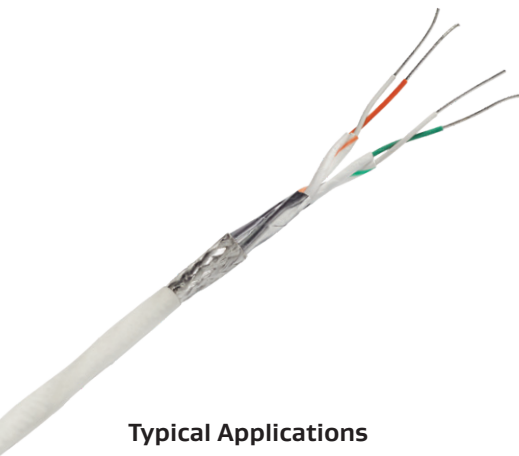# GORE® Ethernet Cables (Cat5e)

For Ethernet Cat5e protocol, Gore's 2-pair cable preserves signal integrity, significantly exceeds crosstalk requirements, and reliably carries high-speed data up to 1 GHz (Table 1). For Ethernet 1000BASE-T performance, positioning two of these cables side by side gives engineers more options when designing avionics or vectronics systems.

Gore's mechanically strong cable can easily tolerate difficult conditions such as extreme temperatures and constant vibration during flights and missions. It also has a smaller form factor that is highly flexible with tighter bending capability, which means simpler routing and quicker installation in crowded areas with less space (Figure 1).

Typical Applications

- Avionics/vectronics digital networks
- Cabin/vehicle management systems
- Ethernet backbone
- HD streaming video systems
- Mission systems
- Radar/radio/communications systems
- Serial buses

Standards Compliance

- ABD0031 (AITM 2.0005); BSS7230; FAR Part 25, Appendix F, Part I: Flammability
- ABD0031 (AITM 3.0005); BSS7239: Toxicity
- ABD0031 (AITM 3.0008B); BSS7238; FAR Part 25, Appendix F, Part V: Smoke Density
- ANSI/NEMA WC 27500: Environmental Testing, Jacket and Marking
- ANSI/TIA 568-C.2: Performance Requirements
- IEEE 802.3: Ethernet 100BASE-T / 1000BASE-T (2 cables)
- SAE AS4373™: Test Methods for Insulated Electric Wire (Contact Gore for available data)

Table 1: Cable Properties

Electrical

Property	Value
Signal Transmission Speed GHz	Up to 1
Standard Impedance Ohms	100 + 10/-5
Typical Operating Voltage V	< 15
Nominal Velocity of Propagation %	80
Nominal Time Delay ns/m (ns/ft)	4.10 (1.25)
Capacitance pF/m (pF/ft)	41.0 (12.5)

Minimum Near-End Crosstalk (NEXT) dB
    10 MHz
    100 MHz
	
	59.2
	52.3

Dielectric Withstanding Voltage Vrms
    Conductor-to-Conductor
    Conductor-to-Shield
	
	1500
	1000

Mechanical / Environmental

Property	Value
Jacket Material	Engineered Fluoropolymer
Jacket Color	White (Laser Markable)
Conductor	Silver-Plated Copper Alloy
Conductor Color-Coding	Solid Green & White/Green Stripe, Solid Orange & White/Orange Stripe
Dielectric Material	Expanded PTFE/PTFE
Temperature Range °C	-65 to +200

Together, improving life

GORE® Ethernet Cables (Cat5e)

