



PRODUCT BULLETIN

PB:001



Low Loss Coaxial Cables



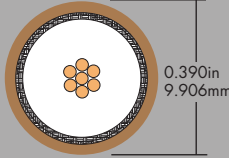
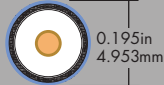
Thermax TMaxx™ Family of Low Loss High Frequency Coaxial Cables

Design and application engineers in the aerospace, defense, military, industrial and RF communications fields are now tasked with finding cables that fulfill their high performance requirements, yet must be durable, light in weight and able to fit into increasingly smaller spaces. TMaxx Coaxial Cables are uniquely able to meet these competing needs, providing exceptional low loss characteristics over a high frequency range, while also providing significant weight and space savings over traditional MIL-DTL-17 and RG coaxial cables.

Key Advantages of TMaxx Coaxial Cable

- Low Loss Characteristics – Improvements in attenuation up to 60% can be experienced when compared to standard, similarly-sized MIL-Spec coaxial cables
- Small Size – More than half the size of standard MIL-Spec coaxial cables with similar attenuation characteristics
- Light Weight – 30-80% lighter than standard, similarly-sized MIL-Spec coaxial cables; 60-80% lighter than standard MIL-Spec coaxial cables with similar attenuation characteristics
- High Frequency Response – up to 18 GHz
- High Temperature Performance – 150°C or 200°C
- Tight Bend Radius
- Excellent Power Handling Performance

Standard MIL-Spec RG-393 vs. Thermax TMaxx-142 Low Loss Coax

CABLE TYPE	RG-393*	TMaxx-142*
		
Conductor	7/.0312 Silver-plated copper	.051 Solid silver-plated copper
Insulation	Solid PTFE	Expanded PTFE
Shield	Double round silver-plated copper braid	Flat/Foil/round silver-plated copper braids
Jacket	Extruded FEP	Extruded FEP
Impedance	50 Ohms	50 Ohms
Capacitance	30 pF/ft (98.4 pF/m)	25 pF/ft (82 pF/m)
Vp	69%	80%
Attenuation	8.8 dB/100ft @ 1.0 GHz (25.6 dB/100m)	9.0 dB/100ft @ 1.0 GHz (26.0 dB/100m)
Weight	160 lbs/1000ft (238.11 Kg/1000m)	28.7 lbs/ft (42.11 Kg/1000m)
Min Bend Radius	2.75in (69.85mm)	1.35in (34.26mm)

*Drawn to Scale



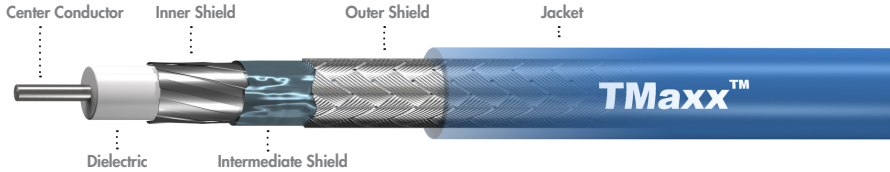
Low Loss Coaxial Cables



TMaxx Cable Construction Details

TMaxx cable's exceptional electrical performance and physical attributes are made possible by its unique construction and high-performance materials that meet aerospace requirements.

- Center Conductor: Silver-plated Copper
- Dielectric: Expanded PTFE
- Inner Shield: Flat Helically-wrapped, Silver-plated Copper
- Intermediate Shield: Aluminum foil tape*
- Outer Shield: Round, Silver-plated Copper Braid
- Jacket: FEP (blue, unless specified otherwise)

