



GORE® Aerospace

HIGH SPEED DATA CABLES

Product Portfolio



For Military Applications

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GORE[®] Aerospace

HIGH SPEED DATA CABLES

*For Military
Applications*

Reliable signal transmission in high-density, lightweight constructions

Engineered for demanding aerospace environments, GORE[®] Aerospace High Speed Data Cables are constructed with uniquely engineered fluoropolymers that deliver reliable signal transmission in a lightweight package. These cables meet the performance requirements of ANSI/NEMA WC 27500 Standard for Aerospace and Industrial Electrical Cable, Type 24. Whatever type of high data rate cables your system architecture requires, Gore's wide portfolio of high-speed data cables maintain stable communication on avionics networks.

WEIGHT SAVINGS WITH GORE CABLE TECHNOLOGY

GORE[®] Aerospace High Speed Data Cables can significantly reduce weight while maintaining consistent signal integrity. 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). These lighter-weight materials also result in smaller cable diameters, which ultimately translate to significantly smaller, lighter, and higher-density cable bundles.

The excellent signal integrity of Gore's high data rate cables can enable utilization of smaller gauge cables in your system architecture. Because of their electrical performance and long transmission distances, these cables can reduce the need for additional signal amplification — further decreasing weight and power requirements.

Benefits of GORE[®] Aerospace High Speed Cables

- Excellent signal integrity with stable performance in extreme conditions
- High-speed data transmission over longer distances, minimizing the need for additional signal amplification
- Improved installation with smaller, high-density cable bundles
- Easy routing in confined spaces due to small diameter and tight bend radius

Reliable Flight Performance

GORE[®] Aerospace High Speed Data Cables deliver dependable signal integrity for data transmission in the most difficult flight conditions. These cables maintain unflinching performance in extreme temperatures ranging from -55°C to 200°C, including rapid changes in temperatures encountered during take-off and landing.

Easier Installation

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



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HIGH SPEED DATA CABLES

GORE® Aerospace Ethernet Cables

Now approved on the SAE-AS-6070 Qualified Parts List (QPL), Gore's cables are engineered for the increasing data demands of modern airborne digital networks (Figure 1). They exceed Cat6a electrical requirements and deliver excellent signal integrity with sufficient margin for high-speed data transmission up to 10 gigabits over longer distances (Table 1). The unique design of these cables is 24 percent smaller and 25 percent lighter than standard Cat6a cables for greater flexibility and easier installation in challenging environments (Figures 2 and 3). 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
- F-16 Upgrades
- Flight management systems

FIGURE 1: GORE'S CAT6A CABLES



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
- IEEE 802.3 1000BASE-T Gigabit Ethernet Standard
- SAE-AS-6070/5 and SAE-AS-6070/6: Ethernet 1000-Base T (10 G/bit, 100 Ohm); QPL (RCN9034-24 and RCN9047-26)

TABLE 1: 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)] 24 AWG	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	42.6 (13)
	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

