



GORE® Cables and Materials

Product Catalog



*For Military Land
Systems Applications*

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GORE® Cables and Materials

*For Military Land
Systems Applications*

Superior mechanical and electrical performance in compact, lightweight designs

Engineered for extremely harsh military environments, GORE® Cables and Materials deliver failure-free performance now and over time in compact, lightweight designs. They meet and even exceed stringent industry requirements for applications such as satellite communications, radar systems, navigational aids, and weapon telemetry. Additionally, Gore's selection of high-speed copper and fiber optic interconnects support the latest open-source architecture protocols such as Ethernet, USB, HDMI, Fiber Optics Simplex and more.

Whatever type of solution your system architecture requires — high data rate, power and signal delivery or high frequency — Gore's wide variety of reliable products maintain stable performance on the battlefield.

SIGNIFICANT WEIGHT SAVINGS

Gore's cable technology can substantially reduce mass while preserving signal integrity and power distribution. 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 and long transmission distances of Gore's cables can also reduce the need for additional signal amplification — further decreasing weight and power requirements.

ENHANCED DURABILITY

GORE® Cables and Materials significantly reduce program risk for global armed forces. The specialized insulation materials in the construction of these cables reduce abrasion and cut-through while maintaining unfailing performance during rigorous installation and maintenance, repeated vibration, rapidly-changing climate zones, and severe terrain.

Benefits of GORE® Cables and Materials

- Improved installation with smaller, lighter weight designs
- Easy routing in confined areas due to greater flexibility and tight bend radius
- Consistent power delivery and signal integrity in tough military conditions
- High-speed data transmission, minimizing the need for additional signal amplification
- Maintain low insertion loss, low return loss, and phase stability over entire life cycle
- Enhanced durability due to abrasion-resistant and low-creep wire insulation materials
- Longer product life with chemical- and temperature-resistant materials

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

EASIER INSTALLATION

Gore's entire collection of high-performance products facilitates easier installation for vehicle maintainers. The small cable diameter increases flexibility with a tight bend radius making routing much easier, particularly when retrofitting cables in overcrowded areas surrounding sensitive electronic systems.



GORE® Cables and Materials

GORE® HOOK-UP WIRES

Whether the function is power or signal, Gore’s Type PTFE wires deliver dependable signal integrity in difficult military surroundings (Figure 1). These wires are thinner yet more robust to sustain extreme temperature changes compared to typical hook-up wires that tend to short circuit at lower temperatures (Table 1).

In addition, Gore’s Type PTFE wires require less space — more than 30 percent — than a standard NEMA HP3 Type E AWG 24 wire (Figure 2). These thinner, smaller and highly-flexible wires are perfectly aligned with today’s tight wiring during complex routing as more armored vehicles are being updated with sophisticated electronics.

TYPICAL APPLICATIONS

- Digital / analog data links
- Ground combat / support vehicles
- Radar systems
- Radio / communication systems
- Surveillance / reconnaissance

FIGURE 1: GORE’S TYPE PTFE



STANDARDS COMPLIANCE

- ANSI/NEMA MW 1000-2012: Test Methods for Magnet Wire
- ASTM D1676/16-17: Test Methods for Film-Insulated Magnet Wire
- ASTM D3032/22: Test Methods for Hook-Up Wire Insulation
- MIL-DTL-17: Cables, Radio Frequency, Flexible and Semi-Rigid
- MIL-STD-104: Limit for Electrical Insulation Color
- MIL-W-16878/20-22: Wire and Cable Specifications

TABLE 1: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Operating Voltage (V)	600
	Wrap-Back Test (AC)	3 kV
MECHANICAL / ENVIRONMENTAL	Insulation Wall Thickness mm (inch)	0.14 (0.006)
	Conductor	Silver-Plated Copper / Nickle-Plated Copper
	Conductor Color-Coding	Black, Blue, Brown, Green, Grey, Orange, Purple, Red, White, Yellow
	Jacket Material	PTFE
	Jacket Color	White (Laser Markable)
	Tensile strength (Insulated Wire)	> 100 N
	Dynamic Cut-Through Resistance (ASTM D 3032 / 22)	
	at 21°C (70°F)	> 48 N
	at 200°C (392°F)	> 17 N
	at 260°C (500°F)	> 12 N
Abrasion Resistance (ASTM D 1676 / 850 g [1.87 lbs]) (MIL-DTL-17 / 335 g [0.74 lbs])	> 148 cycles > 30 cycles	
Temperature Range (°C)	-65 to +200	
Thermoplastic Flow °C (°F) 24 AWG (07/32) SPC tested per ANSI/NEMA MW 1000-2012	> 300 (> 572)	

FIGURE 2: SMALLER WIRES

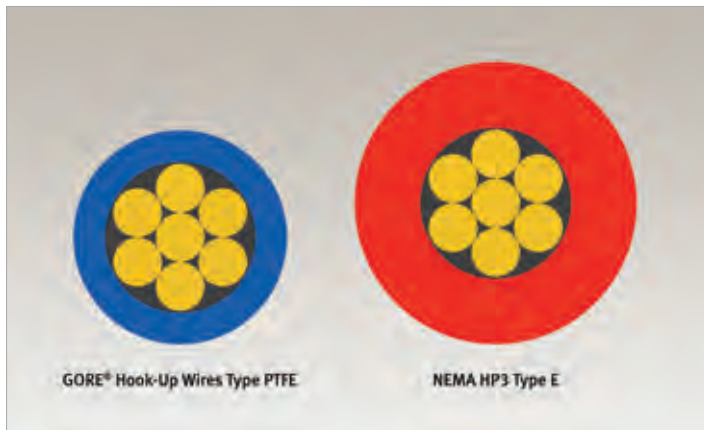
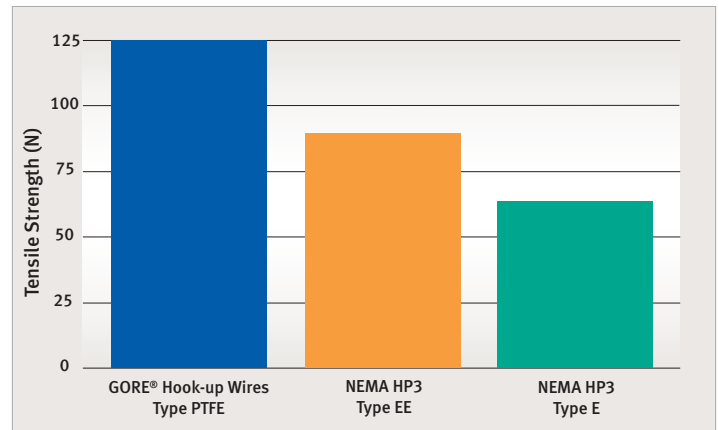


FIGURE 3: TENSILE STRENGTH COMPARISON



GREATER MECHANICAL STRENGTH

Using ASTM D 3032 sections 16 and 17, Gore compared its hook-up wires to leading alternative wires. Results showed that the overall tensile strength of Gore’s Type PTFE wires is much higher than the NEMA wires (Figure 3). Even though Gore’s wires are smaller with thinner insulation, they are stronger and do not break like the standard NEMA wires.

Gore’s hook-up wires maintain the same signal integrity and power distribution in less space and reduce rework, re-testing, and downtime due to wire failure — resulting in longer product life.

ORDERING INFORMATION

GORE® Hook-Up Wires, Type PTFE are available through several distributors in a variety of standard sizes (Table 2). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. Standard versions with voltage ratings of 100, 150, 250, and 1000 are also available. For more information, please contact a Gore representative.





