FIT® Wire Management

FIT® Wire Management

Better wire management means better harnesses

Bringing order to wire harnesses and cable routing means a system that is more reliable, easier to fabricate, and simpler to maintain. Our woven sleeves are tough and flexible. For additional resistance to chemicals, oils, and solvents, our flexible tubing offers exceptional performance and operates at temperatures as high as 260°C. Our braided shields are effective and easy to use for additional EMI protection or a ground connection.

Neatness counts

As a leader in premium products, Alpha Wire knows wire and cable. And we know the challenges you face in creating harnesses, routing, and combating noise. Our FIT wire management products are designed to tame the most unruly applications.

Harnessing

Make any wire harness organized, manageable, and neat with our tubing, sleeving, spiral wrap tubing, zipper tubing, and lacing tape. Our unique ZIP-GRP expandable, enclosure sleeving allows easy re-entry and unlimited wire and cable break outs with its hook and loop fastener system.

Shielding

Add shielding easily and quickly. We offer flat, round, and oval braided shielding for additional protection against EMI and for grounding protection. Our copper foil shielding tape is backed with a highly conductive, pressure-sensitive adhesive for use in a wide variety of EMI/RFI shielding applications in cable and connector assemblies.

Routing

Get the advantages of conduit in a flexible non-metallic, liquid-tight tubing and connection system that protects wire, copper cable, and fiber-optic cable in factories, offices, or underground installations. Use our watertight tubing to replace rigid raceways where flexibility, re-entry, or re-usability is required. Additionally, Alpha offers split looms to provide a convenient solution for your routing needs.

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

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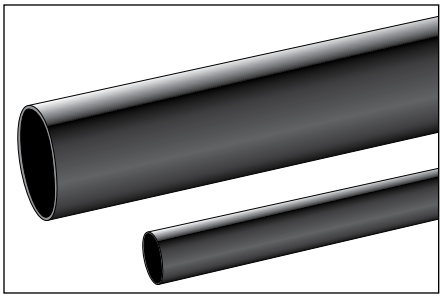
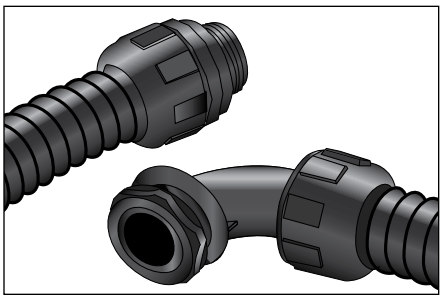


PVC-105

PVC tubing is the workhorse choice for protecting, organizing, and routing cables.

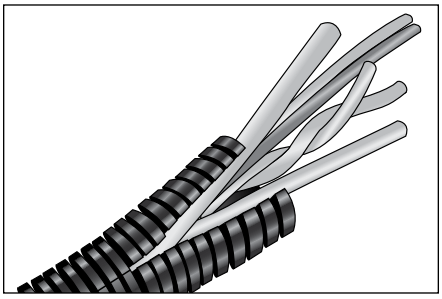


Flexible Liquid-Tight PVC Tubing and Nylon Connectors

FNT Tubing

SLC and RLC Connectors

FNT PVC tubing system of wire management products for electronic and electrical wire protection provides maximum flexibility and can be used in extremely tight quarters. The tubing is excellent for general applications where maximum flexibility is required or in areas where movement, vibration, or flexing is a problem.



Convoluted Slit Loom Tubing and Tee Connector Fittings

Type 492 Tubing

Type 493 Fittings

Flexible polyethylene loom material permits fast, easy installations and protection of harness and cable assemblies. The loom is slit full length so that it slides over the completed wire assembly easily, but closes after installation to protect the wire bundle. The slit allows for the wires to break out at any point along the cable length for custom installation. Companion snap-on connectors provide simple, clean cable junctions.

Zipper Tubing™

ZIP-41

Protect wire, cables, and harnesses. Alpha Zipper Tubing provides a professional finish to wiring installations by eliminating exposed wiring and providing added protection against flame, chemicals, and abrasion. With Zipper Tubing, it's possible to isolate any group of wires or cables quickly and easily, without the bother of tape wrapping. Zipper Tubing is an ideal jacketing material for use in harsh environments for production or repair of harness assemblies. Each package contains two plastic sliders.

FIT® Wire Management

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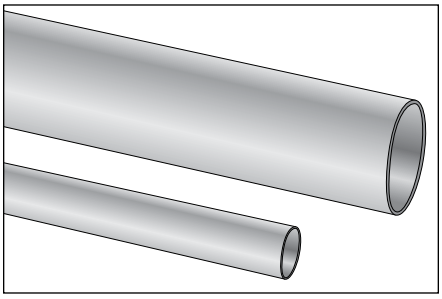
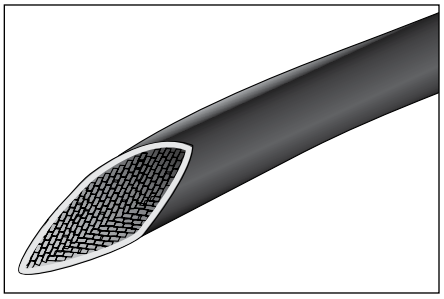


Flexible PTFE Tubing

TFT-200 Thin-Wall Tubing

TFT-250 Standard-Wall Tubing

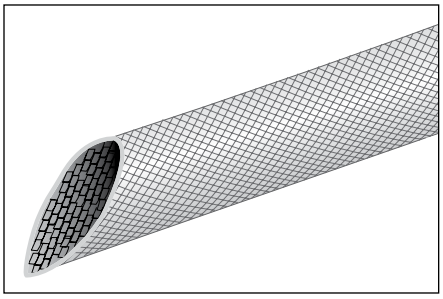
To improve the reliability of cable harnesses, PTFE tubing provides a heat and abrasion resistant wire insulator under the most adverse conditions. With an unmatched temperature range, exceptional abrasion resistance, and excellent dielectric properties, it maintains flexibility over its entire temperature range.



PVC-Coated Fiberglass Sleeving

PIF-130

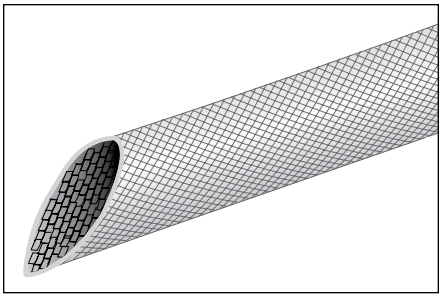
PIF-130 sleeving is a woven fiberglass braid impregnated with a heat-resistant, extremely tough, abrasion-resistant and flexible plastic insulation. The fiberglass is treated to remove all organic matter and resist fraying. The sleeving is completely compatible with all insulation and conductor types.



Uncoated Fiberglass Sleeving

PIF-240

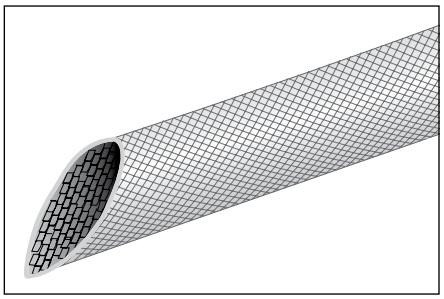
PIF-240 sleeving is extremely flexible and abrasion resistant. It is ideal for applications requiring operation up to 648°C. It is heat treated to remove all organic matter, and it is completely compatible with all insulation and conductor types.



Acrylic-Coated Fiberglass Sleeving

AF-155

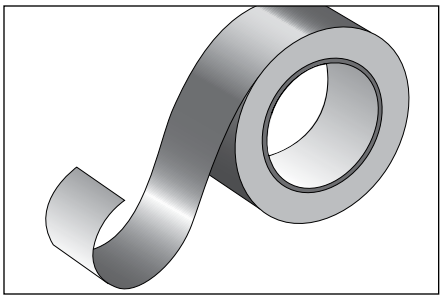
AF-155 is a specially designed fiberglass sleeving coated with a thermally stable, flexible, acrylic resin for wire and cable protection in electrical equipment. The most economical and versatile of all coated sleeving products, it offers high heat resistance, extreme flexibility, and resistance to cracking, abrasion, cut-though, and chemicals.



Silicone-Coated Fiberglass Sleeving

PIF-200, SF-200

PIF-200 and SF-200 sleeving offers high heat and superior electrical characteristics in a closely woven, braided fiberglass, uniformly coated with silicone rubber. It provides low temperature flexibility to -70°C and heat protection to 200°C. The fiberglass sleeving material is heat-set, cuts cleanly, and will not fray. It is easy to "pushback" and form over components, connections, and cables.



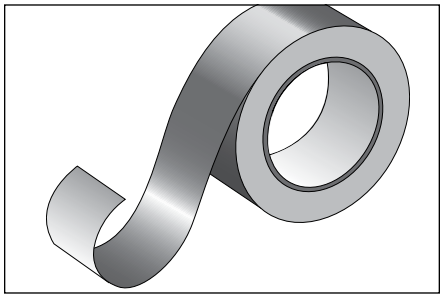
CST Series

The pressure-sensitive adhesive contains a uniform dispersion of unique oxidation-resistant conductive particles that produce very low resistance through the tape. This feature results in shielding performance approximately 5 dB better than other metal foil shielding tapes.

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

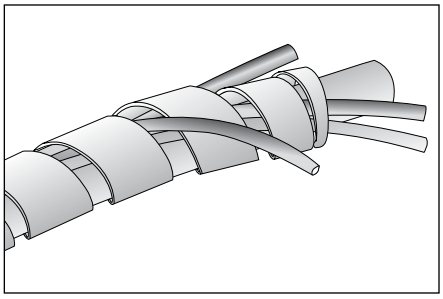
FIT® Wire Management

Better wire management means better harnesses



Self-Fusing Silicone Tape

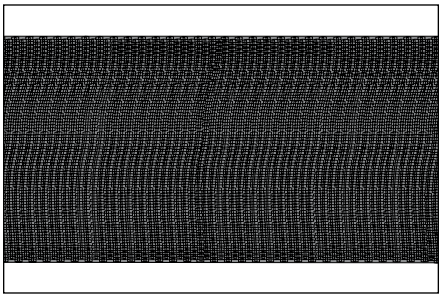
Where a masking wrap or permanently resilient insulation seal is necessary, self-adhering silicone tape is made of special unsupported silicone rubber compound that readily adheres to itself when wrapped under tension and fuses to form a homogenous mass within 24 hours at room temperature or 4 hours at 177°C. The self-adhering silicone is protected with a polyester or polyethylene liner to prevent contamination and blocking.



Spiral Wrap Tubing

SW

Spiral wrap tubing simplifies wire harnessing, cabling, and bundling. Alpha's SW tubing wraps tightly to the wire and cable being bundled, yet is flexible and simple to apply. All types maintain flexibility even when bent around sharp edges. Breakouts or tapoff connections may be made through the openings of the wrap. SW spiral wrap is constructed from several semirigid tubing materials and then cut on a continual spiral.



Expandable Braided Polyester Sleeving

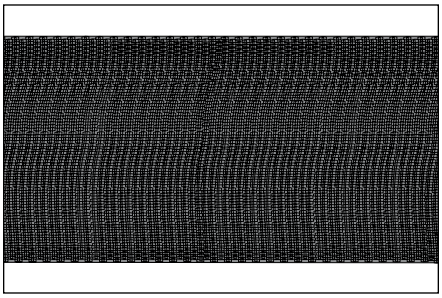
GRP-110, GRP-120

GRP-110/120 is a lightweight, expandable woven polyester sleeving that offers high flexibility with high resistance to abrasion and cut-through. The open weave allows for a great range of expansion of the sleeving diameter, thus ensuring ease of installation and gripping action over a wide range of shapes and sizes. GRP sleeving is an ideal protective sleeve for wire bundles, harnesses, pneumatic hoses, hydraulic lines, and highly polished or threaded machine parts.

To prevent fraying of ends, GRP-110 and GRP-120 should be cut/sealed with a hot knife.

FIT® Wire Management

Better wire management means better harnesses



Non-Fraying, Expandable Braid Sleeving

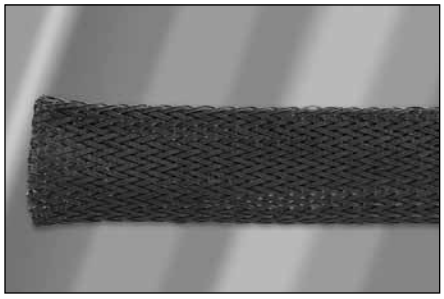
GRP-110NF, GRP-120NF

GRP-110NF/120NF sleeving cuts cleanly and fray-free with scissors, with no hot knife required. It is a lightweight, expandable woven polyester sleeving that offers high flexibility with high resistance to abrasion and cut-through. The open weave allows for a great range of expansion of the sleeving diameter, thus ensuring ease of installation and gripping action over a wide range of shapes and sizes. GRP sleeving is an ideal protective sleeve for wire bundles, harnesses, pneumatic hoses, hydraulic lines and highly polished or threaded machine parts.

