

GORE™ HIGH FREQUENCY COAXIAL CABLE

Introduction

W. L. Gore & Associates, Inc., a company with more than 25 years experience providing high performance microwave cable assemblies, is pleased to offer a complimentary line of bulk coaxial products. The cable designs detailed below are based on the same quality materials and process found in the Gore’s microwave assembly business, but are available as a bulk product to allow customers greater flexibility for connector termination.

Size-for-size Gore microwave coaxial cable provides the lowest insertion loss on the market today. This is accomplished through a unique cable design that exploits the low dielectric constant, low loss tangent, and conforming nature of the expanded polytetrafluoroethylene (ePTFE) dielectric. The basic cable design is detailed in FIG 1. The conforming nature of the ePTFE dielectric allows for the use of an electrical shield with 100% coverage consisting of a helically wrapped, multi-layer, silver-plated copper foil (flatwire).

The scope of the product line will cover standard constructions starting with “Type 89”, an 0.085” diameter cable designed for high-density, high routability applications, and extending to “Type 320”, a 0.320” diameter cable designed for optimized insertion loss performance through 18 GHz.

Performance

All of the bulk cables constructions are designed and manufactured with broadband performance specified where the cable is expected to operate virtually free of moding and narrow band VSWR and insertion loss anomalies. All cable is inspected and tested against Gore’s standard insertion loss and VSWR specification. A table is provided to describe the attenuation performance for the standard construction.

Vertical integration

Gore is unique as a high frequency cable manufacturer because of the vertical integration for the critical materials that control electrical performance. Gore is recognized as the world’s premier producer of expanded PTFE tape dielectrics. Our high frequency bulk cable product family

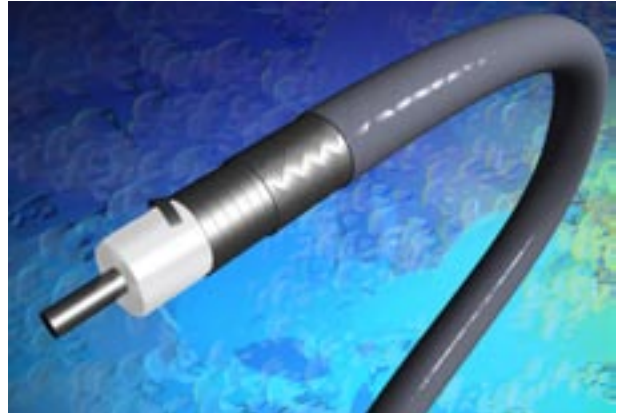


Figure 1.0. GORE™ High Frequency Coaxial Cable

Standard High Frequency Cable Part Numbers

Basic Gore Cable Type	Standard Part #
Type 89	CXN3506
Type 4	CXN3500
Type 145	CXN3507
Type 5	CXN3512
Type 5	CXN3449*
Type 6	CXN3513
Type 6	CXN3450*
Type 320	CXN3508

* Designed for phase applications

fully leverages this expertise and GORE’s high standards for performance and quality also extend to the in-house conductor and flatwire shield production. By controlling all of the materials in the cable’s signal path, Gore can deliver the highest performance with the least variability in the industry.

Connectors

Gore offers a broad range of microwave connectors to compliment the bulk product line, which will allow the end user to create high performance assemblies with low VSWR characteristics. The standard connectors include, MCX, SMA, TNC, Type N, and precision Type N. Gore can also offer special performance connectors for specific requirements, please contact Gore for details.

Product Descriptions Inches (mm)						
	Type 89	Type 4	Type 145	Type 5	Type 6	Type 320
Conductor Type	Solid	Solid	Solid	Solid	Solid	Solid
Conductor Diameter	0.020" (0.5 mm)	0.028" (0.7 mm)	0.036" (0.9 mm)	0.054" (1.4 mm)	0.084" (2.1 mm)	0.094" (2.4 mm)
Dielectric	ePTFE	ePTFE	ePTFE	ePTFE	ePTFE	ePTFE
Braid Diameter	0.078" (2.0 mm)	0.107" (2.7 mm)	0.130" (3.3 mm)	0.170" (4.3 mm)	0.261" (6.6 mm)	0.281" (7.1 mm)
Overall Diameter	0.085" (2.2 mm)	0.120" (3.1 mm)	0.140" (3.6 mm)	0.190" (4.8 mm)	0.290" (7.4 mm)	0.320" (8.1 mm)
Weight (gm/mt)	16	26	33	52	125	144
Dielectric Constant	1.5	1.5	1.4	1.4	1.4	1.4
Vp (%)	82%	83%	85%	85%	85%	85%
Shielding Effectiveness	>90 dB	>90 dB	>90 dB	>90 dB	>90 dB	>90 dB

Attenuation Performance dB/100 ft						
Frequency (GHz)	Type 89	Type 4	Type 145	Type 5	Type 6	Type 320
2	27.4	20.2	16.2	10.5	6.7	6.2
4	39.3	28.8	23.0	14.9	9.5	8.7
6	48.7	35.5	28.4	18.3	11.7	10.8
8	56.7	41.2	32.9	21.2	13.5	12.5
10	63.8	46.3	37.0	23.8	15.2	14.0
12	70.4	51.0	40.7	26.2	16.7	15.4
14	76.5	55.4	44.2	28.4	18.2	16.7
16	82.2	59.4	47.5	30.4	19.5	18.0
18	87.6	63.3	50.6	32.4	20.7	19.1

Attenuation Performance dB/mt						
Frequency (GHz)	Type 89	Type 4	Type 145	Type 5	Type 6	Type 320
2	0.90	0.66	0.53	0.34	0.22	0.20
4	1.29	0.94	0.75	0.49	0.31	0.29
6	1.60	1.16	0.93	0.60	0.38	0.35
8	1.86	1.35	1.08	0.70	0.44	0.41
10	2.09	1.52	1.21	0.78	0.50	0.46
12	2.31	1.67	1.33	0.86	0.55	0.51
14	2.51	1.82	1.45	0.93	0.60	0.55
16	2.70	1.95	1.56	1.00	0.64	0.59
18	2.87	2.08	1.66	1.06	0.68	0.63

W. L. Gore & Associates

International:

+86/21 6247 1999 phone

+86/21 6247 9199 fax

www.goreelectronics.com