GORE® Cables and Materials

TABLE 2: PRODUCT SPECIFICATIONS

Gore Part Number	AWG Size (Stranding)	Maximum Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight Kg/km (lbs/1000 ft)
G01A010	20 (07/28)	1.32 (0.052)	5.28 (0.208)	6.25 (4.20)
G01A020	20 (19/32)	0.37 (0.054)	5.49 (0.216)	6.70 (4.50)
G01A030	22 (07/30)	1.12 (0.044)	4.47 (0.176)	4.17 (2.80)
G01A040	22 (19/34)	1.12 (0.044)	4.47 (0.176)	4.46 (3.00)
G01A050	24 (01)	0.86 (0.034)	3.45 (0.136)	2.53 (1.70)
G01A060	24 (07/32)	0.97 (0.038)	3.86 (0.152)	2.83 (1.90)
G01A070	24 (19/36)	0.97 (0.038)	3.86 (0.152)	2.98 (2.00)
G01A080	26 (01)	0.76 (0.030)	3.05 (0.120)	1.79 (1.20)
G01A090	26 (07/34)	0.84 (0.033)	3.35 (0.132)	1.93 (1.30)
G01A100	26 (19/38)	0.84 (0.033)	3.35 (0.132)	2.08 (1.40)
G01A110	28 (01)	0.69 (0.027)	2.74 (0.108)	0.12 (0.80)
G01A120	28 (07/36)	0.74 (0.029)	2.95 (0.116)	0.13 (0.90)
G01A130	28 (19/40)	0.74 (0.029)	2.95 (0.116)	1.49 (1.00)
G01A140	30 (01)	0.61 (0.024)	2.44 (0.096)	0.88 (0.59)
G01A150	30 (07/38)	0.66 (0.026)	2.64 (0.104)	1.00 (0.67)
G01A160	30 (19/42)	0.66 (0.026)	2.64 (0.104)	1.04 (0.70)
G01A170	32 (01)	0.56 (0.022)	2.24 (0.088)	0.67 (0.45)
G01A180	32 (07/40)	0.61 (0.024)	2.44 (0.096)	0.73 (0.49)
G01A190	32 (19/44)	0.61 (0.024)	2.44 (0.096)	0.79 (0.53)
G01A200	34 (01)	0.51 (0.020)	2.03 (0.080)	0.51 (0.34)
G01A210	34 (07/42)	0.53 (0.021)	2.13 (0.084)	0.57 (0.38)
G01C010	12 (19/25)	3.07 (0.121)	12.29 (0.484)	32.00 (21.50)
G01C020	14 (19/27)	2.59 (0.102)	10.36 (0.408)	20.83 (14.00)

TABLE 2: PRODUCT SPECIFICATIONS (CONTINUED)

Gore Part Number	AWG Size (Stranding)	Maximum Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight Kg/km (lbs/1000 ft)
G01C030	16 (19/29)	2.21 (0.087)	8.84 (0.348)	13.84 (9.30)
G01C040	18 (19/30)	1.88 (0.074)	7.52 (0.296)	11.31 (7.60)
G01C050	20 (07/28)	1.58 (0.062)	6.30 (0.248)	7.14 (4.80)
G01C060	20 (19/32)	1.58 (0.062)	6.30 (0.248)	7.59 (5.10)
G01C070	22 (07/30)	1.37 (0.054)	5.49 (0.216)	4.91 (3.30)
G01C080	22 (19/34)	1.37 (0.054)	5.49 (0.216)	5.20 (3.50)
G01C090	24 (01)	1.11 (0.044)	4.47 (0.176)	3.13 (2.10)
G01C100	24 (07/32)	1.21 (0.048)	4.88 (0.192)	3.57 (2.40)
G01C110	24 (19/36)	1.21 (0.048)	4.88 (0.192)	3.72 (2.50)
G01C120	26 (01)	1.01 (0.040)	4.06 (0.160)	2.23 (1.50)
G01C130	26 (07/34)	1.09 (0.043)	4.37 (0.172)	2.53 (1.70)
G01C140	26 (19/38)	1.09 (0.043)	4.37 (0.172)	2.68 (1.80)
G01C150	28 (01)	0.94 (0.037)	3.76 (0.148)	1.79 (1.20)
G01C160	28 (07/36)	0.99 (0.039)	3.96 (0.156)	1.93 (1.30)
G01C170	28 (19/40)	0.99 (0.039)	3.96 (0.156)	1.93 (1.30)
G01C180	30 (01)	0.86 (0.034)	3.45 (0.136)	0.13 (0.90)
G01C190	30 (07/38)	0.91 (0.036)	3.66 (0.144)	1.49 (1.00)
G01C200	30 (19/42)	0.91 (0.036)	3.66 (0.144)	1.49 (1.00)
G01C210	32 (01)	0.84 (0.033)	3.35 (0.132)	1.04 (0.70)
G01C220	32 (07/40)	0.86 (0.034)	3.45 (0.136)	0.12 (0.80)
G01C230	32 (19/44)	0.86 (0.034)	3.45 (0.136)	0.12 (0.80)
G01C240	34 (01)	0.76 (0.030)	3.05 (0.120)	0.89 (0.60)
G01C250	34 (07/42)	0.79 (0.031)	3.15 (0.124)	1.04 (0.70)



GORE® Cables and Materials

GORE® HOOK-UP WIRES

This version of Gore’s hook-up wires includes a unique patented primary insulation specifically designed to emit low smoke and no halogen when exposed to high temperatures compared to state-of-the-art extruded insulations (Figure 4). These inherently flame-retardant hook-up wires drastically reduce the amount of toxic and corrosive gases emitted during combustion while maintaining stable electrical performance (Table 3).

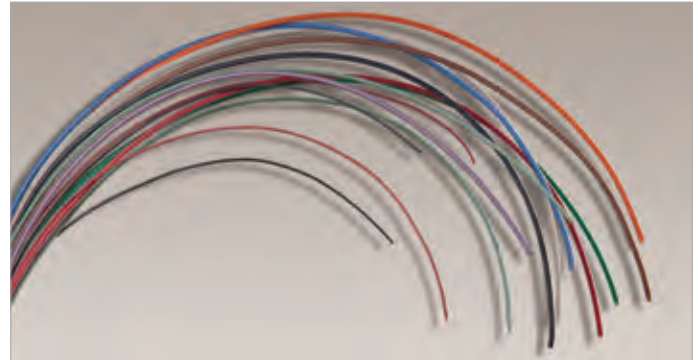
Additionally, Gore’s Type Halogen-Free wires are significantly smaller without compromising strength for rugged mechanical protection. This smaller, tougher primary insulation means considerably more flexibility, making it easy to bend them tightly in tiny openings without damaging or breaking.

Gore’s hook-up wires, Type Halogen-Free are ideally suited for all types of armored vehicles operating in extremely hot regions.

TYPICAL APPLICATIONS

- Digital / analog data links
- Ground combat / support vehicles
- Radar systems
- Radio / communication systems
- Surveillance / reconnaissance

FIGURE 4: GORE’S TYPE HALOGEN-FREE



STANDARDS COMPLIANCE

- ANSI/NEMA MW 1000-2012: Test Methods for Magnet Wire
- ASTM D1676/16-17: Test Methods for Film-Insulated Magnet Wire
- ASTM D3032/22: Test Methods for Hook-Up Wire Insulation
- MIL-DTL-17: Cables, Radio Frequency, Flexible and Semi-Rigid
- MIL-STD-104: Limit for Electrical Insulation Color
- MIL-W-16878/20-22: Wire and Cable Specifications
- VG 95218 Part 2: Performance Specifications for Cables and Insulated Wires

TABLE 3: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Operating Voltage (V)	600
	Voltage Resistance in Water (5 min.) ^a	> 10 kV
MECHANICAL / ENVIRONMENTAL	Conductor	Tin-Plated Copper / Nickle-Plated Copper
	Conductor Color-Coding	Black, Blue, Brown, Green, Grey, Orange, Purple, Red, White, Yellow
	Jacket Material	Thermoplastic Elastomer
	Jacket Color	Black (Printed)
	Jacket Shrinkage (mm [in] at +220°) ^a	0
	Scrape Abrasion Resistance ^a Weight at 6.0 N	100 cycles
	Accelerated Aging (°C [120 hours]) ^a	+230
	Burn Behavior ^a at maximum Length (mm[in]) at maximum Duration (sec.)	75.0 (3.0) 3
	Toxicity Index ^a	3.7
	Smoke Density (Light Transmittance, % per min.) ^a	75
	Corrosivity of Combustion Gases ^a at pH (Conductivity of Solution μS/mm)	5.2 (1.5)
	Temperature Range (°C)	TPC: -65 to +150 / NPC: -65 to +190
	High Temperature Index (% depth at +220°) ^a	0

^aTested 16 AWG (19) per VG 95248 Part 2. Test method details available upon request.

