

# Data sheet chainflex® CFKOAX



Coax cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket  
● Oil and bio-oil-resistant ● UV-resistant ● Hydrolysis and microbe-resistant



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



Example image

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## Cable structure



- Conductor
- Core insulation
- Core structure
- Core identification
- Element shield
- Element jacket
- Outer jacket

Multi-wire; adapted to single-wire diameter with pitch length to suit the requirements in e-chains®.

CFKOAX1/3: Special FEP mixture  
CFKOAX2: Special PE mixture

Cores wound in a layer with especially short pitch length.

CFKOAX1.01: red  
CFKOAX1.05: red, green, blue, white, black

Extremely bending-resistant braiding made of tinned copper wires.  
Coverage linear approx. 70%, optical approx. 90%

TPE mixture adapted to suit the requirements in e-chains®.

Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®.

Colour: ► [Design table](#)

Printing: white



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„00000 m\*\* igus chainflex CFKOAX.---① -----② 500V -----③

EAC CE RoHS-II conform [www.igus.eu](http://www.igus.eu) +++ chainflex cable works +++

\* **Length printing:** Not calibrated. Only intended as an orientation aid.

① / ② Cable identification according to Part No. (see technical table).

③ Description of coax element.

Example: ... chainflex CFKOAX1.01 1xHF75-0.3/1.6 ...

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## Dynamic information

	<b>Bend radius</b>	e-chain® linear flexible fixed	10 x d 8 x d 5 x d
	<b>Temperature</b>	e-chain® linear flexible fixed	-35°C up to +100°C (CFKOAX1/3) -35°C up to +70°C (CFKOAX2) -50°C up to +100°C (CFKOAX1/3) -50°C up to +70°C (CFKOAX2) -55°C up to +100°C (CFKOAX1/3) -55°C up to +70°C (CFKOAX2)
	<b>v max.</b>	unsupported gliding	10m/s 5m/s
	<b>a max.</b>		100m/s <sup>2</sup>
	<b>Travel distance</b>		Unsupported travels and up to 400m 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
Temperature, from/to [°C]	R min. [x d]	R min. [x d]	R min. [x d]
-35/-25	12,5	13,5	14,5
-25/+60 (CFKOAX2)	10	11	12
-25/+90 (CFKOAX1/CFKOAX3)	10	11	12
+60/+70 (CFKOAX2)	12,5	13,5	14,5
+90/+100 (CFKOAX1/CFKOAX3)	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.



Example image

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### Electrical information



Nominal voltage	500/500V (following DIN VDE 0298-3)
Prüfspannung	1500V (following DIN EN 50395)



### Properties and approvals



UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
PTFE-free	The design of these products does not contain PTFE (CFKoax2)
UL-verified	Certificate No. V293650: „igus 4-year chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
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 1. The outer jacket material of this series complies with CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
CE	Following 2014/35/EU



Example image



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igus®

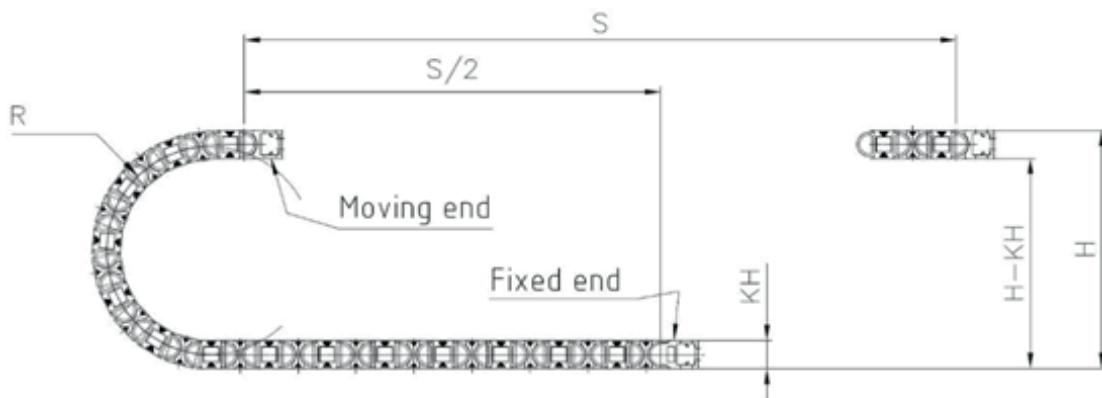
Coax cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket  
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## Typical lab test setup for this cable series

Test bend radius R	approx. 55 - 100 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>



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## Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications with average sun radiation
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, indoor cranes, low temperature applications

Example image



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Coax cable (Class 6.6.4.1) ● For extremely heavy duty applications ● TPE outer jacket  
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## Technical tables:

### Mechanical information

Art.-Nr.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFKOAX1.01 <sup>8)</sup>	1xHF75-0.3/1.6	4.5	8	23
CFKOAX1.05 <sup>8)</sup>	5xHF75-0.3/1.6	10.0	34	110
CFKOAX2.01	1xHF50-0.9/2.95	5.5	19	36
CFKOAX3.01 <sup>8)</sup>	1xHF50-0.3/0.85	3.5	6	12

<sup>8)</sup> Not PTFE-free

**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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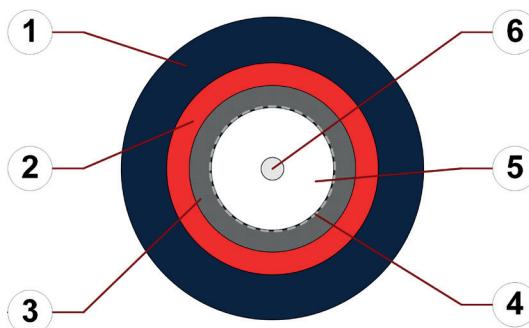
Coax cable (Class 6.6.4.1) • For extremely heavy duty applications • TPE outer jacket  
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## CFKOAX1

