

Engineered Products:

FBT™ -400

Flexible Low Loss High Power Communications Coax

Ideal for...

- High Power Base Station Jumper Assemblies
- In-Building Plenum Feeder Runs
- Any High Power Low Loss RF cable application



• **FBT™** is an indoor/outdoor highly fire retardant cable intended specifically for runs within and between base station cabinets. It is also applicable for return air handling plenums (e.g., dropped ceilings, raised floors). It has a UL/NEC rating of ‘CL2P’ for plenum applications.

• **Flexibility** and bendability are hallmarks of the FBT-400 cable design. The flexible outer conductor enables the tightest bend radius available for any cable of similar size and performance.

• **Low Loss** is another hallmark feature of FBT-400. Size for size FBT has the lowest loss of any flexible cable and comparable loss to semirigid hard-line cables.

• **RF Shielding** is 50 dB greater than typical single shielded coax (40 dB). The multi-ply bonded foil outer conductor is rated conservatively at > 90 dB (i.e. >180 dB between two adjacent cables).

• **Weatherability:** FBT-400 cables designed for outdoor exposure incorporate FEP jackets for UV resistance and have life expectancy in excess of 20 years.

• **Connectors:** A wide variety of connectors are available for FBT-400 cable, including all common interface types, reverse polarity, and a choice of solder or non-solder center pins. Most FBT connectors employ crimp outer attachment using standard hex crimp sizes.

• **Cable Assemblies** – All FBT-400 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

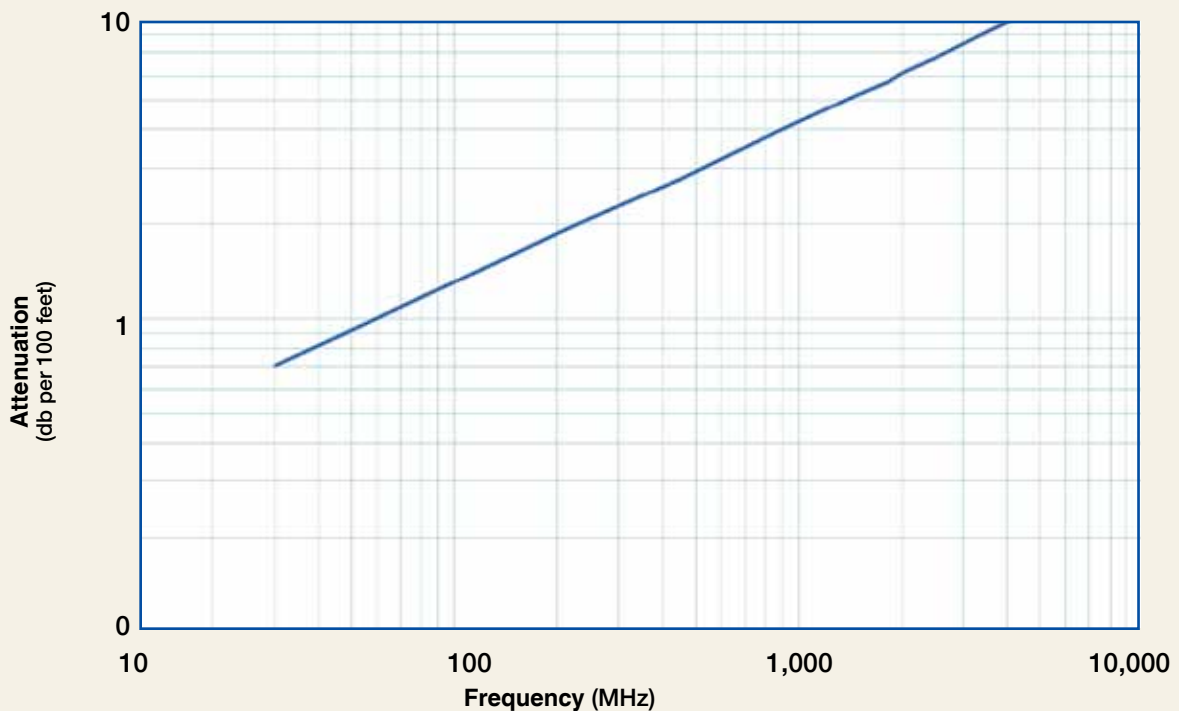
Part Description				Stock
Part Number	Application	Jacket	Color	Code
FBT-400	Indoor/Outdoor	FEP	Brown	54171

