



GORE® Aerospace

HIGH SPEED DATA CABLES

Product Catalog



*For Military
Applications*

Table of Contents

Overview	1
GORE® Aerospace Ethernet Cables	
Overview	2
4 Pairs, Cat6a	4
Quadrax, Cat5e	8
Dual Pairs, Cat5e	10
GORE® Aerospace Shielded Twisted Pair Cables	12
GORE™ Aerospace CAN Bus Cables	14
GORE® Aerospace Quad Cables.	16
GORE® Aerospace FireWire® Cables.	18
GORE® Aerospace Fibre Channel Cables	22
GORE® Aerospace USB Cables.	24
GORE® Aerospace HDMI Cables	26
GORE™ Aerospace DVI Cables	28
GORE® Aerospace Fiber Optic Cables, 1.8 mm Simplex	30
GORE® Aerospace Fiber Optic Cables, 1.2 mm Simplex	32
GORE® Aerospace Fiber Optic Cables, 900 micron	34
GORE® Aerospace Fiber Optic Ribbon Cables	36
Sample Product Inventory.	38



GORE® Aerospace

HIGH SPEED DATA CABLES

For Military Applications

Superior signal integrity for reliable data transmission in compact, robust designs

Engineered for demanding aerospace environments, GORE® Aerospace High Speed Data Cables are constructed with innovative fluoropolymer materials that deliver superior signal integrity for reliable data transmission in a small, lightweight package. They meet and even exceed stringent industry requirements for applications such as avionics networks, flight management systems, digital video systems, serial buses, weather mapping, and more. Additionally, Gore's selection of high-speed copper and fiber optic interconnects support the latest open-source architectures and standardized protocols, such as Ethernet, USB, HDMI, FireWire, Fibre Channel and more.

Whatever type of high data rate cables your system architecture requires, Gore's wide variety of high-speed data cables maintain stable communication on avionics networks.

SIGNIFICANT WEIGHT SAVINGS

Gore's cable technology can substantially reduce weight without sacrificing durability or signal quality. Constructed with a unique proprietary material — expanded polytetrafluoroethylene (ePTFE), jacket weight is reduced by as much as 37 percent when compared to ethylene tetrafluoroethylene (ETFE) materials and 50 percent when compared to fluorinated ethylene propylene (FEP). Gore's lighter-weight materials also result in smaller gauge cables in your system architecture where space is at a premium.

The superior electrical performance of Gore's cables can also reduce the need for additional signal amplification — further decreasing weight and power requirements.

INCREASED DURABILITY

GORE® Aerospace High Speed Data Cables significantly reduce mission risk for the military. The specialized insulation and jacket materials in the construction of these cables resist abrasion and cut-through while maintaining unflinching performance during rigorous installation and repeated vibration during flight. They also tolerate wide temperature ranges, including rapidly-changing temperatures encountered during take-off and landing.

Benefits of GORE® Aerospace High Speed Cables

- Excellent signal integrity with stable performance in extreme conditions
- Easy routing in confined spaces due to smaller diameters with greater flexibility and tighter bend radius
- Increased durability due to insulation materials that resist crushing, abrasion and cut-through
- Longer product life with chemically inert and temperature-resistant materials
- High-speed data transmission minimizing the need for additional signal amplification

Gore's materials are also chemically inert, which reduces reaction to harmful contaminants and undesirable fluids commonly found in aerospace environments.

EASIER INSTALLATION

Gore's entire line of high-speed data cables facilitate easier installation for aircraft maintainers. The small cable diameter increases flexibility with a tight bend radius making initial routing easier, particularly when retrofitting cables in overcrowded areas surrounding sensitive electronic systems.



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HIGH SPEED DATA CABLES

GORE® AEROSPACE ETHERNET CABLES

The military aerospace industry is moving away from proprietary networks to open-source architectures and standardized protocols. Therefore, Gore manufactures a variety of Ethernet cables that provide system architects and engineers with many benefits such as small size, reduced weight, and lifelong performance (Figures 1 and 2).

In addition, Gore's Ethernet cables provide customers with several benefits, including:

- Commercial off-the-shelf products based on established technologies
- Short lead times for selected samples, prototype and small production quantities
- Low technical risk based on validated product performance in real-world conditions

FIGURE 1: CABLE TYPES SUPPORTING CATEGORY 5e PROTOCOL

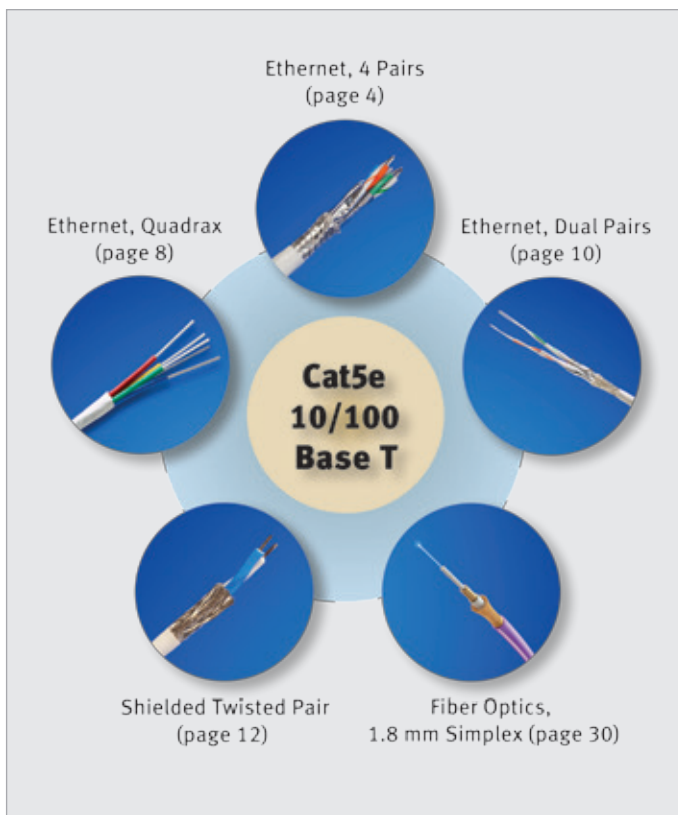
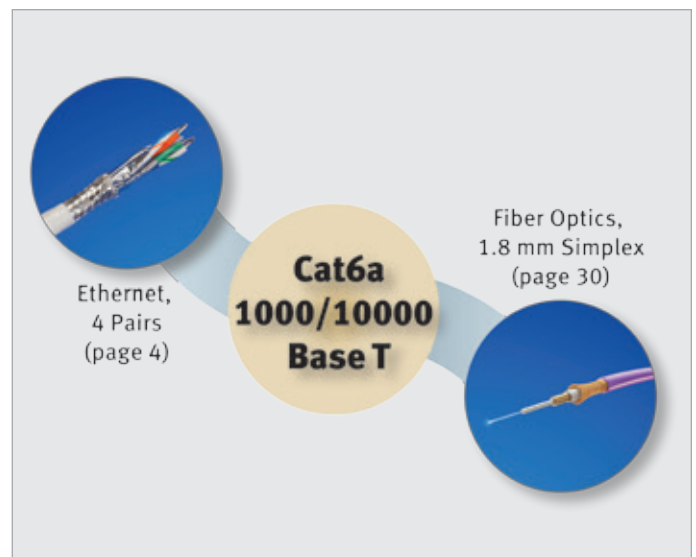


FIGURE 2: CABLE TYPES SUPPORTING CATEGORY 6a PROTOCOL



Gore offers a variety of standard Ethernet cables that meet stringent military aircraft and performance requirements (Table 1).

TABLE 1: GORE'S STANDARD ETHERNET CABLES

Category	Typical Data Rate (bit/sec)	Construction	Gore Part Number	Page Number
5e	10/100/1000 Mb	Quadrx	GSC-03-84608-00 GSC-03-84820-00	8
5e	10/100/1000 Mb	Dual Pairs	RCN9133-26	10
5e, 6, 6a	1/10 Gb	4 Pairs	RCN9034-24 RCN9047-26	4





GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE ETHERNET CABLES (4 Pairs, Cat6a)

Gore's cables are engineered for the increasing data demands of modern airborne digital networks (Figure 3). They exceed Cat6a electrical requirements and deliver excellent signal integrity with sufficient margin for high-speed data transmission up to 10 gigabits (Table 2). This award-winning Cat6a version is approved to SAE AS6070™ standards and on the Qualified Products List (QPL).

In addition, the unique design of these cables is 24 percent smaller and 25 percent lighter than standard Cat6a cables and proven to save 13 pounds (5.9 kilograms) per 1000 ft. The smaller cable diameter also allows for greater flexibility and a tighter bend radius making routing easier for aircraft maintainers (Figures 4 and 5). Gore's engineered fluoropolymer materials enable this cable (26 AWG) to fit into a size 8 contact.