FIGURE 2: SMALLER CAT6A CABLE DIAMETER

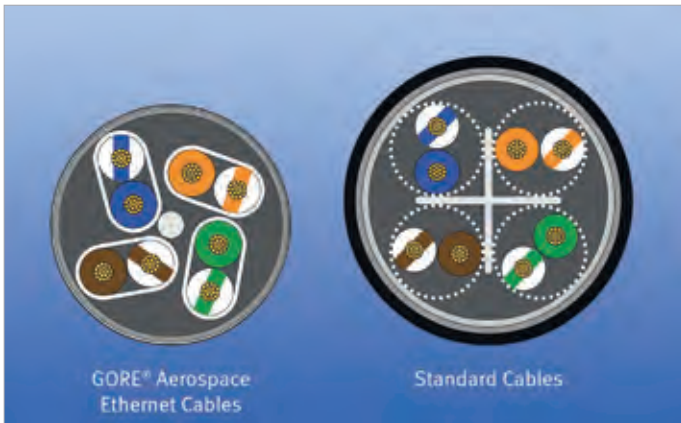


FIGURE 3: HIGH-DENSITY CONSTRUCTION

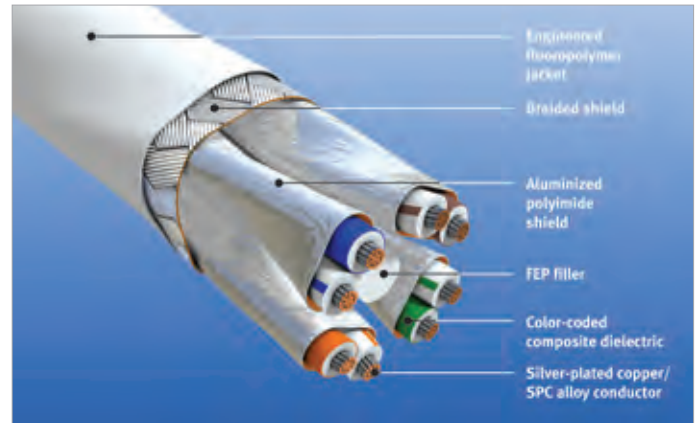


FIGURE 4: ATTENUATION COMPARISON

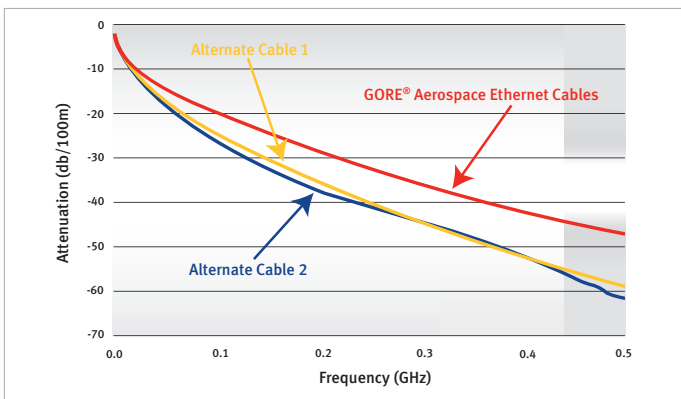
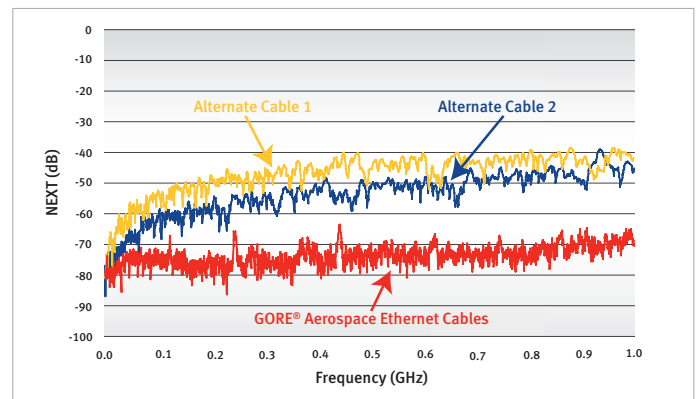


FIGURE 5: CROSSTALK COMPARISON



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 4). Results also showed that Gore's Cat6a cable can reduce near-end crosstalk (NEXT) by as much as 10 dB at 500 MHz compared to alternative cable designs (Figure 5).



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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 2). 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 6). 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 through the simulator 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 7). 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 8).

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 6: TEST SIMULATOR

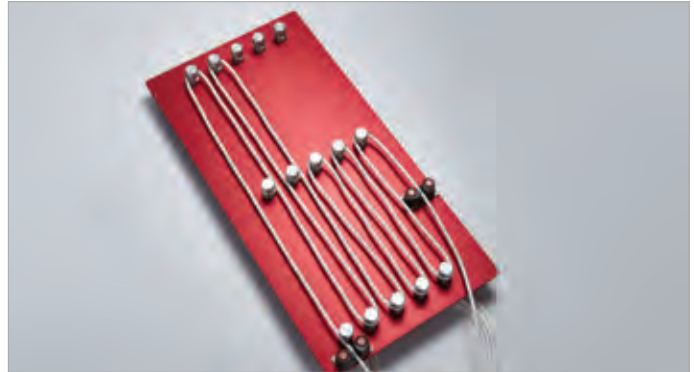


FIGURE 7: RETURN LOSS COMPARISON AFTER ROUTING

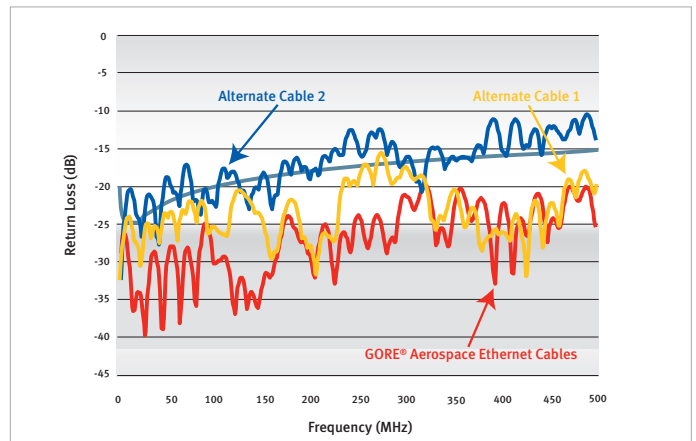


FIGURE 8: CROSSTALK COMPARISON AFTER ROUTING

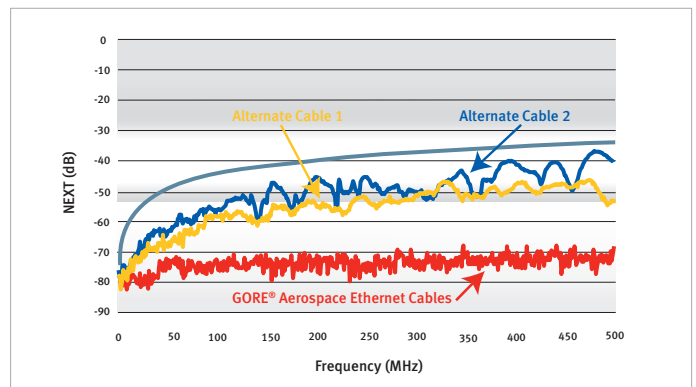


TABLE 2: ETHERNET INTERCONNECT OPTIONS^a

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

^a Contact Gore for other connector options.

^b Construction includes a unique inverted dielectric when terminated with the HARTING RJ Industrial® and TE Connectivity® connector systems.

ORDERING INFORMATION

GORE® Aerospace Ethernet Cables are available through several distributors (Table 3). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

TABLE 3: PRODUCT SPECIFICATIONS

Part Number	AWG Size (Stranding)	Maximum Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation ^c		
					100 MHz	200 MHz	500 MHz
RCN8966-24 ^b	24 (19/36)	6.6 (0.26)	13.2 (0.52)	67.0 (45.0)	19.1	27.6	45.3
RCN8966-26 ^b	26 (19/38)	5.8 (0.23)	11.6 (0.46)	52.1 (35.0)	19.1	27.6	45.3
RCN9034-24 ^{a,d}	24 (19/36)	6.6 (0.26)	13.7 (0.54)	62.5 (42.0)	19.1	27.6	45.3
RCN9034-28 ^b	28 (19/40)	4.5 (0.18)	8.9 (0.35)	37.2 (25.0)	19.1	27.6	45.3
RCN9047-26 ^{a,d}	26 (19/38)	5.6 (0.22)	10.2 (0.44)	47.6 (32.0)	19.1	27.6	45.3

^a Stock item: Gore / Authorized Distributors

^b Sample stock available

^c Typical attenuation values are based on maximum recommended Cat6a use length.

