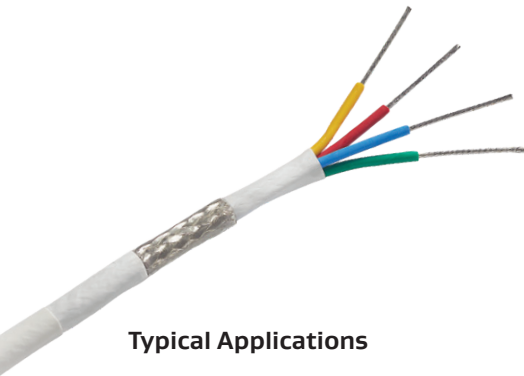


# GORE® Ethernet Cables (Cat5e)



## Typical Applications

- Avionics/vetronics digital networks
- Box-to-box systems
- Cabin management systems
- Digital video interface (DVI)
- Ethernet backbone
- Flight/propulsion control
- HD camera/video systems
- Mission systems
- Radio/radar/communications systems
- Sensor data collection & processing
- Serial buses
- Tactical links

## Standards Compliance

- ABD0031 (AIMT 2.0005); BSS7230; FAR Part 25, Appendix F, Part I: Flammability
- ABD0031 (AIMT 3.0005); BSS7239: Toxicity
- ABD0031 (AIMT 3.0008B); BSS7238; FAR Part 25, Appendix F, Part V: Smoke Density
- AFDX/ARINC 664, Part 7: Ethernet Networks
- ANSI/NEMA WC 27500: Environmental Testing, Jacket and Marking
- IEEE 802.3: Ethernet 100BASE-T / 1000BASE-T (2 cables)
- SAE AS4373™: Test Methods for Insulated Electric Wire (Contact Gore for available data)

To meet Cat5e requirements in advanced avionics and vetronics, Gore offers an Ethernet quadrx version as a reliable substitute for dual twisted pairs (Table 1). These dual differential pairs transmit continuous bi-directional, high-speed signals up to 100 MHz at lengths up to 70 m (230 ft) using size 24 AWG and 50 m (164 ft) using size 26 AWG. Also, positioning two of these cables side by side can achieve Ethernet 1000BASE-T performance for more system design options.

Gore is the original inventor of this pioneering cable geometry that is approximately 40% smaller and up to 30% lighter than dual twisted pair constructions. (Figure 1). Our cable's lightweight build is also proven to save more than 5.0 kg (11 lb) on aircraft such as the fifth-generation F-35.

