





Special Cables



Special Cable Selection

Chainflex® cable	Jacket	Shield	Class	Bending radius moving (factor x d)	Temperature moving from/to °F (°C)	Oil-resistant	Torsion resistant	V max. ft/s (m/s) unsupported	V max. ft/s (m/s) gliding	a max. ft/s² (m/s²)	Approvals and standards
Special cables											
CFFLAT	TPE	7.4.4	5	-31/+194°F (-35/+90°C)	✓			32.81 ft/s (10 m/s)	19.69 ft/s (6 m/s)	328.1 ft/s² (100 m/s²)	CE 
CFBRAID	TPE	6.4.4	7.5	-31/+194°F (-35/+90°C)	✓			32.81 ft/s (10 m/s)	19.69 ft/s (6 m/s)	262.4 ft/s² (80 m/s²)	CE  
CFTHERMO	PUR	5.2.3	12.5-15	-4/+176°F (-20/+80°C)	✓			6.56 ft/s (2 m/s)	3.28 ft/s (1 m/s)	65.62 ft/s² (20 m/s²)	CE 

CFFLAT



TPE Power Cable

Chainflex® CFFLAT

TPE Energy Chain® cable, oil-resistant, bio-oil-resistant, UV-resistant, flame-retardant

CLASS
7.4.4

Price Index



Conductor
Highly flexible braided special conductor



Construction

Conductors: Highly flexible braided special conductor

Conductor insulation: Mechanically high quality TPE blend.

Outer jacket: TPE - Particularly abrasion-resistant, high-flex blend, oil-resistant, coolant-resistant and UV-resistant. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** black.

Technical Data

Minimum bending radius, moving: 5 x outer cable diameter

Minimum bending radius, fixed: 4 x outer cable diameter

Permissible temperature, moving: -31°F to +194°F (-35°C to +90°C)

Permissible temperature, fixed: -40°F to +194°F (-40°C to +90°C)

Nominal voltage: 1000 V

Testing voltage: 4000V

Oil resistance: High

UV resistance: High

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 standard 14644-1.

Test cable CF9-15-07

Typical Applications

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

Conductor insulation
Mechanically high-quality TPE



Outer jacket
Pressure extruded, TPE blend



Part No.	AWG	No. of Conductors and Rated Cross-Section in mm ²	Outer Diameter		Copper Index		Weight	
			in. W x H	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)
CFFLAT-25-01	14	1 x 2.5	.53x.20	(13.5x5.0)	20	(30)	48	(71)
CFFLAT-40-01	12	1 x 4.0	.55x.20	(14.0x5.0)	30	(46)	73	(109)

NOTE: The mentioned external diameters are maximum values.



Clean-Room

10.168

TPE Power Cable

Chainflex® CF BRAID

TPE Energy Chain® cable, shielded/unshielded, oil-resistant, bio-oil-resistant, UV-resistant, flame-retardant, hydrolysis-resistant and microbe-resistant



CF BRAID

Price Index



CLASS
6.4.4

Construction

Conductors: Finely stranded bare copper wires, according to EN60882

Conductor insulation: Mechanically high-quality TPE blend. According to DIN VDE 0207 Part 4.

Cable core: Conductors braided together to prevent corkscrew

Inner jacket: TPE blend, adapted to the requirements of the Energy Chain®.

Overall shielding: Tinned copper braid, coverage approx. 90% optical (for shielded types)

Outer jacket: Low-adhesion TPE blend, especially abrasion-resistant, high-flex blend, adapted to the requirements of the Energy Chain®. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** black.

Technical Data

Minimum bending radius, moving: 7.5 x outer cable diameter

Minimum bending radius, fixed: 4 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)

Voltage: 1000 V

Testing voltage: 4000V

Oil resistance: High

UV resistance: High

Regulations: cRUus: UL AWM style for USA & Canada: 21184 80°C 1000V **Flame Resistance:** FT1, CE,

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

Typical Applications

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

Part No.	AWG	No. of Conductors and Rated Cross-Section in mm ²	Outer Diameter (approx)		Copper Index		Weight	
			in.	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)
CFBRAID-25-08	14	8 G 2.5	.79	(20)	130.6	(192)	270.8	(398)
CFBRAID-25-08-C	14	(8 G 2.5) C	.93	(23.5)	217.7	(320)	425.2	(625)

NOTE: The mentioned external diameters are maximum values.

