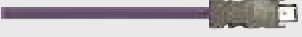


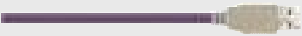













# Camera

Video- vision engineering/bus technology



# Camera Cable Selection

Chainflex® cable		Jacket	Shield	Cable type	Approvals and standards		
Video-, vision engineering/bus technology							
	FireWire	TPE	✓	Ready-made cable	CE		
	USB	TPE	✓	Ready-made cable	CE		
	GigE	TPE	✓	Ready-made cable	CE		
	FOC	PUR	✓	Ready-made cable	CE		
	FOC	TPE	✓	Ready-made cable (Robotics)	CE		
	Koax	TPE	✓	Ready-made cable	CE		

# TPE Bus Cable

## Chainflex® FireWire

TPE outer jacket, oil-resistant, flame-retardant  
For the toughest of demands in digital camera technology.

### Construction

**Conductors:** Fine-wire stranded conductor bare copper wires, according to EN 60228

**Conductor insulation:** Mechanically high-quality PE mixture.

**Cable core:** Components twisted together with an especially short pitch length.

**Element shield:** Extremely flexible, tinned copper shield over foil taping.

Coverage approx. 90% optical.

**Core identification: 26 AWG:** orange/blue, green/red. **22 AWG:** black, white.

**Outer jacket:** Low-adhesion TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in Energy Chains®. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** violet (similar to RAL 4001)

### Technical Data

**Minimum bending radius, moving:** 12.5 x outer cable diameter

**Minimum bending radius, fixed:** 5 x outer cable diameter

**Permissible temperature, moving:** -31°F to +158°F (-35°C to +70°C)

**Permissible temperature, fixed:** -40°F to +158°F (-40°C to +70°C)

**Nominal voltage:** 30 V

**Testing voltage:** 500 V

**Oil resistance:** High

**Regulations:** cRUus UL AWM style for USA & Canada 21371 80°C 30V, **Flame resistance:** FT1, CE, DESINA

### Typical Applications

- FireWire cable for use in Energy Chains® in industrial environments
- Transmission lengths of up to 32.8 ft. (10 m)

Part No.	Number of pairs/conductors nominal cross section (mm <sup>2</sup> )	Overall diameter		Copper index		Weight	
		in.	(mm)	lbs/ft.	(kg/km)	lbs/ft.	(kg/km)
CFBUS-055	2 STP x 0.15 + 2 C x 0,34	.30	(7.5)	28.2	(42)	54.4	(81)

### Choose from the following preassembled harnessed units.



No Minimum Order • No Cut Charges on up to 10 cuts of the same part number

**Shield**  
Extremely bend-resistant, tinned copper shield

**Conductor**  
Especially bend-resistant fine-wire stranded conductor

**Core**  
Components twisted with a short pitch length

**Outer jacket**  
Gusset-filled extruded, flame retardant TPE blend



# TPE Bus Cable

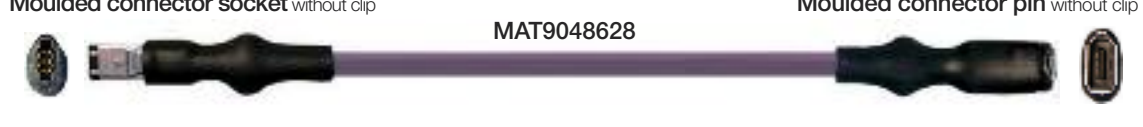
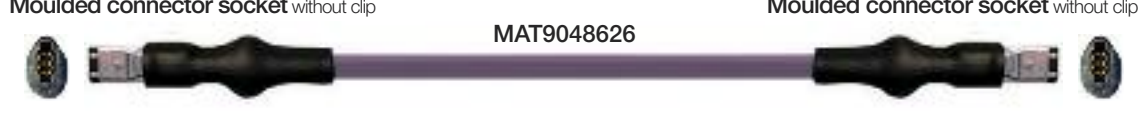
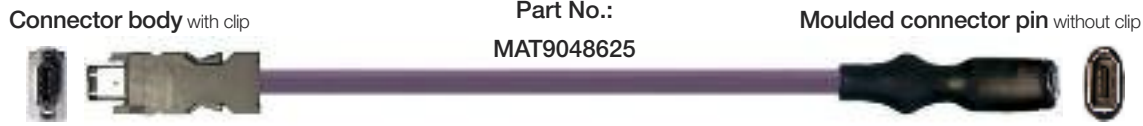


FireWire

## Chainflex® FireWire

TPE outer jacket, oil-resistant, flame-retardant  
For the toughest of demands in digital camera technology.