ORDERING INFORMATION

GORE® Hook-Up Wires, Type Halogen-Free are available through several distributors in a variety of standard sizes (Table 4). 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 4: PRODUCT SPECIFICATIONS

	Gore Part Number	AWG Size (Stranding)	Conductor Plating	Maximum Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight Kg/km (lbs/1000 ft)
MAX. OPERATING TEMP. (°C) (-65 TO +150)	GSC-01-82702-01	26 (19)	TPC	0.85 (0.034)	4.25 (0.167)	1.8 (1.2)
	GSC-01-82702-02	24 (19)	TPC	1.00 (0.039)	5.00 (0.197)	2.7 (1.8)
	GSC-01-82702-03	22 (19)	TPC	1.15 (0.045)	5.75 (0.226)	4.1 (2.8)
	GSC-01-82702-04	21 (19)	TPC	1.25 (0.049)	6.25 (0.246)	5.1 (3.4)
	GSC-01-82702-05	20 (19)	TPC	1.45 (0.057)	7.25 (0.285)	6.4 (4.3)
	GSC-01-82702-06	19 (19)	TPC	1.55 (0.061)	7.75 (0.305)	7.7 (5.2)
	GSC-01-82702-07	18 (19)	TPC	1.65 (0.065)	8.25 (0.325)	9.6 (6.5)
	GSC-01-82702-08	16 (19)	TPC	1.85 (0.073)	9.25 (0.364)	12.5 (8.4)
	GSC-01-82702-09	15 (37)	TPC	1.95 (0.077)	9.75 (0.384)	15.2 (10.2)
	GSC-01-82702-10	14 (37)	TPC	2.20 (0.079)	11.00 (0.433)	19.3 (13.0)
	GSC-01-82702-11	13 (37)	TPC	2.40 (0.094)	12.00 (0.472)	24.0 (16.1)
	GSC-01-82702-12	12 (37)	TPC	2.65 (0.104)	13.25 (0.522)	30.5 (20.5)
MAX. OPERATING TEMP. (°C) (-65 TO +190)	GSC-01-83730-01	26 (19)	NPC	0.85 (0.034)	4.25 (0.167)	1.8 (1.2)
	GSC-01-83730-02	24 (19)	NPC	1.00 (0.039)	5.00 (0.197)	2.7 (1.8)
	GSC-01-83730-03	22 (19)	NPC	1.15 (0.045)	5.75 (0.226)	4.1 (2.8)
	GSC-01-83730-04	21 (19)	NPC	1.25 (0.049)	6.25 (0.246)	5.1 (3.4)
	GSC-01-83730-05	20 (19)	NPC	1.45 (0.057)	7.25 (0.285)	6.4 (4.3)
	GSC-01-83730-06	19 (19)	NPC	1.55 (0.061)	7.75 (0.305)	7.7 (5.2)
	GSC-01-83730-07	18 (19)	NPC	1.65 (0.065)	8.25 (0.325)	9.6 (6.5)
	GSC-01-83730-08	16 (19)	NPC	1.85 (0.073)	9.25 (0.364)	12.5 (8.4)
	GSC-01-83730-09	15 (37)	NPC	1.95 (0.077)	9.75 (0.384)	15.2 (10.2)
	GSC-01-83730-10	14 (37)	NPC	2.20 (0.087)	11.00 (0.433)	19.3 (13.0)
	GSC-01-83730-11	13 (37)	NPC	2.40 (0.095)	12.00 (0.472)	24.0 (16.1)
	GSC-01-83730-12	12 (37)	NPC	2.65 (0.104)	13.25 (0.522)	30.5 (20.5)



GORE® Cables and Materials

GORE® SHIELDED TWISTED PAIR CABLES

Gore’s cables provide excellent signal integrity for high-speed data transmission over longer distances (Figure 5 and Table 5). The combination of durable materials in this construction also enables a higher tolerance against rapidly-changing climate zones.

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 6 and 7). They are also highly flexible and easy to route in hard-to-reach places of a vehicle.

TYPICAL APPLICATIONS

- Digital video systems
- Ethernet networks
- LVDS connectivity
- Sensor / processor Interconnect
- Tethers

FIGURE 5: GORE’S CONTROLLED-IMPEDANCE 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 6)

TABLE 5: 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	Blue and White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-55 to +200

^a Contact Gore for other impedance options or a halogen-free jacket version.

FIGURE 6: LOW-PROFILE CABLE DESIGN

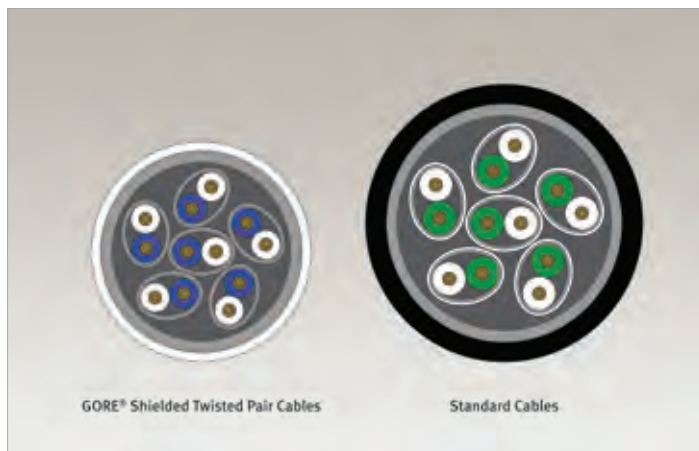
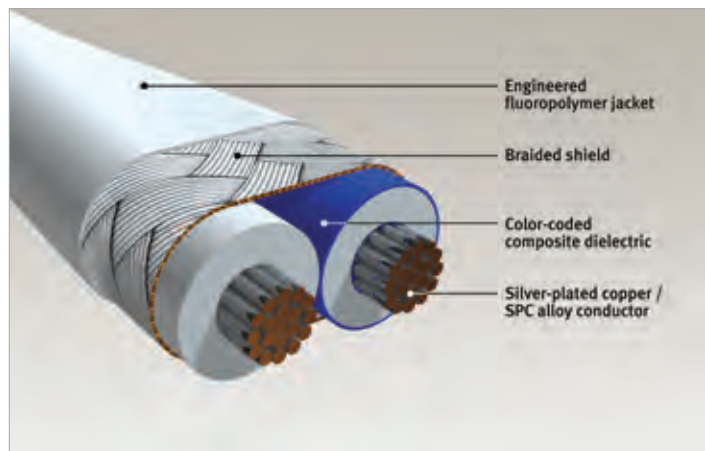


FIGURE 7: DURABLE CONSTRUCTION



ORDERING INFORMATION

GORE® Shielded Twisted Pair Cables are available through several distributors in a variety of standard sizes (Table 6). 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 6: 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-03-84557-00	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



GORE® Cables and Materials

GORE™ CAN BUS CABLES

Gore’s cables enable high-quality signals for faster data transmission over longer distances in sophisticated military digital networks (Figure 8 and Table 7). 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 9).