Wrappable Sleeving

GRP-130 and GRP-130NF

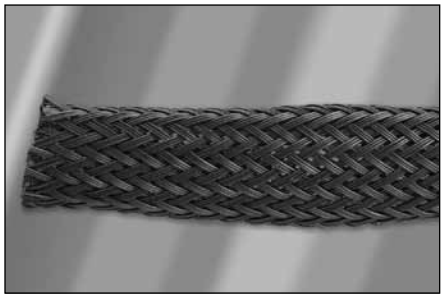
A unique split, semirigid braided construction allows GRP-130 and GRP-130NF sleeving to be installed quickly and easily. The lateral split opens up to accommodate a wide variety of bundling requirements, and then closes around the entire installation without the need for any additional fasteners. The sleeving bends to a tight radius without distorting or splitting open and, unlike full rigid tubing, will not impair or affect the flexibility of harnesses.



Advanced Protection Expandable Sleeving

GRP-160

This heavy-duty, flexible sleeving is extremely versatile in any industrial application requiring abrasion protection without sacrificing flexibility or durability. GRP-160 sleeving is economical and easy to use, cutting cleanly with a hot knife, and expanding up to 50% for easy installation over plugs and connectors. It resists fuels, UV, solvents, salt water, and most chemicals.



Advanced Chemical-Resistant Expandable Sleeving

GRP-170

GRP-170 is lightweight sleeving, resistant to high temperatures and virtually impervious to solvents. The sleeving resists all known solvents below 200°C chemical resistance, is inert to steam, strong bases, fuels, and acids, and offers high temperature stability, low moisture absorption, excellent dimensional stability and ultra-low wear.

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

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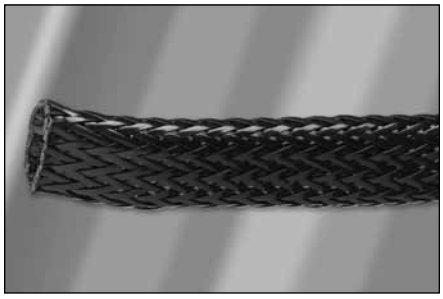
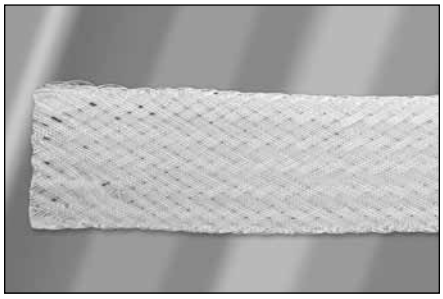


Maximum Protection Expandable Sleeving

GRP-180

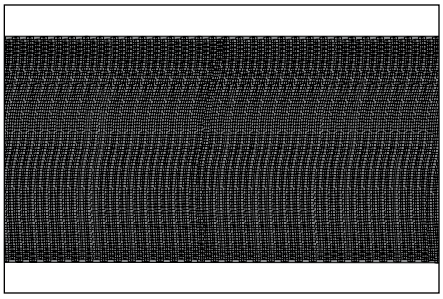
For a thick abrasion guard offering extreme protection against abrasion and cut-through on hoses and cables exposed to harsh conditions. GRP-180 provides fuller coverage for increased resistance to abrasion and penetration, and still expands for easy installation over long lengths. The braided construction allows moisture dissipate quickly to prevent rot and fungus.



Extreme Performance Expandable Sleeving

GRP-200

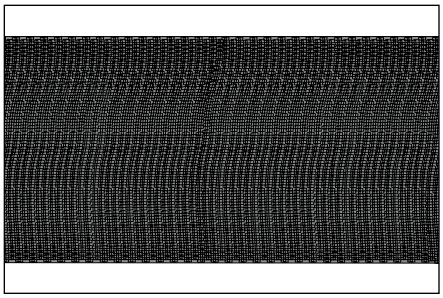
GRP-200 sleeving uses PTFE to allow the highest levels of performance, including resistance to chemicals, flame, and high temperatures. Thermal stability and low outgassing make it suited to aerospace, military, and high-tech applications. GRP-2000 sleeving is suitable for plenum applications.



Expandable Polyester Braided Sleeving

XS-100HD

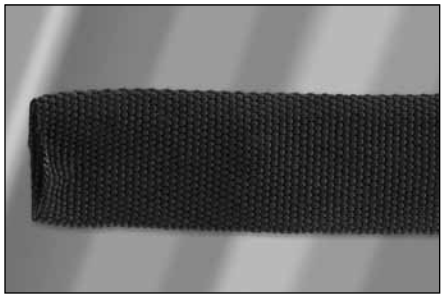
Spirally cut sleeving simplifies wiring, cabling, harnessing, and bundling where breakout or re-entry is required.



Braided Sleeving

XS-200N

Durable overbraiding for military and commercial cable assemblies protects against abrasion, mildew, and aging. Type XS-200N nylon braided self-fitting cable sleeving has been designed to cover and protect both round and flat cable assemblies. The variety of sizes and self-fitting features make selection easy for solving many of the cable assembly design problems found in electronic, electrical, aerospace, process control, and robotic-automation equipment.



Abrasion-Resistant Nylon Sleeving

XS-300

Tightly woven nylon, with a 45-mil wall thickness, makes XS3000 sleeving the perfect solution for protecting cables, hoses and ropes from weather, sunlight and abrasion damage. The sleeving is resistant to chemicals, UV damage and rot, making it suitable for continuous outdoor use under all weather conditions. The flexible sleeving cuts with a scissor and slides easily over any application.

FIT® Wire Management

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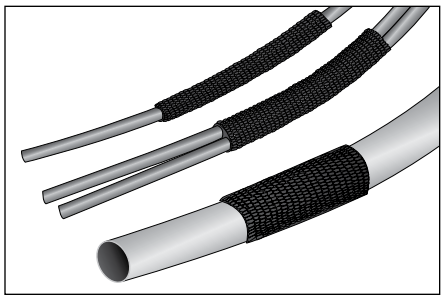


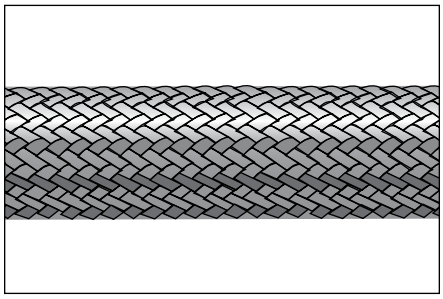
Expandable Polyester Webbed Sleeving

ZIP-GRP

ZIP-GRP expandable webbing offers superb flexibility and high tensile strength while providing added protection against flame, chemicals, and abrasion. With its hook and loop fastening, wires, cable assemblies, and wire harnesses are always accessible and can be easily opened for any number of breakouts. To prevent fraying of ends, ZIP-GRP should be cut/sealed with a hot knife.

Lacing Tape

Alpha lacing tapes offer high tensile strength and knot retention. Designed to allow a wider contact area with the insulation so that it remains in place, lacing tape is flexible and easy on the assembler's hands. Once knotted, tape resists slipping and does not increase diameter of harness. Nylon has excellent tensile strength and resists acids, abrasion, flame, and fungus. Polyester has all the characteristics of nylon, but has better resistance to acids, and no appreciable discoloration.

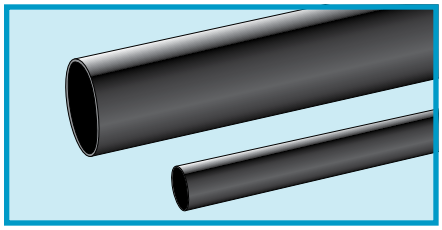


Tinned and Silver-Plated Copper Braid

A tight weave of multistrand, soft drawn copper wire, either tinned or silver plated, copper braid is an ideal shielding material for short-run cables providing easy radial termination. In retrofit applications, provides additional shielding efficiency. Tinned copper flat braid, used as a ground strap, provides an excellent, low-resistance ground path.

FIT® Wire Management

Multipurpose PVC Tubing
PVC-105



UL 224 VW-1
CSA 198
MIL-I-631D Type F, Form U, Subform Ua, Grade C
ASTM D922

- Flexible wire protection for harnesses and ground straps
- Resistance to heat, oil, and abrasion

Operating Temperature

- -20°C to +105°C

Colors

- Size #24 to 1-1/2 inches: Black, clear
- 2 Inches to 2-1/2 inches: Black

Physical Properties

- Tensile strength: 2780 psi (19.17 N/mm^2)
- Elongation: 260%
- Specific gravity: 1.32
- Flammability: UL 224 VW-1

Chemical Properties

- Corrosive effect: non-corrosive
- Fungus resistance: no growth
- UV stable
- Lead free

Electrical Properties

- Dielectric strength: 870 V/mil (343 kV/cm)
- Volume resistivity: 2 x 10^{14} ohm-cm
- UL voltage rating
  Sizes #24 to #1: UL rated 300 V
  5/16 to 2 inches: UL rated 600 V

Availability

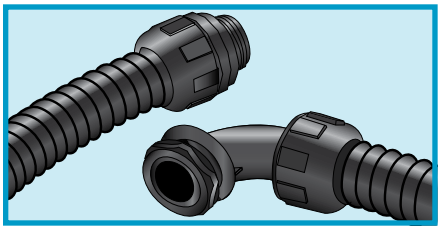
- See table
- PVC-105-24 to PVC-105-1 are available air spooled on the largest put-ups only

Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Nom.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
PVC-105-24	0.022	0.56	0.027	0.69	0.012	0.30	1000	305
PVC-105-22	0.025	0.64	0.032	0.81	0.012	0.30	100, 1000	30.5, 305
PVC-105-20	0.032	0.81	0.039	0.99	0.016	0.41	1000	305
PVC-105-19	0.036	0.91	0.044	1.12	0.016	0.41	1000	305
PVC-105-18	0.040	1.02	0.049	1.24	0.016	0.41	100, 1000	30.5, 305
PVC-105-17	0.045	1.14	0.054	1.37	0.016	0.41	100, 1000	30.5, 305
PVC-105-16	0.051	1.30	0.061	1.55	0.016	0.41	100, 1000	30.5, 305
PVC-105-15	0.057	1.45	0.067	1.70	0.016	0.41	100, 1000	30.5, 305
PVC-105-14	0.064	1.63	0.072	1.83	0.016	0.41	100, 500	30.5, 152
PVC-105-13	0.072	1.83	0.08	2.03	0.016	0.41	100, 500	30.5, 152
PVC-105-12	0.081	2.06	0.089	2.26	0.016	0.41	500	152
PVC-105-11	0.091	2.31	0.101	2.57	0.016	0.41	100, 500	30.5, 152
PVC-105-10	0.102	2.59	0.112	2.84	0.016	0.41	500	152
PVC-105-9	0.114	2.90	0.124	3.15	0.020	0.51	500	152
PVC-105-8	0.129	3.28	0.141	3.58	0.020	0.51	100, 500	30.5, 152
PVC-105-7	0.144	3.66	0.158	4.01	0.020	0.51	100, 500	30.5, 152
PVC-105-6	0.162	4.11	0.178	4.52	0.020	0.51	100, 500	30.5, 152
PVC-105-5	0.183	4.65	0.198	5.03	0.020	0.51	100, 500	30.5, 152
PVC-105-4	0.204	5.18	0.224	5.69	0.020	0.51	100, 250	30.5, 76
PVC-105-3	0.229	5.82	0.249	6.32	0.020	0.51	100, 250	30.5, 76
PVC-105-2	0.258	6.55	0.278	7.06	0.020	0.51	250	76
PVC-105-1	0.289	7.34	0.311	7.90	0.020	0.51	100, 250	30.5, 76
PVC-105-5/16	0.313	7.95	0.334	8.48	0.025	0.64	100, 250	30.5, 76
PVC105-0	0.325	8.26	0.347	8.81	0.020	0.51	100, 250	30.5, 76
PVC-105-3/8	0.375	9.53	0.399	10.13	0.025	0.64	100, 250	30.5, 76
PVC-105-7/16	0.438	11.13	0.462	11.73	0.025	0.64	100	30.5
PVC-105-1/2A	0.500	12.70	0.524	13.31	0.025	0.64	100	30.5
PVC-105-9/16	0.562	14.27	0.592	15.04	0.030	0.76	100	30.5
PVC-105-5/8	0.625	15.88	0.655	16.64	0.030	0.76	100	30.5
PVC-105-3/4	0.750	19.05	0.786	19.96	0.035	0.89	50	15.2
PVC-105-7/8	0.875	22.23	0.911	23.14	0.035	0.89	50	15.2
PVC-105-1IN	1.000	25.40	1.036	26.31	0.035	0.89	50	15.2
PVC-105-1-1/8	1.125	28.58	1.161	29.49	0.010	0.25	50	15.2
PVC-105-1-1/4	1.250	31.75	1.29	32.77	0.040	1.02	50	15.2
PVC-105-1-1/2	1.500	38.10	1.55	39.37	0.045	1.14	50	15.2
PVC-105-2IN	2.000	50.80	2.07	52.58	0.060	1.52	50	15.2
PVC-105-2-1/2	2.500	63.50	2.53	64.26	0.070	1.78	50	15.2

CA PROP 65 RoHS Compliant

FIT® Wire Management

Flexible Liquid-Tight PVC Tubing
FNT Tubing



UL 1696
CSA C22.2 No. 227.3-05

Operating Temperature

- -18°C to +50°C

Color

- Black

Materials

- Liquid-tight PVC tubing

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Resists oil and water
- Lead free

Availability

25 ft (7.5 m)
100 ft (30.5 m)

