX.02.02.D	4+2x2	
CF270.UL.XX.XX.04.D	4+1x4	
CF270.UL.XX.04.D	4	
CF270.UL.XX.01.D	1	



Example image