TYPICAL APPLICATIONS

- Data links
- Digital camera / vision systems
- Electronic diagnostics
- High-definition streaming video
- Navigational aids
- Radar systems
- Radio / communications systems
- Vehicle networks / management systems

FIGURE 8: GORE’S 120-OHMS CABLE



STANDARDS COMPLIANCE

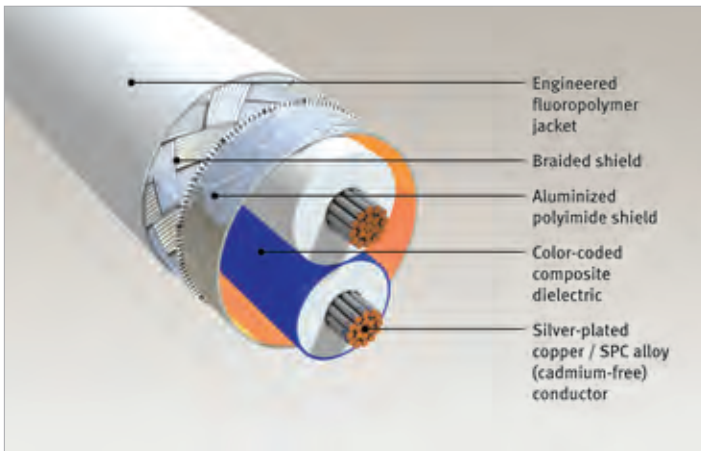
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239: Toxicity
- FAR Part 25, Appendix F, Part I: Flammability
- FAR Part 25, Appendix F, Part V: Smoke Density
- SAE J1128: Low Voltage Primary Cable
- SAE J1939: Serial Control and Communications Heavy Duty Vehicle Network

TABLE 7: 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]) 24 AWG	4.10 (1.25)
	Capacitance [pF/m (pF/ft)] 24 AWG	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 or Silver-Plated Copper Alloy (Cadmium-Free)
	Conductor Color-Coding	Blue and White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-55 to +200

^a Contact Gore for other impedance options or a halogen-free jacket version.

FIGURE 9: COMPACT CONSTRUCTION



ORDERING INFORMATION

GORE™ CAN Bus Cables are available through several distributors in a variety of standard sizes (Table 8). 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 8: 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)	28.0 (18.82)	5.6	8.5	13.5	19.0
GSC-03-85247-24D	24 (19/36)	3.9 (0.15)	19.5 (0.77)	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® Cables and Materials

GORE® ETHERNET CABLES

Now approved on the SAE AS6070 Qualified Parts List (QPL), Gore's cables are engineered for the increasing data demands of modern military digital networks (Figure 10). 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 9).

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 vehicle maintainers (Figures 11 and 12). Gore's engineered fluoropolymer materials enable this cable (26 AWG) to fit into a size 8 contact.

TYPICAL APPLICATIONS

- Data storage
- Digital camera / vision systems
- Ethernet backbone
- High-definition streaming video
- Radar systems
- Radio / communications systems
- Vehicle networks / management systems

FIGURE 10: GORE'S CAT6A 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
- 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)

TABLE 9: 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 (13.0)
	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	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 11: SMALLER CAT6A CABLE DIAMETER

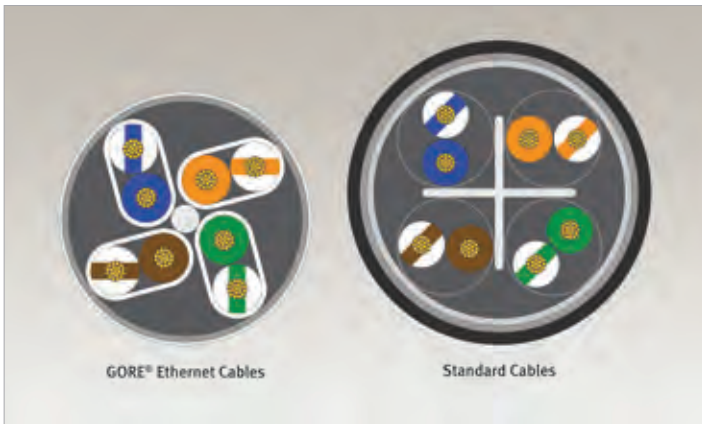
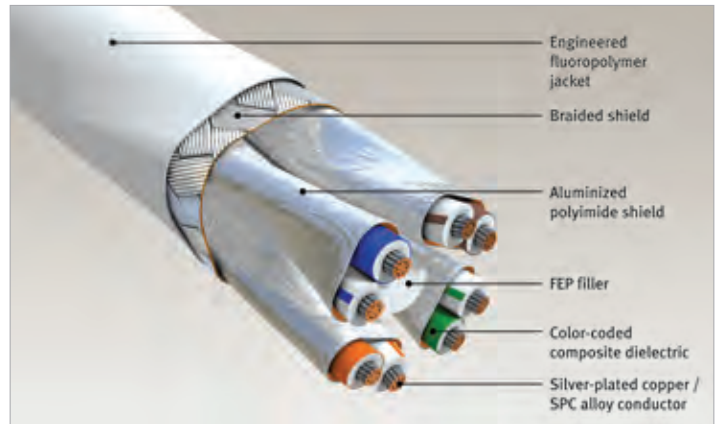


FIGURE 12: HIGH-DENSITY CONSTRUCTION



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 13). 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 14).

FIGURE 13: ATTENUATION COMPARISON

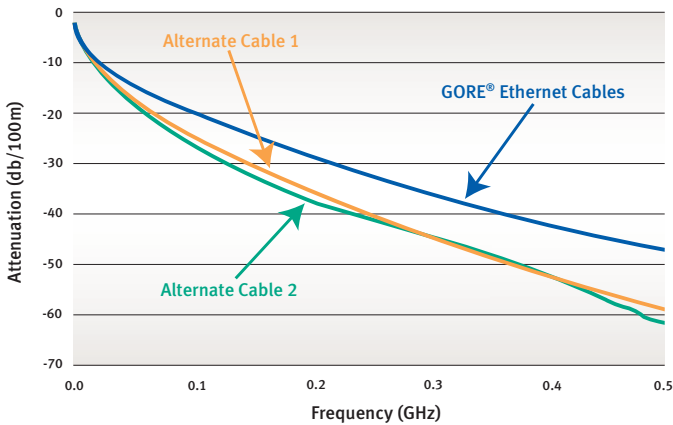


FIGURE 14: CROSSTALK COMPARISON

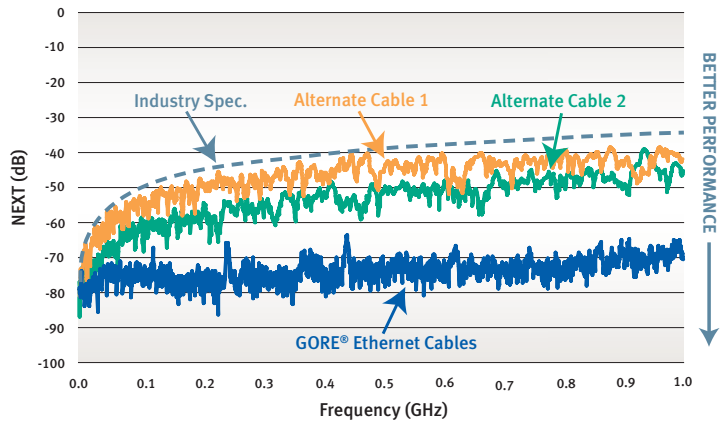
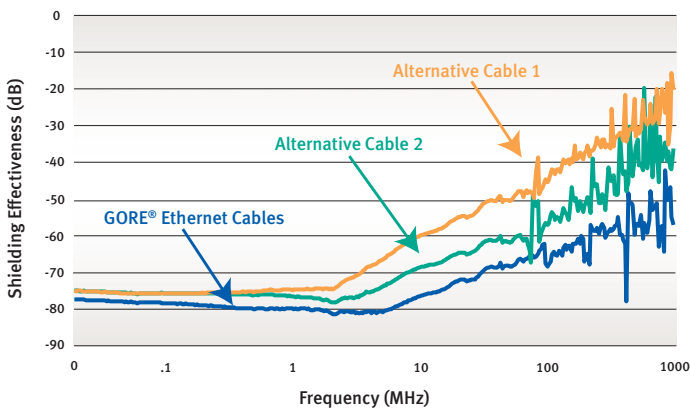