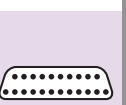
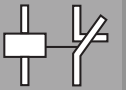
Choose from the following preassembled harnessed units.



We have successfully tested CFBUS-055 for more than 6 million cycles at 32.8 ft and 3.3 ft travel distance  
See Design Section for test details.

No Minimum Order • No Cut Charges on up to 10 cuts of the same part number

Internet: <http://www.igus.com>  
email: [sales@igus.com](mailto:sales@igus.com)  
QuickSpec/RFQ: <http://www.igus.com/quickspec>



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# TPE Bus Cable

## Chainflex® USB

TPE Energy Chain® Cable, USB cable 2.0, shielded, oil resistant, flame retardant

**Conductor**  
Especially bend resistant fine-wire stranded conductor

**Core**  
Components twisted with a short pitch length

**Overall Shield**  
Extremely bend resistant, tinned copper shield

**Outer jacket**  
Pressure extruded, flame-retardant TPE blend



### Construction

**Conductors:** Extremely flexible, very finely stranded bare copper conductor. According to EN 60228.

**Conductor insulation:** According to Bus specifications

**Conductor twisting:** Two conductors each, twisted in a short pitch, conductor pairs also twisted in a short pitch.

**Conductor colors:** 20 AWG: red, black

28 AWG: white, green (CFBUS.065)

24 AWG: white, green (CFBUS.066)

**Shield:** Extremely bend resistant, tinned copper braid. Coverage, 90% optical

**Outer jacket:** Low-adhesion TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in Energy Chains®. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** violet (similar to RAL 4001)

### Technical Data

**Minimum bending radius, moving:** 12.5 x outer cable diameter

**Minimum bending radius, fixed:** 5 x outer cable diameter

**Permissible temperature, moving:** -31°F to +158°F (-35°C to +70°C)

**Permissible temperature, fixed:** -40°F to +158°F (-40°C to +70°C)

**UV resistance:** Medium

**Oil resistance:** High

**Nominal voltage:** 30V

**Test voltage:** 500V

**Regulations: cRUus: UL AWM style for US & Canada:** 21371 80°C 30V **Flame Resistance:** FT1, CE, DESINA, RoHS: 2002/95/EC; Please reference the Design Section (Chapter 1) for more information.

**Cleanroom:** According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1. Test cable CF34-25-04

### Typical Applications

- USB 2.0 cable for use in E-Chains® in industrial environments
- Transmission lengths of up to 19.6 ft. (6 m) (CFBUS.065)
- Transmission lengths of up to 32.8 ft. (10 m) (CFBUS.066)

Part No.	AWG	No. of Conductors and Rated Cross-Section in mm <sup>2</sup>	Outer Diameter (approx)		Copper Index		Weight		Characteristic Impedance ohms
			in.	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)	
CFBUS-065	20	2 C x 0.5							
	28	1 PR x 0.08	.20	(5.0)	17.5	(26)	30.2	(45)	90

Choose from the following preassembled harnessed units.



