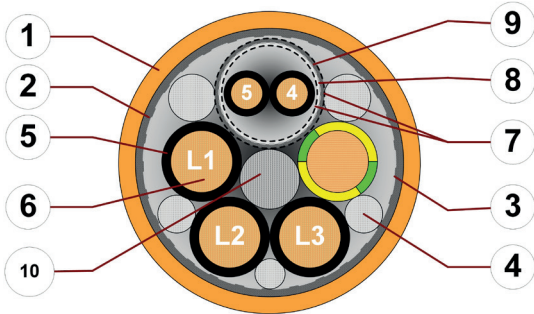


Data sheet

chainflex® CF210.UL



Servo cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
● Oil-resistant ● Flame retardant



1. Outer jacket: Pressure extruded, oil-resistant PVC mixture
2. Overall shield: Bending-resistant braiding made of tinned copper wires.
3. Banding: Plastic fleece
4. Filling: Plastic yarns
5. Core insulation: Mechanically high-quality, especially low-capacitance XLPE mixture
6. Conductor: Especially bending-resistant version consisting of bare copper wires
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



Conductor Stranded conductor in bending-resistant version consisting of bare copper wires (following DIN EN 60228).



Core insulation Mechanically high-quality, especially low-capacitance XLPE mixture.



Core structure Power cores and control pair elements wound with a short pitch length around a high tensile strength centre element.



Core identification
Power cores: Black cores with white numbers, one green-yellow core.
1. Core: U / L1 / C / L+
2. Core: V / L2
3. Core: W / L3 / D / L-
1 Control pair: Black cores with white numbers.
1. Control core: 4 2. Control core: 5
2 Control pairs: Black cores with white numbers.
1. Control core: 5 2. Control core: 6
3. Control core: 7 4. Control core: 8



Element shield Bending-resistant braiding made of tinned copper wires.



Intermediate layer Foil taping over the outer layer.



Overall shield Bending-resistant braiding made of tinned copper wires.
Coverage approx. 55 % linear, approx. 80 % optical



Outer jacket Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1).
Colour: Pastel orange (similar to RAL 2003)
Printing: black

„00000 m** igus chainflex CF210.UL.-.-.-① ---② 600/1000V E310776

cRUus AWM Style 2570 VW-1 AWM I/II A/B 80°C 1000V FT1 EAC/CTP

CE 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 CF210.UL.15.15.02.01 (4G1.5+(2x1.5)C)C 600/1000V ...



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Data sheet

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Servo cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
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Dynamic information

	Bend radius	e-chain® linear flexible fixed	minimum 10 x d minimum 8 x d minimum 5 x d
	Temperature	e-chain® linear flexible fixed	+5 °C up to +70 °C -5 °C up to +70 °C (following DIN EN 60811-504) -15 °C up to +70 °C (following DIN EN 50305)
	v max.	unsupported gliding	10 m/s 2 m/s
	a max.		50 m/s ²
	Travel distance		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]
+5/+15	12.5	13.5	14.5
+15/+60	10	11	12
+60/+70	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

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



igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Example image

igus® chainflex® CF210.UL

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Data sheet

chainflex® CF210.UL



Servo cable (Class 4.2.2.1) • For medium duty applications • PVC outer jacket • Shielded
• Oil-resistant • Flame retardant

Properties and approvals

	UV resistance	Medium
	Oil resistance	Oil-resistant (following DIN EN 50363-4-1), Class 2
	Flame retardant	According to IEC 60332-1-2, FT1, VW-1
	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
	UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
	UL/CSA AWM	See table UL/CSA AWM for details
	NFPA	Following NFPA 79-2018, chapter 12.9
	EAC	Certificate No. RU C-DE.ME77.B.02324 (TR ZU)
	CTP	Certificate No. C-DE.PB49.B.00420 (Fire protection)
	REACH	In accordance with regulation (EC) No. 1907/2006 (REACH)
	Lead-free	Following 2011/65/EC (RoHS-II/RoHS-III)
	Cleanroom	According to ISO Class 2. The outer jacket material of this series complies with CF5.10.07 - tested by IPA according to standard DIN EN ISO 14644-1
	CE	Following 2014/35/EU



Properties and approvals

UL/CSA AWM Details

Conductor nominal cross section [mm²]	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
0.75	10989	2570	1000	80
1.5	10989	2570	1000	80
2.5	10989	2570	1000	80
4	10989	2570	1000	80
6	10989	2570	1000	80