TYPICAL APPLICATIONS

- Avionics networks
- Cabin management systems
- Digital video systems
- Ethernet backbone
- Flight management systems
- Program upgrades (F-16, KC-135, C-130, UH-60)

FIGURE 3: 10-Gb VERSION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- ANSI/TIA 568-C.2: Performance Requirements
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AIM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AIM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AIM 3.0008B): Smoke Density
- IEEE 802.3 1000BASE-T Gigabit Ethernet Standard
- SAE AS6070™/5 and SAE AS6070™/6: Ethernet 1000-Base T (10 G/bit, 100 Ohm); QPL (RCN9034-24 and RCN9047-26)

FIGURE 4: SMALLER CAT6a CABLE DIAMETER

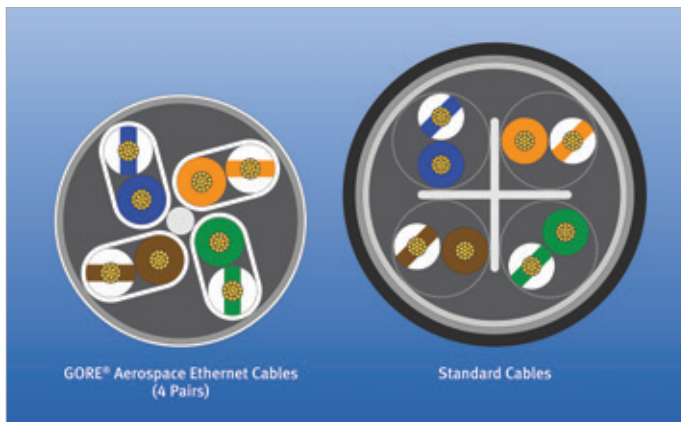


FIGURE 5: HIGH-DENSITY CONSTRUCTION

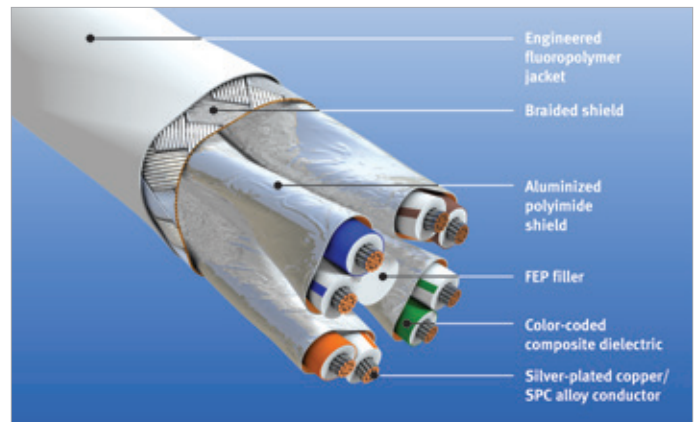


TABLE 2: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ±10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	42.6 (13.0)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz dB min @ 100 MHz	59.2 52.3
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper or Silver-Plated Copper Alloy
	Conductor Color-Coding	Solid Blue/White with Blue Stripe Solid Orange/White with Orange Stripe Solid Green/White with Green Stripe Solid Brown/White with Brown Stripe
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

RELIABLE SIGNAL INTEGRITY

Gore compared its Cat6a cable with several alternative cables. Results showed that GORE® Aerospace Ethernet Cables provided enhanced electrical performance with lower signal attenuation by as much as 10 dB/100 m at 500 MHz (Figure 6). Results also showed that Gore’s Cat6a cable can reduce near-end crosstalk (NEXT) by more than 10 dB at 500 MHz compared to alternative cable designs (Figure 7).

FIGURE 6: ATTENUATION COMPARISON

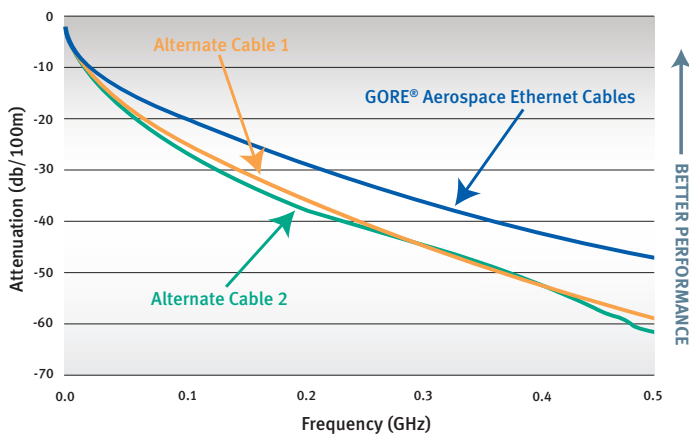
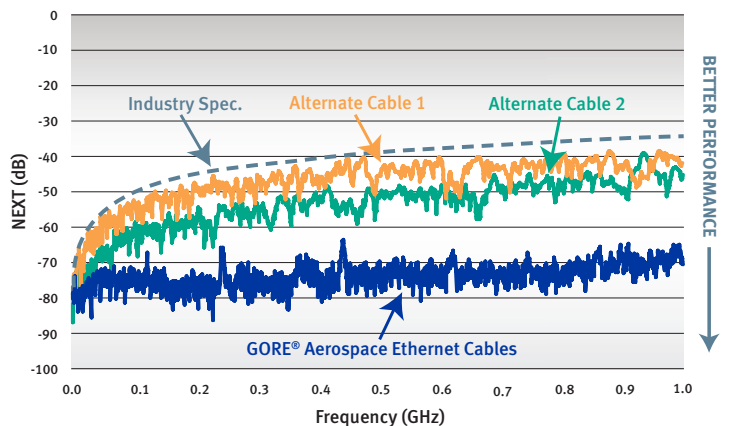


FIGURE 7: CROSSTALK COMPARISON





GORE® Aerospace

HIGH SPEED DATA CABLES

CONNECTOR-CABLE COMPATIBILITY

Gore evaluated the electrical characteristics of its Cat6a cable terminated with leading high-speed aerospace connector systems to assist designers in selecting the best option for a specific application (Table 3). Testing connector-cable compatibility during the initial design process ensures the interconnect will perform reliably in specific applications.

For more information regarding electrical data and termination instructions for all Ethernet interconnects, visit gore.com/ethernet-cable-connectors.

PROVEN INSTALLED PERFORMANCE

Gore has designed a simulator to evaluate the effects of severe bending on high-speed data cables while being routed through an airframe (Figure 8). The simulator has various mandrels located in fixed positions for repeatability that replicate minimum bend radius conditions. The simulator also includes two cable cleats to hold tension.

Testing characteristics such as return loss and crosstalk after routing verifies whether a cable can withstand the complex challenges of installation that can degrade signal integrity. Gore routed a 2-meter cable through the simulator for 4 cycles to measure the return loss and crosstalk of its Cat6a cable and alternative cables. The results demonstrate the importance of testing electrical performance in real-world conditions.

Results showed that Gore's Cat6a cable maintained sufficient margin below the specification limit for return loss compared to the alternative cables (Figure 9). They provided consistent impedance control at higher frequencies after routing, indicating reliable high-speed data transmission at 10 gigabits. Similarly, Gore's Cat6a cable maintained a consistent margin of 20 dB, providing lower crosstalk after routing, while the alternative cables showed a slight change in the margin (Figure 10).

Gore's testing proved that GORE® Aerospace Ethernet Cables deliver exceptional performance after installation, reduce maintenance and downtime, and reduce total costs over time.

For more information regarding selecting, designing and installing the right Ethernet interconnect to ensure reliable performance in aircraft, visit gore.com/aerospace-ethernet-cables.

FIGURE 8: TEST SIMULATOR

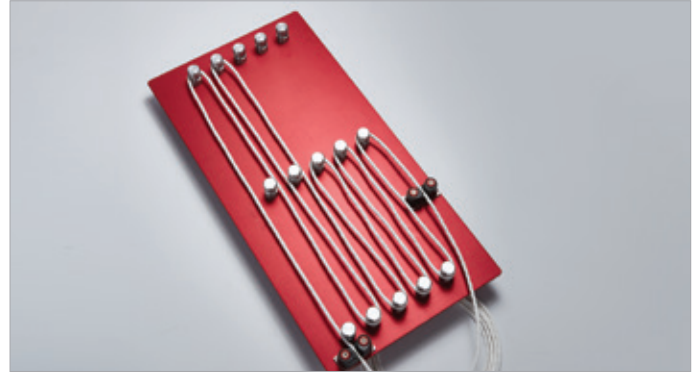


FIGURE 9: RETURN LOSS COMPARISON AFTER ROUTING

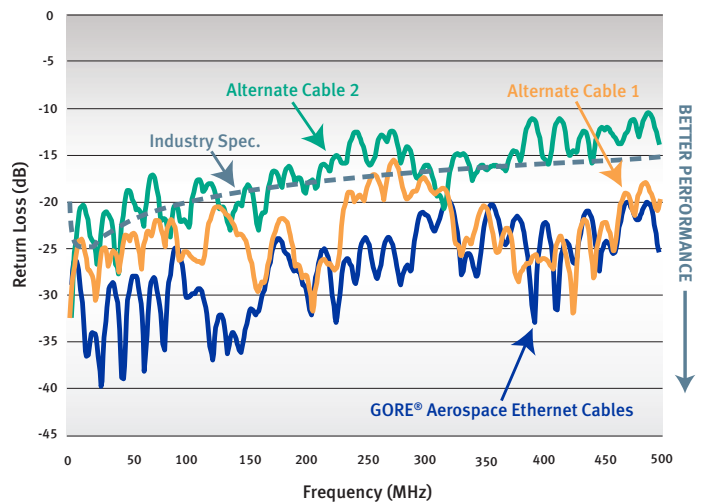


FIGURE 10: CROSSTALK COMPARISON AFTER ROUTING

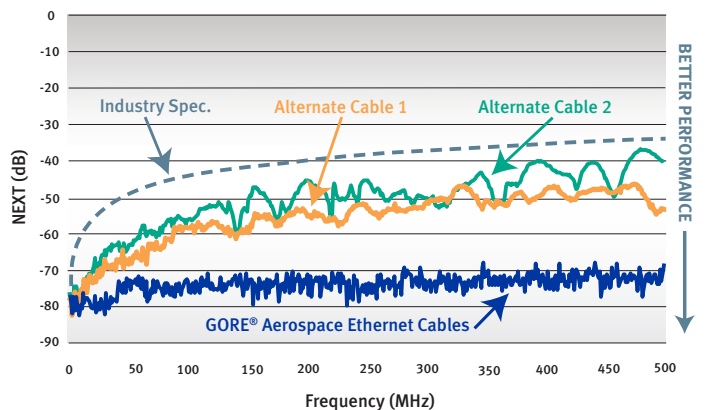


TABLE 3: ETHERNET CAT6a INTERCONNECT OPTIONS^a

Connector System	Gore Part Number				
	RCN8966-24 ^b	RCN9034-24	RCN8966-26 ^b	RCN9047-26	RCN9034-28
Amphenol [®] Octonet	•		•		
Amphenol [®] Oval Contact System (OCS13-53)	•	•	•	•	•
Amphenol [®] μ-Com	•	•	•	•	•
Bel Stewart SS-39200 Series	•		•		
Carlisle Octax [®] M38999 (Size 11)	•	•	•	•	•
Glenair El Ochito [®]			•	•	•
HARTING RJ Industrial [®] 10G RJ45 ^c	•	•	•	•	•
LEMO [®] 2B Series	•	•	•	•	•
Platinum [®] Tools EZ-RJ45 [®] 106193	•		•		
Sentinel [®] 106S080058C34	•		•		
TE Connectivity [®] CeeLok FAS-T [®]	•		•		•
TE Connectivity [®] CeeLok FAS-X [®]	•	•	•	•	•

^a Contact Gore for other connector system options.

