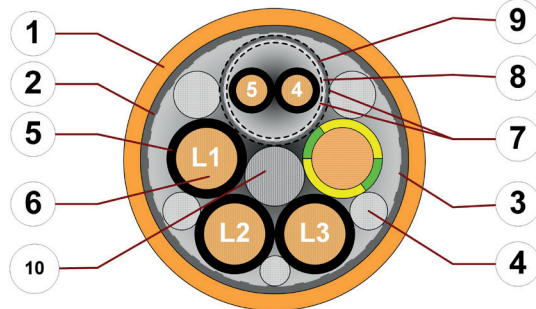


Data sheet

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

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 ...








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. [x d]	R min. [x d]	R min. [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)



Example image

igus® chainflex® CF210.UL

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)
	PFAS-free	Use of PFAS-free materials according to the content of the REACH directive and its rules for the production and processing of chemical substances
	UL verified	Certificate No. V293560: „igus 4-year 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
	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



igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



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]
0.34	10989	2570	1000	90
0.75	10989	2570	1000	90
1.5	10989	2570	1000	90
2.5	10989	2570	1000	90
4.0	10989	2570	1000	90
6.0	10989	2570	1000	90

Example image

igus® chainflex® CF210.UL

Data sheet

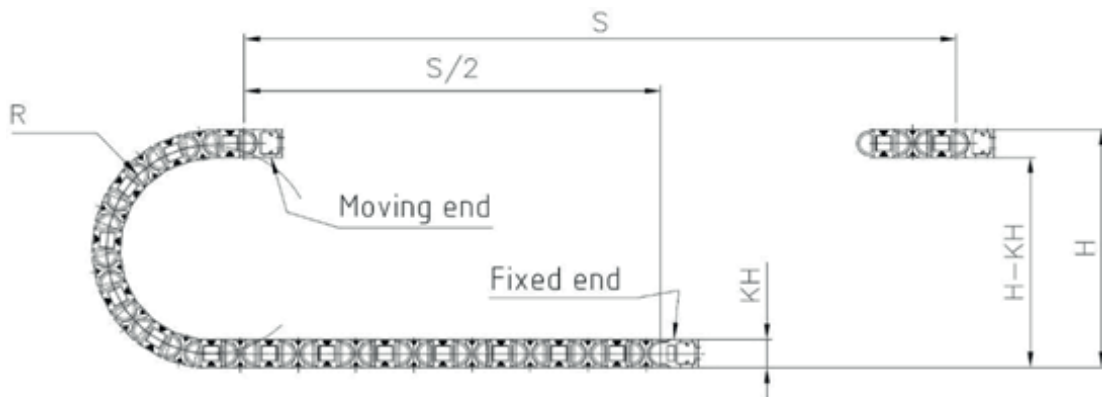
chainflex® CF210.UL



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

Example image



Data sheet

chainflex® CF210.UL



Servo cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
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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.07.03.02.01	(4G0.75+(2x0.34)C)C	9.0	72	108
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]
0.34	57	7
0.75	26	14
1.5	13.3	19
2.5	8	27
4.0	4.95	37
6.0	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.



igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Example image

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Servo cable (Class 4.2.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
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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.07.03.02.01	60	105	75	130
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 4-year
chainflex cable
guarantee and
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Example image

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Data sheet

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Design table

Part No.	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	



igus 4-year
chainflex cable
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calculator based
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cycles per year



Example image

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[CF210.UL.60.15.02.02](#) [CF210.UL.15.07.02.02](#) [CF210.UL.40.15.02.01](#) [CF210.UL.15.04](#) [CF210.UL.25.15.02.02](#)
[CF210.UL.40.04](#)