Supporting the Mission with Military-Grade Wire and Cable

AlphaWire

Cables you trust. Service you deserve.

Mission Ready, Mission Tough

Alpha Wire supports military equipment with tough, reliable, high-performance wire, cable, and tubing. Since equipment must work reliably under extremes of temperature, shock and vibration, and exposure to oils, fuels, and other chemicals, mission readiness requires electrical and electronic systems matched to the hazards of the battlefield and the needs of modern military capabilities.

Today's forces rely on real-time situation awareness at every level to achieve tactical advantage through unmatched command and control. As the role of electronics and networking becomes integral to force deployment, the need for advanced cabling solutions becomes mandatory. And Alpha Wire is respected throughout the industry as being a premier provider of products with uncompromising performance.

Supported applications:

- *Tactical communications equipment*
- *Command and control systems*
- *Intelligence information systems*
- *Advanced radar units*
- *Target acquisition and tracking systems*
- *Automated weapons control*
- *IED and mine detection*
- *High-level detection equipment*
- *Ground combat vehicles*
- *Ground support vehicles*
- *Unmanned vehicles*

Alpha's superior Supra-Shield® construction uses a three-layer aluminum/polyester/aluminum foil along with copper braid to offer exception shielding effectiveness over a wide range of frequencies.

Xtra-Guard® Performance Cable

Known for exceptional quality and performance, the extensive Alpha Wire Xtra-Guard cable line is available to meet the widest variety of application requirements. With a comprehensive range of conductor counts and shielding options, Xtra-Guard is manufactured in several performance grades to give you the best match between cost, environmental, and mechanical performance.

- ***Xtra-Guard 1 high-performance cable** offers a PVC insulation and jacket suited to general-purpose application where consistent, reliable performance is required.*
- ***Xtra-Guard 2 oil and abrasion-resistant cable** uses a polyurethane jacket to achieve greater oil and abrasion resistance than is offered by PVC.*
- ***Xtra-Guard 4 advanced temperature and chemical performance cable** uses TPE insulation and jacket to offer a wide temperature range and excellent resistance to oils, fuels, solvents, and other chemicals.*
- ***Xtra-Guard 5 maximum temperature and chemical performance cable** offers the ultimate in military applications: its FEP jacket and insulation is impervious to all chemicals and offers an extreme temperature range.*
- ***Xtra-Guard Industrial Ethernet cable** features a tough, abrasion-resistant jacket and a choice of insulation to give Cat 5e performance in extreme environments.*

Xtra-Guard Cable for Military Applications

	Xtra-Guard 1	Xtra-Guard 2	Xtra-Guard 4	Xtra-Guard 5	Xtra-Guard IE
					
Insulation	PVC	PVC	TPE	FEP	PP or FEP
Jacket	PVC	PUR	TPE	FEP	TPE
Temperature Range	-30 to +105°C	-30 to +105°C	-50 to +125°C	-80 to +200°C	-50 to +125°C
Oil/Chemical Resistance	Good	Very Good	Very Good	Excellent	Very Good
D2/STB Washdown	No	No	Yes	Yes	Yes
Conductor Counts	2 – 70 conductors 1 – 51 pairs	2 – 50 conductors 1 – 27 pairs	2 – 40 conductors 1 – 27 pairs	2 – 12 conductors 1 – 12 pairs	2 or 4 pairs
Conductor Size	28 – 14 AWG	24 – 14 AWG	24 – 14 AWG	24 – 16 AWG	24 AWG
Shielding Options	Unshielded, Foil shield, Supra-Shield foil/braid				
UV Resistant	Yes				

Manhattan™ High-Temperature Cable

Meeting the requirements of MIL-DTL-27500 Types TE and RC, our high-temperature cable use PTFE or ETFE insulation and jacket for a tough, durable cable offering excellent fluid and chemical resistance and flexibility over a temperature range from -55°C to +200°C. Plus, a silver-plated braid shield with 85% coverage offers outstanding EMI protection and a low-impedance ground path.