^b Construction includes a unique inverted dielectric for termination with a broad range of connector systems such as Amphenol[®] Octonet and HARTING RJ Industrial[®].

^c Connector system part number 09451511560.

ORDERING INFORMATION

GORE[®] Aerospace Ethernet Cables (4 Pairs, Cat6a) are available through several distributors in a variety of standard sizes (Table 4). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 4: PRODUCT SPECIFICATIONS

Typical attenuation values are based on the maximum recommended Cat6a use length.* In addition, Gore’s RCN9034-24 and RCN9047-26 versions are approved to SAE AS6070™ and on the Qualified Products List.

Gore Part Number	AWG Size (Stranding)	Maximum Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation*		
					100 MHz	200 MHz	500 MHz
RCN8966-24	24 (19/36)	6.9 (0.27)	13.7 (0.54)	67.0 (45.0)	19.1	27.6	45.3
RCN9034-24	24 (19/36)	6.6 (0.26)	13.2 (0.52)	62.5 (42.0)	19.1	27.6	45.3
RCN8966-26	26 (19/38)	5.8 (0.23)	11.6 (0.46)	52.1 (35.0)	19.1	27.6	45.3
RCN9047-26	26 (19/38)	5.6 (0.22)	10.2 (0.44)	47.6 (32.0)	19.1	27.6	45.3
RCN9034-28	28 (19/40)	4.6 (0.18)	8.9 (0.35)	37.2 (25.0)	19.1	27.6	45.3



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE ETHERNET CABLES (Quadrax, Cat5e)

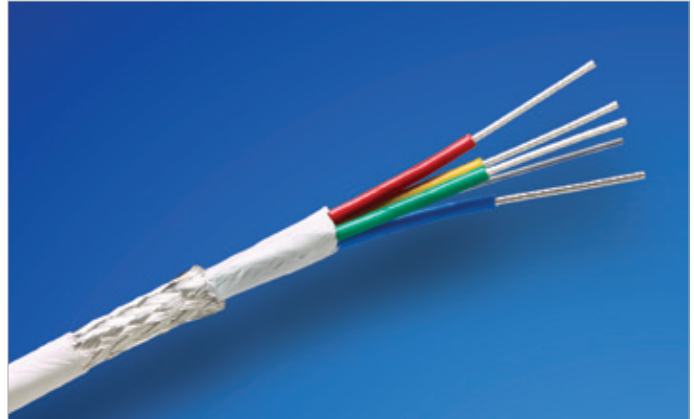
Gore’s cables are a perfect alternative to a standard quad design to meet Ethernet Cat5e requirements in advanced avionics systems (Figure 11). These star quadrax cables deliver continuous signal transmission up to 70 meters for size 24 AWG and 50 meters for size 26 AWG (Table 5).

In addition, the reduced design of these cables is substantially smaller and lighter weight without sacrificing durability (Figures 12 and 13). Gore’s star quadrax design is approximately 40 percent smaller than the common dual twisted pair constructions. When compared to standard quad cables, Gore’s design has saved over 11 pounds (5.9 kilograms) on fighter aircraft such as the latest fifth-generation F-35.

TYPICAL APPLICATIONS

- Avionics networks
- Box-to-box systems
- Digital visual interface (DVI)
- Ethernet backbone
- Flight control
- Mission systems
- Propulsion control

FIGURE 11: STAR QUADRAX DESIGN



STANDARDS COMPLIANCE

- AFDX/ARINC 664, Part 7: Ethernet Networks
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density
- IEEE 802.3 1000BASE-T Gigabit Ethernet Cables: (2 quad cables)

FIGURE 12: REDUCED CAT5e CABLE DIAMETER

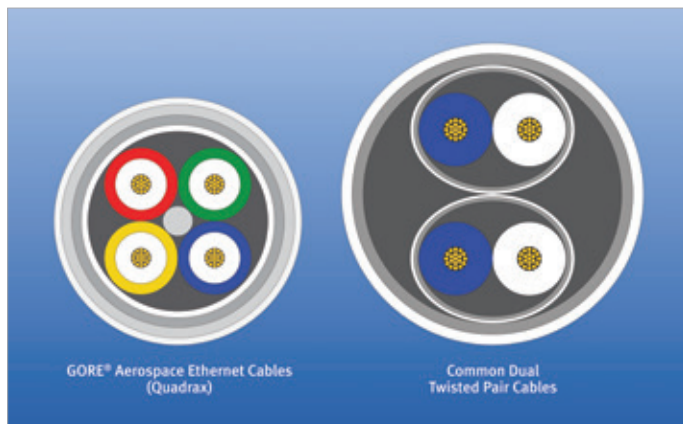


FIGURE 13: LIGHTWEIGHT CONSTRUCTION

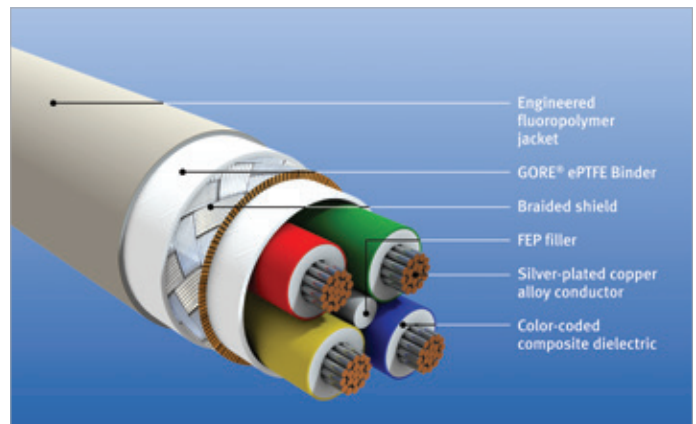


TABLE 5: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	50.0 (15.2)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz dB min @ 100 MHz	50.0 35.0
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	2500
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	Red/Blue, Green/Yellow
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

ORDERING INFORMATION

GORE™ Aerospace Ethernet Cables (Quadrax, Cat5e) are available through several distributors (Table 6). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 6: PRODUCT SPECIFICATIONS

Typical attenuation values are based on the maximum recommended Cat5e use length.*

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation*	
					10 MHz	100 MHz
GSC-03-84608-00	24 (19/36)	4.1 (0.16)	20.0 (0.79)	33.0 (22.0)	6.5	22.0
GSC-03-84820-00	26 (19/38)	3.3 (0.13)	15.0 (0.59)	23.0 (15.0)	6.5	22.0



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE ETHERNET CABLES (Dual Pairs, Cat5e)

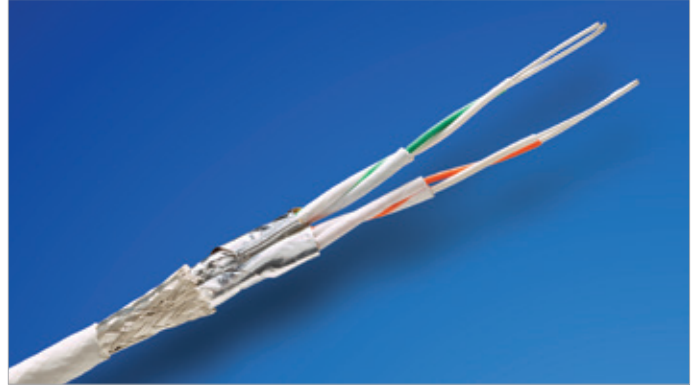
For Ethernet Cat5e requirements, Gore's dual pair cables are an ideal solution in aircraft electronic systems (Figure 14). They preserve signal integrity for high-speed data transmission up to 1 gigahertz (Table 7). These cables also have a durable construction that supports a wide temperature range to tolerate the harshest aerospace environments.

In addition, Gore's dual pair cables have a smaller form factor this is also more flexible with a tighter bend radius, which means easier routing and faster installation in complex airframes with less space (Figure 15).

TYPICAL APPLICATIONS

- Avionics networks
- Cabin management systems
- Digital video systems
- Ethernet backbone
- Serial buses

FIGURE 14: 1-GHZ VERSION



STANDARDS COMPLIANCE

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

FIGURE 15: SMALLER FORM FACTOR

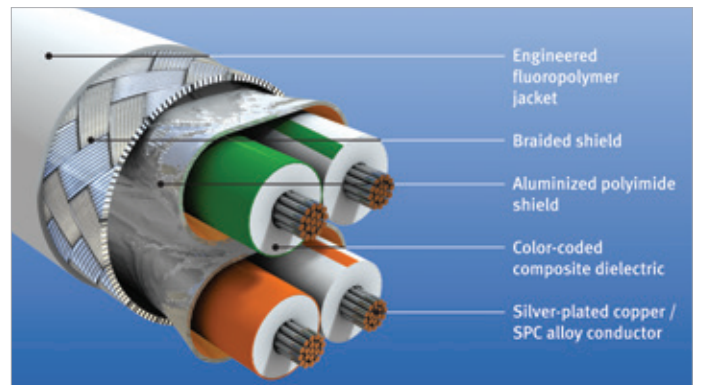


TABLE 7: CABLE PROPERTIES

Property		Value
ELECTRICAL	Standard Impedance (ohms)	100 +10/-5
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]:	41.0 (12.5)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz	59.2
	dB min @ 100 MHz	52.3
MECHANICAL / ENVIRONMENTAL	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
	Jacket Material ^a	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper or Silver-Plated Copper Alloy
	Conductor Color-Coding	Solid Green with Green/White Stripe Solid Orange with Orange/White Stripe
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

^aContact Gore for other impedance options.