# TPE Bus Cable

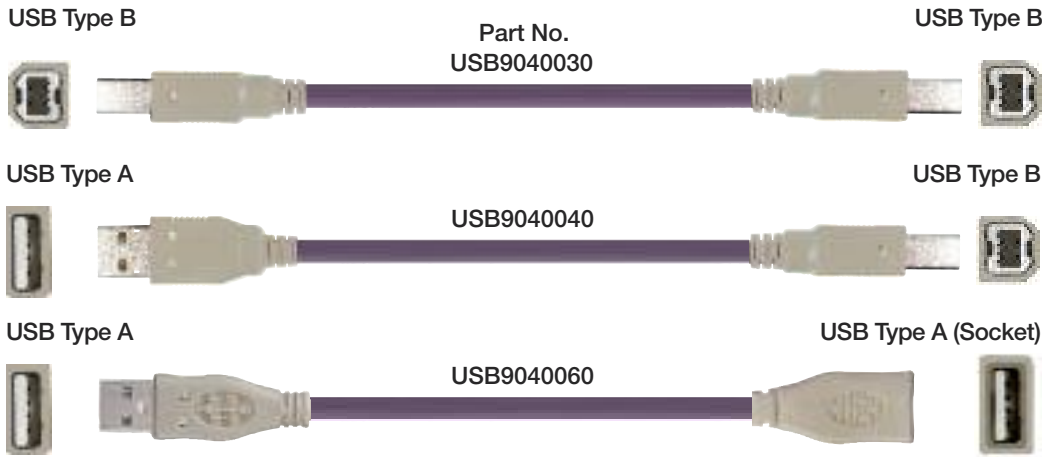
Chainflex® USB

TPE Energy Chain® Cable, shielded, oil resistant, flame retardant



USB

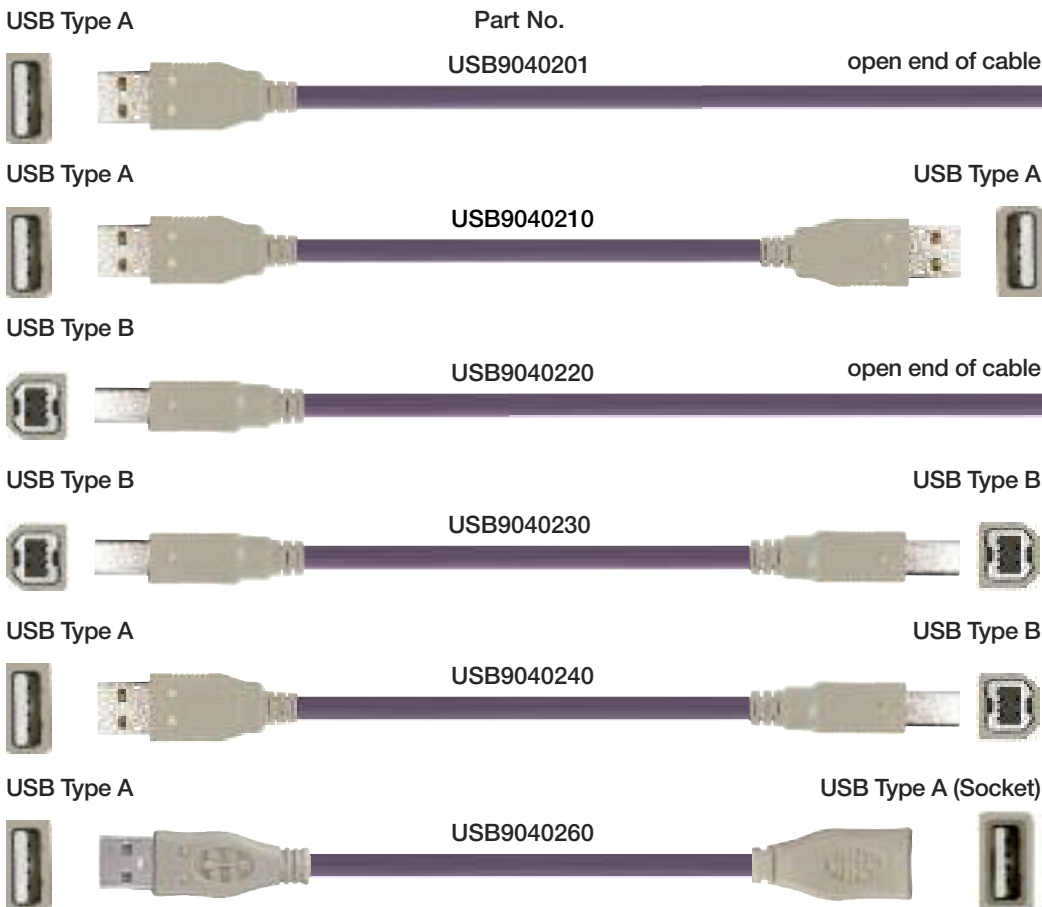
Price Index



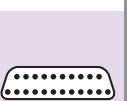
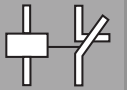
Cable is also available in bulk reels

Part No.	AWG	No. of Conductors and Rated Cross-Section in mm <sup>2</sup>	Outer Diameter (approx)		Copper Index		Weight		Characteristic Impedance ohms
			in.	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)	
CFBUS-066	20	2 C x 0.5							90
		1 PR x 0.24	.24	(6.0)	21.5	(32)	37.6	(56)	

Choose from the following preassembled harnessed units.



Internet: <http://www.igus.com>  
 email: [sales@igus.com](mailto:sales@igus.com)  
 QuickSpec/RFQ: <http://www.igus.com/quickspec>



# TPE Bus Cable

## Chainflex® GigE

TPE Energy Chain® Cable, Ethernet cable for industrial use, shielded, oil resistant, flame retardant

### Conductor

Especially bend resistant fine-wire stranded conductor

### Core

Pairs are twisted with an especially short pitch

### Inner Jacket

Gusset filled extruded

### Overall Shield

Extremely bend resistant, tinned copper shield

### Outer jacket

Pressure extruded, flame-retardant TPE blend

## Construction

**Conductors:** Extremely flexible, very finely stranded bare copper conductor. According to EN 60228.

**Conductor insulation:** According to Bus specifications

**Conductor twisting:** Two conductors each, twisted in a short pitch, conductor pairs also twisted in a short pitch.

**Conductor colors:** Color Code in accordance with DIN 47100

**Shield:** Tinned copper braid. Coverage, 90% optical

**Outer jacket:** Low-adhesion TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in Energy Chains®. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** violet (similar to RAL 4001)

## Technical Data

**Minimum bending radius, moving:** 12.5 x outer cable diameter

**Minimum bending radius, fixed:** 5 x outer cable diameter

**Permissible temperature, moving:** -31°F to +158°F (-35°C to +70°C)

**Permissible temperature, fixed:** -40°F to +158°F (-40°C to +70°C)

**UV resistance:** Medium

**Oil resistance:** High

**Nominal voltage:** 30V

**Test voltage:** 500V

**Regulations: cRUus: UL AWM style for US & Canada: 21371 80°C 30V Flame Resistance: FT1, CE, DESINA, RoHS: 2002/95/EC;** Please reference the Design Section (Chapter 1) for more information.

**Cleanroom:** According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1. Test cable CF34-25-04

## Typical Applications

- Ethernet cable for use in E-Chains® in industrial environments
- Transmission lengths of up to 50 m (CFBUS.065)



10.178

IGUS® CHAINFLEX® CFBUS.044

No Minimum Order • No Cut Charges on up to 10 cuts of the same part number

# TPE Bus Cable



GigE

## Chainflex® GigE

TPE Energy Chain® Cable, Ethernet cable for industrial use, shielded, oil resistant, flame retardant

Cable is also available in bulk reels

Part No.	AWG	No. of Conductors and Rated Cross-Section in mm <sup>2</sup>	Outer Diameter (approx)		Copper Index		Weight	
			in.	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)
CFBUS-044	26	4 PR x 0.14	.32	(8.0)	24.0	(35)	53.7	(79)
CFROBOT8-045	26	(4x(2x0.14)C)	.33	(8.5)	23.5	(35)	43.6	(65)

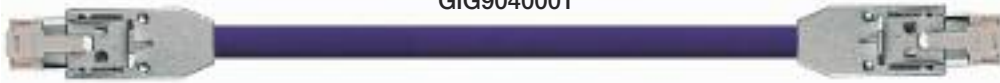
Note: The mentioned external diameters are maximum values