Example image



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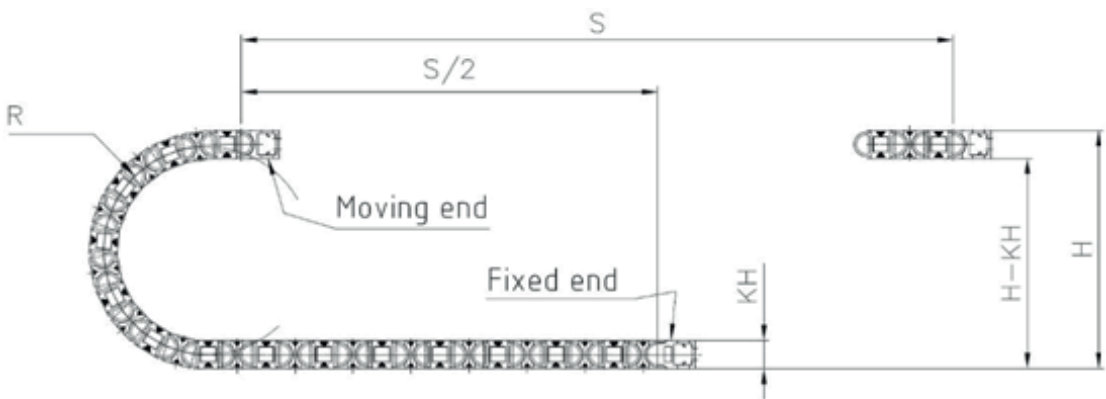
chainflex® CF210.UL



Servo cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
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Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 250 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 ²



Typical application areas

- For medium duty applications, Class 4
- Unsupported travel distances and up to 10 m for gliding applications, Class 2
- Light oil influence, Class 2
- No torsion, Class 1
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Wood/stone processing, Packaging industry, supply systems, Handling, adjusting equipment



igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Example image



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Technical tables:

Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
1 Control pair shielded				
CF210.UL.15.15.02.01	(4G1.5+(2x1.5)C)C	12.5	154	245
CF210.UL.25.15.02.01	(4G2.5+(2x1.5)C)C	14.0	210	299
CF210.UL.40.15.02.01	(4G4.0+(2x1.5)C)C	15.0	255	383
CF210.UL.60.15.02.01	(4G6.0+(2x1.5)C)C	16.5	343	488
2 Control pairs shielded				
CF210.UL.15.07.02.02	(4G1.5+2x(2x0.75)C)C	13.5	161	278
CF210.UL.25.15.02.02	(4G2.5+2x(2x1.5)C)C	16.0	244	381
CF210.UL.40.15.02.02	(4G4.0+2x(2x1.5)C)C	17.0	332	428
CF210.UL.60.15.02.02	(4G6.0+2x(2x1.5)C)C	19.0	403	598
without control pair				
CF210.UL.15.04	(4G1.5)C	10.0	86	140
CF210.UL.25.04	(4G2.5)C	11.5	146	209
CF210.UL.40.04	(4G4.0)C	13.0	195	288

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

Electrical information

Conductor nominal cross section [mm²]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
0.75	26	14
1.5	13.3	19
2.5	8	27
4	4.95	37
6	3.3	48

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 Capacity [approx. pF / m]	Core/Shield Capacity [approx. pF / m]	Core/Core Capacity [approx. pF / m]	Core/Shield Capacity [approx. pF / m]
1 Control pair shielded				
CF210.UL.15.15.02.01	80	140	120	215
CF210.UL.25.15.02.01	105	180	120	215
CF210.UL.40.15.02.01	115	200	120	215
CF210.UL.60.15.02.01	120	210	120	215
2 Control pairs shielded				
CF210.UL.15.07.02.02	80	140	100	165
CF210.UL.25.15.02.02	105	180	120	215
CF210.UL.40.15.02.02	115	200	120	215
CF210.UL.60.15.02.02	120	210	120	215
without control pair				
CF210.UL.15.04	80	140	-	-
CF210.UL.25.04	105	180	-	-
CF210.UL.40.04	115	200	-	-



igus 36-month
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Example image

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Design table

Art.-Nr.	Number of cores	Core design
CF210.UL.XX.XX.02.01	4+1x2	
CF210.UL.XX.XX.02.02	4+2x2	
CF210.UL.XX.04	4	



Example image

igus® chainflex® CF210.UL