ORDERING INFORMATION

GORE™ Aerospace Ethernet Cables (Dual Pairs, Cat5e) are available through several distributors (Table 8).

Visit gore.com/cable-distributors for the list of distributors.

For more information, please contact a Gore representative.

TABLE 8: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter Major mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/30 m (dB 100 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
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



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® SHIELDED TWISTED PAIR CABLES (Controlled Impedance, 100 Ohms)

Well-suited for aerospace harness applications, Gore’s cables provide excellent signal integrity for high-speed data transmission up to 1 gigahertz (Figure 16 and Table 9). The combination of durable materials in this construction also enables a higher tolerance against rapidly-changing environments at high altitudes.

In addition, the low-profile design of these cables is 18 percent smaller and up to 50 percent lighter when compared to standard cable designs (Figures 17 and 18). They are also highly flexible and easy to route in hard-to-reach places of an airframe.

TYPICAL APPLICATIONS

- Avionics networks
- Cabin management systems
- Digital video systems
- Ethernet backbone
- Serial buses

FIGURE 16: 1-GHZ VERSION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239: Toxicity
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density
- RoHS and REACH Compliant (See Table 10)

TABLE 9: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance ^a (ohms)	100 ±10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	42.6 (13.0)
	Dielectric Withstanding Voltage (Vrms)	1500
	Conductor-to-Conductor	1000
	Conductor-to-Shield	
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	Blue and White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

^a Contact Gore for other impedance options.

FIGURE 17: LOW-PROFILE CABLE DESIGN

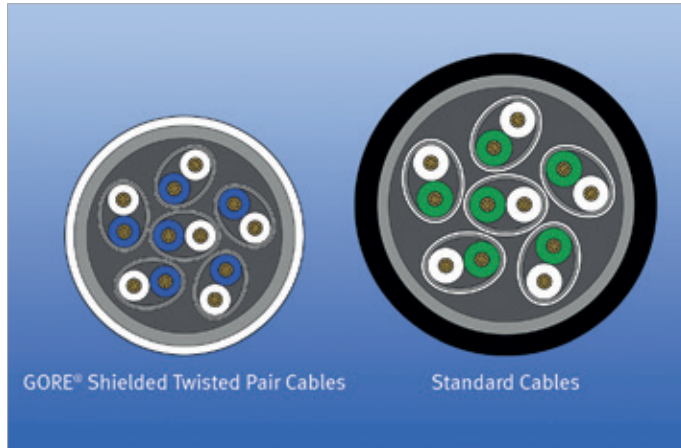
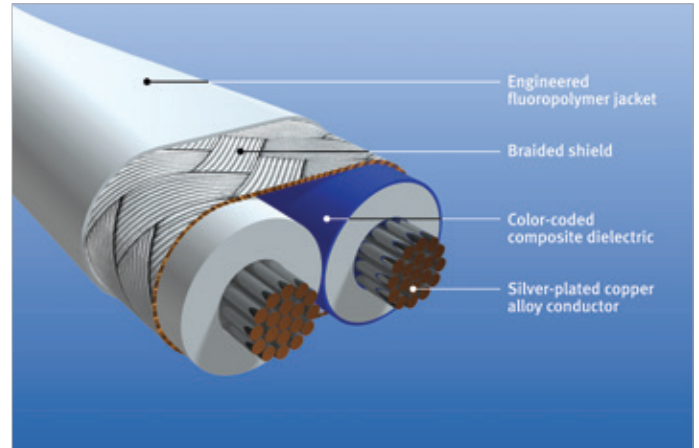


FIGURE 18: DURABLE CONSTRUCTION



ORDERING INFORMATION

GORE® Shielded Twisted Pair Cables are available through several distributors in a variety of standard sizes (Table 10). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 10: PRODUCT SPECIFICATIONS

Gore Part Number	RoHS/REACH Part Number	AWG Size (Stranding)	Nominal Outer Diameter Major mm (in)	Nominal Outer Diameter Minor mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/30 m (dB/100 ft)			
							100 MHz	200 MHz	500 MHz	1 GHz
DXN2600	GSC-03-84879-00	20 (19/32)	5.1 (0.20)	3.8 (0.15)	25.0 (0.98)	31.7 (21.3)	4.8	6.8	11.3	16.4
DXN2601	GSC-03-84880-00	22 (19/34)	3.8 (0.15)	2.8 (0.11)	19.1 (0.75)	23.2 (15.6)	6.6	9.8	15.7	23.5
DXN2602	GSC-03-84557-00	24 (19/36)	3.3 (0.13)	2.3 (0.09)	16.2 (0.64)	16.8 (11.3)	7.6	10.7	17.3	25.0
DXN2603	GSC-03-84823-00	26 (19/38)	2.5 (0.10)	2.0 (0.08)	12.6 (0.49)	12.8 (8.6)	9.4	13.8	21.5	31.2
DXN2604	GSC-03-84881-03	28 (19/40)	2.0 (0.08)	1.8 (0.07)	9.9 (0.39)	8.6 (5.8)	13.2	19.2	32.0	46.8
DXN2605	GSC-03-84710-00	30 (19/42)	1.8 (0.07)	1.5 (0.06)	8.9 (0.35)	7.1 (4.8)	20.9	23.6	38.3	56.9



GORE[®] Aerospace

HIGH SPEED DATA CABLES

GORE[™] AEROSPACE CAN BUS CABLES (Controlled Impedance, 120 Ohms)

Gore's cables enable high-quality signals for faster data transmission up to 1 gigahertz in sophisticated avionics digital networks (Figure 19 and Table 11). With a compact footprint, these cables are up to 50 percent lighter and 18 percent smaller with greater flexibility and a smaller bend radius making routing much simpler during installation and maintenance (Figure 20).

TYPICAL APPLICATIONS

- Avionics networks
- Cabin management systems
- Controller area network (vehicle data cables)
- Digital video systems
- Ethernet backbone
- Serial buses

FIGURE 19: 1-GHz VERSION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239: Toxicity
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density

FIGURE 20: COMPACT CONSTRUCTION

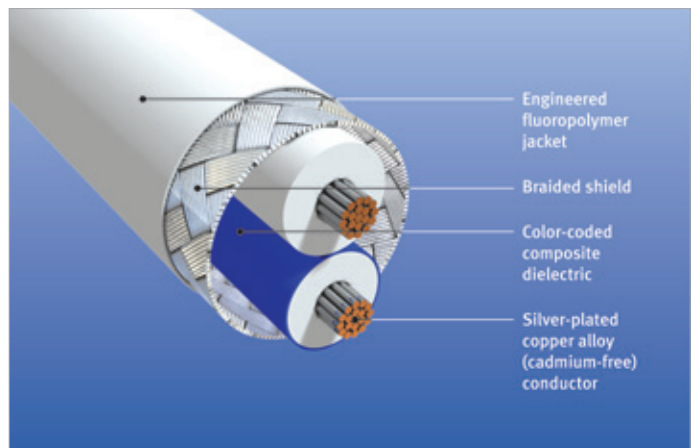


TABLE 11: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	120 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (Nominal ns/m [ns/ft])	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	42.0 (12.8)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
MECHANICAL / ENVIRONMENTAL	Jacket Material ^a	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	Blue and White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

^a Contact Gore for other impedance options.

ORDERING INFORMATION

GORE™ Aerospace CAN Bus Cables are available through several distributors in a variety of standard sizes (Table 12).

Visit gore.com/cable-distributors for the list of distributors.

For more information, please contact a Gore representative.

TABLE 12: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/30 m (dB/100 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
GSC-03-85247-22D	22 (19/34)	5.1 (0.20)	25.5 (1.00)	30.0 (20.20)	5.6	8.5	13.5	19.0
GSC-03-85247-24D	24 (19/36)	4.2 (0.17)	21.0 (0.83)	23.0 (15.46)	6.5	10.0	16.0	22.0
GSC-03-85247-26D	26 (19/38)	3.5 (0.14)	17.5 (0.69)	15.4 (10.35)	8.0	12.0	18.0	24.0



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE QUAD CABLES (High-Speed Serial Data, Controlled Impedance, 100 Ohms)

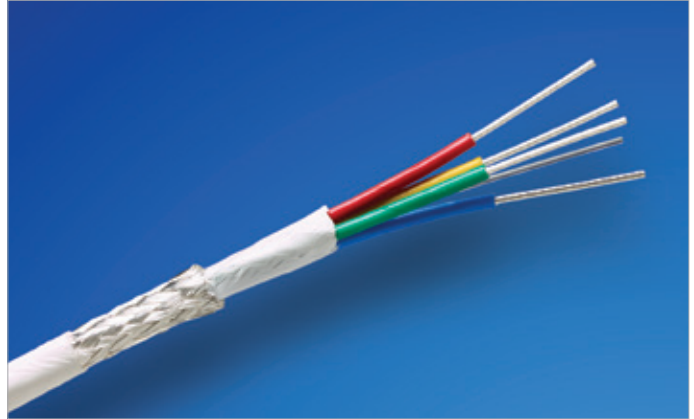
Gore offers high-frequency quadrax cables with tighter skew requirements that are perfectly aligned with today's high-speed serial data protocols (Figure 21 and Table 13). This low-skew version reliably transfers data at speeds up to 1 gigahertz for up to 100 meters.

When compared to common dual twisted pair constructions, Gore's quadrax design is significantly smaller — by approximately 40 percent — yet extremely rugged. This design is also lighter weight when compared to standard quad constructions and has saved over 11 pounds (5.9 kilograms) per aircraft.