### Choose from the following preassembled harnessed units.

Connector RJ45 Metal, 8 poles

Part No.:  
GIG9040001

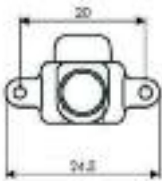
Connector RJ45 Metal, 8 poles



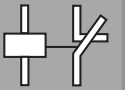
Connector RJ45 Metal, 8 poles

Part No.:  
GIG9040002

Plug made of RJ45 plastic with knurled screws



Internet: <http://www.igus.com>  
email: [sales@igus.com](mailto:sales@igus.com)  
QuickSpec/RFQ: <http://www.igus.com/quickspec>



No Minimum Order • No Cut Charges on up to 10 cuts of the same part number

10.179



# PUR Fiber Optic Cable

## Chainflex® Glass Fiber

PUR Energy Chain® gradient glass fiber optic cable, UV-resistant, halogen-free, oil-resistant, metal-free



### Construction

- Fiber:** 50/125 µm; 62.5/125 µm fibers in gel filled hollow tubes
- Core stranding:** Tubes with one fiber in each are twisted with strain relief elements
- Color code:** Black fiber jackets with white printed numbers
- Outer jacket:** Low adhesion PUR **Color:** Black

### Technical Data



















- Minimum bending radius, moving:** 12.5 outer cable diameter
- Minimum bending radius, fixed:** 7.5 x outer cable diameter
- Permissible temperature, moving:** -4°F to +140°F (-20°C to +60°C)
- Permissible temperature, fixed:** -13°F to +140°F (-25°C to +60°C)
- UV Resistance:** High
- Oil Resistance:** High
- Silicone free:**

### Typical Applications

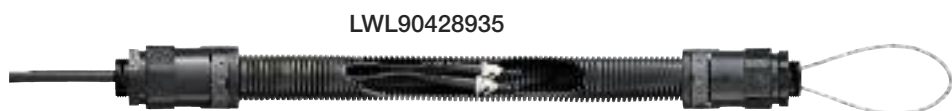
- Fiber optic cable for use in E-Chains® in industrial environments
- Transmission lengths of up to 500 m

Part No. Cable Only	Fiber Count	Fiber Diameter approx (µm)	Outer Diameter		Weight	
			µm (approx)	in. (mm)	lbs/mft	(kg/km)
CFLG-2HG-MF-50/125	2	50/125	.35	(9)	56	(85)

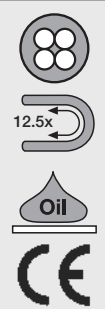
Choose from the following preassembled harnessed units.

	<b>Part No.:</b>								
Connector ST	<b>LWL90412393</b>	Connector LC							
									
Connector ST	<b>LWL90412394</b>	Connector ST							
									
Connector LC	<b>LWL90412395</b>	Connector LC							
									
<table border="1" style="width: 100%; text-align: center;"> <tr> <td>CFLG-2HG-MF-62.5/125</td> <td>2</td> <td>62.5/125</td> <td>.35</td> <td>(9)</td> <td>56</td> <td>(85)</td> </tr> </table>			CFLG-2HG-MF-62.5/125	2	62.5/125	.35	(9)	56	(85)
CFLG-2HG-MF-62.5/125	2	62.5/125	.35	(9)	56	(85)			
Connector ST	<b>LWL90412396</b>	Connector LC							
									
Connector ST	<b>LWL90412397</b>	Connector ST							
									
Connector LC	<b>LWL90412398</b>	Connector LC							
									

\* 2 ST coupling pieces needed to be ordered extra, if used as extension cable (MAT0176314).