FIGURE 15: SHIELDING EFFECTIVENESS COMPARISON



OUTSTANDING SHIELDING EFFECTIVENESS

Gore also evaluated its Cat6a cable compared to leading alternative cables. With proven EMI shielding performance, GORE® Ethernet Cables improve signal integrity and reduce RF interference by as much as 20 dB at higher frequencies among multiple electronic systems (Figure 15).



GORE® Cables and Materials

CONNECTOR-CABLE COMPATIBILITY

Gore evaluated the electrical characteristics of its Cat6a cable terminated with leading high-speed connector systems to assist designers in selecting the best option for a specific application (Table 10). Testing connector-cable compatibility during the initial design process ensures the interconnect will perform reliably in specific applications.

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 a vehicle (Figure 16). 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 17). 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 18).

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

FIGURE 16: TEST SIMULATOR



FIGURE 17: RETURN LOSS COMPARISON AFTER ROUTING

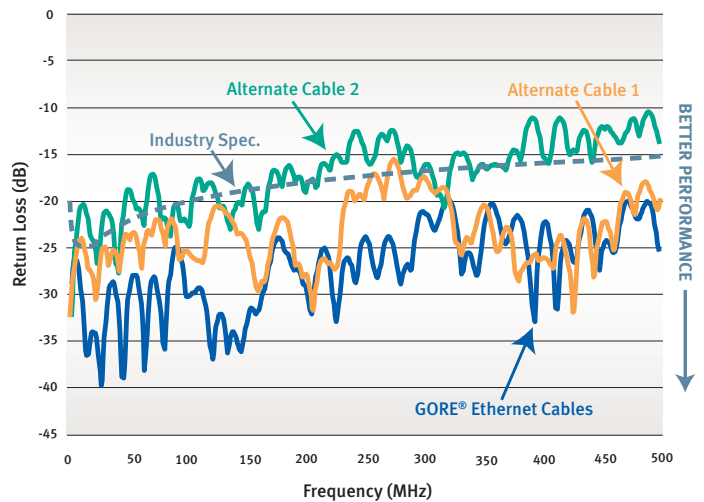


FIGURE 18: CROSSTALK COMPARISON AFTER ROUTING

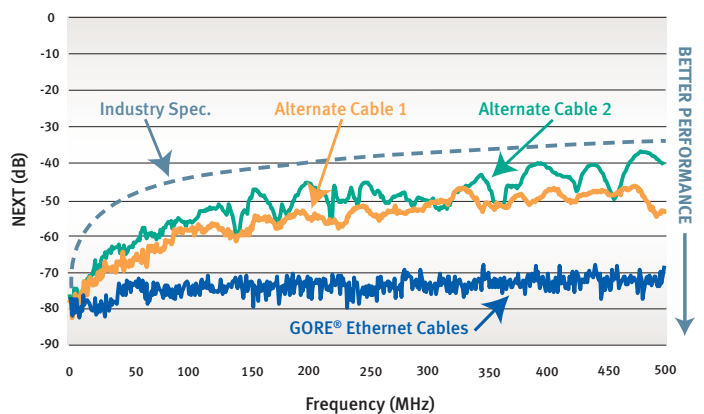


TABLE 10: ETHERNET CAT6A INTERCONNECT OPTIONS^a

Connector System	Gore Part Number				
	RCN8966-24 ^b	RCN8966-26 ^b	RCN9034-24	RCN9034-28	RCN9047-26
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	•	•	•	•	•
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 and Amphenol[®] Octonet and HARTING RJ Industrial[®].

^c Connector system part number 09451511560.

ORDERING INFORMATION

GORE[®] Ethernet Cables are available through several distributors (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

Typical attenuation values are based on the maximum recommended Cat6a use length. In addition, Gore's RCN9034-24 and RCN9047-26 versions are approved on the SAE AS6070 QPL.

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		
					24 AWG: dB/80 m (dB/262 ft)	26 AWG: dB/65 m (dB/213 ft)	28 AWG: dB/45 m (dB/148 ft)
					100 MHz	200 MHz	500 MHz
RCN8966-24	24 (19/36)	6.6 (0.26)	13.2 (0.52)	67.0 (45.0)	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
RCN9034-24	24 (19/36)	6.6 (0.26)	13.7 (0.54)	62.5 (42.0)	19.1	27.6	45.3
RCN9034-28	28 (19/40)	4.5 (0.18)	8.9 (0.35)	37.2 (25.0)	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



GORE® Cables and Materials

GORE® 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 19). Military personnel can now experience 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 12). They can carry more video data at faster speeds and further distances compared to leading alternative cables.

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 vehicles (Figure 20).

TYPICAL APPLICATIONS

- Display systems
- Sensor / processor connectivity
- Video systems

FIGURE 19: GORE'S 2.0 VERSION



STANDARDS COMPLIANCE

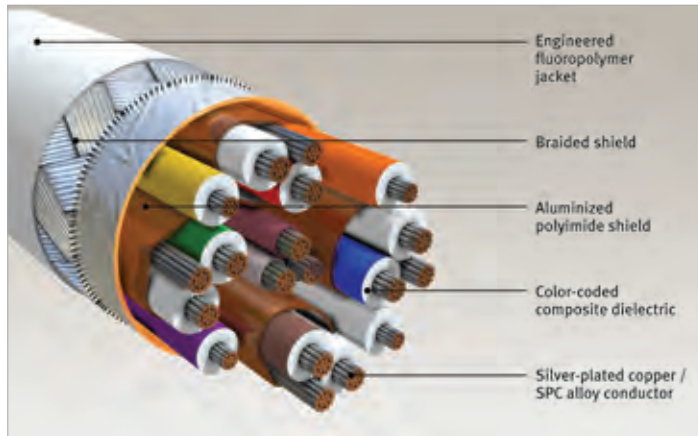
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- FAR Part 25, Appendix F, Part I, BSS7230, and ABD0031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

TABLE 12: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 10
	Typical Operating Voltage	< 15
	Capacitance [pF/m (pF/ft)] ^a	16.0 (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.

FIGURE 20: UNIQUE CONSTRUCTION



ORDERING INFORMATION

GORE® HDMI Cables are available through several distributors (Table 13). 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 13: PRODUCT SPECIFICATIONS

Other gauge sizes are available upon request. Please contact a Gore representative to discuss your specific application requirements. In addition, typical attenuation values are based on the maximum recommended use length. However, Gore’s cable, size 24 AWG can increase use length up to 7 meters.

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® Cables and Materials

GORE® USB CABLES

Gore’s 2.0 and 3.1 versions deliver dependable signal integrity for high-speed data transmission up to 10 gigabits (Figure 21).