Figure 1: Smaller Form Factor

- Engineered fluoropolymer jacket
- Braided shield
- Aluminized polyimide shield
- Color-coded composite dielectric
- Silver-plated copper alloy conductor
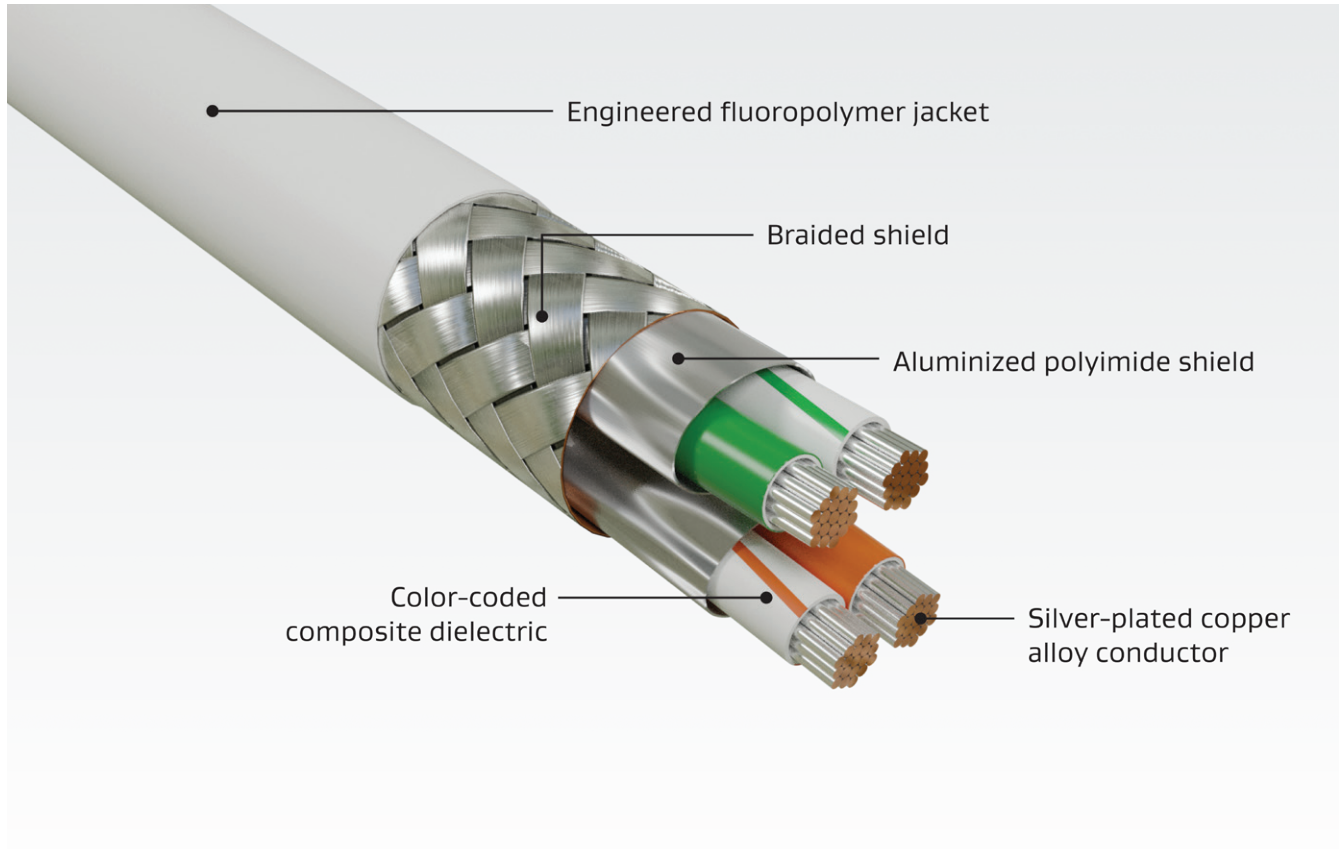
Cable Preparation

Laser stripping is the ideal method to prep GORE® Ethernet Cables. Alternatively, Gore recommends using thermal or sharp mechanical strippers. Also, a unique method is to make a short, horizontal slit in the jacket material, peel it back to allow for contact termination and return the jacket to its original position for a neat closure (Figure 2). For more information regarding cable preparation, contact a Gore representative.

Connector Systems & Backshells

GORE® Ethernet Cables are designed to fit a variety of high-speed aerospace and defense connector systems and backshells such as ARINC and MIL-STD-38999 with size 8 contacts. Contact the specific manufacturer such as Amphenol® and Glenair® for exact part numbers, tooling information, and termination instructions.
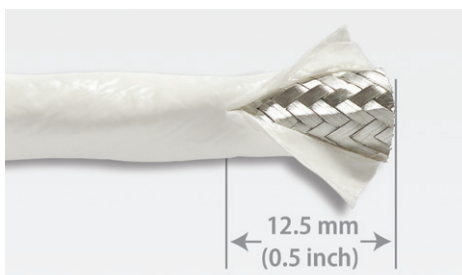
Figure 2: Peel-Back Method

12.5 mm
(0.5 inch)

Table 2: Cable Characteristics

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lb/1000 ft)	Typical Insertion Loss dB/30 m (100 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
RCN9133-24	24 (19/36)	5.1 (0.20)	25.4 (1.00)	35.7 (24.1)	5.6	8.1	14.1	—
RCN9133-26	26 (19/38)	4.5 (0.17)	22.5 (0.87)	31.2 (21.0)	8.9	12.9	21.0	29.3

Samples & Ordering Information

The 2-pair version of GORE® Ethernet Cables is available in standard sizes (Table 2). To place an order, contact an authorized distributor for in-stock availability at **gore.com/cable–distributors.** To view our full inventory and order complimentary samples of selected products for prototyping and evaluation in your application, visit **gore.com/hsdc–sample–inventory–air–defense.**

For more information or to discuss specific characteristic limits and application needs – including other impedance options, contact a Gore representative today at **gore.com/aerospace–defense–contact.**

For Ethernet Cat5e protocol, Gore's 2-pair cable is an ideal solution in place of a 4-pair or quadrax design in your system architecture.

W. L. Gore & Associates
gore.com

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