^d Approved on the SAE-AS-6070 Qualified Parts List.



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HIGH SPEED DATA CABLES

GORE® AEROSPACE FIREWIRE® CABLES

Gore's cables are the premier solution for copper-based 1394b FireWire data links (Figure 9). They provide high-fidelity signal links for interconnect solutions up to 75 feet at S400 data rates (Table 4). Gore's specialized design offers significant size and weight savings when compared to conventional constructions such as twisted pair cables (Figure 10). This quad design is approximately 40 percent smaller than common dual twisted pair constructions and has saved as much as 11.5 pounds per aircraft (Figure 11).

TYPICAL APPLICATIONS

- Avionics electronics
- Flight control
- Mission systems
- Propulsion control

FIGURE 9: GORE'S FIREWIRE® CABLES



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 (AIM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density
- SAE-AS-5643: IEEE 1394b Interface Requirements for Military and Aerospace Vehicle Applications
- SAE-AS-6070/8: IEEE 1394b (110 Ohm): RCN8645, RCN8647, RCN8652

FIGURE 10: FLEXIBLE CONSTRUCTION

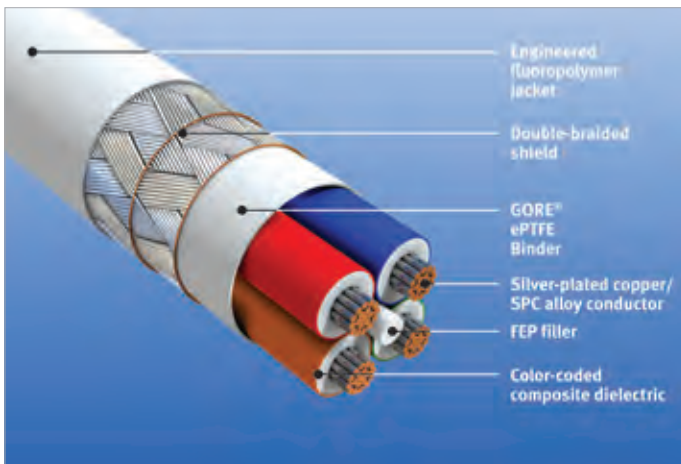


FIGURE 11: SMALLER QUAD CABLE DESIGN

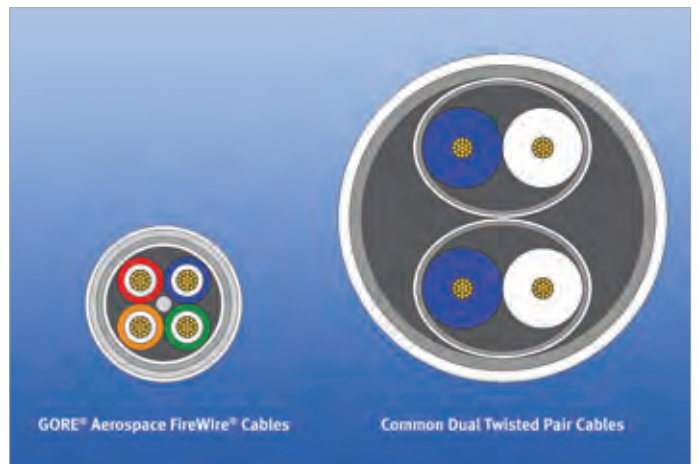


TABLE 4: CABLE PROPERTIES

	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)] 24 AWG	4.10 (1.25)
	Capacitance [pF/m (pF/ft)]	39.4 (12)
	Skew (ps/ft) (within pair) Typical Maximum	2.0 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 or Silver-Plated Copper Alloy
	Conductor Color-Coding	Red/Green Blue/Orange
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-55 to 200



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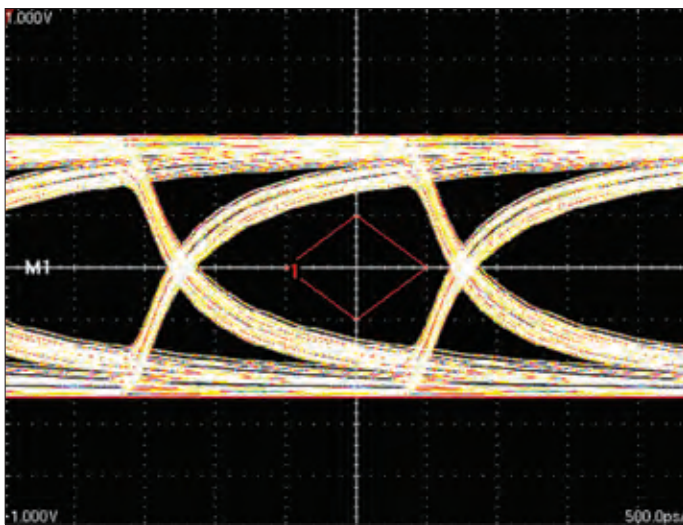
HIGH SPEED DATA CABLES

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 12).

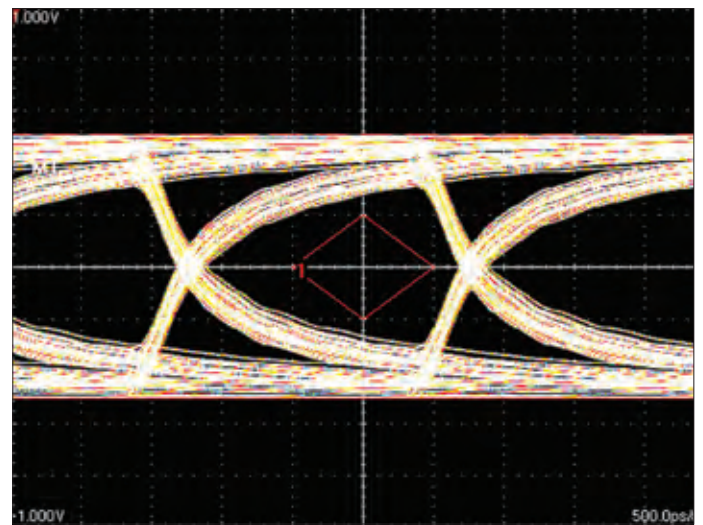
The cable passed the eye mask test with margin, indicating greater transmission length is possible. The eye pattern test was repeated with the 50-ft cable wrapped 20 times around a 0.5-inch radius mandrel. No substantial degradation in signal quality was observed with flexure (Figure 13).