**Table 1: Cable Properties**

## Electrical

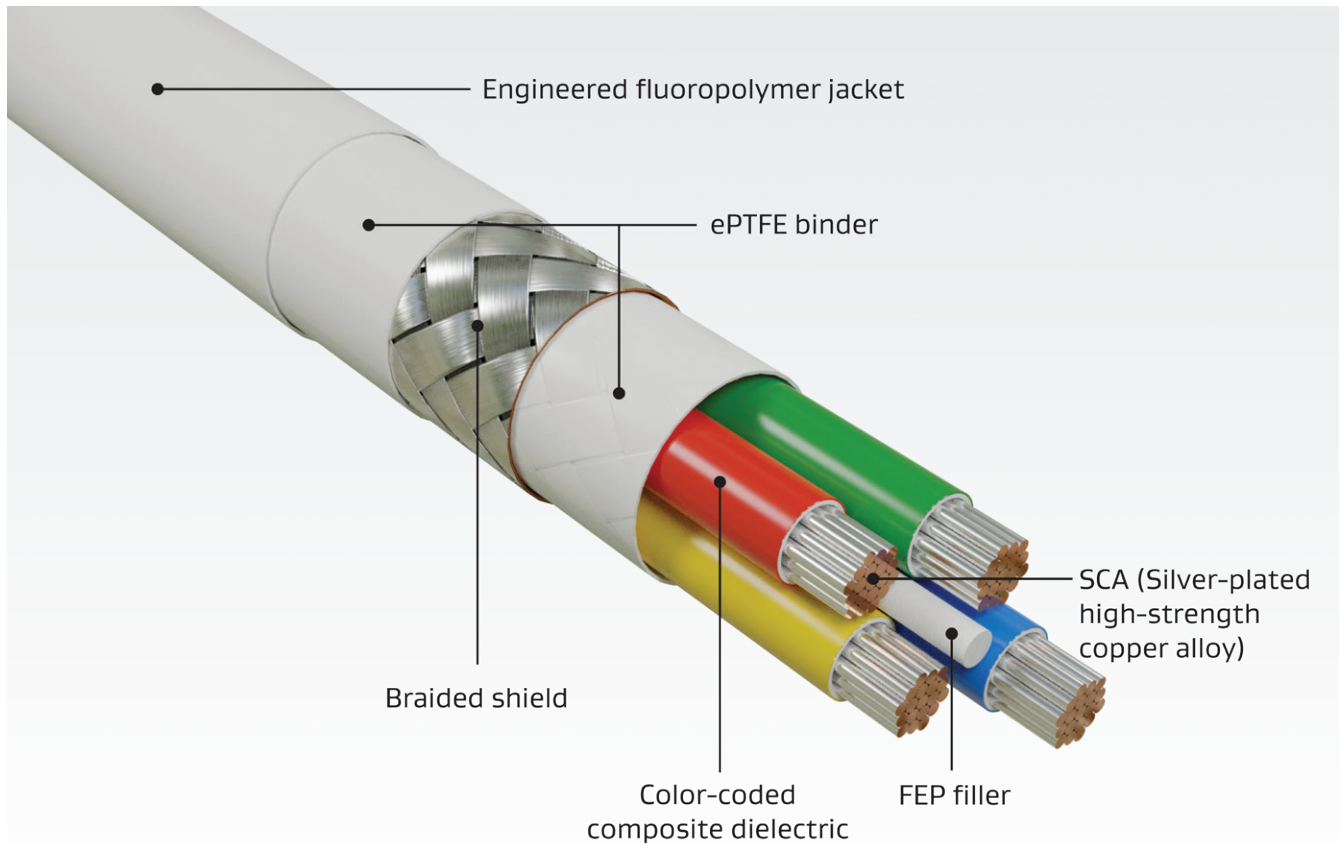
| Property                             | Value       |
|--------------------------------------|-------------|
| Signal Transmission Speed MHz        | Up to 100   |
| Standard Impedance Ohms              | 100 ± 10    |
| Typical Operating Voltage V          | < 48        |
| Nominal Velocity of Propagation %    | 80          |
| Nominal Time Delay ns/m (ns/ft)      | 4.10 (1.25) |
| Capacitance pF/m (pF/ft)             | 45.0 (13.7) |
| Minimum Near-End Crosstalk (NEXT) dB |             |
| 10 MHz                               | 50.0        |
| 100 MHz                              | 35.0        |
| Shielding Effectiveness dB           | > 55        |
| Dielectric Withstanding Voltage Vrms |             |
| Conductor-to-Conductor               | 1500        |
| Conductor-to-Shield                  | 1000        |

## Mechanical / Environmental

| Property               | Value                                          |
|------------------------|------------------------------------------------|
| Jacket Material        | Engineered Fluoropolymer                       |
| Jacket Color           | White (Laser Markable)                         |
| Conductor              | SCA (Silver-Plated High-Strength Copper Alloy) |
| Conductor Color-Coding | Blue/Red, Green/Yellow                         |
| Dielectric Material    | Expanded PTFE/PTFE                             |
| Temperature Range °C   | -65 to +200                                    |

## GORE® Ethernet Cables (Cat5e)

Figure 1: Lightweight Build



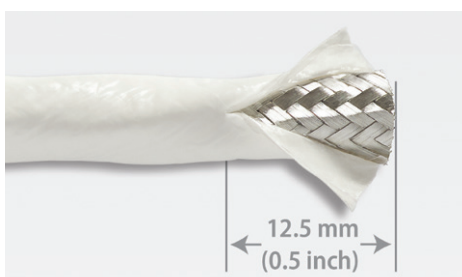
### Cable Preparation

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



**Table 2: Cable Characteristics**

Typical insertion loss values are based on the maximum recommended Cat5e use lengths.

| Gore<br>Part Number | AWG Size<br>(Stranding) | Nominal<br>Outer<br>Diameter<br>mm (in) | Minimum<br>Bend Radius<br>mm (in) | Nominal<br>Weight<br>kg/km<br>(lb/1000 ft) | Maximum Insertion Loss<br>dB/30 m (100 ft) |            |
|---------------------|-------------------------|-----------------------------------------|-----------------------------------|--------------------------------------------|--------------------------------------------|------------|
|                     |                         |                                         |                                   |                                            | 10<br>MHz                                  | 100<br>MHz |
| GSC-03-84608-00     | 24 (19/36)              | 4.1 (0.16)                              | 20.0 (0.79)                       | 33.0 (22.0)                                | 2.8                                        | 9.4        |
| GSC-03-84820-00     | 26 (19/38)              | 3.3 (0.13)                              | 15.0 (0.59)                       | 23.0 (15.0)                                | 3.9                                        | 13.2       |

## Samples & Ordering Information

The quadrax 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](https://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](https://gore.com/hsdc-sample-inventory-air-defense).

For more information or to discuss specific characteristic limits and application needs, contact a Gore representative for aerospace and defense today.

The quadrax version of Gore's Ethernet cables is proven to save more than 5.0 kg (11 lb) on aircraft such as the fifth-generation F-35.



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