Closed corrugated tube to feed in Fibre optic cables (image shown cut open)



# PUR Fiber Optic Cable



FOC

## Chainflex® Glass Fiber

**PUR Energy Chain®** gradient glass fiber optic cable, UV-resistant, halogen-free, oil-resistant, metal-free

FOC patch cables for static installation

Part No. Cable Only	Fiber Count	Fiber Diameter approx (µm)	Outer Diameter		Weight (approx.)	
			µm (approx)	in. (mm)	lbs/mft	(kg/km)
FFLG-2G-MF-50/125	2	50/125	.25	(6.5)	18.1	(27)

Choose from the following preassembled harnessed units.



FFLG-2G-MF-62.5/125	2	62.5/125	.25	(6.5)	18.1	(27)
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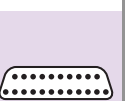
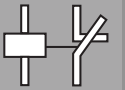


\* 2 ST coupling pieces needed to be ordered extra, if used as extension cable (MAT0176314).



Harnessed igus® E6 system on a camera application.

Internet: <http://www.igus.com>  
 email: [sales@igus.com](mailto:sales@igus.com)  
 QuickSpec/RFQ: <http://www.igus.com/quickspec>



# TPE Fiber Optic Cable

## Chainflex® CF ROBOT5

TPE outer jacket, oil-resistant, bio-oil-resistant, UV-resistant, low temperature flexible, hydrolysis-resistant and microbe-resistant

Fiber optic cable for robotic applications with torsional movements

### Construction

**Conductors:** 50/125µm, 62.5/125µm special fixed wired elements with aramide strain relief

**Conductor stranding:** FOC wires stranded with high-tensile aramide dampers around the GRP central element

**Outer jacket:** Low adhesion, highly flexible, abrasion resistant, TPE blend. Adapted for the requirements of Energy Chain® systems. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** Steel Blue.

### Technical Data

**Minimum bending radius, moving:** 12.5 x outer cable diameter

**Minimum bending radius, fixed:** 7.5 x outer cable diameter

**Permissible temperature, moving:** -4°F to +140°F (-20°C to +60°C)

**Permissible temperature, fixed:** -13°F to +140°F (-25°C to +60°C)

**Oil resistance:** High

**UV resistance:** High

**Flame Resistance:** According to IEC 60332-1-2, CEI 20-34, FT1, VW-1

**Regulations:** CE, RoHS: 2002/95/EC; Please reference the Design Section (Chapter 1) for more information.

**Cleanroom:** According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1. Test cable CF9-15-07

### Typical Applications

- for maximum mechanical load requirements with torsion movements
- indoor and outdoor applications, UV-resistant
- especially for robots and movements in the 3D range
- robots, handling

FOC cores with high tensile aramide fibers

GRP core element

FOC wires stranded with dampers around the GRP core

**Outer jacket**  
Pressure extruded halogen-free TPE blend



Part No. Cable Only	No. of Fibers	Fiber Diameter approx. µm	Outer Diameter (approx)		Weight	
			in.	(mm)	lbs/mft	(kg/km)
CFROBOT5-501	2	50/125	.33	(8.5)	58.4	(87)

Choose from the following preassembled harnessed units.



Clean-Room

# TPE Fiber Optic Cable



FOC  
Robotics

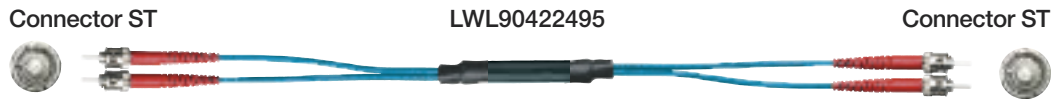
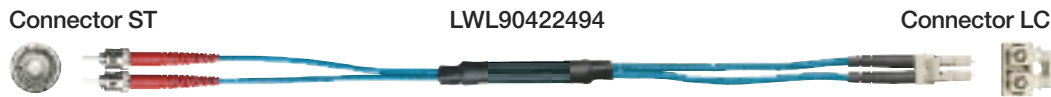
## Chainflex® CF ROBOT5

TPE outer jacket, oil-resistant, bio-oil-resistant, UV-resistant, low temperature flexible, hydrolysis-resistant and microbe-resistant

Fiber optic cable for robotic applications with torsional movements

Part No. Cable Only	No. of Fibers	Fiber Diameter approx. $\mu\text{m}$	Outer Diameter (approx)		Weight	
			in.	(mm)	lbs/mft	(kg/km)
CFROBOT5-500	2	62.5/125	.33	(8.5)	58.4	(87)

Choose from the following preassembled harnessed units.

