

High-Performance Vapor-Sealed Cable Assemblies for Airborne Applications



Typical Applications

- Airframe interconnects for electronic defensive systems (signal detection, interception, identification)
- Electronic payload interconnects including active electronically scanned array (AESA) radar
- Commercial and business aircraft SATCOM connectivity

Benefits

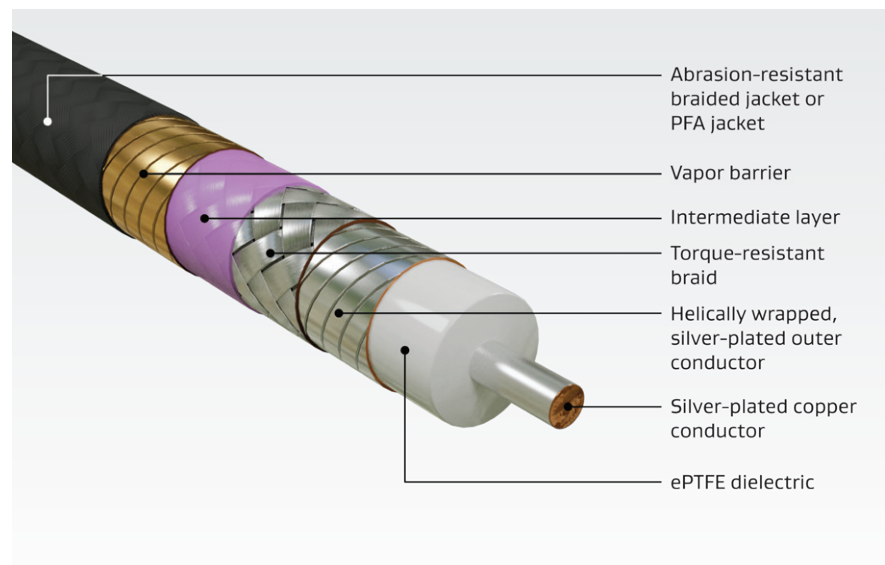
- Durable vapor sealing prevents ingress of contaminants
- Flexible cable assemblies for ease of installation
- Easy routing in confined spaces due to small diameter
- Outstanding shielding effectiveness from durable cable construction
- Low insertion loss for a given diameter
- Maintains insertion loss, return loss, and phase performance over entire life cycle
- Meets the mechanical and environmental requirements for airframe cables defined in MIL-T-81490
- Comprehensive qualification data available to support product claims

With superior electrical performance, GORE® Microwave Sealed Airframe Assemblies (7-Series) are specifically designed for airframe microwave interconnect needs. These assemblies are qualified for aerospace applications and meet the MIL-T-81490 mechanical and environmental requirements (listed in Table 2) for airframe cables.

GORE® Microwave Sealed Airframe Assemblies are vapor sealed to prevent the ingress of water vapor, jet fuel, and other contaminants to ensure that they maintain their electrical performance over the entire life cycle. They provide consistently reliable performance with longer service life and reduced system downtime, resulting in lower life cycle costs for the aircraft operator.

These assemblies are designed to satisfy the most stringent specification requirements of the next generation of military and commercial aircraft (Figure 1).

Figure 1: Rugged Construction



GORE® Microwave/RF Assemblies (Vapor-Sealed) For Defense Aircraft

Table 1: Cable Assembly Properties*

Electrical

Property	Gore Cable Type				
	7G	75	7E	7L	7M
Maximum Frequency (GHz)	40.0	18.0	18.0	7.0	2.0
Standard Impedance (Ohms)	50 ± 1				
Nominal Dielectric Constant	1.4				
Insertion Loss at Max Frequency dB/m (dB/ft)	2.56 (0.78)	1.05 (0.32)	0.62 (0.19)	0.33 (0.10)	0.129 (0.04)
Nominal Velocity of Propagation (%)	85				
Nominal Time Delay ns/in (ns/cm)	3.94 (1.2)				
Shielding Effectiveness (dB to Max Frequency)	> 90				

Mechanical / Environmental

Property	Gore Cable Type				
	7G	75	7E	7L	7M
Outer Diameter mm (in)	3.80 (0.150)	5.30 (0.210)	8.50 (0.335)	12.32 (0.485)	14.35 (0.565)
Mass g/m (oz/ft)	36.0 (0.39)	63.0 (0.67)	150.0 (1.61)	262.0 (2.82)	328.0 (3.52)
Minimum Bend Radius mm (in)	19.0 (0.75)	25.0 (1.0)	50.0 (2.0)	62.5 (2.5)	80.0 (3.15)
Center Conductor	Solid	Solid	Solid	Stranded	Solid
Operating Temperature °C (°F)	-58 to +200 ^a (-72 to +392)				
Crush Resistance kgf/cm (lb/in)	8.95 (50.0)				

* All values listed are nominal

^a Contact a Gore representative for applications with an operating temperature > 175°C.

Table 2: Qualifications for GORE® Microwave/RF Assemblies (Vapor-Sealed)

Examination or Test	Applicable Standards	Status
Seal - Vapor Leakage	MIL-STD-202, Notice 9, Method 112E, paragraph 5, Condition C, Procedure IV	Compliant
Temperature Shock	MIL-STD-810, Method 503.2	Compliant
Vibration	MIL-STD-810, Method 514.3, Procedure I	Compliant
Power Handling Capability	MIL-T-81490, paragraph 4.7.13	Compliant
Flexure	MIL-T-81490, paragraph 4.7.15	Compliant
Tensile Load	MIL-T-81490, paragraph 4.7.17	Compliant
Concentrated Load	MIL-T-81490, paragraph 4.7.18	Compliant
Abrasion	MIL-T-81490, paragraph 4.7.19	Compliant
Sand and Dust	MIL-STD-810, Method 510.2, Procedure I	Compliant
Humidity	MIL-STD-810, Method 507	Compliant
Salt Fog	MIL-STD-810, Method 509, Exposure ≥ 96 hours	Compliant
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	Compliant
Icing/Freezing Rain	MIL-STD-810, Method 521.0	Compliant
Fungus Resistance	MIL-STD-810, Method 508.3	Compliant
Rain - Drip	MIL-STD-810, Method 506.2, Procedure II	Compliant
Rain - Blowing Rain	MIL-STD-810, Method 506.2, Procedure I	Compliant
Corona Extinction Voltage	MIL-C-17, paragraphs 3.7.5 and 4.8.6	Compliant

Ordering Information

To place an order for GORE® Microwave Sealed Airframe Assemblies, please contact a Gore representative at [gore.com/contact](https://www.gore.com/contact).

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