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BCCA1	0.095	(2.41)
Dielectric	Low Density PTFE	0.285	(7.24)
Outer Conductor	Aluminum Tape	0.291	(7.39)
Overall Braid	Tinned Copper	0.320	(8.13)
Jacket	Brown FEP	0.370	(9.40)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.8	(44.5)
Bend Radius: repeated	in. (mm)	4	(101.6)
Bending Moment	ft-lb (N-m)	1	(1.36)
Weight	lb/ft (kg/m)	0.104	(0.15)
Tensile Strength	lb (kg)	120	(54.5)
Flat Plate Crush	lb/in. (kg/mm)	185	(3.31)

Environmental Specifications		
Performance Property	°F	°C
Installation Temperature Range	-67/+302	-55/+150
Storage Temperature Range	-67/+302	-55/+150
Operating Temperature Range	-67/+302	-55/+150

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	76	
Dielectric Constant	NA	1.73	
Time Delay	nS/ft (nS/m)	1.34	(4.40)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	26.7	(87.6)
Inductance	uH/ft (uH/m)	0.067	(0.22)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	1.80	(5.9)
Outer Conductor	ohms/1000ft (/km)	1.65	(5.4)
Voltage Withstand	Volts DC	2500	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	16	

Attenuation vs. Frequency (typical)


Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	3400	5800
Attenuation dB/100 ft	0.7	0.9	1.6	1.9	2.8	4.0	5.2	5.7	6.1	6.8	8.0	10.7
Attenuation dB/100 m	2.3	3.0	5.3	6.4	9.2	13.1	17.1	18.8	19.9	22.4	26.3	35.0
Avg. Power kW	6.23	4.82	2.76	2.27	1.58	1.10	0.84	0.77	0.73	0.65	0.55	0.41

Calculate Attenuation =

$$(0.129138) \cdot \sqrt{\text{FMHz}} + (0.000146) \cdot \text{FMHz}$$

(interactive calculator available at http://www.timesmicrowave.com/cable_calculators)

Attenuation:

VSWR=1.0 ; Ambient = +25°C (77°F)

Power:

VSWR=1.0; Ambient = +40°C; Inner Conductor = 100°C (212°F); Sea Level; dry air; atmospheric pressure; no solar loading

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Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)	Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
N Female	Straight Jack	TC-400-NF-PL	3190-964	<1.25:1 (2.5)	NA	Solder	Crimp	N/G	1.8 (45)	0.66(16.8)	0.105 (47.6)
N Male	Straight Plug	EZ-400-NMH-PL-D	3190-602	<1.25:1 (2.5)	Hex/Knurled	Spring Finger	Crimp	A/G	1.5 (38)	0.89(22.6)	0.113 (51.3)
	Straight Plug	TC-400-NMH-PL	3190-759	<1.25:1 (2.5)	Hex	Solder	Crimp	S/G	1.5 (38)	0.89(22.6)	0.113 (51.3)
	Right Angle	TC-400-NMH-RA	3190-422	<1.35:1 (6)	Hex	Solder	Crimp	S/G	1.8 (46)	1.25(31.8)	0.130 (59.0)

* Finish metals: N=Nickel, S=Silver, G=Gold, SS=Stainless Steel, A=Alballoy **VSWR spec based on 3 foot cable with a connector pair



Hardware Accessories

Type	Part Number	Stock Code	Description
Ground Kit	GK-S400T	GK-S400T	Standard Grounding Kit (each)



Install Tools

Type	Part Number	Stock Code	Description
Crimp Tool	HX-4	3190-200	Crimp Handle
Crimp Dies	Y1719	3190-202	.429" Hex Dies
Crimp Tool	CT-400/300	3190-666	Crimp tool for LMR 400 connectors
Crimp Rings	CR-400	3190-830	Crimp rings for TC/EZ-400 connectors (package of 10)
Deburr Tool	DBT-U	3192-001	For 'EZ' Style Connectors
Cutting Tool	CCT-01	3190-1544	Cable and flush cut tool
Replacement Blade	RB-01	3190-1609	Replacement blade for cutting tool
Tool Kit	TK-400EZ	3190-1602	Tool kit for LMR-400 Crimp Connectors (includes CCT-01, CST-400, CT-400/300, Tool Pouch)