PVC Tubing

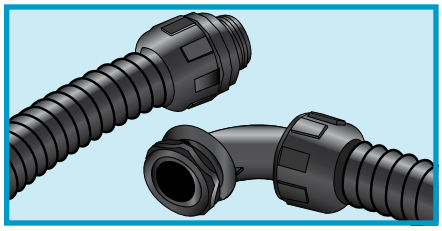
Part No.	Trade Size	Inside Diameter, Min.		Inside Diameter, Max.		Outside Diameter, Min.		Outside Diameter, Max.	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm
FNT-1/4*	1/4	0.385	9.78	0.405	10.29	0.560	14.22	0.575	14.61
FNT-3/8	3/8	0.484	12.29	0.504	12.80	0.690	17.53	0.710	18.03
FNT-1/2	1/2	0.622	15.80	0.642	16.31	0.820	20.83	0.840	21.34
FNT-3/4	3/4	0.820	20.83	0.840	21.34	1.030	26.16	1.050	26.67
FNT-1	1	1.041	26.44	1.066	27.08	1.290	32.77	1.315	33.40

*Not CSA certified

CA PROP 65 RoHS Compliant

FIT® Wire Management

Liquid-Tight Nylon Connectors
SLC or RLC



Part No.		Trade Size	Thread Size
Straight	90°		
SLC-1/4*	—	1/4	—
SLC-3/8	RLC-3/8	3/8	1/2 NPT
SLC-1/2	RLC-1/2	1/2	1/2 NPT
SLC-3/4	RLC-3/4	3/4	3/4 NPT
SLC-1	RLC-1	1	1 NPT

*Snap-on connector, not CSA certified

Operating Temperature

- +125°C

Color

- Black

Materials

- Nylon connector
- Supplied with o-ring and steel locking nut

Properties

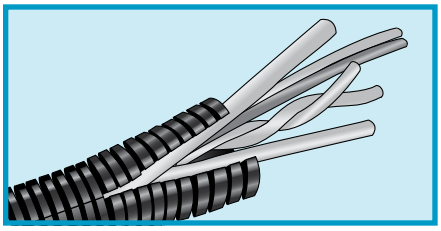
- Resists salt water, weak acids, gasoline, alcohol, oil, grease, and common solvents
- Flammability rating: UL 94V-2

Availability

10-piece packages
100-piece packages

FIT® Wire Management

Convoluted Slit Loom Tubing
Type 492



- Abrasion and fluid resistant
- Light weight
- Easy, flexible cable breakouts

Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Outside Diameter, Min.		Outside Diameter, Max.	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm
492250	0.256	6.50	0.276	7.01	0.373	9.47	0.398	10.11
492350	0.341	8.66	0.38	9.65	0.496	12.60	0.526	13.36
492413	0.399	10.13	0.437	11.10	0.569	14.45	0.597	15.16
492500	0.473	12.01	0.516	13.11	0.664	16.87	0.70	17.78
492625	0.603	15.32	0.639	16.23	0.802	20.37	0.837	21.26
492750	0.707	17.96	0.759	19.28	0.95	24.13	0.989	25.12
492100	1.020	25.91	1.069	27.15	1.251	31.78	1.304	33.12
492150	1.566	39.78	1.647	41.83	1.867	47.42	1.947	49.45
492200	1.969	50.01	2.038	51.77	2.285	58.04	2.388	60.66

Operating Temperature

- -40°C to +93°C

Color

- Black

Material

- Polyethylene

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Lead free

Electrical Properties

- Volume resistivity: 10^{15} ohm-cm

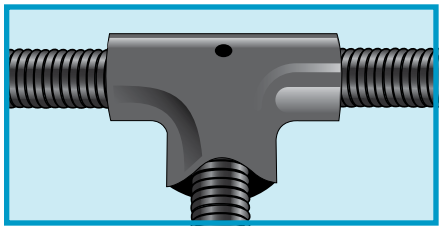
Availability

100 ft (30.5 m)

CA PROP 65 RoHS Compliant

FIT® Wire Management

Loom Tee Connector Fittings
Type 493



Part No.	Mating Loom Size					
	Left		Center		Right	
	Inch	mm	Inch	mm	Inch	mm
493100	0.413 or 0.500	10.49 or 12.70	0.413 or 0.500	10.49 or 12.70	0.413 or 0.500	10.49 or 12.70
493101	0.500	12.70	0.350	8.89	0.750	19.05
493102	0.500	12.70	0.413	10.49	0.750	19.05
493103	0.750	19.05	0.500	12.70	0.750	19.05
493110	0.413	10.49	0.350	8.89	0.350	8.89
493118	1.000	25.40	0.625	15.88	0.100	2.54

Operating Temperature

- -40°C to +90°C

Color

- Black

Material

- Polypropylene

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Lead free

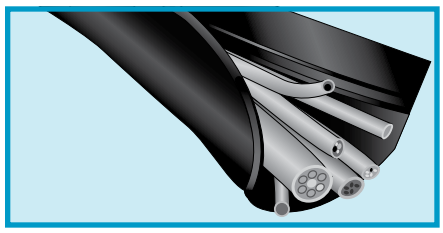
Availability

Single pieces

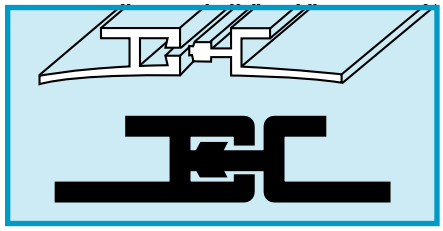
CA PROP 65 RoHS Compliant

FIT® Wire Management

Zipper Tubing™
ZIP-41



MIL-I-631
UL 224 VW-1



Loc-Trac® provides an effective closure that is ideal for use where the assembly will be subjected to random flexing.

Protection against flame, chemicals, and abrasion.

Operating Temperature
- -20°C to +105°C

Color
- Black

Material
- PVC

Physical Properties
- Tensile strength: 1800 psi (12.4 N/mm²)
- Elongation: 200% min.
- Flammability: UL VW-1

Chemical Properties
- Fungus resistance: no growth
- Lead free

Electrical Properties
- Dielectric strength: 700 V/mil (275.8 kV/cm)
- Volume resistivity: 10^{10} ohms/cm

Availability
25 ft (30.5 m)
100 ft (30.5 m)

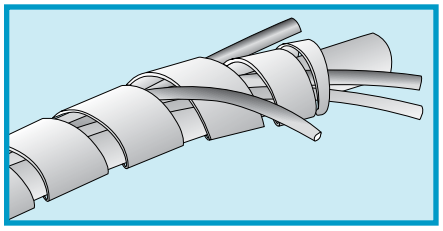
Each spool comes with two Loc-Trac fasteners and installation instructions.

Part No.	Inside Diameter, Nom.		Wall Thickness, Nom.		Flat Width, Nom.	
	Inch	mm	Inch	mm	Inch	mm
ZIP-41-1/2	0.500	12.70	0.020	0.51	2.000	50.80
ZIP-41-5/8	0.625	15.88	0.020	0.51	2.375	60.33
ZIP-41-3/4	0.750	19.05	0.020	0.51	2.750	69.85
ZIP-41-7/8	0.875	22.23	0.020	0.51	3.125	79.38
ZIP-41-1IN	1.000	25.40	0.020	0.51	3.562	90.47
ZIP-41-1-1/4	1.250	31.75	0.020	0.51	4.125	104.78
ZIP-41-1-1/2	1.500	38.10	0.020	0.51	4.875	123.83
ZIP-41-1-3/4	1.750	44.45	0.020	0.51	5.625	142.88
ZIP-41-2IN	2.000	50.80	0.020	0.51	6.375	161.93
ZIP-41-2-1/4	2.250	57.15	0.020	0.51	7.500	190.50
ZIP-41-3IN	3.000	76.20	0.020	0.51	10.000	254.00

CA PROP 65 RoHS Compliant

FIT® Wire Management

Spiral Wrap Tubing
SW



- Flexible cable bundling
- Easy breakouts

See table for specifications

	SW-1 to SW-6	SW-10 to SW-14	SW-20 to SW-25	SW-30 to SW-35	SW-40 to SW-45	SW-50 to SW-53
Material	Natural Polyethylene	Flame-Retardant Polyethylene	Nylon	PTFE	UV-Resistant Polyethylene	PVC
Colors	Natural	White	Natural	Natural, Black	Black	Black
Temperature Range (°C)	-66 to +88	-20 to +80	-40 to +121	-268 to +260	-66 to +88	-20 to +80
Abrasion Resistance (Taber)	22	27	6 - 8	7	20	Excellent
Flame Rating	Not rated	UL 1441 Self-extinguishing	Self-extinguishing	UL VW-1	Not rated	Self-extinguishing
Tensile Strength (psi (N/mm²)	1800 (12.41)	1300 (8.96)	12,000 (82.74)	3000 (20.68)	2000 (13.79)	3000 (20.68)
Water Absorption (%)	0.014	0.02	1.5	0.005	0.03	—
Dielectric Constant (Max.)	—	2.58	4.0	2.1	—	—
Effects of Alkalis and Acids	None	None	None	None	None	Satisfactory*
Weather Resistance	N/A	N/A	N/A	Excellent	N/A	N/A
Specs	UL UZKX2 MIL-I-631D, Type A, Form U MIL-P-21922B ASTM 1248-65T Type 1 Class A, Grade 3 A-A-59602, Type 1, Class 1	UL UZKX2 A-A-59602, Type 1, Class 3	UL UZKX2 ASTM-D-4066, Group 2, Class 1	UL UZKX2 ASTM-D-3295-01, Group 4 A-A-59602, Type 3, Class 1 (as noted)	UL UZKX2 MIL-I-631D, Type A, Form U MIL-P-21922B, Type 1 Class L A-A-59602, Type 1, Class 2	—

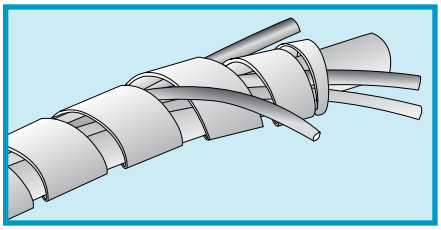
*Satisfactory except for high concentrations; not recommended for organic solvents.

CA PROP 65 RoHS Compliant

FIT® Wire Management

Spiral Wrap Tubing

SW



- Flexible cable bundling
- Easy breakouts

See table for specifications

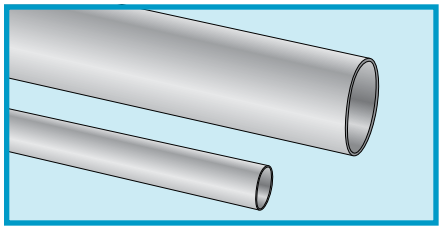
Part No.	Material	Trade Size	Outside Diameter, Nom.		Wall Thickness, Nom.		Right-Hand Pitch, Nom.		Standard Put-Ups*	
			Inch	mm	Inch	mm	Inch	mm	Ft	m
SW-1	Natural PE	1/8	0.125	3.18	0.032	0.81	0.187	4.75	25, 100, 500	7.6, 30.5, 152
SW-2	Natural PE	1/4	0.250	6.35	0.045	1.14	0.375	9.53	25, 100, 500	7.6, 30.5, 152
SW-3	Natural PE	3/8	0.375	9.53	0.052	1.32	0.438	11.13	25, 100	7.6, 30.5
SW-4	Natural PE	1/2	0.500	12.70	0.062	1.57	0.563	14.30	25, 100	7.6, 30.5
SW-5	Natural PE	3/4	0.750	19.05	0.065	1.65	0.750	19.05	25, 100, 500	7.6, 30.5, 152
SW-6	Natural PE	1	1.000	25.40	0.080	2.03	1.000	25.40	25, 100, 500	7.6, 30.5, 152
SW-10	FR PE	1/8	0.125	3.18	0.032	0.81	0.187	4.75	25, 100, 500	7.6, 30.5, 152
SW-11	FR PE	1/4	0.250	6.35	0.045	1.14	0.375	9.53	25, 100, 500	7.6, 30.5, 152
SW-12	FR PE	3/8	0.375	9.53	0.052	1.32	0.438	11.13	25, 100	7.6, 30.5
SW-13	FR PE	1/2	0.500	12.70	0.062	1.57	0.563	14.30	25, 100	7.6, 30.5
SW-14	FR PE	3/4	0.750	19.05	0.065	1.65	0.750	19.05	25, 100	7.6, 30.5
SW-20	Nylon	1/8	0.125	3.18	0.015	0.38	0.187	4.75	25, 100, 500	7.6, 30.5, 152
SW-21	Nylon	1/4	0.250	6.35	0.025	0.64	0.375	9.53	25, 100, 500	7.6, 30.5, 152
SW-22	Nylon	3/8	0.375	9.53	0.035	0.89	0.438	11.13	25, 100	7.6, 30.5
SW-23	Nylon	1/2	0.500	12.70	0.035	0.89	0.500	12.70	25, 100	7.6, 30.5
SW-24	Nylon	3/4	0.750	19.05	0.032	0.81	0.750	19.05	25, 100, 500	7.6, 30.5, 152
SW-25	Nylon	1	1.000	25.40	0.032	0.81	1.000	25.40	25, 100	7.6, 30.5
SW-30	PTFE	1/8	0.125	3.18	0.030	0.76	0.187	4.75	25, 100	7.6, 30.5
SW-31	PTFE	1/4	0.250	6.35	0.030	0.76	0.375	9.53	25, 100	7.6, 30.5
SW-32**	PTFE	3/8	0.375	9.53	0.030	0.76	0.438	11.13	25, 100	7.6, 30.5
SW-33**	PTFE	1/2	0.500	12.70	0.030	0.76	0.500	12.70	25, 100	7.6, 30.5
SW-34**	PTFE	3/4	0.750	19.05	0.032	0.81	0.750	19.05	25, 100	7.6, 30.5
SW-35	PTFE	1	1.000	25.40	0.040	1.02	1.000	25.40	25, 100	7.6, 30.5
SW-40	UV-Res. PE	1/8	0.125	3.18	0.032	0.81	0.187	4.75	25, 100, 500	7.6, 30.5, 152
SW-41	UV-Res. PE	1/4	0.250	6.35	0.045	1.14	0.375	9.53	25, 100, 500	7.6, 30.5, 152
SW-42	UV-Res. PE	3/8	0.375	9.53	0.052	1.32	0.438	11.13	25, 100	7.6, 30.5
SW-43	UV-Res. PE	1/2	0.500	12.70	0.062	1.57	0.500	12.70	25, 100	7.6, 30.5
SW-44	UV-Res. PE	3/4	0.750	19.05	0.065	1.65	0.750	19.05	25, 100, 500	7.6, 30.5, 152
SW-45	UV-Res. PE	1	1.000	25.40	0.080	2.03	1.000	25.40	25, 100, 500	7.6, 30.5, 152
SW-50	PVC	1/8	0.125	3.18	0.032	0.81	0.187	4.75	25, 100	7.6, 30.5
SW-51	PVC	1/4	0.250	6.35	0.045	1.14	0.375	9.53	25, 100	7.6, 30.5
SW-52	PVC	3/8	0.375	9.53	0.052	1.32	0.438	11.13	25, 100	7.6, 30.5
SW-53	PVC	1/2	0.500	12.70	0.062	1.57	0.500	12.70	25, 100	7.6, 30.5