- ***24 – 18 AWG***
- ***2 – 4 conductors***
- ***MIL-DTL-27500 qualified***
- ***Type RC:***
  Silver-plated copper conductors
  PTFE insulation/jacket
  -55 to +200°C
- ***Type TE:***
  Tinned copper conductors
  ETFE insulation/jacket
  -55 to +150°C

Hook-Up Wire

Our military-spec hook-up wire is available in a variety of insulations to meet your needs for temperature, ability to withstand wear and abrasion, electrical performance, and resistance to oil, solvents, and chemicals.

MIL-SPEC Hook-Up Wire

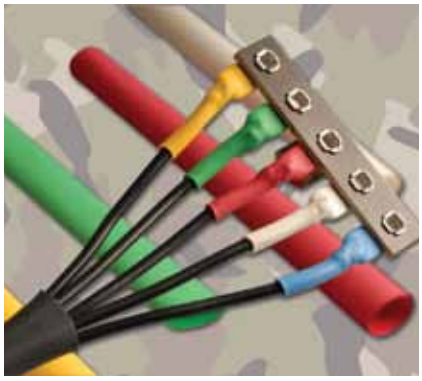
Specification	Voltage Rating	Temperature	Insulation	Wire Range (AWG)
MIL-DTL-16878/1 (Type B)	600	-55 to +105°C	PVC	32 - 14
MIL-DTL-16878/2 (Type C)	1000	-55 to +105°C	PVC	22 - 12
MIL-DTL-16878/3 (Type D)	3000	-20 to +105°C	PVC	22 - 2
MIL-DTL-16878/4 (Type E)	600	-60 to +200°C	PTFE	32 - 18
MIL-DTL-16878/5 (Type EE)	1000	-60 to +200°C	PTFE	28 - 8
MIL-DTL-16878/6 (Type ET)	250	-60 to +200°C	PTFE	32 - 20
MIL-DTL-16878/11 (Type K)	600	-55 to +200°C	FEP	26 - 8
MIL-DTL-16878/16	3000	-55 to +150°C	ETFE	24 - 4
MIL-DTL-16878/17 (Type B/N)	600	-55 to +105°C	PVC/Nylon	26 - 14
MIL-W-76 Type HW	600	-20 to +80°C	PVC	14 - 8
MIL-W-76 Type LW	600	-55 to +105°C	PVC	30 - 14
MIL-W-76 Type MW	1000	-40 to +80°C	PVC	24 - 12
MIL-W-76 Type MWP	1000	-55 to +90°C	PVC	24 - 14

FIT® Heat-Shrink Tubing

Our FIT heat-shrink tubing offers a reliable way to protect and seal terminations or add additional mechanical ruggedness.

The FIT line consists of various tubing types, each designed with unique attributes that offer tubing solutions for the broadest possible range of applications and environments. Beyond the widely used general-purpose polyolefin tubing, we offer a number of other materials for higher or lower shrink temperatures, wider operating temperatures, and such special needs as outstanding chemical resistance or increased flexibility. We offer the following materials for special needs:

- ***PVC** for 30% more strength than standard polyolefin*
- ***PVDF** for excellent abrasion resistance and chemical resistance*
- ***Flexible fluoroelastomer** for excellent flexibility and chemical resistance over a wide temperature range*
- ***PTFE** for the widest temperature range, excellent chemical resistance, and very thin walls*
- ***FEP** for the thinnest walls, wide temperature range, and excellent chemical resistance*
- ***Semirigid PO** for additional tensile strength compared to standard PO*



