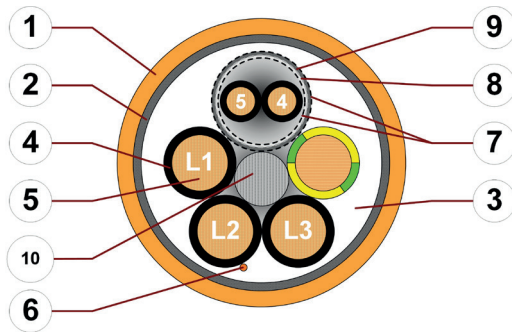


# Data sheet

## chainflex® CF29.D



Servo cable (Class 7.6.4.1) ● For heaviest duty applications ● TPE outer jacket ● Shielded ● Oil and bio-oil-resistant ● PVC and halogen-free ● UV-resistant ● Hydrolysis and microbe-resistant



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Overall shield: Extremely bending-stable braid made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling TPE mixture
4. Core insulation: Mechanically high-quality, especially low-capacitance TPE mixture
5. Conductor: Especially bending-resistant version consisting of bare copper wires
6. CFRIP: Tear strip for faster cable stripping
7. Element banding: Plastic foil
8. Shield foil: Aluminium-coated polyester foil
9. Element shield: Extremely bending-resistant wrapping 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 especially 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 with control pair elements wound with elements for high tensile stresses.
	<b>Core identification</b>	<b>Power cores:</b> 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- <b>1 Control pair:</b> Black cores with white numbers. 1. Control core: 4 2. Control core: 5
	<b>Element shield</b>	Extremely bending-resistant braiding made of tinned copper wires.
	<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
	<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
	<b>Outer jacket</b>	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. <b>Colour:</b> Pastel orange (similar to RAL 2003) <b>Printing:</b> black

„00000 m\*\* igus chainflex CF29.-.-.-.D① -----② 600/1000V EAC CE DESINA

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 **CF29.15.15.02.01.D (4G1.5+(2x1.5)C)C 600/1000V**



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### Dynamic information

	<b>Bend radius</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	min. 6.8 x d min. 5 x d min. 4 x d
	<b>Temperature</b>	<b>e-chain® linear</b> <b>flexible</b> <b>fixed</b>	-35 °C up to +100 °C -50 °C up to +100 °C (following DIN EN 60811-504) -55 °C up to +100 °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 400 m and more for gliding applications, Class 6



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	
	< 10 m	≥ 10 m	< 10 m	≥ 10 m	< 10 m	≥ 10 m
	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]
-35/-25	8.5	10	9.5	11	10.5	12
-25/+90	6.8	7.5	7.5	8.5	8.5	9.5
+90/+100	8.5	10	9.5	11	10.5	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)
	<b>Testing voltage</b>	4000 V (following DIN EN 50395)



Example image

igus® chainflex® CF29.D












# Data sheet

## chainflex® CF29.D



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 ● Oil and bio-oil-resistant ● PVC and halogen-free ● UV-resistant ● Hydrolysis and microbe-resistant

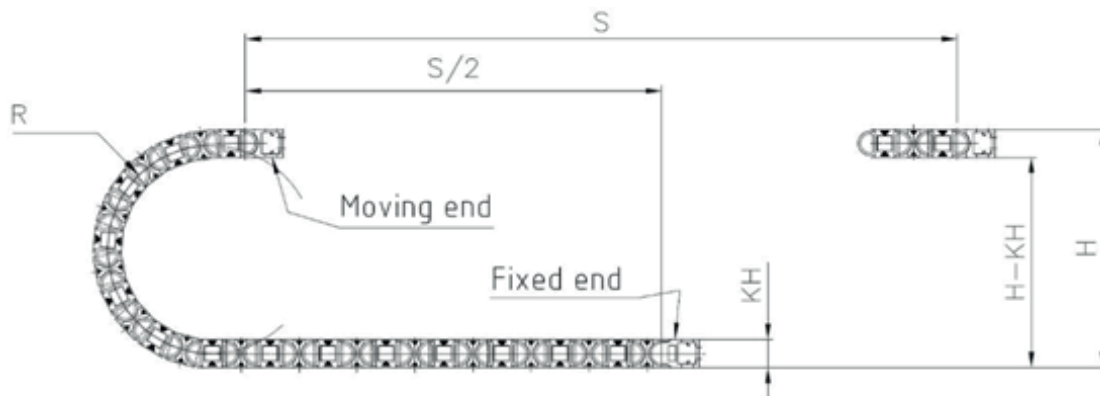
### Properties and approvals

	<b>UV resistance</b>	Medium
	<b>Oil resistance</b>	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
	<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>EAC</b>	Certificate No. RU C-DE.ME77.B.02806 (TR ZU)
	<b>Lead-free</b>	Following 2011/65/EC (RoHS-II)
	<b>Cleanroom</b>	According to ISO Class 1. The outer jacket material of this series complies with CF9.15.07 - 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



### Typical lab test setup for this cable series

<b>Test bend radius R</b>	approx. 63 - 250 mm
<b>Test travel S/S<sub>2</sub></b>	approx. 1 - 15 m
<b>Test duration</b>	minimum 2 - 4 million double strokes
<b>Test speed</b>	approx. 0.5 - 2 m / s
<b>Test acceleration</b>	approx. 0.5 - 1.5 m / s <sup>2</sup>



Example image



# Data sheet

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### Typical application areas

- For heaviest duty applications, Class 7
- Unsupported travels and up to 400 m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant, Class 4
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Cleanroom, semiconductor insertion, outdoor cranes, low temperature applications



Example image



# Data sheet

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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]
1 Control pair shielded				
CF29.15.15.02.01.D	(4G1.5+(2x1.5)C)C	13.0	143	230
CF29.25.15.02.01.D	(4G2.5+(2x1.5)C)C	14.0	191	290
CF29.40.15.02.01.D	(4G4.0+(2x1.5)C)C	15.5	258	378

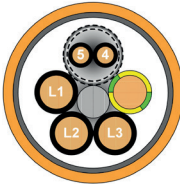
**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.  
 G = with green-yellow earth core x = without earth core

#### Electrical information

Conductor nominal cross section [mm <sup>2</sup> ]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Maximum current rating at 30 °C (following DIN VDE 0298-4) [A]
1.5	14.0	21
2.5	8.5	30
4	5.2	41

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

### Design table

Part No.	Number of cores	Core design
CF29.XX.XX.XX.01.D	4+1x2	



Example image  
igus® chainflex® CF29.D