*May contain multiple lengths.
**Does not meet A-A-59602 Type 3 Class 1

CA PROP 65 RoHS Compliant

FIT® Wire Management

Flexible PTFE Thin-Wall Tubing
TFT-200



ASTM D 3295-81a Type I
Class B
AMS 3655

- Flexible wire protection for harnesses and ground straps
- Resistance to heat, oil, and abrasion

Operating Temperature
- -75°C to +260°C

Color
- Natural

Material
- PTFE

Physical Properties
- Tensile strength: 2000 psi (13.7 N/mm²)
- Elongation: 200% min.
- Specific gravity: 2.18
- Flammability rating: UL 94V-0

Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.01%
- Lead free

Electrical Properties
- Dielectric strength: 1400 V/mil (55 kV/cm)
- Volume resistivity: 10^{18} ohm-cm
- Dielectric constant: 2.1

Availability
See table

Spools may contain multiple lengths

TFT-200-7 and larger supplied as coils

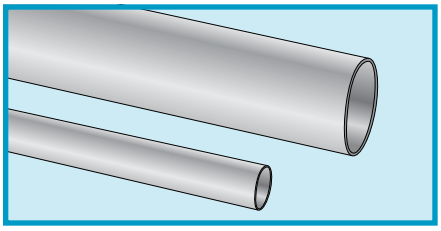
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
TFT-200-30	0.010	0.25	0.015	0.38	0.009	0.23	100, 500, 1000	30.5, 152, 305
TFT-200-28	0.013	0.33	0.018	0.46	0.009	0.23	100, 500, 1000	30.5, 152, 305
TFT-200-26	0.016	0.41	0.021	0.53	0.009	0.23	100, 500, 1000	30.5, 152, 305
TFT-200-24	0.020	0.51	0.026	0.66	0.010	0.25	100, 500, 1000	30.5, 152, 305
TFT-200-22	0.026	0.66	0.032	0.81	0.010	0.25	100, 500, 1000	30.5, 152, 305
TFT-200-20	0.032	0.81	0.04	1.02	0.012	0.30	100, 500, 1000	30.5, 152, 305
TFT-200-19	0.036	0.91	0.042	1.07	0.012	0.30	100, 1000	30.5, 305
TFT-200-18	0.040	1.02	0.046	1.17	0.012	0.30	100, 500, 1000	30.5, 152, 305
TFT-200-17	0.045	1.14	0.052	1.32	0.012	0.30	100, 500, 1000	30.5, 152, 305
TFT-200-16	0.051	1.30	0.058	1.47	0.012	0.30	100, 1000	30.5, 305
TFT-200-15	0.057	1.45	0.065	1.65	0.012	0.30	100, 1000	30.5, 305
TFT-200-14	0.064	1.63	0.072	1.83	0.012	0.30	100, 500	30.5, 152
TFT-200-13	0.072	1.83	0.081	2.06	0.012	0.30	100, 500	30.5, 152
TFT-200-12	0.081	2.06	0.091	2.31	0.012	0.30	100, 500	30.5, 152
TFT-200-11	0.091	2.31	0.101	2.57	0.012	0.30	100, 500	30.5, 152
TFT-200-10	0.102	2.59	0.112	2.84	0.012	0.30	100, 500	30.5, 152
TFT-200-9	0.114	2.90	0.124	3.15	0.012	0.30	100, 500	30.5, 152
TFT-200-8	0.129	3.28	0.139	3.53	0.015	0.38	100	30.5
TFT-200-7	0.144	3.66	0.155	3.94	0.015	0.38	100	30.5
TFT-200-6	0.162	4.11	0.174	4.42	0.015	0.38	100*	30.5*
TFT-200-5	0.182	4.62	0.195	4.95	0.015	0.38	100*	30.5*
TFT-200-4	0.204	5.18	0.218	5.54	0.015	0.38	100*	30.5*
TFT-200-3	0.229	5.82	0.244	6.20	0.015	0.38	100*	30.5*
TFT-200-2	0.258	6.55	0.273	6.93	0.015	0.38	100*	30.5*
TFT-200-1	0.289	7.34	0.305	7.75	0.015	0.38	100*	30.5*
TFT-200-0	0.325	8.26	0.342	8.69	0.015	0.38	100*	30.5*

*Supplied as coils.

CA PROP 65 RoHS Compliant

FIT® Wire Management

Flexible PTFE Standard-Wall Tubing
TFT-250



ASTM D 3295-81a Type I Class C
MIL-I-22129

- Excellent heat and chemical resistance
- Flexible wire protection for harnesses and ground straps
- Resistance to heat, oil, and abrasion

Operating Temperature
- -75°C to +260°C

Color
- Natural

Material
- PTFE

Physical Properties
- Tensile strength: 2000 psi (13.7 N/mm^2)
- Elongation: 200% min.
- Specific gravity: 2.18
- Flammability rating: UL 94V-0

Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.01%
- Lead free

Electrical Properties
- Dielectric strength: 1400 V/mil (551 kV/cm)
- Volume resistivity: 10^{18} ohm-cm
- Dielectric constant: 2.1

Availability
See table

Spools may contain multiple lengths

TFT-200-7 and larger supplied as coils

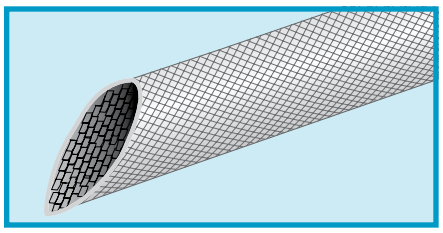
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
TFT-250-24	0.020	0.51	0.026	0.66	0.012	0.30	100, 500, 1000	30.5, 152, 305
TFT-250-22	0.025	0.64	0.032	0.81	0.012	0.30	100, 500, 1000	30.5, 152, 305
TFT-250-20	0.032	0.81	0.040	1.02	0.016	0.41	100, 500, 1000	30.5, 152, 305
TFT-250-19	0.036	0.91	0.044	1.12	0.016	0.41	100, 500, 1000	30.5, 152, 305
TFT-250-18	0.040	1.02	0.049	1.24	0.016	0.41	100, 500, 1000	30.5, 152, 305
TFT-250-17	0.045	1.14	0.054	1.37	0.016	0.41	100, 1000	30.5, 305
TFT-250-16	0.051	1.30	0.061	1.55	0.016	0.41	100, 500, 1000	30.5, 152, 305
TFT-250-15	0.057	1.45	0.067	1.70	0.016	0.41	100, 500	30.5, 152
TFT-250-14	0.064	1.63	0.074	1.88	0.016	0.41	100, 500	30.5, 152
TFT-250-13	0.072	1.83	0.082	2.08	0.016	0.41	100	30.5
TFT-250-12	0.081	2.06	0.091	2.31	0.016	0.41	100	30.5
TFT-250-11	0.091	2.31	0.101	2.57	0.016	0.41	100, 500	30.5, 152
TFT-250-10	0.102	2.59	0.112	2.84	0.016	0.41	100, 500	30.5, 152
TFT-250-9	0.114	2.90	0.124	3.15	0.020	0.51	100, 500	30.5, 152
TFT-250-8	0.129	3.28	0.141	3.58	0.020	0.51	100	30.5
TFT-250-7	0.144	3.66	0.158	4.01	0.020	0.51	100	30.5
TFT-250-6	0.162	4.11	0.178	4.52	0.020	0.51	100*	30.5*
TFT-250-5	0.182	4.62	0.196	4.98	0.020	0.51	100*	30.5*
TFT-250-4	0.204	5.18	0.224	5.69	0.020	0.51	100*	30.5*
TFT-250-3	0.229	5.82	0.249	6.32	0.020	0.51	100*	30.5*
TFT-250-2	0.258	6.55	0.278	7.06	0.020	0.51	100*	30.5*
TFT-250-1	0.289	7.34	0.311	7.90	0.020	0.51	100*	30.5*
TFT-250-0	0.325	8.26	0.342	8.69	0.020	0.51	100*	30.5*

*Supplied as coils.

CA PROP 65 RoHS Compliant

FIT® Wire Management

Acrylic-Coated Fiberglass Sleeving
AF-155



MIL-I-3190/3 Grade C1
NEMA TF-1

Operating Temperature
- -30°C to +155°C

Color
- Natural

Material
- Acrylic-coated fiberglass braid

Physical Properties
- Elongation: 150% min.
- Low-temperature (-10°C) flexing: no cracking

Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Lead free

Electrical Properties
- Dielectric strength: 2500 V/mil (984 kV/cm)
- Dielectric constant: 2.5
- Volume resistivity: 10^{10} ohm-cm

Availability
See table

Spools may contain multiple lengths

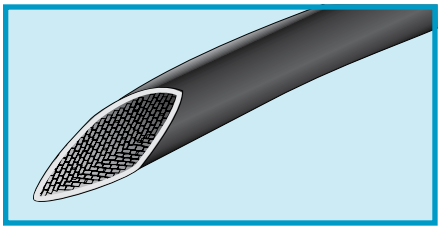
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
AF-155-24	0.020	0.51	0.027	0.69	0.006	0.15	100, 500	30.5, 152
AF-155-22	0.025	0.64	0.032	0.81	0.006	0.15	100, 500	30.5, 152
AF-155-20	0.032	0.81	0.039	0.99	0.006	0.15	100, 500	30.5, 152
AF-155-18	0.040	1.02	0.049	1.24	0.006	0.15	100, 500	30.5, 152
AF-155-16	0.051	1.30	0.061	1.55	0.006	0.15	100, 500	30.5, 152
AF-155-15	0.057	1.45	0.067	1.70	0.006	0.15	100, 500	30.5, 152
AF-155-14	0.064	1.63	0.074	1.88	0.006	0.15	100, 500	30.5, 152
AF-155-13	0.072	1.83	0.082	2.08	0.006	0.15	100, 250	30.5, 76
AF-155-12	0.081	2.06	0.091	2.31	0.006	0.15	100, 250	30.5, 76
AF-155-11	0.091	2.31	0.101	2.57	0.008	0.20	100, 250	30.5, 76
AF-155-10	0.102	2.59	0.112	2.84	0.008	0.20	100, 250	30.5, 76
AF-155-9	0.114	2.90	0.124	3.15	0.008	0.20	100, 250	30.5, 76
AF-155-8	0.129	3.28	0.141	3.58	0.008	0.20	100, 250	30.5, 76
AF-155-7	0.144	3.66	0.158	4.01	0.008	0.20	100, 250	30.5, 76
AF-155-6	0.162	4.11	0.178	4.52	0.010	0.25	100, 250	30.5, 76
AF-155-5	0.182	4.62	0.198	5.03	0.010	0.25	100, 250	30.5, 76
AF-155-4	0.204	5.18	0.224	5.69	0.010	0.25	100, 250	30.5, 76
AF-155-3	0.229	5.82	0.249	6.32	0.010	0.25	100, 250	30.5, 76
AF-155-2	0.258	6.55	0.278	7.06	0.010	0.25	100, 250	30.5, 76
AF-155-1	0.289	7.34	0.311	7.90	0.010	0.25	100, 125	30.5, 38
AF-155-0	0.325	8.26	0.347	8.81	0.016	0.41	100, 125	30.5, 38
AF-155-3/8	0.375	9.53	0.399	10.13	0.016	0.41	125, 250	38, 76
AF-155-7/16	0.438	11.13	0.462	11.73	0.016	0.41	125	38
AF-155-1/2	0.500	12.70	0.524	13.31	0.016	0.41	100	30.5
AF-155-5/8	0.625	15.88	0.655	16.64	0.016	0.41	100	30.5
AF-155-3/4	0.750	19.05	0.786	19.96	0.016	0.41	100	30.5
AF-155-7/8	0.875	22.23	0.911	23.14	0.016	0.41	100	30.5
AF-155-1IN	1.000	25.40	1.036	26.31	0.016	0.41	100	30.5