FIT MIL-SPEC Heat-Shrink Tubing

Specification	Material	Operating Temperature	Shrink Ratio	Alpha Family
AMS-DTL-23053/2	PVC	-20°C to +105°C	2:1	FIT-105
AMS-DTL-23053/4	SR-XLPO, Dual Wall	-55°C to +125°C	2.5:1	FIT-300
AMS-DTL-23053/4	XLPO, Dual Wall	-55°C to +125°C	3:1	FIT-321
AMS-DTL-23053/5	PO	-55°C to +135°C	2:1, 4:1	FIT-221, FIT-421
AMS-DTL-23053/6	SR-XLPO	-55°C to +135°C	2:1	FIT-295
AMS-DTL-23053/8	PVDF	-55°C to +135°C	2:1	FIT-350
AMS-DTL-23053/11	FEP	-75°C to +200°C	1.2:1	FIT-400
AMS-DTL-23053/12	PTFE	-75°C to +260°C	1.5:1	FIT-500
AMS-DTL-23053/13	Flexible Fluoroelastomer	-40°C to +200°C	2:1	FIT-650
AMS-DTL-23053/15	XLPO, Heavy Wall	-55°C to +110°C	3:1	SPC
AMS-DTL-23053/18	PVDF	-55°C to +135°C	2:1	FIT-CLEAR

FIT Wire Management

Organize cable and get additional protection from mechanical abuse and abrasion with FIT wire management products. With a wide range of materials to cover different needs for mechanical toughness, temperature ranges, EMI protection, and other application needs, our wire management products include:

- ***Solid and slit-loom PVC tubing and fittings***
- ***Flexible PTFE tubing***
- ***Coated and uncoated fiberglass sleeving***
- ***Woven sleeving***
- ***Copper EMI tape***
- ***Lacing tape***
- ***Braided copper, with tin or silver plating, for grounding and EMI protection***

Custom Cable

Alpha Wire's custom capabilities allow you to design in the proper cable components and materials to meet the demands of your application and environment. Where conditions are not ideal for the traditional product design, where temperature, flexibility, abrasion or issues of EMI and RFI need to be addressed, Alpha's engineers will work with you to ensure each cable is designed to meet your needs. Plus, our quick turnaround on both prototypes and made-to-order product simplify your logistics and supply chain.

We can meet your requirements to meet application needs from the ordinary to the most demanding.

Environmental conditions

Operating temperature

Fluid resistance

EMI/RFI protection

Mechanical requirements: bend radius, strength, and critical dimensions

Insulation

PVC for general-purpose requirements

TPE for lower temperature/flexible applications

FEP, PTFE, ETFE for temperature extremes, chemical resistance, and size reduction

Jackets

PVC for standard applications (-20 to +105°C)

PUR for abrasion resistance and overall durability (-30 to +90°C)

TPE for excellent flexibility and durability at low temperatures (-55 to +125°C)

FEP, PTFE, EC-TFE for the widest temperature range (-80 to +200°C); 100% impervious to most chemicals, solvents, acids, and fuels; excellent abrasion resistance; and reduced diameters

Conductor requirements

Stranding for flexibility

Current capacity

Platings: bare, tin, silver, nickel

Shielding

Foil, overall or individual pairs

Alpha Supra-Shield combination foil/braid system

Composite constructions

Available in assortment of pairs/conductor counts/AWG sizes to suit your application

Connect multiple components from a single construction

Combine both power and control under one jacket

Color coding

Multiple color codes available for the ease of circuit identification

The cables you trust. The service you deserve.

Every application is critical and cable failure is not an option when the safety of your equipment and personnel is paramount. Specify Alpha cable for demanding military applications, since the integrity of your system is only as robust as the products you use.

Superior availability

Alpha offers wire and cable for military applications from stock in most sizes and constructions, in both small and large put-ups, so you can order it when you need it. Our products are available for same-day shipment, eliminating long lead times.

Service and support, second-to-none

Selecting the correct cable for your critical application is essential to overall system reliability, performance, and safety. So we make it easy for you select the right Alpha cable for your specific application. Our online resources include a wire and cable selection guide, technical information, full product catalog, and a distributor locator to make it easy to select and get the cable you need. Can't find what you're looking for? Design the cable to your specification. It's easy, just visit **www.alphawire.com!**

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AlphaWire

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