TYPICAL APPLICATIONS

- Avionics networks
- Box-to-box systems
- Digital visual interface (DVI)
- EO/IR (Electro-optical infrared) sensors
- Ethernet backbone
- Flight control
- Mission systems
- Propulsion control
- Video networks

FIGURE 21: LOW-SKEW VERSION



STANDARDS COMPLIANCE

- AFDX/ARINC 664, Part 7: Ethernet Networks
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density
- IEEE 802.3 1000BASE-T Gigabit Ethernet Cables: (2 quad cables)



TABLE 13: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	> 80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	50.0 (15.2)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz dB min @ 100 MHz	50.0 35.0
	Skew (ps/m [ps/ft]) Within Pair (maximum)	13.12 (4.0)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	Red/Blue, Green/Yellow
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

ORDERING INFORMATION

GORE® Aerospace Quad Cables are available through several global distributors (Table 14). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 14: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation 24 AWG: dB/100 m (dB/328 ft)			
					10 MHz	100 MHz	800 MHz	1 GHz
RCN8752	24 (19/36)	3.8 (0.15)	19.0 (0.75)	35.7 (24.0)	8.9	30.1	83.0	118.4



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIREWIRE® CABLES (Quadrax, 110 Ohms)

Gore's cables are the premier solution for copper-based 1394b FireWire data links (Figure 22). They provide high-fidelity signal links for interconnect solutions up to 75 feet at S400 data rates (Table 15). Gore's specialized design offers significant size and weight savings when compared to conventional constructions such as twisted pair cables (Figure 23). This quad design is approximately 40 percent smaller than common dual twisted pair constructions and has saved as much as 11.5 pounds (5.2 kilograms) per aircraft (Figure 24).

TYPICAL APPLICATIONS

- Avionics networks
- Flight control
- Mission systems
- Propulsion control

FIGURE 22: IEEE 1394b VERSION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density
- SAE AS6070™ AS5643: IEEE 1394b Interface Requirements for Military and Aerospace Vehicle Applications
- SAE AS6070™/8: IEEE 1394b (110 Ohm): RCN8645, RCN8647, RCN8652

FIGURE 23: FLEXIBLE CONSTRUCTION

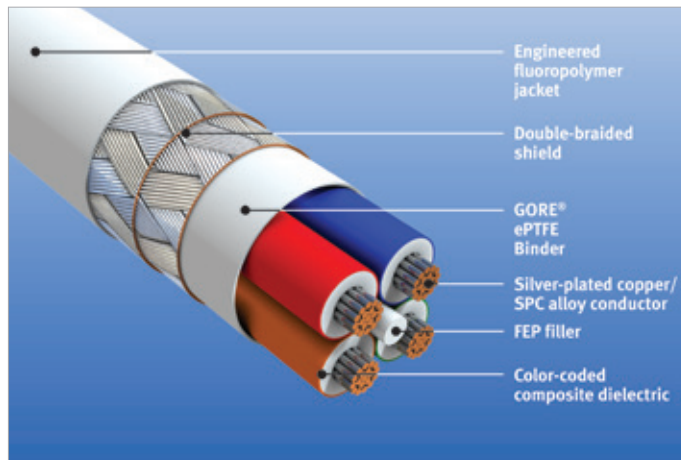


FIGURE 24: SMALLER, LIGHTER CABLE DESIGN

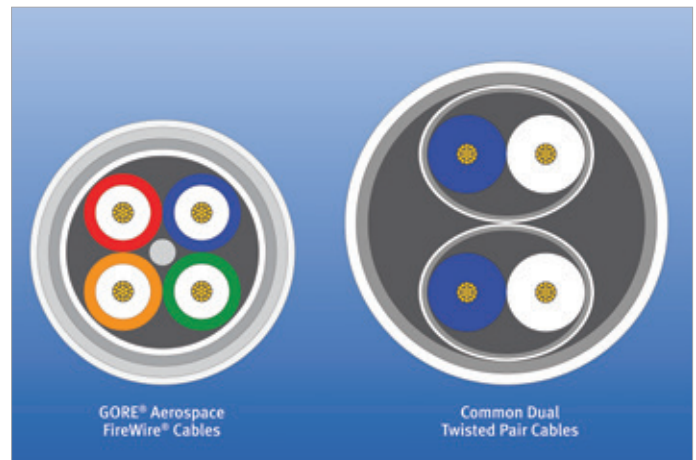


TABLE 15: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	110 +6/-4
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	39.4 (12.0)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz dB min @ 100 MHz	50.0 35.0
	Skew (ps/m [ps/ft]) Within Pair (typical)	26.25 (8.0)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper or Silver-Plated Copper Alloy
	Conductor Color-Coding	Red/Green, Blue/Orange
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200



GORE® Aerospace

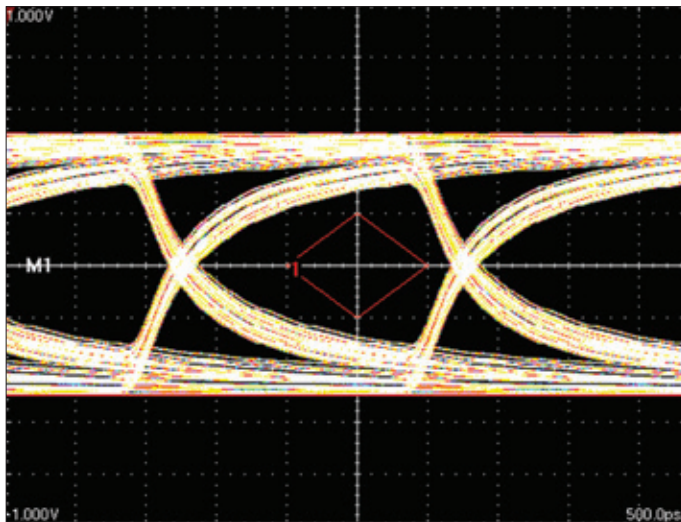
HIGH SPEED DATA CABLES

SIGNAL INTEGRITY WITH FLEXURE

To ensure signal integrity with flexure of GORE® Aerospace FireWire® Cables, the eye pattern of a 50-ft cable transmitting 500 megabits of data was evaluated before and during flexure. The diamond-shaped eye mask indicates the minimum receiver sensitivity as specified by IEEE 1394b (Figure 25).

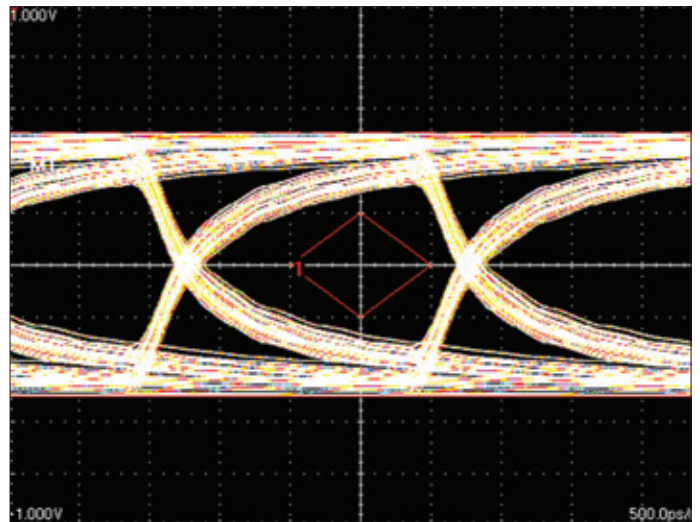
The cable passed the eye mask test with margin, indicating greater transmission length is possible. The eye pattern test was repeated with the 50-ft cable wrapped 20 times around a 0.5-inch radius mandrel. No substantial degradation in signal quality was observed with flexure (Figure 26).

FIGURE 25: EYE PATTERN OF 24 AWG



Input Signal: 1.1 V_{pp}, 2⁷⁻¹ PSRB Pattern

FIGURE 26: EYE PATTERN OF 24 AWG WITH FLEXURE



Input Signal: 1.1 V_{pp}, 2⁷⁻¹ PSRB Pattern

ORDERING INFORMATION

GORE® Aerospace FireWire® Cables are available through several distributors in a variety of standard sizes (Table 16). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore's full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 16: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/30 m (dB/100 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
RCN8645 (Reference JSFY 3) ^a	22 (19/34)	5.1 (0.20)	24.8 (0.98)	61.0 (41.0)	5.5	8.8	12.8	18.2
RCN8647 (Reference JSFY 18-2) ^a	24 (19/36)	4.6 (0.18)	22.4 (0.88)	46.1 (31.0)	6.8	10.9	15.5	22.5
RCN8652 (Reference JSFY 18-1) ^a	26 (19/38)	3.6 (0.14)	17.6 (0.69)	33.0 (22.2)	9.0	14.2	20.2	29.5
RCN9056	28 (19/40)	2.8 (0.11)	14.0 (0.55)	20.8 (14.0)	14.8	22.0	28.9	41.3
RCN9057	30 (19/42)	2.5 (0.10)	12.4 (0.49)	16.4 (11.0)	16.8	24.0	30.8	43.3

^a Requires additional testing to comply with JSFY requirements.



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBRE CHANNEL CABLES

Gore's cables enhance noise immunity and EMI suppression while maintaining consistent signal integrity in the toughest flight conditions (Figure 27). Using the field-cancellation properties of a balanced cable design, they can transmit two differential signals within the same shield without interfering with each other (Table 17). These cables also provide increased durability in hazardous environments with chemical- and temperature-resistant materials. Gore's high-speed interconnects are proven on many platforms such as an F-16, F-18 and AV8B.

Gore's exclusive, low-dielectric materials and cable geometry maximize the performance of quad-cable constructions (Figures 28 and 29). These fibre channel cables have a diameter that is 40 percent smaller, which also makes them lighter weight without sacrificing robustness. In addition, the excellent flexibility and tight bend radius of these cables make initial routing easier.