CA PROP 65 RoHS Compliant

FIT® Wire Management

PVC-Coated Fiberglass Sleeving

PIF-130



UL 1441 (600 V_{RMS})
UL VW-1
MIL-I-3190/2 Class 130
Type B Category b
NEMA TF-1 Grade A

- High temperature, abrasion, and oil resistance
- Resists fraying, bending, and knotting

Operating Temperature

- -20°C to +130°C

Color

- Black

Material

- PVC-coated fiberglass braid

Chemical Properties

- Corrosive effect: non-corrosive
- Fungus resistance: no growth
- Lead free

Electrical Properties

- Dielectric strength: 5000 V/mil (1968 kV/cm)
- Volume resistivity: 10^9 ohm-cm

Availability

See tables

Spools may contain multiple lengths

Standard Wall Thickness

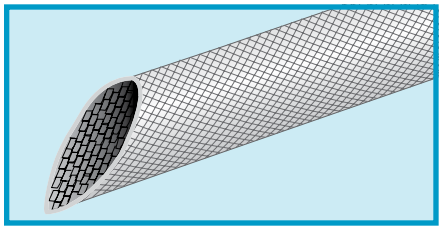
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
PIF-130-20	0.032	0.81	0.039	0.99	0.013	0.33	100, 500, 1000	30.5, 152, 305
PIF-130-18	0.040	1.02	0.049	1.24	0.015	0.38	100, 500, 1000	30.5, 152, 305
PIF-130-16	0.051	1.30	0.061	1.55	0.015	0.38	100, 1000	30.5, 305
PIF-130-14	0.064	1.63	0.074	1.88	0.015	0.38	100	30.5
PIF-130-12	0.081	2.06	0.091	2.31	0.015	0.38	100, 500	30.5, 152
PIF-130-10	0.102	2.59	0.112	2.84	0.018	0.46	100, 500	30.5, 152
PIF-130-8	0.129	3.28	0.141	3.58	0.018	0.46	100, 500	30.5, 152
PIF-130-6	0.162	4.11	0.178	4.52	0.020	0.51	100, 250	30.5, 76
PIF-130-4	0.204	5.18	0.224	5.69	0.020	0.51	100, 250	30.5, 76
PIF-130-2	0.258	6.55	0.278	7.06	0.020	0.51	100, 250	30.5, 76
PIF-130-0	0.325	8.26	0.347	8.81	0.025	0.64	100	30.5
PIF-130-3/8	0.375	9.53	0.399	10.13	0.025	0.64	100	30.5
PIF-130-7/16	0.438	11.13	0.462	11.73	0.025	0.64	100	30.5
PIF-130-1/2A	0.500	12.70	0.524	13.31	0.025	0.64	100	30.5
PIF-130-5/8	0.625	15.88	0.655	16.64	0.025	0.64	100	30.5
PIF-130-3/4	0.750	19.05	0.786	19.96	0.025	0.64	100	30.5
PIF-130-7/8	0.875	22.23	0.911	23.14	0.025	0.64	100	30.5
PIF-130-1IN	1.000	25.40	1.036	26.31	0.025	0.64	100	30.5

UL LISTED CA PROP 65 RoHS Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Silicone-Coated Fiberglass Sleeving
PIF-200, SF-200



UL 1441 (600 V_{RMS})
MIL-I-3190/6 Class 20 Type D Category C
NEMA TF-1 Grade A

- Highly flexible routing
- Extreme abrasion resistance
- Superior electrical properties

Operating Temperature
- -70°C to +200°C

Color
- Natural

Material
- Silicone rubber-coated fiberglass braid

Physical Properties
- Tensile strength: 1200 psi (8.2 N/mm^2)
- Elongation: 420% min.

Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Lead free

Electrical Properties
- Dielectric strength: 15,000 V/mil (5905 kV/cm)
- Volume resistivity: 6 x 10^{13} ohm-cm
- Dielectric constant: 2.8

Availability
See table

Spools may contain multiple lengths

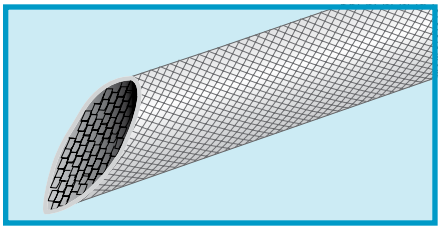
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.		Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Ft	m
PIF-200-24	0.020	0.51	0.027	0.69	0.011	0.28	100, 500, 1000	30.5, 152, 305
PIF-200-22	0.025	0.64	0.032	0.81	0.013	0.33	100, 500, 1000	30.5, 152, 305
PIF-200-20	0.032	0.81	0.039	0.99	0.013	0.33	100, 500, 1000	30.5, 152, 305
PIF-200-18	0.040	1.02	0.049	1.24	0.015	0.38	100, 500, 1000	30.5, 152, 305
PIF-200-17	0.045	1.14	0.054	1.37	0.015	0.38	500, 1000	152, 305
PIF-200-16	0.051	1.30	0.061	1.55	0.015	0.38	100, 500, 1000	30.5, 152, 305
PIF-200-15	0.057	1.45	0.067	1.70	0.015	0.38	100, 1000	30.5, 305
PIF-200-14	0.064	1.63	0.074	1.88	0.015	0.38	100, 500	30.5, 152
PIF-200-13	0.072	1.83	0.082	2.08	0.015	0.38	100, 500	30.5, 152
PIF-200-12	0.081	2.06	0.091	2.31	0.015	0.38	100, 500	30.5, 152
PIF-200-11	0.091	2.31	0.101	2.57	0.018	0.46	500	152
PIF-200-10	0.102	2.59	0.112	2.84	0.018	0.46	100, 500	30.5, 152
PIF-200-9	0.114	2.90	0.124	3.15	0.018	0.46	100, 500	30.5, 152
PIF-200-8	0.129	3.28	0.141	3.58	0.018	0.46	100, 500	30.5, 152
PIF-200-7	0.144	3.66	0.158	4.01	0.018	0.46	100, 500	30.5, 152
PIF-200-6	0.162	4.11	0.178	4.52	0.020	0.51	25, 100	7.6, 30.5
PIF-200-5	0.182	4.62	0.198	5.03	0.020	0.51	25, 100	7.6, 30.5
PIF-200-4	0.204	5.18	0.224	5.69	0.020	0.51	100	30.5
PIF-200-3	0.229	5.82	0.249	6.32	0.020	0.51	25, 100	7.6, 30.5
PIF-200-2	0.258	6.55	0.278	7.06	0.020	0.51	25, 100	7.6, 30.5
PIF-200-1	0.289	7.34	0.311	7.90	0.020	0.51	100	30.5
PIF-200-0	0.313	7.95	0.347	8.81	0.020	0.51	100	30.5
PIF-200-3/8	0.375	9.53	0.398	10.11	0.025	0.64	25, 100	7.6, 30.5
PIF-200-7/16	0.438	11.13	0.462	11.73	0.025	0.64	25, 100	7.6, 30.5
PIF-200-1/2A	0.500	12.70	0.524	13.31	0.025	0.64	25, 100	7.6, 30.5
PIF-200-5/8	0.625	15.88	0.655	16.64	0.025	0.64	25, 100	7.6, 30.5
SF-200-3/4	0.750	19.05	0.786	19.96	0.025	0.64	100	30.5
SF-200-7/8	0.875	22.23	0.911	23.14	0.025	0.64	100	30.5
SF-200-1IN	1.000	25.40	1.036	26.31	0.025	0.64	100	30.5

UL LISTED CA PROP 65 RoHS Compliant

FIT® Wire Management

Uncoated Fiberglass Sleeving

PIF-240



UL 1441 (500 V_{RMS})
UL VW-1
MIL-Y-1140
ASTM D 350/372 Class C

- Extreme flexibility
- Extreme heat environments

Operating Temperature

- -60°C to +648°C

Color

- Natural

Material

- Heat-annealed braided fiberglass

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Lead free

Electrical Properties

- Volume resistivity: 10^{15} ohm-cm

Availability

100 ft (30.5 m)

Spools may contain multiple lengths

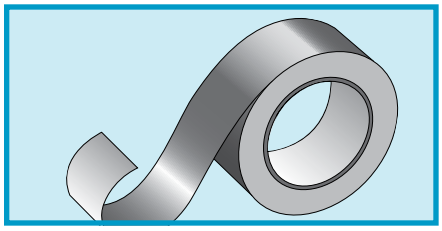
Part No.	Inside Diameter, Min.		Inside Diameter, Max.		Wall Thickness, Min.	
	Inch	mm	Inch	mm	Inch	mm
PIF-240-20	0.032	0.81	0.039	0.99	0.009	0.23
PIF-240-18	0.040	1.02	0.049	1.24	0.011	0.28
PIF-240-16	0.051	1.30	0.061	1.55	0.011	0.28
PIF-240-15	0.057	1.45	0.067	1.70	0.011	0.28
PIF-240-14	0.064	1.63	0.074	1.88	0.011	0.28
PIF-240-12	0.081	2.06	0.091	2.31	0.011	0.28
PIF-240-11	0.091	2.31	0.101	2.57	0.011	0.28
PIF-240-10	0.102	2.59	0.112	2.84	0.011	0.28
PIF-240-9	0.114	2.90	0.124	3.15	0.011	0.28
PIF-240-8	0.129	3.28	0.141	3.58	0.011	0.28
PIF-240-7	0.144	3.66	0.158	4.01	0.013	0.33
PIF-240-6	0.162	4.11	0.178	4.52	0.013	0.33
PIF-240-5	0.182	4.62	0.198	5.03	0.013	0.33
PIF-240-4	0.204	5.18	0.224	5.69	0.016	0.41
PIF-240-3	0.229	5.82	0.249	6.32	0.016	0.41
PIF-240-2	0.258	6.55	0.278	7.06	0.016	0.41
PIF-240-1	0.289	7.34	0.311	7.90	0.016	0.41
PIF-240-0	0.325	8.26	0.347	8.81	0.016	0.41
PIF-240-3/8	0.375	9.53	0.399	10.13	0.016	0.41
PIF-240-7/16	0.438	11.13	0.462	11.73	0.018	0.46
PIF-240-1/2A	0.500	12.70	0.524	13.31	0.018	0.46
PIF-240-5/8	0.625	15.88	0.655	16.64	0.018	0.46
PIF-240-3/4	0.750	19.05	0.783	19.89	0.018	0.46
PIF-240-7/8	0.875	22.23	0.991	25.17	0.018	0.46
PIF-240-1IN	1.000	25.40	1.026	26.06	0.018	0.46

CA PROP 65 RoHS Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Copper EMI Shielding Tape
CST Series



UL 510
ASTM D 1000, Method 303
MIL-STD-202C

- EMI shielding
- Highly conductive pressure-sensitive adhesive seal

Operating Temperature

- -40°C to +205°C

Color

- Copper

Material

- Copper foil on pressure-sensitive adhesive

Physical Properties

- Tensile strength: 21 lb/inch (0.145 N/mm²)
- Adhesion: 40 oz/inch
- Foil thickness: 0.0014 inch (0.04 mm)
- Adhesive thickness: 0.00015 inch (0.004 mm)
- Flammability: flame resistant per UL 510

Electrical Properties

- Electrical resistance through tape: <0.003 ohms/inch² (<0.0005 ohms/cm²)
- Shielding effectiveness: 50 dB at 153 MHz

Availability

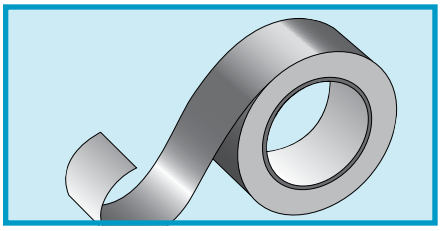
36-yard (33 m) rolls

Part No.	Width	
	Inch	mm
CST-5	0.50	12.70
CST-10	1.00	25.40
CST-15	1.50	38.10
CST-20	2.00	50.80

CA PROP 65 RoHS Compliant

FIT® Wire Management

Self-Fusing Silicone Tape



A-A-59163

- Cures within 48 hours at room temperature or 4 hours at 177°C
- No adhesive required
- Low-cost seal for electrical insulation, cables harnesses, splices, hot air ducting, and electrical wire wrap
- Conforms to irregular shapes to protect, secure, insulate, mask
- Resists outside weathering

Operating Temperature

- -90°C to +260°C (continuous)

Colors

- Red, black, blue, yellow, white, green

Material

- Silicone

Physical Properties

- Tensile strength: 700 psi (4.8 N/mm^2) min.
- Elongation: 300% min.
- Water absorption: 3% max.
- Bond strength: 20 lbf (25 kgf)
- Shelf life: 1 year at 37.3°C for unopened container

Electrical Properties

- Dielectric strength: 400 V/mil (157 kV/cm)
- Volume resistivity: 1 x 10^{13} ohm-cm

Availability

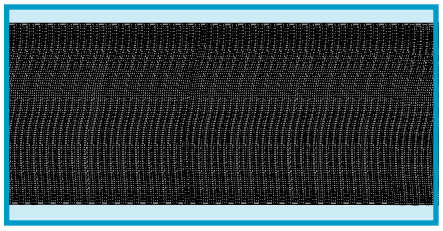
- 14-ft put-ups (all colors)
- 35-ft put-ups (black, red)