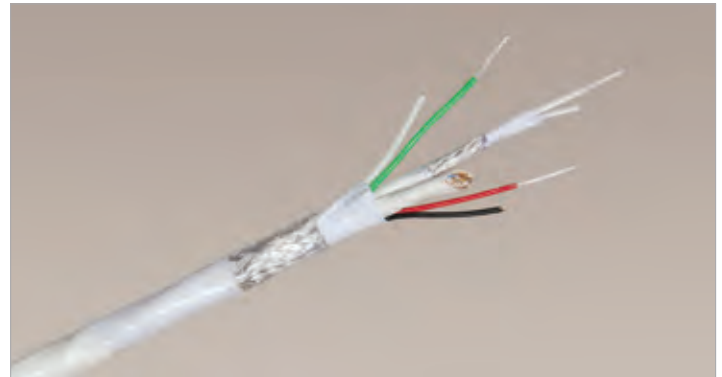
They carry more data over longer distances for faster content uploads and downloads ensuring critical data is received in time (Table 14). These cable bundles support power management from 9-32V systems allowing soldiers to charge their devices quickly and easily.

In addition, the added durability in the construction of both versions provides enhanced protection that withstands extreme environments for longer lifespan (Figure 22). With greater flexibility and a tighter bend radius, both versions also make it easier for maintainers to route them in confined areas of vehicles.

TYPICAL APPLICATIONS

- Peripheral / sensor networking
- Portable electronics
- Soldier system connectivity
- Vehicle / dismount connectivity

FIGURE 21: GORE’S 3.1 VERSION



STANDARDS COMPLIANCE

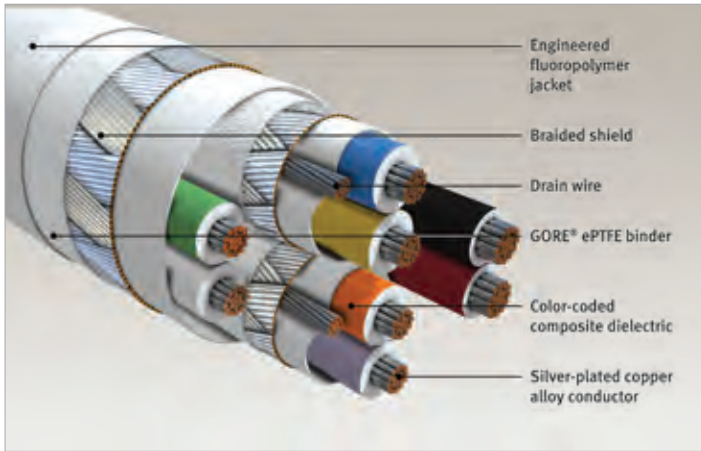
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Environmental Testing: Contact Gore for available data
- AS4373 Test Methods for Insulated Electric Wire
- BSS7239 and ABD0031 (AITM 3.0005): Toxicity
- CS/FAR Part 25, Section 25.853, Appendix F, Part I (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 14: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms) High-Speed Pairs Low-Speed Pair	90 ± 5 90 ± 10
	Typical Operating Voltage	< 15
	Capacitance [pF/m (pF/ft)] ^a	50.0 (15.2)
	Test Voltage (DC) Conductor-to-Conductor Conductor-to-Shield	1500
	Skew ^a (ps/m) (within pair)	< 15
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 22: LONG-LASTING CONSTRUCTION



ORDERING INFORMATION

GORE® USB Cables are available through several distributors (Table 15). 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 15: 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)			
					10 MHz	100 MHz	300 MHz	500 MHz
2.0 Version								
RCN8800-22D-22P-H	Power Pair: 22 (19/34); Data Pair: 22 (19/34)	5.1 (0.20)	15.0 (0.60)	52.0 (35.0)	0.08	0.24	0.44	0.57
RCN8800-24D-22P-H	Power Pair: 22 (19/36); Data Pair: 24 (19/34)	4.8 (0.19)	13.0 (0.50)	48.0 (32.0)	0.09	0.30	0.54	0.71
RCN8800-26D-24P	Power Pair: 24 (19/36) Data Pair: 26 (19/38)	4.3 (0.17)	10.0 (0.39)	46.1 (31.0)	0.11	0.36	0.51	0.63
3.1 Version					1250 MHz	2500 MHz	5000 MHz	7500 MHz
GSC-03-84761-24D	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	3.1	4.1	5.2



GORE® Cables and Materials

GORE® MICROWAVE/RF ASSEMBLIES

Gore’s 7 Series maintain low insertion loss, low return loss, and phase stability over the entire life cycle (Figure 23 and Table 16). These assemblies have a durable construction specifically designed to prevent the ingress of water vapor, fuel, and other hazardous contaminants commonly found in military environments (Figure 24). They also provide outstanding shielding effectiveness against electromagnetic interference that can compromise signal integrity and reduce the quality of signal transmission.

Also, the 7 Series has a smaller diameter with increased flexibility and tighter bend radius for ease of installation. Therefore, they will not break or fail compared to other standard assemblies that are more rigid.

TYPICAL APPLICATIONS

- Active electronically scanned array (AESA) radar
- Electronic defensive systems (signal detection, interception, identification)
- SATCOM antenna connectivity

FIGURE 23: GORE’S 7 SERIES



STANDARDS COMPLIANCE

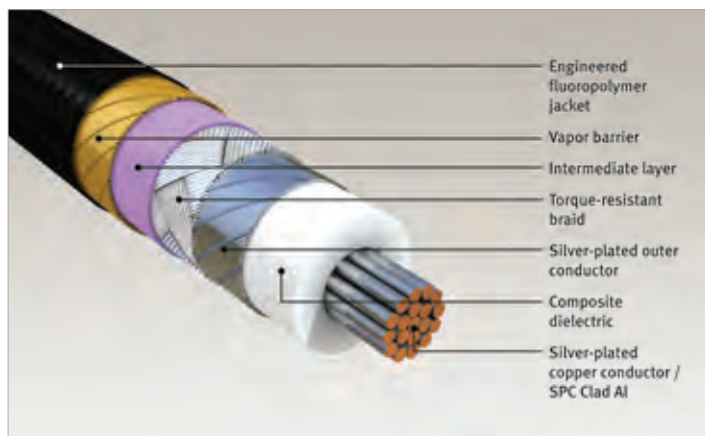
- MIL-C-17: Cables, Radio Frequency, Flexible and Semi-Rigid
- MIL-STD-202: Test Methods for Electronic and Electrical Component Parts
- MIL-PRF-39012: Connector, Coaxial Radio Frequency
- MIL-STD-810: Environmental Test Methods
- MIL-T-81490: Test Methods for Transmission Lines and Transverse Electromagnetic Mode

TABLE 16: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	50 ± 1
	Velocity of Propagation (nominal) (%)	85
	Time Delay (Nominal ns/m [ns/ft])	3.94 (1.20)
	Capacitance [pF/m (pF/ft)]	85.3 (26.0)
	Dielectric Constant (Nominal)	1.4
	Dielectric Withstanding Voltage (Vrms) Conductor-to-Conductor	1500
	Conductor-to-Shield	1000
Shielding Effectiveness (dB to Max Frequency)	> 90	
MECHANICAL / ENVIRONMENTAL	Jacket Material	Engineered Fluoropolymer
	Jacket Color	Black, Brown or Purple
	Conductor	Silver-Plated Copper or SPC Clad Aluminium
	Dielectric Material	ePTFE
	Crush Resistance (kgf/cm [lb/in])	8.95 (50.0)
	Temperature Range (°C) ^a	-58 to +200

^a Contact Gore for applications with an operating temperature > 175°C.

FIGURE 24: VAPOR-SEALED CONSTRUCTION



ORDERING INFORMATION

GORE® Microwave/RF Assemblies, 7 Series are available through several distributors in a variety of standard sizes (Table 17). Visit gore.com/cable-distributors for the list of distributors.

Gore also offers custom cables and terminated assemblies. For more information or to place an order, please contact a Gore representative. Alternatively, visit Gore’s online tools to build your assembly and calculate insertion loss, VSWR, and other parameters.