TYPICAL APPLICATIONS

- Active electronically-scanned arrays (AESA)
- Advanced mission computers
- Cabin management systems
- Flight management systems
- Tactical aircraft moving maps

FIGURE 27: HIGH-SPEED INTERCONNECTS



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- ANSI X3.303 Fibre Channel Standards: Signal Integrity
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density

FIGURE 28: LOW-DIELECTRIC CABLE GEOMETRY



FIGURE 29: TOUGH CONSTRUCTION

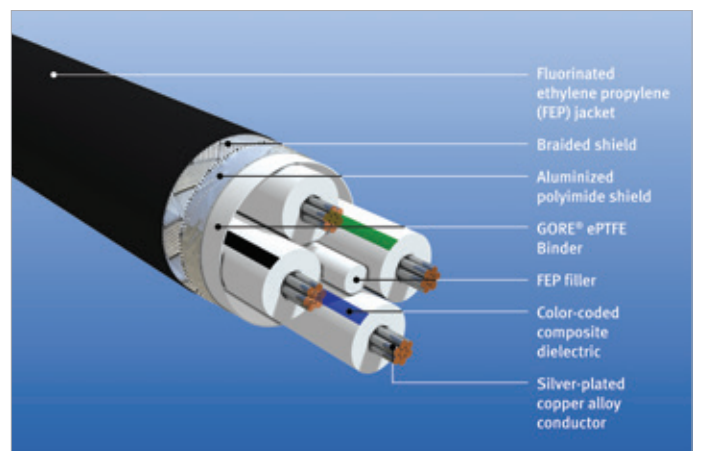


TABLE 17: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	150 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.0 (1.22)
	Capacitance [pF/m (pF/ft)]	28.2 (8.6)
	Near-End Crosstalk (NEXT) dB min @ 10 MHz dB min @ 100 MHz	50.0 35.0
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	2500
MECHANICAL / ENVIRONMENTAL	Jacket Material	FEP
	Jacket Color	Black
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	Black/White Stripe, Blue/White Stripe, Green/White Stripe, Solid White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

ORDERING INFORMATION

GORE® Aerospace Fibre Channel Cables are available through several distributors (Table 18). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of standard products and lead times.

For more information, please contact a Gore representative.

TABLE 18: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation db/30 m (db/100 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
RCN8328	26 (7/34)	4.8 (0.19)	25.0 (1.00)	40.2 (27.0)	6.8	10.9	12.0	22.5



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE USB CABLES (2.0 and 3.1 Versions)

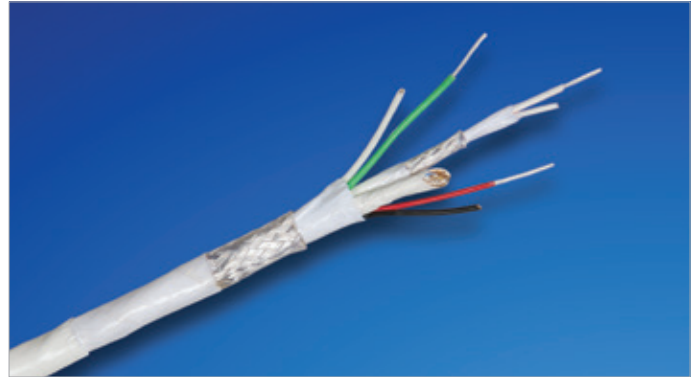
With approved aerospace materials, both versions deliver dependable signal integrity for high-speed data transmission up to 10 gigabits (Figure 30). They deliver solid signal integrity for content uploads and downloads ensuring critical data is received in time (Table 19). These cable bundles support power management from 9-32V systems allowing flight crews to charge their devices quickly and easily.

In addition, the added durability in the construction of both versions provides enhanced protection that withstands extreme environments for longer lifespan (Figure 31).

TYPICAL APPLICATIONS

- Content loading
- Data transfer
- Digital video systems
- Electronic flight bag (EFB)
- Portable electronic devices
- Powering remote devices

FIGURE 30: 10-Gb VERSION



STANDARDS COMPLIANCE

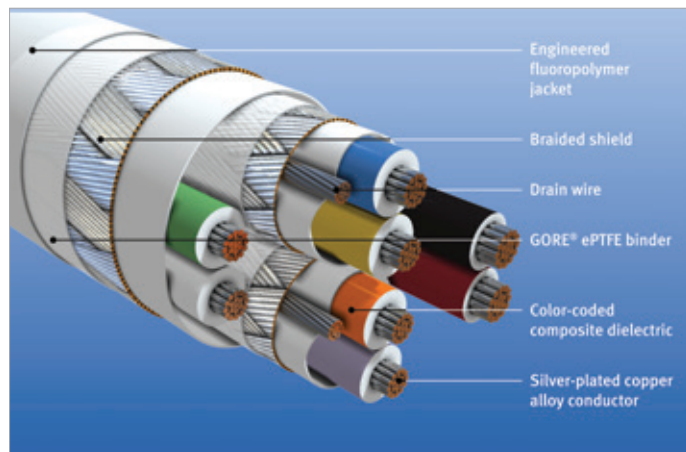
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AIMT 3.0005): Toxicity
- CS/FAR Part 25, Section 25.853, Appendix F, Part I (b)(7): Flammability
- CS/FAR Part 25, Section 25.853(a), Change 5/Amdt.25-72 (DOT/FAA/AR-00/12, Chapter 4)
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AIMT 3.0008B): Smoke Density

TABLE 19: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms) High-Speed Pairs Low-Speed Pair	90 ± 5 90 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.07 (1.24)
	Capacitance [pF/m (pF/ft)] ^a	50.0 (15.2)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
	Skew ^a (ps/m [ps/ft]) Within Pair (maximum)	15.0 (4.6)
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	High-Speed Pairs: Blue/Yellow, Orange/Purple Low-Speed Pair: White/Green Power: Red, Black
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

^a Shielded twisted pairs only.

FIGURE 31: LONG-LASTING CONSTRUCTION



ORDERING INFORMATION

GORE® Aerospace USB Cables are available through several distributors in a variety of standard sizes (Table 20). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 20: PRODUCT SPECIFICATIONS

Other gauge sizes can be designed and built to order upon request. Please contact a Gore representative to discuss your specific application requirements.

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/1 m (dB/3.28 ft)		
					96 MHz	200 MHz	400 MHz
2.0 Version							
RCN8800-22D-22P-H	Data Pair: 22 (19/34) Power Pair: 22 (19/34)	5.1 (0.20)	15.0 (0.60)	52.0 (35.0)	0.33	0.55	1.00
RCN8800-24D-22P-H	Data Pair: 24 (19/34) Power Pair: 22 (19/34)	4.8 (0.19)	13.0 (0.50)	48.0 (32.0)	0.33	0.55	1.00
RCN8800-26D-24P	Data Pair: 26 (19/38) Power Pair: 24 (19/36)	4.3 (0.17)	10.0 (0.39)	46.1 (31.0)	0.42	0.71	1.29

3.1 Version					1250 MHz	2500 MHz	5000 MHz	7500 MHz
GSC-03-84761-24D	Data Pair: 26 (19/38) Power Pair: 24 (19/36)	5.8 (0.23)	Static (<20 bends): 15.0 (0.59) Dynamic: 60.0 (2.36)	57.0 (38.0)	1.70	2.50	3.90	5.00



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE HDMI CABLES (2.0 Version)

Gore's cables enable a higher resolution up to 4K at 50/60 (2160p), which is four times the clarity of 1080p/60 video resolution (Figure 32). Military personnel and flight crew can now view crystal clear, high definition aircraft displays. These cable bundles deliver outstanding signal integrity for high-speed data transmission up to 18 gigabits (Table 21).

In addition, Gore's lightweight 2.0 version has a smaller diameter that increases flexibility with a tight bend radius facilitating simpler routing in tiny spaces of new and existing aircraft (Figure 33).

TYPICAL APPLICATIONS

- Digital video systems
- Electronic flight bag (EFB)
- Flight management systems
- Glass cockpits
- Portable electronic devices
- Weather mapping

FIGURE 32: 18-Gb VERSION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density

FIGURE 33: UNIQUE CONSTRUCTION

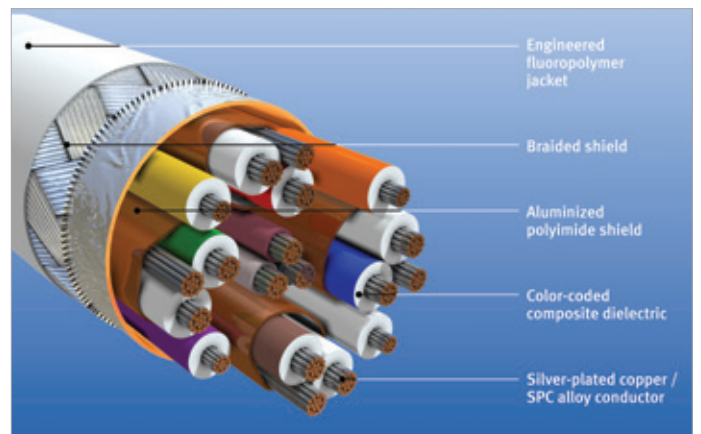


TABLE 21: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	80
	Time Delay (nominal) [ns/m (ns/ft)]	4.10 (1.25)
	Capacitance [pF/m (pF/ft)] ^a	230.0 (70.0)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
	Conductor	High-Speed Pairs: Silver-Plated Copper Alloy Quad/Triad: Silver-Plated Copper
	Conductor Color-Coding	High-Speed Pairs: Blue/White, Red/White, Green/White, Brown/White Quad: White, Orange, Yellow, Purple Triad: Red, Black, Brown
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

^a Twisted quad only.

ORDERING INFORMATION

GORE® Aerospace HDMI Cables are available through several distributors (Table 22). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times. For more information, please contact a Gore representative.

TABLE 22: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation dB/5 m (dB/16.4 ft)			
					825 MHz	2475 MHz	4125 MHz	5100 MHz
RCN9121	Data/Drains/Discrete Pairs: 26 (19/38) Capacitance-Controlled Singles: 28 (19/40)	6.6 (0.26)	13.0 (0.51)	77.5 (52.0)	5.0	12.0	20.0	25.0



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE CABLES (DVI Digital Only)

Gore's single- and dual-link cables are designed specifically for the digital component of digital video interface (DVI) systems (Figures 34 and 35). They deliver outstanding signal quality supporting the highest video resolution for optimal viewing in crystal clear, high definition during critical military operations. These cables meet stringent aerospace requirements for impedance control, insertion loss, skew and EMI shielding necessary for reliable cable performance in aircraft DVI systems operating in demanding radar environments (Table 23).