FIGURE 12: EYE PATTERN OF 24 AWG



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

FIGURE 13: EYE PATTERN OF 24 AWG WITH FLEXURE



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

ORDERING INFORMATION

GORE® Aerospace FireWire® Cables are available through several distributors in a variety of standard sizes (Table 5). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

TABLE 5: PRODUCT SPECIFICATIONS

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 ^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 ^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 ^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 Sample stock available



GORE® Aerospace

HIGH SPEED DATA CABLES

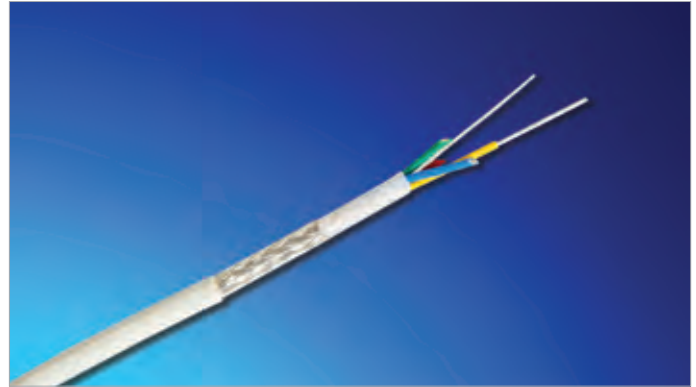
GORE® AEROSPACE QUAD CABLES

Gore’s quad cables are an ideal solution for a variety of high-speed data protocols (Figure 14). Particularly for Cat5e requirements, they maintain reliable signal transmission up to 70 meters for size 24 AWG and 50 meters for size 26 AWG (Table 6). In addition, the enhanced design of these cables is substantially smaller and lighter weight without sacrificing durability (Figures 15 and 16). This quad 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 on fighter aircraft such as the latest fifth-generation F-35.

TYPICAL APPLICATIONS

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

FIGURE 14: GORE’S QUAD CABLES



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
- IEEE 802.3 1000BASE-T Gigabit Ethernet Cables: (2 quad cables)

TABLE 6: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Velocity of Propagation (nominal) (%)	> 70
	Near-End Crosstalk (NEXT) dB min @ 10 MHz	50
	dB min @ 100 MHz	35
	Capacitance [pF/m (pF/ft)]	50 (15)
MECHANICAL / ENVIRONMENTAL	Test Voltage (DC) Conductor-to-Conductor Conductor-to-Shield	2500
	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

FIGURE 15: SMALLER QUAD CABLE DIAMETER

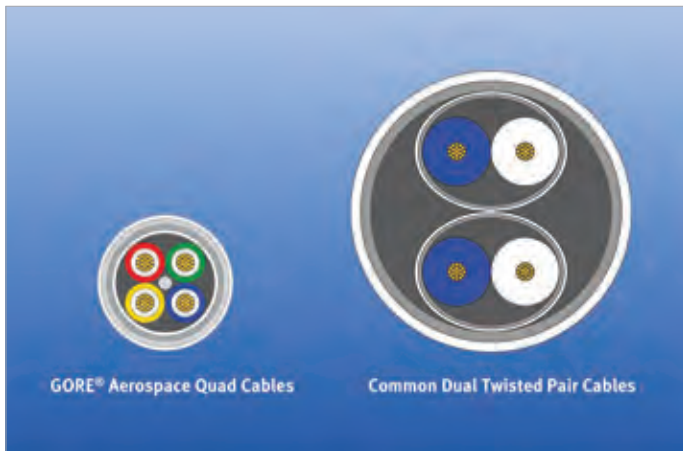
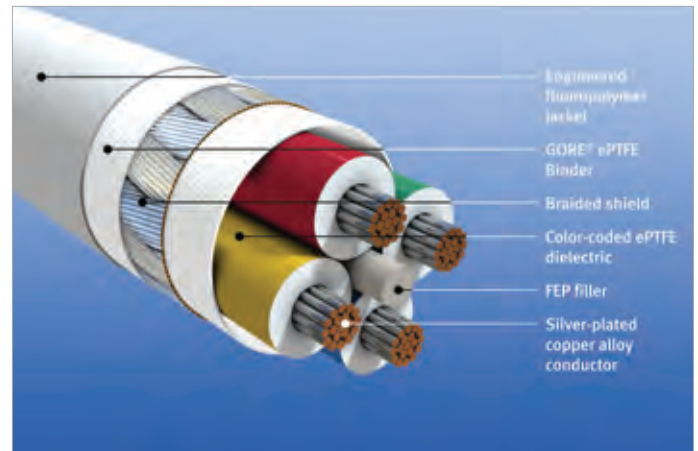


FIGURE 16: LIGHTWEIGHT CONSTRUCTION



ORDERING INFORMATION

GORE® Aerospace Quad Cables are available through several global distributors in a variety of standard sizes (Table 7). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

TABLE 7: PRODUCT SPECIFICATIONS

Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation ^b	
					10 MHz	100 MHz
GSC-03-84608-00 ^a	24 (19/36)	4.1 (0.16)	20 (0.79)	33.0 (22.0)	6.5	22.0
GSC-03-84820-00 ^a	26 (19/38)	3.3 (0.13)	15 (0.59)	23.0 (15.0)	6.5	22.0

^a Sample stock available

^b Typical attenuation values are based on maximum recommended Cat5e use length.