- [Microwave/RF Cable Assembly Builder](#)
- [Microwave/RF Cable Assembly Calculator](#)

TABLE 17: PRODUCT SPECIFICATIONS

Gore Cable Type	Center Conductor	Maximum Frequency (GHz)	Nominal Outer Diameter mm (in)	Minimum Bend Radius mm (in)	Nominal Weight kg/km (lbs/oz ft)	Insertion Loss at Max Frequency dB/m (dB ft)
7G	Solid	40.0	3.80 (0.15)	19.0 (0.75)	36.0 (0.39)	2.56 (0.78)
75	Solid	18.0	5.30 (0.21)	25.0 (1.00)	63.0 (0.67)	1.05 (0.32)
7E	Solid	18.0	8.50 (0.34)	50.0 (2.00)	150.0 (1.61)	0.62 (0.19)
7L	Stranded	7.0	12.32 (0.49)	62.5 (2.50)	262.0 (2.82)	0.33 (0.10)
7M	Solid	2.0	14.35 (0.57)	80.0 (3.15)	328.0 (3.52)	0.13 (0.04)



GORE® Cables and Materials

GORE® HIGH FLEX CABLE ASSEMBLIES

Designed to perform in the most severe combat conditions, Gore’s assemblies boost all aspects of protection and performance that meet stringent military requirements (Figure 25). This Cat6a coiled version significantly improves signal speed and integrity for reliable data transmission up to 10 gigabits delivering optimal situational awareness in real time (Table 18).

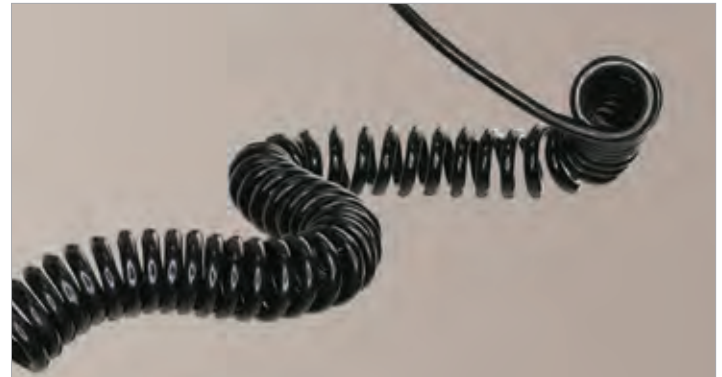
Additionally, these assemblies are 25 percent lighter and 24 percent smaller yet extremely rugged compared to conventional coiled cables (Figure 26). The smaller form factor also enables maximum flexibility for ease of use, contracted or expanded, which means they will last a lifetime in any warfare situation.

Gore’s high-flex cables assemblies are a premium solution for mission systems in armored vehicles, and soldier-worn systems such as headsets, handsets, and tactical tablets.

TYPICAL APPLICATIONS

- Data links
- Digital camera / vision systems
- High-definition steaming video
- Navigational aids
- Radar systems
- Radio / communications systems
- Vehicle networks / management systems

FIGURE 25: GORE’S CAT6A COILED VERSION



STANDARDS COMPLIANCE

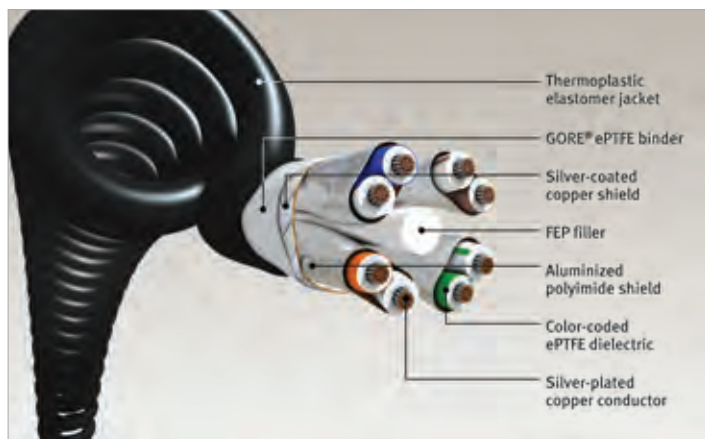
- ANSI/TIA 568-C.2: Performance Requirements
- ANSI/NEMA WC 27500 Performance Requirements: Environmental Testing, Jacket and Marking
- AS4373 Test Methods for Insulated Electric Wire
- IEEE 802.3 1000BASE-T Gigabit Ethernet Standard

TABLE 18: CABLE PROPERTIES

	Property	Value
ELECTRICAL	Standard Impedance (ohms)	100 ± 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)]	55.0 (16.8)
	Dielectric Withstanding Voltage (Vrms)	
	Conductor-to-Conductor	1500
Conductor-to-Shield	1000	
	Shielding Effectiveness (dB to Max Frequency)	> 55
MECHANICAL / ENVIRONMENTAL	Jacket Material ^a	Thermoplastic Elastomer
	Jacket Color	Black (Printed)
	Conductor	Silver-Plated Copper
	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) ^a	-40 to +100

^a Contact Gore for applications that require a halogen-free version.

FIGURE 26: HIGHLY FLEXIBLE CONSTRUCTION



ORDERING INFORMATION

GORE® High Flex Cable Assemblies are available through several distributors in a variety of standard sizes (Table 19). Visit gore.com/cable-distributors for the list of distributors.

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

TABLE 19: 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/80 m (dB/100 ft)			
					10 MHz	100 MHz	200 MHz	500 MHz
GSC-10-85362-24D	24 (19/36)	8.4 (0.33)	42.0 (1.65)	83.0 (55.8)	5.9	19.1	27.6	45.3





GORE® Cables and Materials

GORE® 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 27).

Gore’s 1.8 mm Simplex cables endure the tough situations they encounter throughout an a vehicle’s service life. These cables deliver exceptional signal integrity for high-speed data transmission in wide temperature ranges (Table 20). 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 28). The combination of materials in this construction also increases fiber movement under compression that improves termination with standard connectors.

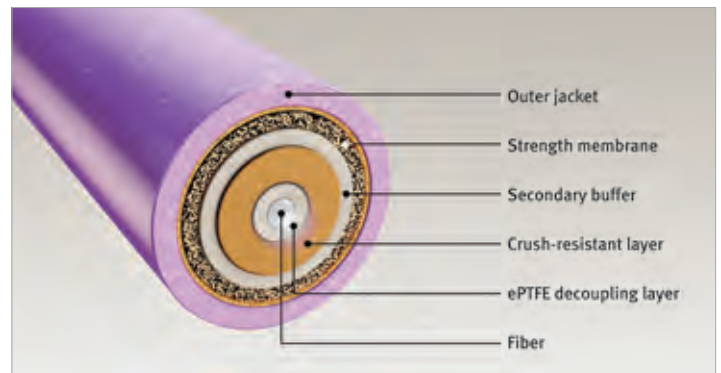
TYPICAL APPLICATIONS

- Digital video systems
- High bandwidth In-LRU datapaths
- In-vehicle networking
- Sensor / processor connectivity
- Tethers
- Vetronics networks

FIGURE 27: GORE’S 1.8 MM SIMPLEX



FIGURE 28: 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
- 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 20: 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. Results showed that Gore’s 1.8 mm Simplex cables provided greater crush resistance for extended service life (Figures 29 and 30). 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® Fiber Optic Cables, 1.8 mm Simplex are available through several distributors in a variety of standard sizes (Table 21). Visit gore.com/cable-distributors for the list of distributors.

