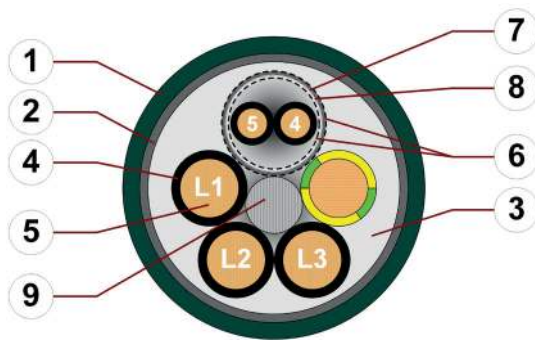


# Data sheet

## chainflex® CF21.UJ



Servo cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
● Oil-resistant ● Flame retardant



1. Outer jacket: Pressure extruded, oil-resistant PVC mixture
2. Overall shield: Extremely bending-resistant braiding made of tinned copper wires.
3. Inner jacket: Pressure extruded, gusset-filling PVC mixture
4. Core insulation: Mechanically high-quality, especially low-capacitance XLPE mixture
5. Conductor: Especially bending-resistant version consisting of bare copper wires
6. Element banding: Plastic foil
7. Element shield: Extremely bending-resistant wrapping made of tinned copper wires
8. Shield foil: Aluminium-coated plastic foil
9. Strain relief: Tensile stress-resistant centre element

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

### Cable structure

	<b>Conductor</b>	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
	<b>Core insulation</b>	Mechanically high-quality, especially low-capacitance XLPE mixture.
	<b>Core structure</b>	Power cores with control pair elements wound with elements for high tensile stresses.
	<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>	Extremely bending-resistant wrapping made of tinned copper wires.
	<b>Inner jacket</b>	PVC mixture adapted to suit the requirements in e-chains®.
	<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical
	<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). <b>Colour:</b> Moss green (similar to RAL 6005) <b>Printing:</b> white
	<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ▶ <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>



„00000 m\*\* igus chainflex CF21.-.-.-.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](http://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 **CF21.15.15.02.01.UJ (4G1.5+(2x1.5)C) 600/1000V**






# Data sheet

## chainflex® CF21.UL



Servo cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
● Oil-resistant ● Flame retardant

### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	min. 7,5 x d min. 6 x d min. 4 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	+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)
	<b>v max.</b>	<b>unsupported</b> <b>gliding</b>	10 m/s 5 m/s
	<b>a max.</b>		80 m/s <sup>2</sup>
	<b>Travel distance</b>		Unsupported travels and up to 100 m for gliding applications, Class 5



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	10	11	12
+15/+60	7,5	8,5	9,5
+60/+70	10	11	12

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) 1000 V (following UL)
	<b>Testing voltage</b>	4000 V (following DIN EN 50395)



Example image



# Data sheet













## chainflex® CF21.UL



Servo cable (Class 5.5.2.1) ● For heavy 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)
-  **RoHS** 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 [mm <sup>2</sup> ]	UL style core insulation	UL style outer jacket	UL Voltage Rating [M]	UL Temperature Rating [°C]
0.34	3446	2570	1000	80
0.5	3446	2570	1000	80
0.75	3446	2570	1000	80
1	3446	2570	1000	80
1.5	3446	2570	1000	80
2.5	3446	2570	1000	80
4	3446	2570	1000	80
6	3446	2570	1000	80
10	3446	2570	1000	80
16	3446	2570	1000	80



Example image

# Data sheet

## chainflex® CF21.UL



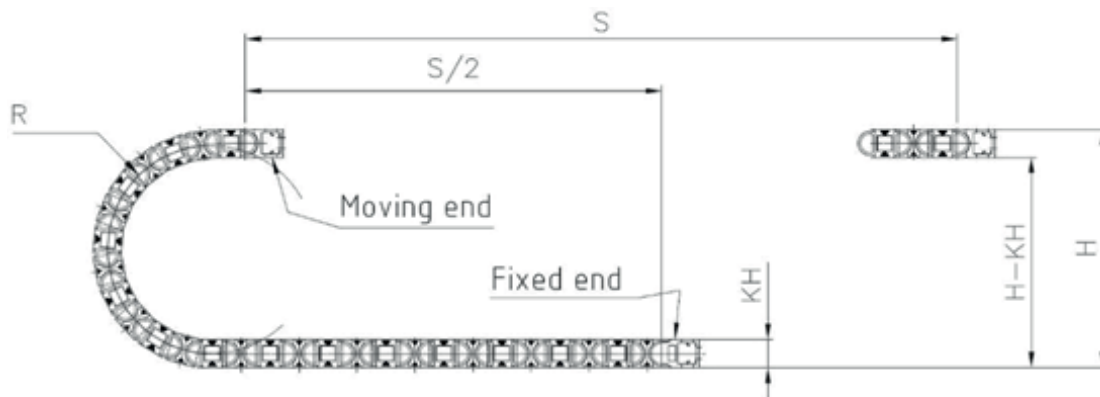
Servo cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
 ● Oil-resistant ● Flame retardant



Example image

### Typical lab test setup for this cable series

Test bend radius R	approx. 75 - 250 mm
Test travel S/S <sub>2</sub>	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 heavy duty applications, Class 5
- Unsupported travel distances and up to 100 m for gliding applications, Class 5
- Light oil influence, Class 2
- No torsion, Class 1
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, quick handling, indoor cranes



# Data sheet

## chainflex® CF21.UL



Servo cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
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### 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>				
CF21.07.05.02.01.UL	(4G0.75+(2x0.5)C)C	11.0	76	159
CF21.15.15.02.01.UL	(4G1.5+(2x1.5)C)C	13.0	145	256
CF21.25.15.02.01.UL	(4G2.5+(2x1.5)C)C	14.5	199	330
CF21.40.15.02.01.UL	(4G4.0+(2x1.5)C)C	16.0	256	406
CF21.60.15.02.01.UL	(4G6.0+(2x1.5)C)C	18.0	343	546
CF21.100.15.02.01.UL	(4G10+(2x1.5)C)C	21.5	536	828
<b>2 Control pairs shielded</b>				
CF21.07.03.02.02.UL	(4G0.75+2x(2x0.34)C)C	12.5	103	208
CF21.10.07.02.02.UL	(4G1.0+2x(2x0.75)C)C	13.5	148	269
CF21.15.07.02.02.UL	(4G1.5+2x(2x0.75)C)C	14.5	167	309
CF21.25.15.02.02.UL	(4G2.5+2x(2x1.5)C)C	17.0	254	434
CF21.40.15.02.02.UL	(4G4.0+2x(2x1.5)C)C	18.0	308	515
CF21.60.15.02.02.UL	(4G6.0+2x(2x1.5)C)C	21.0	412	695
CF21.100.15.02.02.UL	(4G10+2x(2x1.5)C)C	23.0	592	925
CF21.160.15.02.02.UL	(4G16+2x(2x1.5)C)C	26.5	878	1287

**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 [mm <sup>2</sup> ]	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
0.5	39	10
0.75	26	13
1	19.5	15
1.5	13.3	19
2.5	8	27
4	4.95	37
6	3.3	48
10	1.91	69
16	1.21	92

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  
igus® chainflex® CF21.UL



# Data sheet

## chainflex® CF21.UL



Servo cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
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### Design table

Part No.	Number of cores	Core design
CF21.XX.XX.02.01.UL	4+1x2	
CF21.XX.XX.02.02.UL	4+2x2	



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



Example image

igus® chainflex® CF21.UL