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBRE CHANNEL CABLES

Gore’s high-speed interconnects enhance noise immunity and EMI suppression while guaranteeing signal integrity in the toughest flight conditions (Figure 17). 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 8). They also provide increased durability in hazardous environments with chemical- and temperature-resistant materials. Gore’s cables 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 18 and 19). Gore’s 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 17: GORE’S FIBRE CHANNEL CABLES



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- ANSI X3T11 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

TABLE 8: 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)
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor Conductor-to-Shield	2500
MECHANICAL / ENVIRONMENTAL	Jacket Material	FEP
	Jacket Color	Black (Laser Markable)
	Conductor	Silver-Plated Copper Alloy
	Conductor Color-Coding	White/Blue, Green/Black
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to 200

FIGURE 18: LOW-DIELECTRIC CABLE GEOMETRY

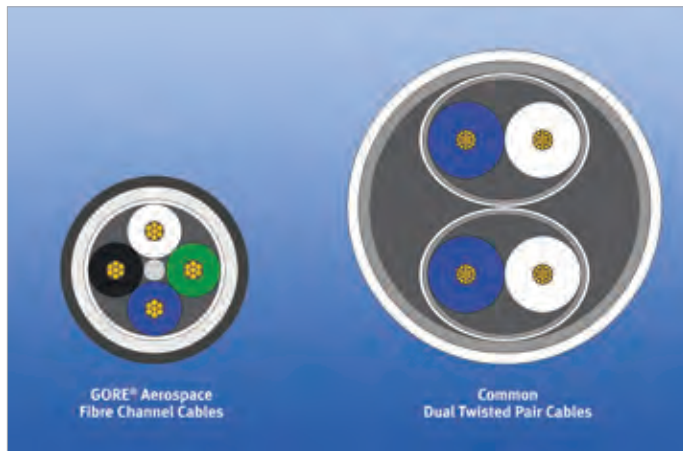
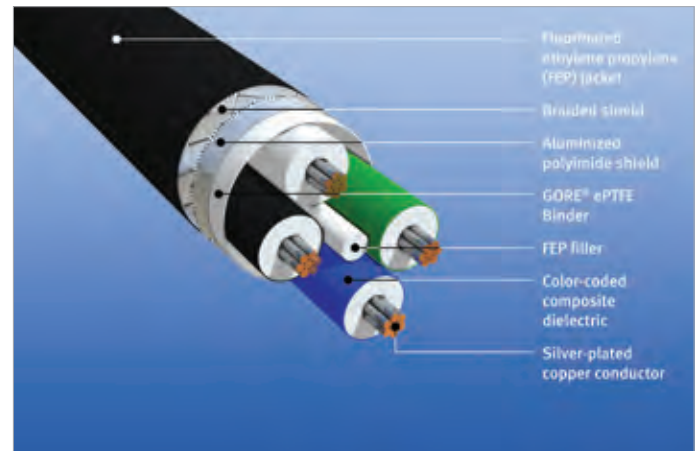


FIGURE 19: TOUGH CONSTRUCTION



ORDERING INFORMATION

GORE® Aerospace Fibre Channel Cables are available through several distributors in a variety of standard sizes (Table 9). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables, connector options and terminated assemblies. Connector options used between-the-box include DB-9 plug and receptacles and size 11 MIL-C-38999 for optimized performance in the smallest possible connector package.

For more information, please contact a Gore representative.

TABLE 9: PRODUCT SPECIFICATIONS

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 ^a	26 (7/34)	4.8 (0.19)	25.0 (1.00)	27.0 (40.2)	6.8	10.9	50.5	22.5

^a Sample stock available



GORE® Aerospace

HIGH SPEED DATA CABLES

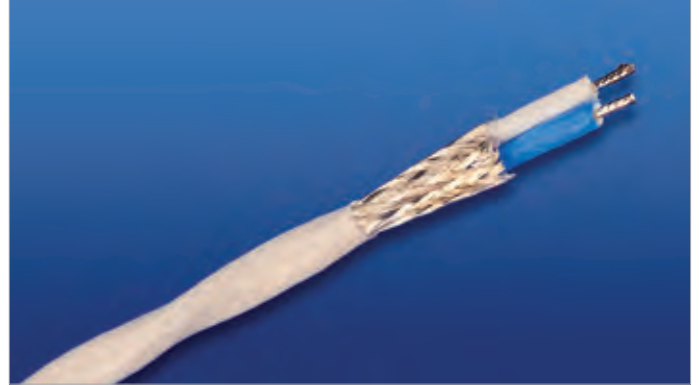
GORE® SHIELDED TWISTED PAIR CABLES

Well-suited for aerospace harness applications, Gore's cables are highly flexible and easy to route in hard-to-reach places (Figure 20). They provide excellent signal integrity while reducing weight by as much as 35 percent when compared to standard cables (Figures 21 and 22). In addition, the combination of materials in this construction supports a wide temperature range to tolerate the harshest aerospace environments (Table 10).