Part No.	Width		Thickness	
	Inch	mm	Inch	mm
TY2001	1.000	25.40	0.020	0.51

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Expandable Braided Sleeving
GRP-110, GRP-120



UL UZKX2
UL VW-1 (GRP-120)
MIL-I-631

- Light weight, flexible routing
- High abrasion and cut-through resistance

Operating Temperature

- -75°C to +125°C
- 250°C melt temperature

Color

- GRP-110: Black or natural
- GRP-120: Black with white tracer thread or white with black tracer thread

Material

- Braided polyester
- Should be cut with hot knife

Physical Properties

- Tensile strength:
  GRP-110: 85,000 psi (586 N/mm²)
  GRP-120: 55,000 psi (379 N/mm²)

Chemical Properties

- Corrosive effect: noncorrosive
- Fungus resistance: no growth
- GRP-120: flame retardant
- Halogen free
- Lead free

Availability

See tables

Spools may contain multiple lengths

General-Purpose Sleeving

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-110-1/8	0.093	2.36	0.250	6.35	0.025	0.64	32	1	32	100, 500	30.5, 152
GRP-110-1/4	0.125	3.18	0.375	9.53	0.025	0.64	24	3	72	100, 500	30.5, 152
GRP-110-1/2	0.250	6.35	0.750	19.05	0.025	0.64	48	3	144	100, 500	30.5, 152
GRP-110-3/4	0.500	12.70	1.250	31.75	0.025	0.64	72	3	216	100, 500	30.5, 152
GRP-110-1-1/4	0.750	19.05	1.750	44.45	0.025	0.64	96	3	288	50, 250	15.2, 76
GRP-110-1-3/4	1.250	31.75	2.750	69.85	0.025	0.64	120	4	480	50, 250	15.2, 76
GRP-110-2IN	1.500	38.10	3.500	88.90	0.025	0.64	120	4	480	50, 250	15.2, 76

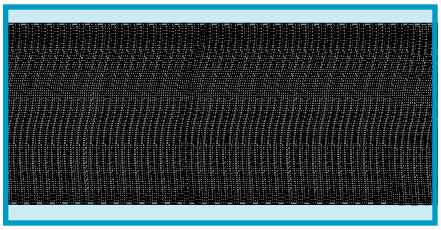
Flame-Retardant Sleeving

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-120-1/8	0.093	2.36	0.250	6.35	0.025	0.64	32	1	32	100, 500	30.5, 152
GRP-120-1/4	0.125	3.18	0.375	9.53	0.025	0.64	24	3	72	100, 500	30.5, 152
GRP-120-1/2	0.250	6.35	0.750	19.05	0.025	0.64	48	3	144	100, 500	30.5, 152
GRP-120-3/4	0.500	12.70	1.250	31.75	0.025	0.64	72	3	216	100, 500	30.5, 152
GRP-120-1-1/4	0.750	19.05	1.750	44.45	0.025	0.64	96	3	288	50, 250	15.2, 76
GRP-120-1-3/4	1.250	31.75	2.750	69.85	0.025	0.64	120	4	480	50, 250	15.2, 76
GRP-120-2IN	1.500	38.10	3.500	88.90	0.025	0.64	120	4	480	50, 250	15.2, 76

CA PROP 65 RoHS Compliant

FIT® Wire Management

Non-Fraying, Expandable Braided Sleeving
GRP-110NF, GRP-120NF



UL UZKX2
UL VW-1 (GRP-120NF, XS-100FR)
CSA 5836 01
MIL-I-631

- Light weight, flexible routing
- Frayless: cuts without a hot knife
- Compatible with automatic cutting machines

Operating Temperature

- -75°C to +125°C

Color

- GRP-110NF, XS-100: Black or natural
- GRP-120NF: Black with white tracer thread
- XS-100FR: Black or white

Material

- Braided PET

Physical Properties

- Tensile strength:
  GRP-110NF: 85,000 psi (586 N/mm²)
  GRP-120NF: 55,000 psi (379 N/mm²)
  XS-100/100FR: 100,000 psi (689 N/mm²)

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth

Availability

See tables

Spools may contain multiple lengths

General-Purpose Sleeving

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-110NF18	0.125	3.18	0.250	6.35	0.024	0.61	32	3	96	100, 500	30.5, 152
GRP-110NF14	0.156	3.96	0.438	11.13	0.024	0.61	40	3	120	100, 500	30.5, 152
GRP-110NF12	0.250	6.35	0.750	19.05	0.024	0.61	64	3	192	100, 500	30.5, 152
GRP-110NF34	0.625	15.88	1.000	25.40	0.024	0.61	80	3	240	100, 500	30.5, 152
GRP-110NF114	1.000	25.40	1.500	38.10	0.024	0.61	120	3	360	50, 250	15.2, 76
GRP-110NF112	1.250	31.75	2.000	50.80	0.024	0.61	120	4	480	50, 250	15.2, 76
XS-100-2-1/2	2.000	50.80	3.500	88.90	0.025	0.64	144	5	720	100	30.5

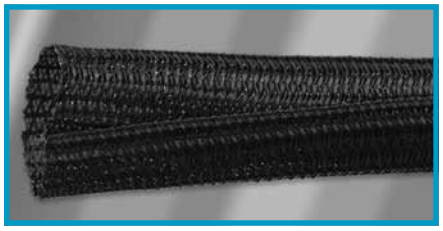
Flame-Retardant Sleeving

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-120NF18	0.125	3.18	0.250	6.35	0.024	0.61	32	3	96	100, 500	30.5, 152
GRP-120NF14	0.156	3.96	0.438	11.13	0.024	0.61	40	3	120	100, 500	30.5, 152
GRP-120NF12	0.250	6.35	0.750	19.05	0.024	0.61	64	3	192	100, 500	30.5, 152
GRP-120NF34	0.625	15.88	1.000	25.40	0.024	0.61	80	3	240	100, 500	30.5, 152
GRP-120NF114	1.000	25.40	1.500	38.10	0.024	0.61	120	3	360	50, 250	15.2, 76
GRP-120NF112	1.250	31.75	2.000	50.80	0.024	0.61	120	4	480	50, 250	15.2, 76
XS-100FR-2-1/2	2.000	50.80	3.500	88.90	0.025	0.64	144	5	720	100	30.5

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Flexible, Semirigid Wrappable Sleeving
GRP-130 and GRP-130NF



The choice for a wide variety of bundling applications without the need for additional fasteners

UL UZKX2
UL 94V-0 (GRP-130)
UL VW1 (GRP-130NF)
CSA 5836 01 FT2
FAR 25 (GRP-130NR)

- Bends tightly without distorting or opening
- 25% edge overlap to accommodate connectors and splices
- Fast, easy wrap-around installation
- More flexible than spiral wrap or split convoluted tubing

Operating Temperature

- -70°C to +125°C
- GRP-130: 230°C melt temperature
- GRP-130NF: 250°C melt temperature

Color

- GRP-130: Black or orange
- GRP-130NF: Black with white tracer

Materials

- 10-mil PET braid
- Cuts with hot knife

Physical Properties

- Tensile strength:
  GRP-130: 6 psi (0.04 N/mm²)
  GRP-130NF: 4 psi (0.02 N/mm²)
- Specific gravity: 1.38 max

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 0.10% max
- UV resistant
- Halogen free
- Lead free

Availability

See table
Reels may contain multiple lengths

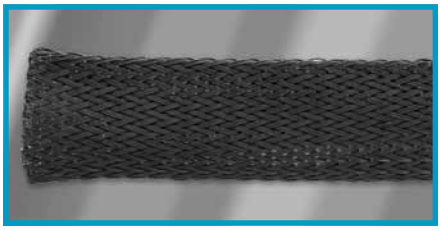
The GRP-130 installation tool makes installing long length of GRP-130 sleeving fast and easy. Simply insert your wire bundle into the tool's shank and slide the tool along the split in the sleeving. The tool deposits the wires and allows the split to close correctly.

Part No.		Size		Wall Thickness (Min)		Ends per Carrier Alternating	Standard Put-Ups		Installation Tool Part No.
Black	Black w/ Tracer	Inch	mm	Inch	mm		Ft	m	
GRP-130-1/8	GRP-130NF-18	0.125	3.18	0.024	3.18	1/3	50, 200	15.2, 71	GRP-130T-1/4
GRP-130-1/4	GRP-130NF-14	0.250	6.35	0.025	6.35	1/3	50, 200	15.2, 71	GRP-130T-1/4
GRP-130-3/8	GRP-130NF-38	0.375	9.53	0.025	9.53	1/3	50, 100	15.2, 30.5	GRP-130T-1/2
GRP-130-1/2	GRP-130NF-12	0.500	12.70	0.025	12.70	1/3	50, 100	15.2, 30.5	GRP-130T-1/2
GRP-130-3/4	GRP-130NF-34	0.750	19.05	0.025	19.05	1/3	50, 100	15.2, 30.5	GRP-130T-3/4
GRP-130-1IN	GRP-130NF-1IN	1.000	25.40	0.038	25.40	1/3	50, 100	15.2, 30.5	GRP-130T-1IN
GRP-130-1-1/4	GRP-130NF-1-14	1.250	31.75	0.038	31.75	1/3	25	7.6	GRP-130T-1-1/4
GRP-130-1-1/2	GRP-130NF-1-12	1.500	38.10	0.038	38.10	1/3	25	7.6	GRP-130T-1-1/4
GRP-130-2IN	GRP-130NF-2IN	2.000	50.80	0.038	50.80	2/3	25	7.6	GRP-130T-1-1/4*

*Designed for up to 1.22" cable diameter

FIT® Wire Management

Advanced Protection Expandable Sleeving
GRP-160



An economical, easy-to-use choice for advanced abrasion and cut-through protection

- Extreme abrasion resistance without losing flexibility or durability
- Cuts cleanly with hot knife
- Resists fuels, solvents, salt water, chemicals, and UV
- Expandable to 150%

Operating Temperature

- -45°C to +150°C
- 256°C melt temperature

Color

- Black

Materials

- 20-mil nylon polyamide monofilament

Physical Properties

- Tensile strength: 19 psi (0.13 N/mm²)
- Specific gravity: 1.14 max

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 2.50% max
- UV resistant
- Halogen free
- Lead free

Availability

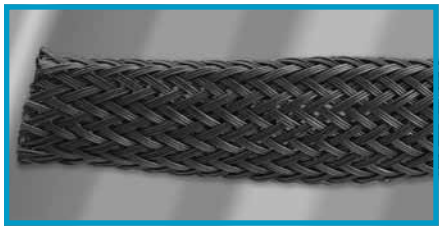
See table
Reels may contain multiple lengths

Part No.	Nominal Size		Expansion Range		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-160-1/4	1/4	6.35	0.250 – 0.500	6.35 – 12.70	20	3	60	50, 250	15.2, 76
GRP-160-1/2	1/2	12.70	0.500 – 1.000	12.70 – 25.40	36	3	108	50, 250	15.2, 76
GRP-160-3/4	3/4	19.05	0.750 – 1.250	19.05 – 31.75	40	3	120	50, 250	15.2, 76
GRP-160-1IN	1	25.40	1.000 – 1.500	25.40 – 38.10	48	3	144	50, 250	15.2, 76
GRP-160-1-1/4	1-1/4	31.75	1.250 – 2.000	31.75 – 50.80	56	3	168	50, 250	15.2, 76
GRP-160-1-3/4	1-3/4	44.45	1.750 – 2.750	44.45 – 69.85	72	3	216	50, 250	15.2, 76
GRP-160-2-1/4	2-1/4	57.15	2.250 – 3.000	57.15 – 76.20	96	3	288	25, 100	7.6, 30.5

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Advanced Chemical Resistance Expandable Sleeving
GRP-170



The extremely lightweight sleeving that is impervious to virtually all chemicals

UL 94V-0
FAR 25

- Resists acids, bases, solvents, and fuels
- Ultra-lightweight
- High abrasion resistance
- Expandable to 150%
- Flame resistant
- Cuts cleanly with hot knife

Operating Temperature

- -70°C to +200°C
- 285°C melt temperature

Color

- Black

Materials

- 8-mil-diameter polyphenylene sulfide (PPS) monofilaments
- Cuts with hot knife

Physical Properties

- Specific gravity: 1.37 max
- Flame resistant

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 0.025% max
- Low outgassing
- UV resistant
- Halogen free
- Lead free

Availability

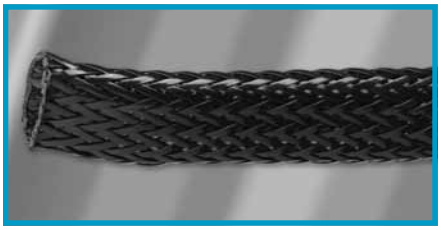
See table
Reels may contain multiple lengths

Part No.	Nominal Size		Expansion Range		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-170-1/8	1/8	3.18	0.094 - 0.250	2.38 - 6.35	32	2	64	100, 500	30.5, 152
GRP-170-1/4	1/4	6.35	0.125 - 0.375	3.18 - 9.53	48	2	96	100, 500	30.5, 152
GRP-170-1/2	1/2	12.70	0.250 - 0.750	6.35 - 19.05	56	3	168	100, 500	30.5, 152
GRP-170-3/4	3/4	19.05	0.500 - 1.250	12.70 - 31.75	72	3	216	50, 250	15.2, 76
GRP-170-1-1/4	1-1/4	31.75	0.750 - 1.750	19.05 - 44.45	96	4	384	50, 250	15.2, 76
GRP-170-1-3/4	1-3/4	44.45	1.250 - 2.500	31.75 - 63.50	120	4	480	50, 250	15.2, 76