HF75-0.3/1.6 RG179

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Element jacket: Pressure extruded TPE mixture
3. Overall shield: Extremely bending-stable braid made of tinned copper wires
4. Shield foil: Aluminium clad plastic foil
5. Core insulation: Special FEP mixture
6. Conductor: Fine-wire strand in especially bending-stable version consisting of silvered copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core identification	Drawing
CFKOAX1.01	red	
CFKOAX1.05	red, green, blue, white, black	

Example image



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## CFKOAX1

HF75-0.3/1.6 RG179

### Electrical information

(Cable structure please see previous page)

Part No.	CFKOAX1.01	CFKOAX1.05
Nominal voltage (following DIN VDE 0298-3)	500 V	
Testing voltage (following DIN EN 50289-1-3)	1500 V	
Operating capacity (following DIN EN 50289-1-5)	65 nF/km (at 800 Hz)	60 nF/km (at 800 Hz)
Characteristic wave impedance (following DIN EN 50289-1-11)	75 ± 5 Ω (at 200 MHz)	
Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2)	800 Ω/km	

### Line attenuation approx. [dB/100m]

Part No.	50 MHz	100 MHz	200 MHz	400 MHz	800 MHz	1 GHz
CFKOAX1.01	23	28	40	57	82	92
CFKOAX1.05	23	28	40	57	82	92

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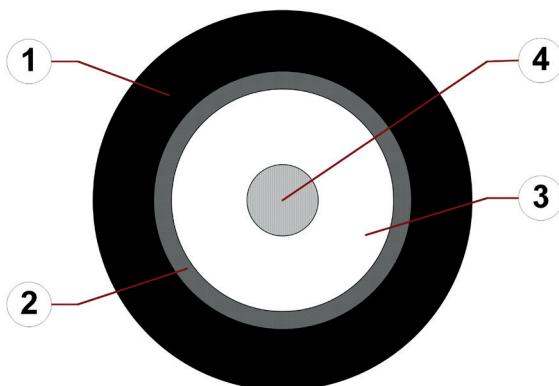
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## CFKOAX2

HF50-0.9/2.95 RG58

### Cable structure

(Electrical information please see next page)



#### Example image

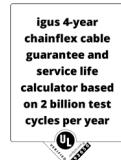
For detailed overview please see design table

### Design table

Part No.	Core identification	Drawing
CFKOAX2.01	-	

Example image

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## CFKOAX2

HF50-0.9/2.95 RG58

### Electrical information

(Cable structure please see previous page)

Part No.	CFKOAX2.01
<b>Nominal voltage</b> (following DIN VDE 0298-3)	500 V
<b>Testing voltage</b> (following DIN EN 50289-1-3)	1500 V
<b>Operating capacity</b> (following DIN EN 50289-1-5)	100 nF/km (at 800 Hz)
<b>Characteristic wave impedance</b> (following DIN EN 50289-1-11)	50 ± 5 Ω (at 200 MHz)
<b>Maximum conductor resistance at 20 °C</b> (following DIN EN 50289-1-2)	44,7 Ω/km

### Line attenuation approx. [dB/100m]

Part No.	50 MHz	100 MHz	200 MHz	400 MHz	800 MHz	1 GHz
CFKOAX2.01	13	18	26	42	60	72



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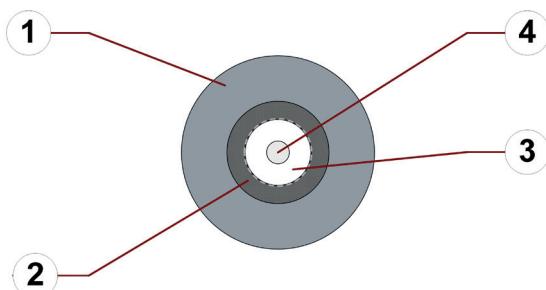
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## CFKOAX3

HF50-0.3/0.85 RG178

### Cable structure

(Electrical information please see next page)



1. Outer jacket: Pressure extruded, halogen-free TPE mixture
2. Overall shield: Extremely bending-stable braid made of tinned copper wires
3. Core insulation: Special FEP mixture
4. Conductor: Fine-wire strand in especially bending-stable version consisting of silvered copper wires

### Example image

For detailed overview please see design table

### Design table

Part No.	Core identification	Drawing
CFKOAX3.01	-	

Example image



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### CFKOAX3

HF50-0.3/0.85 RG178

### Electrical information

(Cable structure please see previous page)

Part No.	CFKOAX3.01
<b>Nominal voltage</b> (following DIN VDE 0298-3)	500 V
<b>Testing voltage</b> (following DIN EN 50289-1-3)	1500 V
<b>Operating capacity</b> (following DIN EN 50289-1-5)	95 nF/km (at 800 Hz)
<b>Characteristic wave impedance</b> (following DIN EN 50289-1-11)	50 ± 5 Ω (at 200 MHz)
<b>Maximum conductor resistance at 20 °C</b> (following DIN EN 50289-1-2)	800 Ω/km

### Line attenuation approx. [dB/100m]

Part No.	50 MHz	100 MHz	200 MHz	400 MHz	800 MHz	1 GHz
CFKOAX3.01	38	53	76	110	160	180



Example image



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