G = with gree-yellow earth core



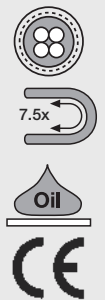
Conductor
Highly flexible special conductor

Core
Conductors stranded using a special technique

Inner Jacket
TPE blend

Overall shield
Highly flexible braided copper shield

Outer jacket
Pressure extruded TPE blend



Clean-room

10.169

Chainflex® CF THERMO

PUR Energy Chain® cable, oil-resistant, coolant resistant, flame retardant, notch resistant, PVC-free/halogen-free, hydrolysis resistant and microbe resistant

CLASS
6.3.3

Price Index



Conductor
Special flexible stranded thermocouple alloys

Core
Individual conductors combined in layers with a short pitch

Overall shield
Highly flexible braided copper shield

Barrier layer
Fleece tape over core

Outer jacket
Pressure extruded, PUR blend



Construction

- Conductors:** Special flexible stranded thermocouple alloys
- Conductor insulation:** Mechanically high-quality TPE mixture
- Conductor twisting:** Conductors are combined together with a short pitch
- Conductor colors:** According to Thermo IEC color code specifications
- Barrier layer:** Fleece tape over core construction
- Element Shield:** Tinned copper braid, 90% optical coverage
- Outer jacket:** PUR: low-adhesion, highly abrasion-resistant, adapted to the requirements in the Energy Chain®. Silicon-free in compliance with PV 3.10.7 - status 1992. **Color:** green (RAL 6018).

Technical Data

- Minimum bending radius, moving:** <10m travel = 12.5 x diameter; ≥10m travel = 15 x diameter
- Minimum bending radius, fixed:** 5 x outer cable diameter
- Permissible temperature, moving:** -4°F to +176°F (-20°C to +80°C)
- Permissible temperature, fixed:** -40°F to +176°F (-40°C to +80°C)
- Flame resistance:** FT1
- UV resistance:** Medium
- Oil resistance:** High
- Voltage:** 300V
- Test voltage:** 1500V
- Regulations:** 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. Outer jacket material complies with CF27-07-05-02-01-D

Typical Applications

- for high mechanical load requirements
- indoor and outdoor applications with average sun exposure
- especially for unsupported and gliding travel up to 164 ft (50m)
- storage and retrieval units for high-bay warehouses, machining units, packaging machines, quick handling, cleanroom, indoor cranes, refrigerating sector



12.5-15x



Part No.	AWG	No. of Pairs & Conductors and Rated Cross-Section in mm ²	Outer Diameter (approx)		Copper Index		Weight	
			in.	(mm)	lbs/mft	(kg/km)	lbs/mft	(kg/km)
CFTHERMO-J-001	24	1 PR x 0.23	.22	(5.5)	5.4	(8.0)	23.5	(35)
CFTHERMO-K-001	24	1 PR x 0.23	.22	(5.5)	5.4	(8.0)	22.2	(33)
CFTHERMO-K-002	24	1 STP x 0.23	.28	(7.0)	4.7	(15.4)	41.6	(62)
	20	3 C x 0.5						
CFTHERMO-T-002	24	1 STP x 0.23	.28	(7.0)	4.7	(15.4)	41.6	(62)
	20	3 C x 0.5						

Part No.	Thermocouple Alloy Types	Color Code	Jacket Color
CFTHERMO-J-001	Fe-CuNi: iron-constantan	-white, + black	Black
CFTHERMO-K-001	NiCr-Ni: chromel-alumel	-white, + green	Green
CFTHERMO-K-002	NiCr-Ni: chromel-alumel	-white, + green	Green
	power conductors: Copper	brown, blue, yellow-green	
CFTHERMO-T-002	NiCr-Ni: copper-constantan	-white, + brown	Brown
	power conductors: Copper	brown, blue, yellow-green	

Clean-Room



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System®

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