In addition, the unique construction of these cables is smaller, lighter weight and more flexible without sacrificing robustness. Gore's single- and dual-link cables can be used in standard DVI harness designs (Figure 36). These versatile cables also enable reliable termination with leading aerospace connector systems. Design engineers no longer have to be concerned about designing harnesses with digital components that are ultimately inadequate for aerospace environments.

GORE® Aerospace Cables, DVI Digital Only, deliver best-in-class electrical and mechanical performance in a compact, robust design that withstands grueling flight conditions over the aircraft's lifetime.

TYPICAL APPLICATIONS

- Cockpit displays
- Flight management systems
- Flight crew workstations
- Weather mapping

STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density

FIGURE 34: SINGLE LINK (4 PAIRS)



FIGURE 35: DUAL LINK (7 PAIRS)



FIGURE 36: GORE'S SINGLE-LINK CABLE IN STANDARD DVI HARNESS CROSS-SECTION



TABLE 23: CABLE PROPERTIES

Property		Value	
		GSC-01-85249-24D (7 Pairs)	GSC-01-85249-24S (4 Pairs)
ELECTRICAL	Standard Impedance (ohms)	100 ± 5	
	Typical Operating Voltage	< 15	
	Velocity of Propagation (nominal) (%)	80	
	Time Delay (Nominal ns/m [ns/ft])	4.07 (1.24)	
	Capacitance [pF/m (pF/ft)]	40.0 (12.0)	
	Skew (ps/m [ps/ft]) Pair-to-Pair (maximum) Within Pair (maximum)	52.50 (16.0) 13.12 (4.0)	
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	1500 1000	
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer	
	Jacket Color	White (Laser Markable)	
	Conductor	Silver-Plated Copper Alloy	
	Conductor Color-Coding	Blue and White	
	Dielectric Material	ePTFE/PTFE	
	Temperature Range (°C)	-65 to +200	

ORDERING INFORMATION

GORE™ Aerospace Cables (DVI Digital Only) are available through several distributors (Table 24). Visit gore.com/cable-distributors for the list of distributors.

For more information, please contact a Gore representative.

TABLE 24: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation 24 AWG: dB/100 m (dB/328 ft)			
					100 MHz	200 MHz	500 MHz	1 GHz
GSC-01-85249-24S (4 Pairs)	24 (19/36)	8.3 (0.33)	42.0 (1.65)	121.0 (81.31)	19.4	28.2	46.0	68.2
GSC-01-85249-24D (7 Pairs)	24 (19/36)	12.0 (0.50)	26.0 (1.00)	205 (137.50)	19.4	28.2	46.0	68.2



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC CABLES (1.8 mm Simplex)

Gore has packaged standard fiber optic cables in a unique construction that improves all aspects of performance to meet ever-increasing data needs.

Gore's 1.8 mm Simplex cables endure the tough situations they encounter throughout an aircraft's service life (Figure 37). These cables deliver exceptional signal integrity for high-speed data transmission in wide temperature ranges (Table 25). In addition, The innovative dual buffering system in the construction of these cables resists crushing, kinking and abrasion while maintaining reliable signal integrity before and after installation (Figure 38). The combination of materials in this construction also increases fiber movement under compression that improves termination with standard aerospace connectors.

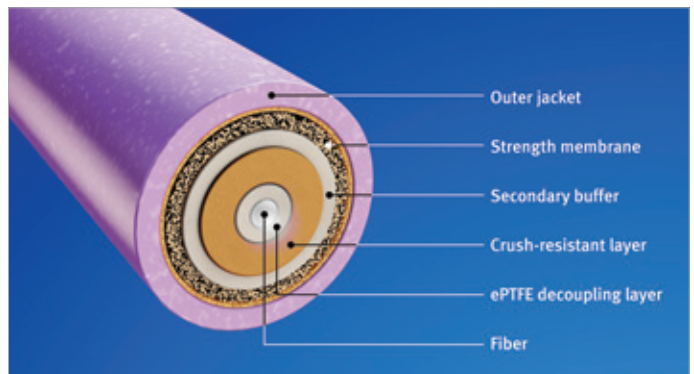
TYPICAL APPLICATIONS

- Avionics networks
- Cabin management systems
- Digital video systems
- Ethernet backbone
- Flight management systems
- Transceivers
- Weather radar systems

FIGURE 37: CRUSH-RESISTANT VERSION



FIGURE 38: ROBUST CONSTRUCTION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- ARINC 802-2 Performance and Environmental Requirements: (GSC-13-84639, GSC-13-84640, GSC-13-84943)
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- EN4641-301
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density

TABLE 25: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Maximum Optical Loss at 850 nm (dB/km)	≤ 4.0
	Maximum Optical Loss at 1310 nm (dB/km)	≤ 3.0
MECHANICAL / ENVIRONMENTAL	Jacket Material	PFA
	Core Type	Single-Mode or Multi-Mode, Graded Index
	Coating Type	High-Temperature Acrylate
	Dual Buffer Type	ePTFE
	Temperature Range (°C)	-65 to +135

ADDED DURABILITY

Gore evaluated the durability of its cable compared to a leading alternative cable using the EN-4641-301 test method. Results showed that Gore’s 1.8 mm Simplex cables provided greater crush resistance for extended service life (Figures 39 and 40). The unique construction of these cables allows for lower force to move the fiber under compression while still maintaining excellent signal transmission.

With an exceptional balance of properties, Gore’s 1.8 mm Simplex cables deliver improved reliability and longevity in a more robust construction without sacrificing size or weight.

ORDERING INFORMATION

GORE® Aerospace Fiber Optic Cables (1.8 mm Simplex) are available through several distributors in a variety of standard sizes (Table 26). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of standard products and lead times.

For more information, please contact a Gore representative.

FIGURE 39: GREATER CRUSH RESISTANCE AT 850 NM

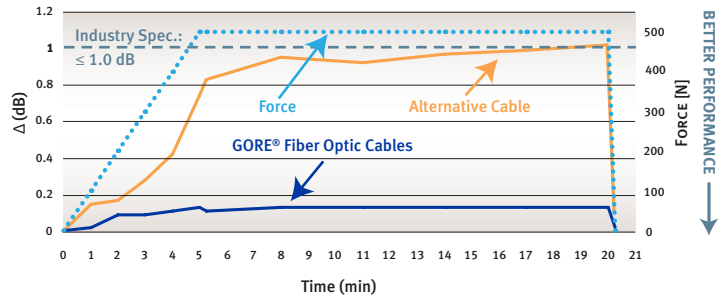


FIGURE 40: GREATER CRUSH RESISTANCE AT 1300 NM

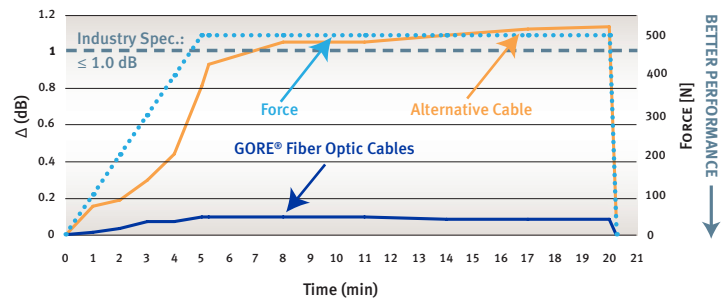


TABLE 26: PRODUCT SPECIFICATIONS

Please contact a Gore representative for a bend-insensitive fiber option or specific fiber glass type.

Gore Part Number	Mode Type	Core/Cladding/Coating	Jacket Color	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight (g/m)	Tensile Strength (N max)
GSC-13-84689-04	SM (Single Mode)	9/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	150
GSC-13-84689-07	SM (Single Mode)	9/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	150
GSC-13-84640-04	OM1 (Multi-Mode)	62.5/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84640-07	OM1 (Multi-Mode)	62.5/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84639-04	OM2 (Multi-Mode)	50/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84639-07	OM2 (Multi-Mode)	50/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84943-04	OM3 (Multi-Mode)	50/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84943-07	OM3 (Multi-Mode)	50/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	200



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC CABLES (1.2 mm Simplex)

This version of Gore’s Simplex cables delivers stable optical performance for high-speed data transmission in the most demanding aerospace conditions (Figure 41). They are engineered with a rugged buffering system that withstands extreme temperatures, shock, vibration, and tension that can severely impact overall system performance in military aircraft (Table 27). These single- and multi-mode fiber optic cables are also smaller and lighter weight without sacrificing mechanical strength, minimizing routing and installation complexity.

TYPICAL APPLICATIONS

- Avionics networks
- Digital video systems
- Ethernet backbone
- Flight management systems
- Inside-the-box / laser pigtail
- Strain-gauge systems
- Transceivers

FIGURE 41: RUGGED BUFFERING SYSTEM



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- BSS 7238: Smoke Density
- BSS 7239: Toxicity
- BSS 7324-7.25: Flammability

TABLE 27: CABLE PROPERTIES

	Property	Value				
		FON1002	FON1003	FON1253	FON1307	FON1371
ELECTRICAL	Maximum Optical Loss at 1310 nm (dB/km)	≤ 0.7	≤ 1.5	≤ 0.4	≤ 1.5a	≤ 0.7a
MECHANICAL / ENVIRONMENTAL	Jacket Material	Extruded FEP				
	Core Type	Single-Mode	Multi-Mode, Graded Index	Single-Mode	Multi-Mode, Graded Index	Multi-Mode, Graded Index
	Coating Type	Polyimide		High-Temperature Acrylate		
	Buffer Type	PTFE				
	Temperature Range (°C)	-65 to +200		-55 to +125		

^a Maximum optical loss at 1300 nm (dB/km).