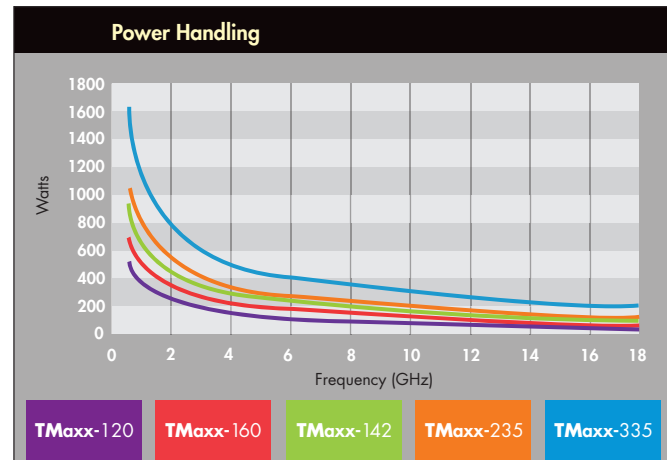
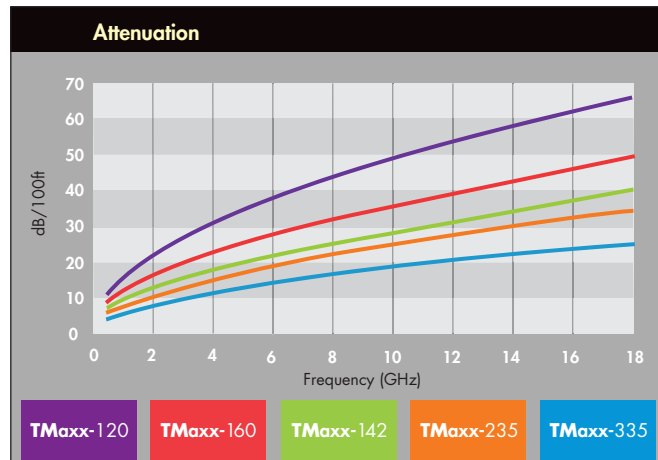


The use of a solid conductor facilitates the cable's consistently high electrical performance. The Expanded PTFE dielectric offers a high velocity of propagation and excellent phase stability over temperature. The triple shield construction offers exceptional shield effectiveness and optimal protection from EMI/RFI, while the cable's FEP jacket enables stable performance at elevated temperatures.

TMaxx Performance Attributes

Velocity of Propagation	80%
Time Delay	1.29 nS/ft
Capacitance	25 pF/ft
Impedance	50 Ohms
Shield Effectiveness	>95 dB
VSWR	0 GHz – 10 GHz: 1.15:1 10 GHz – 18 GHz: 1.25:1
Operating Temperature*	-55°C to +150°C -55°C to +200°C

*Aluminum Polyester is used for 150°C constructions and Aluminum Polyimide for 200°C constructions.



Attenuation (Typical) dB/100ft (m)										CUT OFF FREQ (GHz)
PART NUMBER	500 MHz	1GHz	2 GHz	3 GHz	5 GHz	10 GHz	15 GHz	18 GHz		
TMaxx-120	10.5 (34.4)	15.0 (49.0)	21.0 (69.0)	26.0 (85.0)	34.0 (112.0)	49.0 (161.0)	60.0 (197.0)	67.0 (220.0)	54.0	
TMaxx-160	8.0 (26.2)	11.0 (36.0)	15.0 (49.0)	18.0 (59.0)	24.0 (79.0)	36.0 (118.0)	45.0 (148.0)	49.0 (161.0)	39.0	
TMaxx-142	6.0 (19.7)	8.0 (26.0)	12.0 (39.0)	15.0 (49.0)	19.0 (62.0)	27.0 (89.0)	34.0 (112.0)	37.0 (121.0)	30.0	
TMaxx-235	5.4 (17.7)	7.1 (23.0)	11.0 (36.0)	13.0 (43.0)	18.0 (59.0)	25.0 (82.0)	32.0 (105.0)	35.0 (114.0)	27.0	
TMaxx-335	3.5 (11.5)	5.0 (16.0)	7.5 (25.0)	9.0 (30.0)	12.0 (39.0)	17.5 (57.0)	22.0 (72.0)	24.0 (79.0)	17.5	

All values are nominal unless otherwise indicated. Call Thermax at 1-800-423-5873 (International: +1-661-295-3100) for a connector cross-reference



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Note: These standard specifications have been met with the use of precise test equipment and procedures developed by Thermax. This product bulletin does not constitute a warranty that the product will meet the above specifications while used in specific applications or attached to specific test equipment.