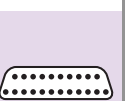
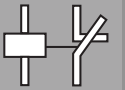


\* 2 ST coupling pieces needed to be ordered extra, if used as extension cable (MAT0176314).



Closed corrugated tube to feed in Fibre optic cables (image shown cut open)

Internet: <http://www.igus.com>  
email: [sales@igus.com](mailto:sales@igus.com)  
QuickSpec/RFQ: <http://www.igus.com/quickspec>



No Minimum Order • No Cut Charges on up to 10 cuts of the same part number

# TPE Coax Cable

## Chainflex® CFKoax1

TPE Energy Chain® cable, 75Ω coax cable, oil-resistant, bio-oil-resistant, UV-resistant

**Conductor**

Specially bend-resistant fine wire stranded conductor

**Conductor shield**

Highly flexible braided copper shield

**Core**

Coaxes twisted with short pitch

**Outer jacket**

gusset filled, pressure extruded, halogen-free TPE blend

### Construction

**Conductors:** Tinned copper wires

**Conductor insulation:** FEP

**Coax shield:** Tinned copper braid, 90% optical coverage

**Coax jacket/color:** TPE, red, green, blue, white, black

**Cable core for 5 coax cable:** coaxes twisted together with a short pitch length

**Outer jacket:** TPE abrasion-resistant, high-flex blend, oil-resistant, coolant-resistant. **Color:** dark blue (RAL 5011).

### Technical Data

**Minimum bending radius, moving:** 10 x outer cable diameter

**Minimum bending radius, fixed:** 7.5 x outer cable diameter

**Permissible temperature, moving:** -31°F to +212°F (-35°C to +100°C)

**Permissible temperature, fixed:** -40°F to +212°F (-40°C to +100°C)

**UV resistance:** High

**Oil resistance:** High

**Nominal voltage:** 300V

**Test voltage:** 1500V

**Operating capacitance:** approx. 19.5pF/ft

**Characteristic impedance:** 75Ω

**Cleanroom:** According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1. Test cable CF9-15-07

Coax is compatible with RG179 type connectors

### Typical Applications

- for maximum mechanical load requirements
- indoor and outdoor applications, UV resistant
- for unsupported and gliding travel up to 1312 ft (400m)
- storage and retrieval units for high bay warehouses, machine tools, quick handling, cleanroom, semiconductor insertion, outdoor cranes, low temperature applications

Part No.	No. of Coaxes	Diameter		Copper Index		Weight	
		in.	(mm)	lbs/ft	(kg/m)	lbs/mft	(kg/km)
CF Koax 1-01	1 coaxial element	.18	(4.5)	6.0	(9)	16.7	(25)

Choose from the following preassembled harnessed units.

Connector	MAT90423400	Socket
Connector	MAT90423401	Connector
Socket	MAT90423402	Socket
Connector	MAT90423403	open end of cable
Socket	MAT90423404	open end of cable



# TPE Coax Cable



CF Koax

## Chainflex® CFKoax5

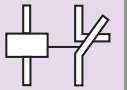
TPE Energy Chain® cable, 75Ω coax cable, oil-resistant, bio-oil-resistant, UV-resistant

Part No. Cable Only	No. of Coaxes	Diameter		Copper Index		Weight	
		in.	(mm)	lbs/ft	(kg/m)	lbs/mft	(kg/km)
CF Koax 1-05	5 coaxial element	.39	(10)	31.5	(47)	16.7	(25)

Choose from the following preassembled harnessed units.



Internet: <http://www.igus.com>  
 email: [sales@igus.com](mailto:sales@igus.com)  
 QuickSpec/RFQ: <http://www.igus.com/quickspec>



No Minimum Order • No Cut Charges on up to 10 cuts of the same part number