ORDERING INFORMATION

GORE® Aerospace Fiber Optic Cables (1.2 mm Simplex) are available through several distributors in a variety of standard sizes (Table 28). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore's full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 28: PRODUCT SPECIFICATIONS

Gore Part Number	Core/Cladding/Coating	Jacket Color	Nominal Outer Diameter mm (in)	Minimum Bend Radius Short / Long Term mm (in)	Nominal Weight (g/m)	Tensile Strength (N max)
FON1002	9/125/155	Blue	1.2 (0.04)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.5	350
FON1003	62.5/125/155	Blue	1.2 (0.04)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.5	350
FON1253	9/125/250	Blue	1.2 (0.04)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.5	350
FON1307	50/125/250	Blue	1.2 (0.04)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.5	350
FON1371	62.5/125/250	Blue	1.2 (0.04)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.5	350





GORE® Aerospace

HIGH SPEED DATA CABLES

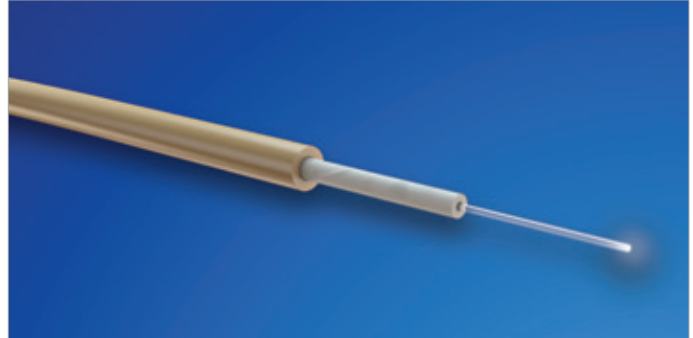
GORE® AEROSPACE FIBER OPTIC CABLES (900 micron)

This version provides a high level of crush protection similar to the Simplex versions while drastically reducing shrink back and the time required to terminate samples (Figure 42). Ideal for inside-the-box applications, these small, lightweight yet mechanically strong fiber optic cables deliver unfailing signal transmission in the roughest aerospace conditions (Table 29).

TYPICAL APPLICATIONS

- Inside-the-box applications
- Transceivers

FIGURE 42: HIGH-LEVEL CRUSH PROTECTION



STANDARDS COMPLIANCE

- ARINC 802-2 Performance and Environmental Requirements (GSC-13-85067-00)
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density

TABLE 29: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Maximum Optical Loss at 850 nm (dB/km)	3.0
	Maximum Optical Loss at 1310 nm (dB/km)	1.0
MECHANICAL / ENVIRONMENTAL	Jacket Material	PEEK
	Core Type	Multi-Mode
	Coating Type	High-Temperature Acrylate
	Buffer Type	ePTFE
	Temperature Range (°C)	-60 to +135

ORDERING INFORMATION

GORE® Aerospace Fiber Optic Cables (900 micron) are available through several distributors in a variety of standard sizes (Table 30). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore’s full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 30: PRODUCT SPECIFICATIONS

Gore Part Number	Core/ Cladding/ Coating	Jacket Color	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight (g/m)	Tensile Strength (N max)
GSC-13-85067-00	62.5/125/245	Brown	0.9 (0.35)	18.0 (0.71)	0.85	50
GSC-13-85348-00	50/125/245	Brown	0.9 (0.35)	18.0 (0.71)	0.85	50
GSC-13-85375-00	9/125/245	Brown	0.9 (0.35)	18.0 (0.71)	0.85	50



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC RIBBON CABLES

Engineered with an unique buffering system, Gore’s ribbon cables provide durable protection in difficult conditions while maintaining high-speed communication on avionics networks (Figure 43). These cables deliver consistent signal integrity for uninterrupted data transmission before and after installation and in a wide range of temperatures (Table 31). In addition, the smaller construction of these ribbon cables increases flexibility with a tight bend radius for easy installation in cramped areas of an aircraft.

Gore offers three versions of ribbon cables, each engineered with the right amount of ruggedness for applications ranging from inside-the-box systems to outside the aircraft.

TYPICAL APPLICATIONS

- Avionics networks
- Digital video systems
- Ethernet backbone
- Flight management systems
- Transceivers
- Weather radar systems

FIGURE 43: MULTIPLE VERSIONS



STANDARDS COMPLIANCE

- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031 (AITM 2.0005): Flammability
- FAR Part 25, Appendix F, Part V, BSS7238, and ABD0031 (AITM 3.0008B): Smoke Density
- MIL-STD-202, Method 103: Humidity
- MIL-STD-810, Method 509; Salt Fog
- MIL-STD-810, Method 510: Sand & Dust

TABLE 31: CABLE PROPERTIES

	Property	Value			
		FOA8100/6/12/2	FON1214/4/12	FON1256/4/12	FON1551
ELECTRICAL	Maximum Optical Loss at 850 nm (dB/km)	≤ 2.3	≤ 4.0	≤ 2.3	≤ 3.5
MECHANICAL / ENVIRONMENTAL	Fiber Jacket Material	PVDF	Engineered Fluoropolymer		PVDF
	Core Type	Multi-Mode	Multi-Mode, Graded Index	Multi-Mode	Multi-Mode, Graded Index
	Coating Type	Acrylate	High-Temperature Acrylate	Acrylate	Acrylate
	Buffer Type	PTFE			
	Temperature Range (°C)	-55 to +85	-55 to +125	-55 to +85	-55 to +85

ORDERING INFORMATION

GORE® Aerospace Fiber Optic Ribbon Cables are available through several global distributors in a variety of standard sizes (Table 32). Visit gore.com/cable-distributors for the list of distributors. In addition, see page 38 for more information regarding Gore's full inventory of sample products and lead times.

For more information, please contact a Gore representative.

TABLE 32: PRODUCT SPECIFICATIONS

Product specifications are for typical configurations. Dimensions for overall diameter are for Gore's 12-fiber cable configurations.

Gore Part Number	Core/Cladding/Coating	Jacket Color	Overall Width mm (in)	Minimum Bend Radius Short / Long Term mm (in)	Nominal Weight (g/m)	Tensile Strength (N max)
FOA8100/6/12/2	50/125/245	Orange	5.1 (0.20)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.0	350
FON1214/4/12	50/125/245	White	3.6 (0.14)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.0	350
FON1256/4/12	50/125/245	White	3.6 (0.14)	≥ 12.0 (0.47) ≥ 25.0 (0.98)	2.0	350
FON1551	50/125/245	Orange	3.8 (0.15)	≥ 6.0 (0.24) ≥ 13.0 (0.51)	2.0	350



GORE® Aerospace

HIGH SPEED DATA CABLES

SAMPLE PRODUCT INVENTORY

Samples of Gore’s standard high data rate cables are available with short lead times (Tables 33 and 34). Gore can ship samples within two (2) business days from the date of the request.

As a result, aircraft OEMs can validate and support low-rate production using Gore’s standard products in their specific applications with lower technical and business risks to their programs.

FREE SAMPLES FOR PROTOTYPING & EVALUATION

Visit gore.com/hdrcablesample to fill out the form and receive a complimentary sample(s) of our standard high data rate cables. Or, contact a Gore representative regarding available materials for your sample, prototype and small production requirements.

TABLE 33: INVENTORY OF GORE’S STANDARD COPPER CABLES

Cable Type / Protocol	Construction	Standard Impedance (Ohms)	Gore Part Number
Ethernet (Cat5e, 6, 6a)	4 Pairs, 24 AWG	100	RCN9034-24
	4 Pairs, 26 AWG	100	RCN9047-26
	4 Pairs, 28 AWG	100	RCN9034-28
	4 Pairs, 24 AWG ^a	100	RCN8966-24
	4 Pairs, 26 AWG ^a	100	RCN8966-26
Ethernet (Cat5e)	Quadrx, 24 AWG	100	GSC-03-84608-00
	Quadrx, 26 AWG	100	GSC-03-84820-00
FireWire® (IEEE 1394b)	Quadrx, 22 AWG	110	RCN8645
	Quadrx, 24 AWG	110	RCN8647
	Quadrx, 26 AWG	110	RCN8652
Shielded Twisted Pair	Single Pair, 20 AWG	100	DXN2600
	Single Pair, 22 AWG	100	DXN2601
	Single Pair, 24 AWG	100	DXN2602
	Single Pair, 26 AWG	100	DXN2603
	Single Pair, 28 AWG	100	DXN2604
	Single Pair, 30 AWG	100	DXN2605

^a See table 3 (page 7) for Ethernet Interconnect options.

TABLE 33: INVENTORY OF GORE’S STANDARD COPPER CABLES (CONTINUED)

Cable Type / Protocol	Construction	Standard Impedance (Ohms)	Gore Part Number
Fibre Channel	Quadrax, 26 AWG	150	RCN8328
Quadrax	Quadrax 24 AWG	100	GSC-03-84608-00
	Quadrax, 26 AWG	100	GSC-03-84820-00
USB (2.0)	Data/Power, 22 AWG	90	RCN8800-22D-22P-H
	Data, 24 AWG Power, 22 AWG	90	RCN8800-24D-22P-H
USB (3.1)	Data, 26 AWG Power, 24 AWG	90	GSC-03-84761-24D
HDMI (2.0)	Hybrid	100	RCN9121

TABLE 34: INVENTORY OF GORE’S STANDARD FIBER OPTIC CABLES

Cable Type / Protocol	Construction	Core/Cladding/Coating	Gore Part Number
Fiber Optics	1.8 MM Simplex, OM1	62.5/125/245	GSC-13-84640-07
	1.8 MM Simplex, OM2	50/125/245	GSC-13-84639-07
	1.8 MM Simplex, OM3	50/125/245	GSC-13-84943-07
	1.2 MM Simplex	50/125/250	FON1307
	0.9 MM Simplex	62.5/125/245	GSC-13-85067-00
	12-Fiber Ribbon	50/125/245	FON1214/4/12