CA PROP 65 RoHS Compliant REACH Compliant

FIT® Wire Management

Maximum Performance Expandable Sleeving
GRP-180



Superior abrasion resistance, a wide operating temperature range, easy installation for industrial, solar, and high-abrasion applications

- Superior abrasion resistance
- Easy to install
- Resists fuels, solvents, chemicals, salt water, and UV
- Smooth inner wall to prevent internal abrasion damage

Operating Temperature

- -60°C to +150°C
- 265°C melt temperature

Color

- Black

Materials

- Flat 20-mil nylon filaments
- Cuts with hot knife

Physical Properties

- Tensile strength: 19 psi (0.13 N/mm²)
- Specific gravity: 1.12 max

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 2.50% max
- UV resistant
- Lead free

Availability

See table
Reels may contain multiple lengths

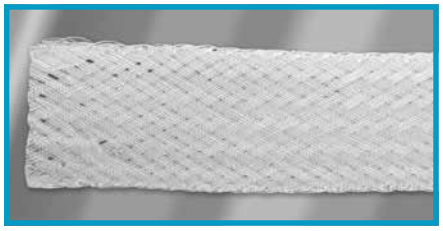
Part No.	Nominal Size		Expansion Range		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-180-1/2	1/2	12.70	0.375 – 0.625	9.53 – 15.88	24	1	24	50, 250	15.2, 76
GRP-180-3/4	3/4	19.05	0.625 – 1.000	15.88 – 25.40	36	1	36	50, 250	15.2, 76
GRP-180-1IN	1	25.40	0.875 – 1.250	22.22 – 31.75	44	1	44	50, 250	15.2, 76
GRP-180-1-1/4	1-1/4	31.75	1.000 – 1.500	25.40 – 38.10	48	1	48	25, 100	7.6, 30.5
GRP-180-1-3/4	1-3/4	44.45	1.500 – 2.000	38.10 – 50.80	80	1	80	25, 100	7.6, 30.5
GRP-180-2IN	2	50.80	1.750 – 2.750	44.45 – 69.85	96	1	96	25, 100	7.6, 30.5

CA PROP 65 RoHS Compliant REACH Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management

Extreme Performance Sleeving
GRP-200



The high-temperature choice for aerospace, military, and high-tech applications where thermal stability and low outgassing are critical

FAR 25

- Cut and abrasion resistant
- Flame resistant
- Resists virtually all chemicals and UV
- Thermally stable
- Low outgassing
- Suitable for plenum use

Operating Temperature

- -70°C to +280°C
- 310°C melt temperature

Color

- Natural

Materials

- 16-mil PTFE filaments
- Cuts with hot knife or hot wire

Physical Properties

- Specific gravity: 2.15 max

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 0.01% max
- Vacuum outgassing: 95.0% max
- Lead free

Availability

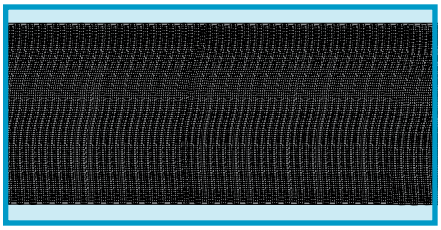
See table
Spools may contain multiple lengths

Part No.	Nominal Size		Expansion Range		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
GRP-200-1/8	1/8	3.18	0.094 – 0.250	2.38 – 6.35	24	1	25	50, 250	15.2, 76
GRP-200-1/4	1/4	6.35	0.188 – 0.375	4.76 – 9.53	32	1	32	50, 250	15.2, 76
GRP-200-3/8	3/8	9.53	0.250 – 0.750	6.35 - 19.06	40	3	120	50, 250	15.2, 76
GRP-200-1/2	1/2	12.70	0.375 - 0.875	9.53 – 22.23	48	3	144	50, 250	15.2, 76
GRP-200-3/4	3/4	19.05	0.625 – 1.250	15.88 – 31.75	64	3	192	50, 250	15.2, 76
GRP-200-1-1/4	1-1/4	31.75	1.125 – 1.500	28.58 – 38.10	72	3	216	25, 100	7.6, 30.5
GRP-200-1-3/4	1-3/4	44.45	1.375 – 1.750	34.93 – 44.45	80	4	240	25, 100	7.6, 30.5
GRP-200-2IN	2	50.80	1.688 – 2.125	42.88 – 53.98	96	3	288	25, 100	7.6, 30.5

CA PROP 65 RoHS Compliant REACH Compliant

FIT® Wire Management

Expandable Braided Sleeving
XS-100HD



UL 224
UL UZKX2
CSA 5836 01

- Extremely flexible
- Light weight
- Easy to install

Operating Temperature

- -70°C to +125°C
- 250°C melt temperature

Color

- Black

Material

- Heavy-duty braided PET

Physical Properties

- Tensile strength: 90,000 psi (620 N/mm²)
- Elongation: 25% min.
- Specific gravity: 1.31 max.

Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Halogen free
- Lead free

Availability

See table

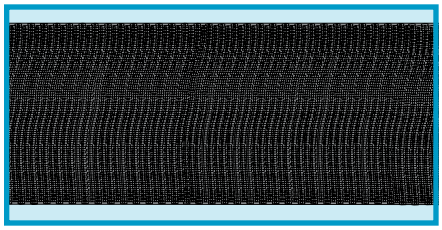
Spools may contain multiple lengths

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
XHD3/8	0.188	4.78	0.750	19.05	0.042	1.07	24	3	72	500	152
XHD5/8	0.313	7.95	1.000	25.40	0.042	1.07	32	3	96	500	152
XHD1IN	0.500	12.70	1.500	38.10	0.042	1.07	48	3	144	250	76
XHD1-1/2	1.000	25.40	2.000	50.80	0.042	1.07	72	3	216	200	61
XHD2IN	1.500	38.10	3.000	76.20	0.042	1.07	93	3	288	100	30.5

CA PROP 65 RoHS Compliant

FIT® Wire Management

Braided Sleeving
XS-200N



MIL-S-47053
CID A-A-59301

- Extremely durable
- Abrasion resistant
- Tight weave with excellent flexibility

Operating Temperature
- -45°C to +120°C
- 250°C melt temperature

Color
- Black

Material
- Braided nylon

Physical Properties
- Tensile strength: 80,000 psi (551 N/mm^2)
- Specific gravity: 1.14

Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.04%, max.
- Halogen free
- Lead free

Electrical Properties
- Dielectric strength: 4 V/mil (1.57 kV/cm)

Availability
See table

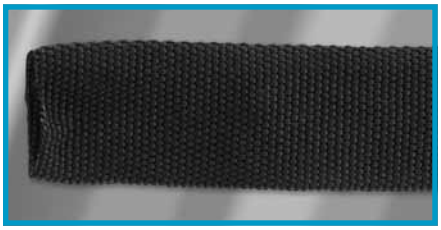
Spools may contain multiple lengths

Part No.	Inside Diameter, Min.		Wall Thickness		Construction			Standard Put-Ups	
	Inch	mm	Inch	mm	Carriers	Yarns	Total	Ft	m
XS-200N-1/8	0.125	3.18	0.020	0.51	28	3	84	100, 1000	30.5, 305
XS-200N-1/4	0.250	6.35	0.032	0.81	48	4	192	100, 500	30.5, 152
XS-200N-3/8	0.375	9.53	0.032	0.81	52	5	260	100, 500	30.5, 152
XS-200N-1/2	0.500	12.70	0.035	0.89	72	6	432	100	30.5
XS-200N-3/4	0.750	19.05	0.035	0.89	72	9	648	100, 250	30.5, 76
XS-200N-1IN	1.000	25.40	0.045	1.14	72	16	1152	100	30.5

CA PROP 65 RoHS Compliant

FIT® Wire Management

Abrasion-Resistant Nylon Sleeving
XS300



Professional-grade protection with smooth inner wall to prevent internal abrasion damage

- Excellent abrasion resistance
- Tightly woven, nonexpandable
- Cuts cleaning with scissors
- Deflects high-pressure hose ruptures
- Resists fuels, chemicals, UV, rot, and vermin
- ISO 6945 certified
- MSHA approved "Accepted flame-resistant solid products taken into mines"

Operating Temperature

- -45°C to +120°C
- 210°C melt temperature

Color

- Black

Materials

- 45-mil-thick nylon
- Cuts with scissors

Physical Properties

- Specific gravity: 1.14

Chemical Properties

- Corrosive effects: noncorrosive
- Fungus resistance: no growth
- Water absorption: 2.70% max
- Halogen free
- Lead free

Availability

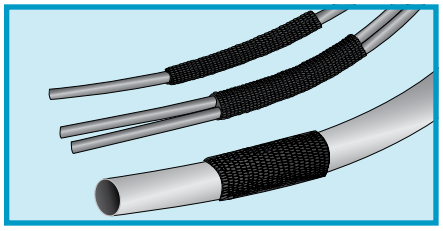
25 ft (7.6 m)
100 ft (304 m) for 0.71 through 1.59 sizes only

Part No.	Size		Wall Thickness (Min)	
	Inch	mm	Inch	Mm
XS300071	0.71	18.03	0.045	1.14
XS300083	0.83	21.08	0.045	1.14
XS300092	0.92	23.37	0.045	1.14
XS300100	1.00	25.40	0.045	1.14
XS300113	1.13	28.70	0.045	1.14
XS300125	1.25	31.75	0.045	1.14
XS300134	1.34	34.04	0.045	1.14
XS300159	1.59	40.39	0.045	1.14
XS300175	1.75	44.45	0.045	1.14
XS300207	2.07	52.58	0.045	1.14
XS300238	2.38	60.45	0.045	1.14
XS300254	2.54	64.52	0.045	1.14
XS300286	2.86	72.64	0.045	1.14
XS300334	3.34	84.84	0.045	1.14
XS300366	3.66	92.96	0.045	1.14

CA PROP 65 RoHS Compliant REACH Compliant

FIT® Wire Management

Expandable Braided Sleeving
ZIP-GRP



UL UZKYZ
UL 94V-0
CSA 5836 01

- Unlimited breakouts
- Abrasion and cut-through resistance
- Oil and solvent resistance

Operating Temperature

- -70°C to +125°C
- 230°C melt temperature

Color

- Black

Material

- Braided PET with hook and loop closure
- Cuts with hot knife

Physical Properties

- Tensile strength: 85,000 psi (586 N/mm²)
- Specific gravity: 1.38

Chemical Properties

- Corrosive effect: None
- Fungus resistance: no growth
- Water absorption: 0.15% max.
- Halogen free
- Lead free
- Chemically inert
- UV resistant

Availability

25 ft (7.6 m)
50 ft (15.2 m)

Spools may contain multiple lengths

Part No.	Inside Diameter, Min.		Expanded Inside Diameter, Max.		Wall Thickness		Construction		
	Inch	mm	Inch	mm	Inch	mm	Carriers	Yarns	Total
ZIP-GRP-7/8	0.500	12.70	2.375	60.33	0.025	0.64	88	4	220
ZIP-GRP-1-1/2	1.500	38.10	3.500	88.90	0.025	0.64	105	4	420
ZIP-GRP-2	2.000	50.80	4.500	114.30	0.025	0.64	137	4	548

CA PROP 65 RoHS Compliant

FIT® Wire Management
Lacing Tape

A-A-52080 Type 1

- High tensile strength
- Good chemical resistance
- Excellent abrasion resistance
- Excellent knot retention

See table for specifications.

Finishes

A. Natural, No finish

B. Wax: A microcrystalline wax with a melting point above 54°C compounded with a fungicide that does not contain either copper or mercuric materials. Excellent knot retention, yet the finish does not have too great a "waxy" feel to the user. Microcrystalline wax is soft, pliable, and easy to tie.

C. Synthetic Rubber or Elastomer: A special continuous coating of fungistatic synthetic rubber containing no corrosive compounding ingredients. Knots tied with this finish will not slip. This finish will not flake or dust.

D: Glass/TFE: The glass/TFE combination has excellent tensile strength and abrasion resistance. Also resists fungus, acids and flames.

E. Synthetic Resin or Vinyl: A thermoplastic synthetic resin with a melting point above 177°C for use where a "wax free" type is specified. It is a non-dusting or flaking, dry finish with good knot tying qualities.

A-A-52080 (MIL-T-43435B Type I)

- Flat braid made from high-tenacity continuous nylon yarn

Operating temperature:

- -55° C to +121°C

Elongation:

- 40% max

Finish weight (impregnated % of material by weight)

- Finish A (natural)
- Finish B (wax): 15% – 32%
- Finish C (synthetic rubber/ elastomer): 7% – 17%
- Finish E (synthetic resin/vinyl): 15% – 30%

Part No.	Finish	Color	Width, Nom		Thickness, Nom.		Break Strength, Min.		Availability*	
			Inch	mm	Inch	mm	lb	kg	Yd	m
801530W	A	Natural	0.050	1.27	0.010	0.25	15	6.8	500	457
801536B	B	Black	0.050	1.27	0.010	0.25	15	6.8	500	457
801536W	B	Natural	0.050	1.27	0.010	0.25	15	6.8	500	457
802534B	B	Black	0.060	1.52	0.012	0.30	25	11.3	500	457
802534W	B	Natural	0.060	1.52	0.012	0.30	25	11.3	500	457
LC-134	B	Black, White	0.060	1.52	0.012	0.30	25	11.3	500	457
805032B	E	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805032W	E	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
805036B	B	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805036W	B	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
805040B	C	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805040W	C	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
LC-143	E	Black, White	0.085	2.16	0.014	0.36	50	22.7	500	457
808036B	B	Black	0.110	2.79	0.015	0.38	80	36.3	250	228
808036W	B	White	0.110	2.79	0.015	0.38	80	36.3	250	228

*Bobbins/tubes may contain multiple lengths.