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

FIGURE 29: GREATER CRUSH RESISTANCE AT 850 NM

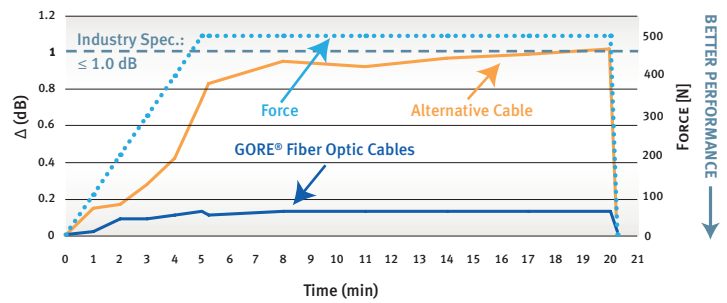


FIGURE 30: GREATER CRUSH RESISTANCE AT 1300 NM

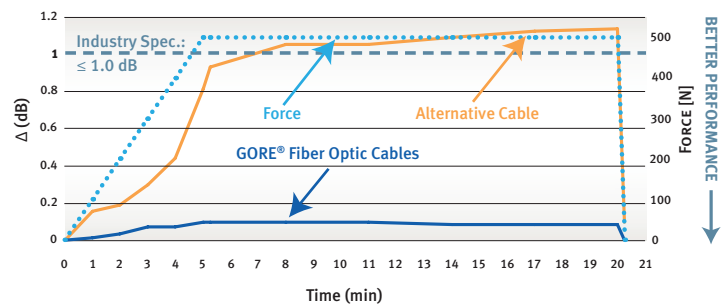


TABLE 21: PRODUCT SPECIFICATIONS

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-13-84639-04	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-13-84640-04	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-13-84689-04	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-13-84943-04	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® Cables and Materials

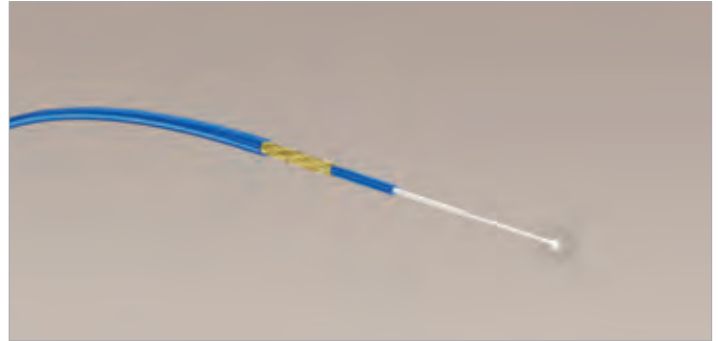
GORE® FIBER OPTIC CABLES

Gore's 1.2 mm Simplex cables deliver stable optical performance for high-speed data transmission in the most demanding operational conditions (Figure 31). This version is engineered with a rugged buffering system that withstands extreme climates, shock, vibration, and tension that can severely impact overall system performance in military vehicles (Table 22). 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

- Active protection systems
- Digital video systems
- Ethernet backbone
- Inside-the-box / laser pigtail
- Transceivers
- Vehicle management systems
- Vetrionics networks

FIGURE 31: 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 22: 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® Fiber Optic Cables, 1.2 mm Simplex are available through several distributors in a variety of standard sizes (Table 23). Visit gore.com/cable-distributors for the list of distributors.

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

TABLE 23: 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® Cables and Materials

GORE® 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 32). Ideal for inside-the-box applications, these small, lightweight yet mechanically strong fiber optic cables deliver unfailing signal transmission in the roughest military surroundings (Table 24).

TYPICAL APPLICATIONS

- Inside-the-box applications
- Transceivers

FIGURE 32: 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 24: 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® Fiber Optic Cables, 900 microns are available through several distributors in a variety of standard sizes (Table 25). Visit gore.com/cable-distributors for the list of distributors.

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

TABLE 25: 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® Cables and Materials

GORE® 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 military networks (Figure 33). These cables deliver uninterrupted signal transmission in temperatures ranging from -55°C to 125°C (Table 26).

The smaller construction of these ribbon cables increases flexibility with a tight bend radius for easy installation in cramped areas of a vehicle. 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 vehicle.

TYPICAL APPLICATIONS

- Digital video systems
- Ethernet backbone
- Integrated electronic warfare systems
- Signals intelligence
- Transceivers
- Vehicle management systems
- Vetronics networks

FIGURE 33: GORE’S 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 26: 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® Fiber Optic Ribbon Cables are available through several global distributors in a variety of standard sizes (Table 27). Visit gore.com/cable-distributors for the list of distributors.

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

TABLE 27: 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)	Not Available	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)	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



GORE® Cables and Materials

GORE® FIBRE CHANNEL CABLES

Gore’s cables enhance noise immunity and EMI suppression while maintaining consistent integrity in any warfare scenario. (Figure 34). 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 28). 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.

Gore’s exclusive, low-dielectric materials and cable geometry maximize the performance of quad-cable constructions (Figures 35 and 36). 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
- Storage system networking
- Switched fabric data distribution
- Tactical vehicle moving maps
- Targeting / motion-control computer networking
- Vehicle management connectivity

FIGURE 34: GORE’S HIGH-SPEED INTERCONNECTS



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 28: 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	Black/White Stripe, Blue/White Stripe, Green/White Stripe, Solid White
	Dielectric Material	ePTFE/PTFE
	Temperature Range (°C)	-65 to +200

FIGURE 35: LOW-DIELECTRIC CABLE GEOMETRY

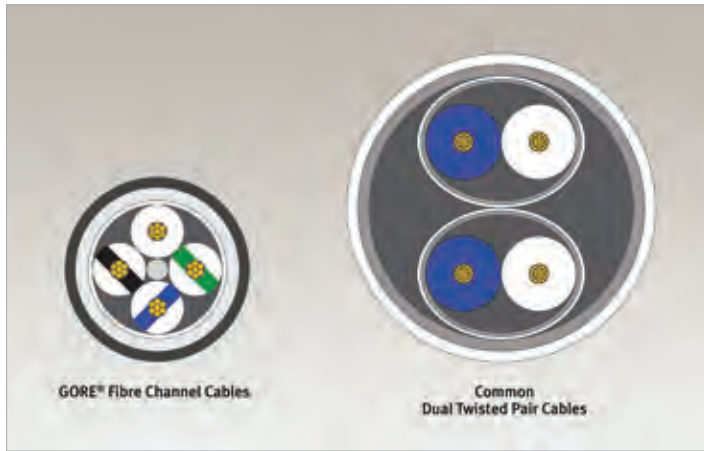
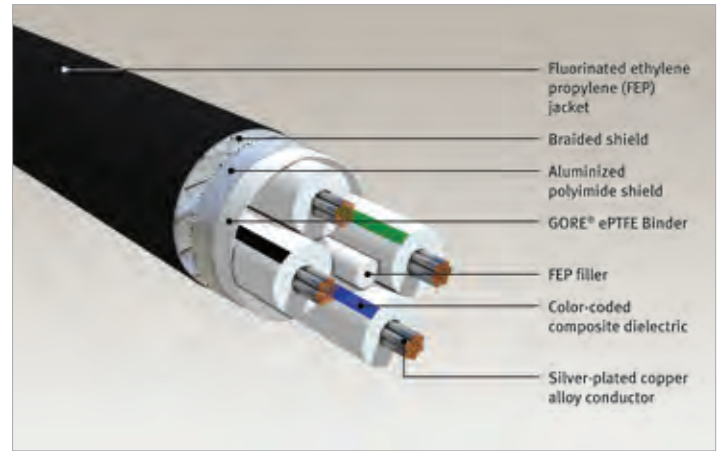


FIGURE 36: TOUGH CONSTRUCTION



ORDERING INFORMATION

GORE® Fibre Channel Cables are available through several distributors in a variety of standard sizes (Table 29). 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 29: 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[®] Cables and Materials

Application Notes

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