TYPICAL APPLICATIONS

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

FIGURE 20: GORE'S SHIELDED TWISTED PAIR CABLES



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 11)

TABLE 10: 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)] 24 AWG	4.07 (1.24)
	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	White and Blue
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-55 to 200

^a Contact Gore for other impedance options

FIGURE 21: SMALLER, LIGHTER CABLE DESIGN

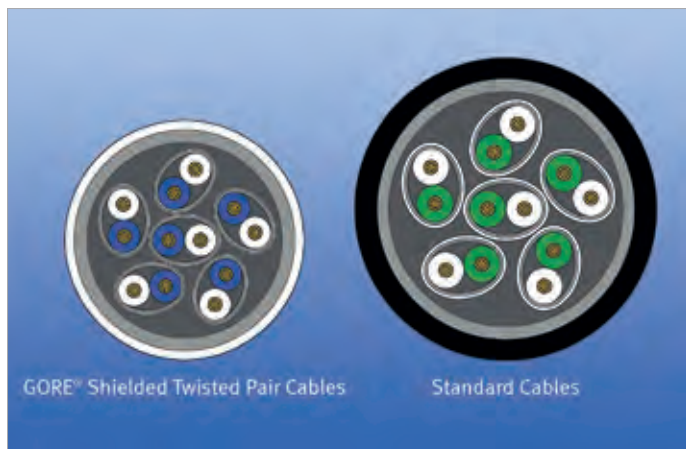
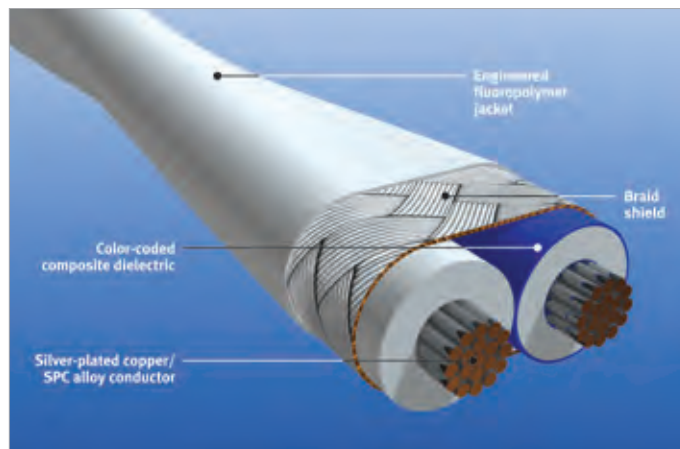


FIGURE 22: DURABLE CONSTRUCTION



ORDERING INFORMATION

GORE® Shielded Twisted Pair Cables are available through several distributors in a variety of standard sizes (Table 11). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

TABLE 11: 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 ^a	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 ^a	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 ^a	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 ^a	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 ^a	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 ^a	GSC-03-84557-00	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

^a Stock item: Gore / Authorized Distributors



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC CABLES

Gore has packaged standard fiber optic cables in a unique construction that improves all aspects of performance to meet ever-increasing data needs (Figure 23).

Gore’s 1.8 mm Simplex cables endure the tough situations they encounter throughout an aircraft’s service life. These cables deliver exceptional signal integrity for high-speed data transmission in wide temperature ranges (Table 11). 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 24). The combination of materials in this construction also increases fiber movement under compression that improves termination with standard aerospace connectors.

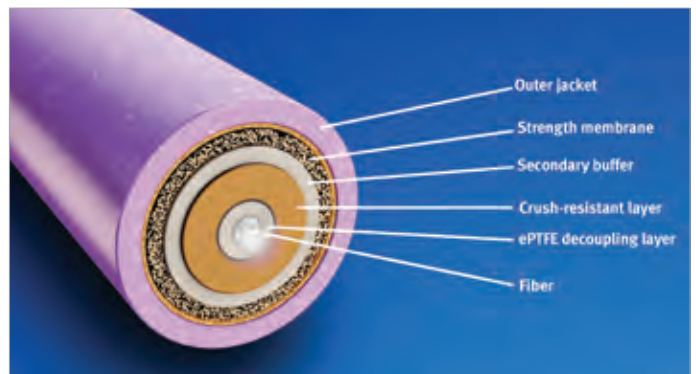
TYPICAL APPLICATIONS

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

FIGURE 23: GORE’S 1.8 MM SIMPLEX



FIGURE 24: ROBUST CONSTRUCTION



STANDARDS COMPLIANCE

- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- ARINC 802-2 Performance and Environmental Requirements: (GSC-13-84640-00)
- BSS7239 and ABD0031 (AIM 3.0005): Toxicity
- EN4641-301
- 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

TABLE 11: 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)	-55 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 25 and 26). 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 10). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables. For more information, please contact a Gore representative.

FIGURE 25: GREATER CRUSH RESISTANCE AT 850 NM

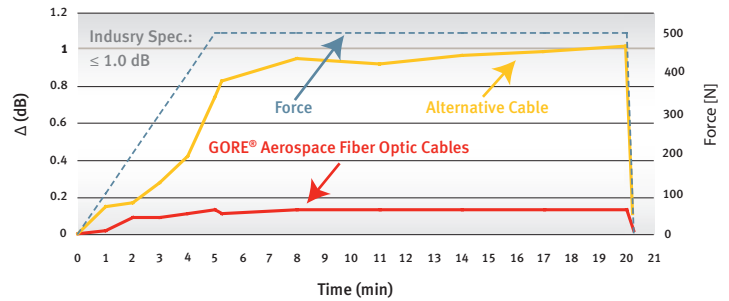


FIGURE 26: GREATER CRUSH RESISTANCE AT 1300 NM

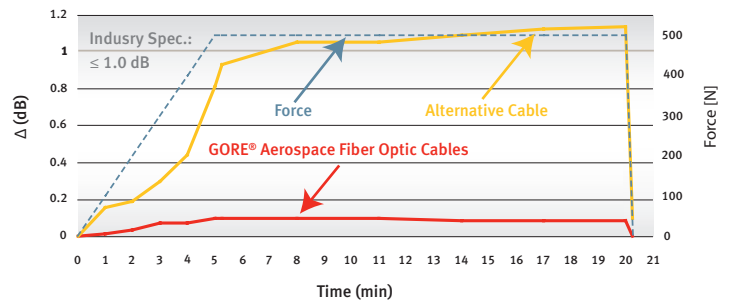


TABLE 12: PRODUCT SPECIFICATIONS

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-13-84639-04	50/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84639-07 ^a	50/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84640-04	62.5/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84640-07 ^a	62.5/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	200
GSC-13-84689-04	9/125/245	Yellow	1.8 (0.07)	18.0 (0.71)	4.0	150
GSC-13-84689-07	9/125/245	Purple	1.8 (0.07)	18.0 (0.71)	4.0	150

^a Sample stock available



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC CABLES

Gore's 1.2 mm Simplex cables deliver stable optical performance for high-speed data transmission in the most demanding aerospace conditions (Figure 27). This version is 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 13). 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 27: GORE'S 1.2 MM SIMPLEX



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 13: CABLE PROPERTIES

	Property	Value				
		FON1002	FON1003	FON1253	FON1307	FON1371
ELECTRICAL	Maximum Optical Loss at 1310 nm (dB/km)	≤ 0.7	≤ 1.5	≤ 0.4	≤ 1.5 ^a	≤ 0.7 ^a
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	

^aMaximum 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 14). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables. For more information, please contact a Gore representative.

TABLE 14: PRODUCT SPECIFICATIONS

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 ^a	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

^a Sample stock available



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HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC CABLES

Gore's 900 microns (µm) provide a high level of crush protection similar to the Simplex versions while drastically reducing shrink back and the time required to terminate samples (Figure 28). 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 15).

TYPICAL APPLICATIONS

- Inside-the-box applications
- Transceivers

FIGURE 28: GORE'S 900 MICRONS



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 15: 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 125

ORDERING INFORMATION

GORE® Aerospace Fiber Optic Cables, 900 microns are available through several distributors in a variety of standard sizes (Table 16). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables. For more information, please contact a Gore representative.

TABLE 16: PRODUCT SPECIFICATIONS

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-13-85251-00	50/125/245	Brown	0.9 (0.35)	18.0 (0.71)	0.85	50



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HIGH SPEED DATA CABLES

GORE® AEROSPACE FIBER OPTIC RIBBON CABLES

Engineered with a unique buffering system, Gore’s ribbon cables provide durable protection in difficult conditions while maintaining high-speed communication on avionics networks (Figure 29). These cables deliver uninterrupted signal transmission in temperatures ranging from -60°C to 125°C (Table 17).

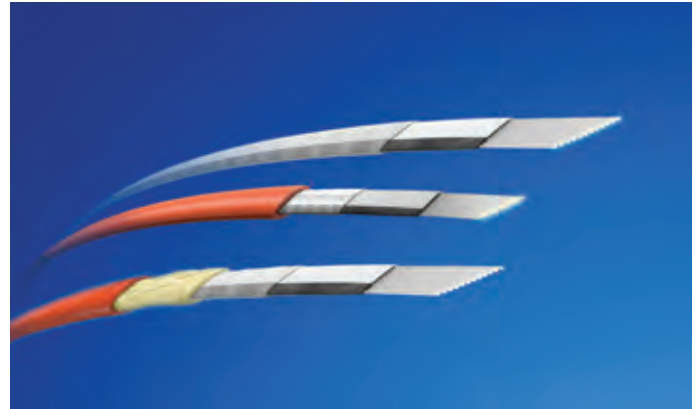
The smaller construction of these ribbon cables increases flexibility with a tight bend radius for easy installation in cramped areas of an aircraft. In addition, they are crush- and abrasion-resistant while providing consistent signal integrity before and after installation.

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 29: GORE’S RIBBON CABLES



STANDARDS COMPLIANCE

- 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
- MIL-STD-202, Method 103: Humidity
- MIL-STD-810, Method 509; Salt Fog
- MIL-STD-810, Method 510: Sand & Dust

TABLE 17: CABLE PROPERTIES

	Property	Value			
		FOA8100/6/12/2	FON1214/4/12	FON1256/4/12	FON1552
ELECTRICAL	Maximum Optical Loss at 850 nm (dB/km)	≤ 2.3	≤ 4.0	≤ 2.3	≤ 3.5
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer			
	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 18). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables. For more information, please contact a Gore representative.

TABLE 18: PRODUCT SPECIFICATIONS

Part Number	Core/Cladding/ Coating ^b	Jacket Color	Overall Width mm (in) ^c	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)	Not Available	2.0	350
FON1214/4/12 ^a	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)	Not Available	2.0	350
FON1551	50/125/245	Orange	3.8 (0.15)	≥ 6.0 (0.24) ≥ 13.0 (0.51)	2.0	350

^a Sample stock available

^b Cables are available in a variety of configurations. Product specifications are for typical configurations.

^c Dimensions are for 12-fiber cable configurations.



GORE® Aerospace

HIGH SPEED DATA CABLES

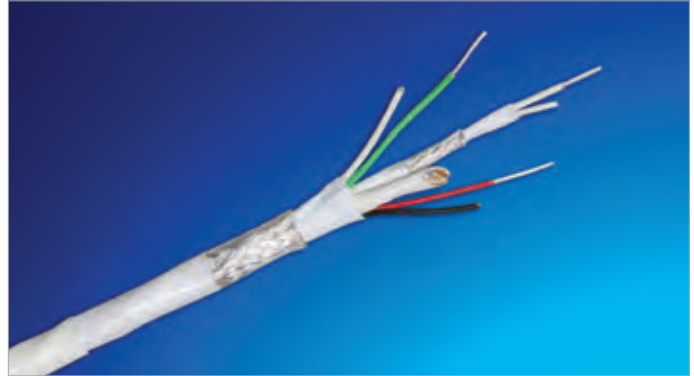
GORE® AEROSPACE USB CABLES

With approved aerospace materials, Gore’s 2.0 and 3.1 versions deliver dependable signal integrity for high-speed data transmission up to 10 gigabits (Figure 30). They support power management from 9-32V systems to ensure flight crew can charge their devices quickly and easily. These cable bundles carry data over longer distances for faster content uploads and downloads (Table 19). In addition, the added durability in the construction 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: GORE’S 3.1 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
- 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 (AITM 3.0008B): Smoke Density

TABLE 19: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	
	High-Speed Pairs	90 ± 5
	Low-Speed Pair	90 ± 10
	Typical Operating Voltage	< 15
	Capacitance [pF/m (pF/ft)] ^a	50 (15)
MECHANICAL / ENVIRONMENTAL	Test Voltage (DC)	
	Conductor-to-Conductor	1500
	Conductor-to-Shield	
	Skew ^b (ps/m) (within pair)	< 15
	Jacket Material	Engineered Fluoropolymer
	Jacket Color	White (Laser Markable)
Conductor	Silver-Plated Copper Alloy	
Conductor Color-Coding	High-Speed Pairs: Blue/Yellow, Orange/Violet Low-Speed Pair: White/Green Power: Red, Black	
Dielectric Material	ePTFE/PTFE	
Temperature Range (°C)	-65 to 200	

^a Shielded twisted pairs only.

ORDERING INFORMATION

GORE® Aerospace USB Cables are available through several distributors (Table 20). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

FIGURE 31: LONG-LASTING CONSTRUCTION

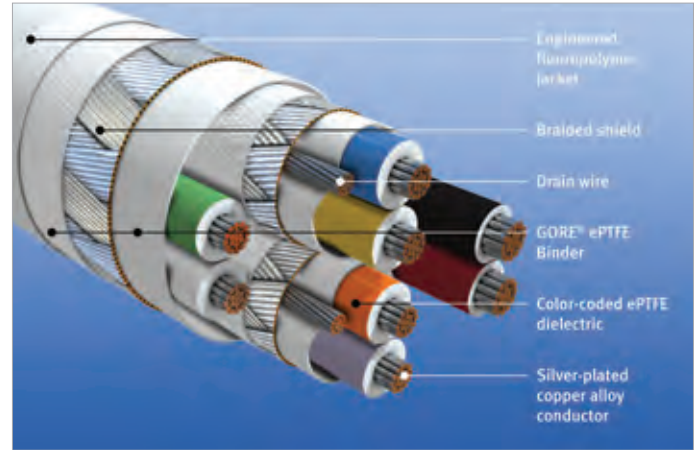


TABLE 20: PRODUCT SPECIFICATIONS

Part Number	AWG Size ^b (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)
RCN8800-22D-22P-H ^a (2.0 version)	Power Pair: 22 (19/34); Data Pair: 22 (19/34)	5.1 (0.20)	15.0 (0.60)	52.0 (35.0)	0.08 @ 10 MHz 0.24 @ 100 MHz 0.44 @ 300 MHz 0.57 @ 500 MHz
RCN8800-24D-22P-H ^a (2.0 version)	Power Pair: 24 (19/36); Data Pair: 22 (19/34)	4.8 (0.19)	13.0 (0.50)	48.0 (32.0)	0.09 @ 10 MHz 0.30 @ 100 MHz 0.54 @ 300 MHz 0.71 @ 500 MHz
RCN8800-26D-24P ^a (2.0 version)	Power Pair: 24 (19/36) Data Pair: 26 (19/38)	4.3 (0.17)	10.0 (0.39)	46.1 (31.0)	0.11 @ 10 MHz 0.36 @ 100 MHz 0.51 @ 300 MHz 0.63 @ 500 MHz
GSC-03-84761-24D (3.1 version)	Power Pair: 24 (19/36) Data Pair: 26 (19/38)	5.8 (0.23)	Static (<20 bends): 15.0 (0.59) Dynamic: 60.0 (2.36)	57.0 (38.0)	2.1 @ 1250 MHz 3.1 @ 2500 MHz 4.1 @ 5000 MHz 5.2 @ 7500 MHz

^a Sample stock available

^b Other gauge sizes can be designed and made to order upon request.



GORE® Aerospace

HIGH SPEED DATA CABLES

GORE® AEROSPACE HDMI CABLES

Gore's 2.0 version enables 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 experience aircraft displays in ultra high definition. These cable bundles deliver outstanding signal integrity for high-speed data transmission up to 18 gigabits over longer distances (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

- Electronic flight bag (EFB)
- Flight management systems
- Portable electronic devices
- Weather mapping

FIGURE 32: GORE'S 2.0 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

TABLE 21: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Capacitance [pF/m (pF/ft)] ^a	16 (4.9)
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.

Gore also offers custom cables and terminated assemblies. For more information, please contact a Gore representative.

FIGURE 33: UNIQUE CONSTRUCTION

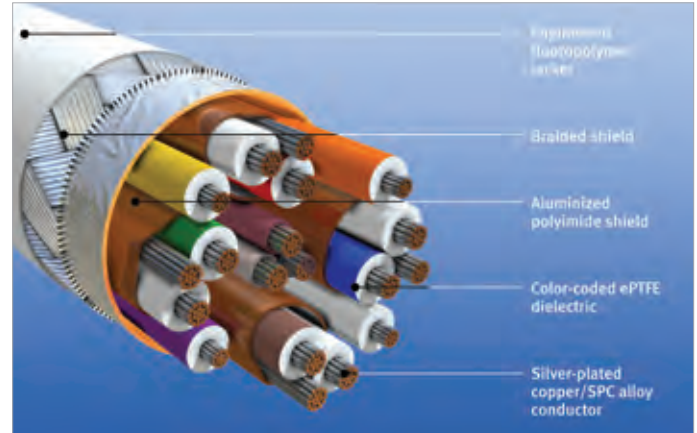


TABLE 22: PRODUCT SPECIFICATIONS

Part Number	AWG Size (Stranding)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/1000 ft)	Typical Attenuation ^b dB/5 m (dB/16.4 ft)
RCN9121 ^a	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 @ 825 MHz 12.0 @ 2475 MHz 20.0 @ 4125 MHz 25.0 @ 5100 MHz

^a Sample stock available

^b Typical attenuation values are based on maximum recommended use length.



GORE® Aerospace

HIGH SPEED DATA CABLES

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