RoHS Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Management
Lacing Tape

A-A-52081 (formerly MIL-T-43435B Type II)

- Flat braid made from high-tenacity continuous polyester yarn

Operating temperature:

- -73°C to +177°C

Elongation:

- 40% max

Finish weight (impregnated % of material by weight)

- Finish A (natural)
- Finish B (wax): 15% – 32%
- Finish C (synthetic rubber/ elastomer): 7% – 17%
- Finish E (synthetic resin/vinyl): 15% – 30%

Part No.	Finish	Color	Width, Nom.		Thickness, Nom.		Break Strength, Min.		Availability*	
			Inch	mm	Inch	mm	lb	kg	Yd	m
801566B	C	Black	0.050	1.27	0.010	0.25	15	6.8	500	457
802566B	C	Black	0.060	1.52	0.012	0.30	25	11.3	500	457
C164	B	Black, White	0.062	1.57	0.010	0.25	25	11.3	500	457
805058B	E	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805058W	E	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
805060B	A	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805062B	B	Black	0.085	2.16	0.014	0.36	50	22.7	500	457
805062W	B	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
805066W	C	Natural	0.085	2.16	0.014	0.36	50	22.7	500	457
C162	B	Black, White	0.085	2.16	0.014	0.36	50	22.7	500	457
808060W	A	Natural	0.110	2.79	0.015	0.38	80	36.3	500	457
808058B	E	Black	0.110	2.79	0.015	0.38	80	36.3	250	228
C160	B	Black, White	0.200	5.08	0.016	0.41	135	61.2	250	228

*Bobbins/tubes may contain multiple lengths.

A-A-52083 (formerly MIL-T-43435B Type IV)

- Flat braid made from continuous filament glass yarn coated with PTFE before braiding

Operating temperature:

- Glass maintain strength and stability to 427°C

Elongation:

- 5% max

Finish weight (impregnated % of material by weight)

- Finish D (glass/TFE): 10% – 20%

Part No.	Finish	Color	Width, Nom.		Thickness, Nom.		Break Strength, Min.		Availability*	
			Inch	mm	Inch	mm	lb	kg	Yd	m
807510W	D	Natural	0.085	2.16	0.016	0.41	75	34.0	500	457
810010W	D	Natural	0.110	2.79	0.016	0.41	100	45.3	250	228

*Bobbins/tubes may contain multiple lengths.

RoHS Compliant

FIT® Wire Management
Lacing Tape

A-A-52084 (formerly MIL-T-43435B Type V)

- Flat braid made from continuous filament aramid yarn

Operating temperature:

- -55°C to +260°C

Elongation:

- 40% max

Finish weight (impregnated % of material by weight)

- Finish C (synthetic rubber/ elastomer): 7% – 17%

Part No.	Finish	Color	Width, Nom.		Thickness, Nom.		Break Strength, Min.		Availability*	
			Inch	mm	Inch	mm	lb	kg	Yd	m
803554	C	Natural	0.075	1.91	0.012	0.30	35	15.9	500	457

*Bobbins/tubes may contain multiple lengths.

MIL-DTL-713 Type P

- Twisted nylon cord made from high-tenacity continuous filament yarn

Operating temperature:

- -55° C to +121°C

Elongation:

- 20% min.

Finish weight (impregnated % of material by weight)

- Finish B (wax): 20% – 32%

Part No.	Finish	Color	Diameter, Nom.		Break Strength, Min.		Availability*	
			Inch	mm	lb	kg	lb	kg
803215B	B	Black	0.023	0.58	32	14.5	1	0.45
803215W	B	Natural	0.023	0.58	32	14.5	1	0.45
804812W	A	Natural	0.025	0.64	48	21.8	1	0.45
804814B	B	Black	0.025	0.64	48	21.8	1	0.45
804814W	B	Natural	0.025	0.64	48	21.8	1	0.45
807013B	B	Black	0.040	1.02	70	31.7	1	0.45
807013W	B	Natural	0.040	1.02	70	31.7	1	0.45

*Weight per spool; bobbins/tubes may contain multiple lengths.

Telecommunications-Grade Polyester Yarn

- Round, twisted polyester cord made from high-tenacity industrial polyester fiber

Melt temperature (approx.):

- 121°C

Elongation:

- 17% – 27%

Finish weight (impregnated % of material by weight)

- 9 ply: 7% – 17%
- 12 ply: 35%

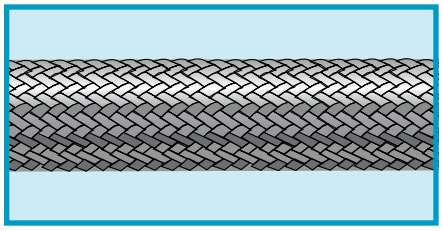
Part No.	Finish	Color	Diameter, Nom.		Break Strength, Min.		Plies	Availability*	
			Inch	mm	lb	kg		lb	kg
812030W	Wax	Natural	0.030	0.76	32	14.5	9	0.5	0.22
815040W	Wax	Natural	0.030	0.76	32	14.5	12	0.5	0.22

*Weight per tube; bobbins/tubes may contain multiple lengths.

RoHS Compliant

FIT® Wire Management

Tinned Copper Braid
Flat, Oval



AA-59569A (as indicated)

Color

- Silver

Material

- Tinned copper braid

Availability

See table

Spools may contain multiple lengths

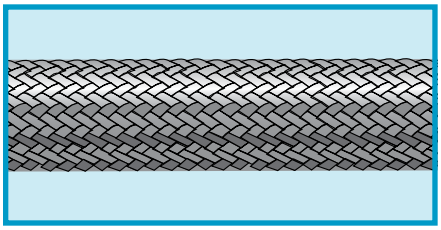
Part No.	Flat Width, Nom.		Thickness, Nom.		Braid Construction			AWG Equivalent, Approx.	CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	Inch	mm	AWG of Individ. Ends	Carriers	No. of Individ. Ends			Amps	Ft	m
1221*	0.025	0.64	0.015	0.38	36	8	8	27	200	4	100, 500, 1000	30.5, 152, 305
1222*	0.032	0.81	0.020	0.50	36	16	16	24	400	6	100, 500, 1000	30.5, 152, 305
1223	0.047	1.19	0.020	0.50	36	24	24	22	600	7	100, 500, 1000	30.5, 152, 305
1224*	0.094	2.39	0.020	0.50	36	16	48	19	1200	11	100, 500, 1000	30.5, 152, 305
1229	0.125	3.18	0.020	0.50	36	24	72	18	1800	16	100, 500, 1000	30.5, 152, 305
1230	0.187	4.75	0.020	0.50	36	24	120	15	3000	25	100, 500, 1000	30.5, 152, 305
1231	0.250	6.35	0.030	0.76	36	24	168	14	4200	32	100, 500, 1000	30.5, 152, 305
1232*	0.385	9.78	0.030	0.76	36	48	288	12	7200	46	100, 500, 1000	30.5, 152, 305
1233/2*	0.500	12.70	0.030	0.76	36	48	384	10	9600	53	100, 500, 1000	30.5, 152, 305
1233	0.625	15.88	0.030	0.76	36	48	384	10	9600	53	100, 500, 1000	30.5, 152, 305
1234	0.750	19.05	0.040	1.02	36	48	864	7	20,800	85	100, 500, 1000	30.5, 152, 305
1235*	1.000	25.40	0.045	1.14	36	48	864	7	20,800	85	100, 500, 1000	30.5, 152, 305
1239	1.375	34.93	0.050	1.27	30	48	336	5	33,700	100	100, 500, 1000	30.5, 152, 305
1240	1.500	38.10	0.060	1.52	30	48	528	3	53,064	150	100	30.5
1241*	1.750	44.45	0.080	2.03	30	48	1248	2/0	125,424	280	100	30.5
1242*	2.000	50.80	0.120	3.05	30	48	1436	3/0	154,368	310	100	30.5
1242/4*	3.000	76.20	0.200	5.08	30	48	2256	4/0	225,000	390	100	30.5

*Not A-A-59569A.

CA PROP 65 RoHS Compliant

FIT® Wire Wire Management

Tinned Copper Braid
Flat, Oval



A-A-59551 (as indicated)

Color

- Silver

Material

- Tinned copper braid

Availability

See table

Spools may contain multiple lengths

Part No.	Inside Diameter, Nom.		Braid Construction			AWG Equivalent, Approx.	CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	AWG of Individ. Ends	Carriers	No. of Individ. Ends			Amps	Ft	m
2132	1/16	1.59	34	16	32	19	1192	11	100, 500, 1000	30.5, 152, 305
2138	11/64	4.37	34	24	120	14	4770	32	100, 500, 1000	30.5, 152, 305
2140*	3/16	4.76	34	24	144	13	5724	38	100, 500	30.5, 152
2142*	1/4	6.35	34	24	168	12	6678	41	100, 500	30.5, 152
2144*	3/8	9.53	34	24	192	11	7632	46	100, 500,	30.5, 152
2146	1/2	12.70	34	48	336	9	13,356	62	100	30.5
2148*	5/8	15.88	34	48	384	8	14,264	64	100	30.5
2150*	11/16	17.46	34	48	480	7	19,080	81	100	30.5
2152	25/32	19.84	34	48	528	7	20,988	85	100	30.5

*Not A-A-59551.

Bare Copper Braid
Flat

Material

- Bare copper braid

Availability

See table

Spools may contain multiple lengths

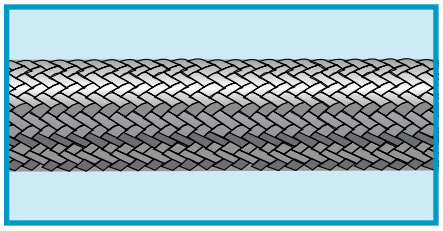
Part No.	Dimensions, Nom.		Braid Construction			CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	AWG of Individ. Ends	Carriers	No. of Individ. Ends		Amps	Ft	m
95106	0.062 x 0.016	1.57 x 0.41	20	16	96	949	10.2	100, 500, 1000	30.5, 152, 305
95079	0.250 x 0.030	6.35 x 0.76	14	27	168	4200	27.9	100, 500, 1000	30.5, 152, 305

CA PROP 65 RoHS Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

FIT® Wire Wire Management

Tinned Copper Braid
Tubular



A-A-59569

Color
- Silver

Material
- Tinned copper braid

Availability
See tables

Spools may contain multiple lengths

Tinned Copper

Part No.	Inside Diameter, Nom.		Braid Construction			AWG Equivalent, Approx.	CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	AWG of Indiv. Ends	Carriers	No. of Indiv. Ends			Amps	Ft	m
2160	0.031	0.79	36	24	24	22	600	7	100, 250	30.6, 76
2162	0.062	1.57	36	24	48	19	1200	11	100, 250	30.6, 76
2163	0.078	1.98	36	24	72	18	1800	16	100, 250	30.6, 76
2164	0.109	2.77	36	24	96	16	2400	19	100, 250	30.6, 76
2166	0.125	3.18	36	24	120	15	3000	25	100, 250	30.6, 76
2167	0.156	3.96	36	24	240	12	6000	40	100, 250	30.6, 76
2168	0.171	4.34	36	24	168	14	4200	32	100, 250	30.6, 76
2170	0.203	5.16	34	24	192	11	7630	46	100	30.5
2171	0.250	6.35	36	24	384	10	9600	53	100	30.5
2171/1	0.281	7.14	30	24	120	9	12,060	60	100	30.5
2172	0.375	9.53	36	48	384	10	9600	53	100	30.5
2173	0.437	11.10	30	24	240	6	24,120	90	100	30.5
2174	0.500	12.70	36	48	528	9	13,200	62	100	30.5
2175	0.462	11.73	30	48	480	3	48,240	145	100	30.5
2175/1	0.656	16.66	30	48	768	1	77,180	190	100	30.5
2176	0.781	19.84	36	48	864	7	21,600	88	100	30.5

Extra-Large Tinned Copper

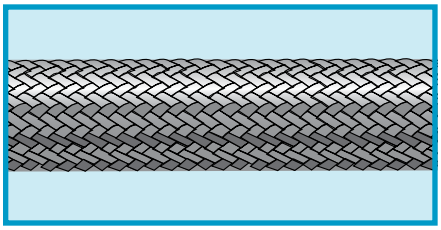
Part No.	Inside Diameter, Nom.		Braid Construction			AWG Equivalent, Approx.	CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	AWG of Indiv. Ends	Carriers	No. of Indiv. Ends			Amps	Ft	m
2177	0.875	22.23	30	48	336	5	33,700	100	100	30.5
2178	1.000	25.40	30	48	384	4	38,600	120	100	30.5
2179	1.125	28.58	30	48	432	4	43,330	130	100	30.5
2180*	1.250	31.75	30	48	480	3	48,150	145	100	30.5
2181	1.375	34.93	30	48	528	3	53,000	150	100	30.5
2182	1.500	38.10	30	48	576	2	57,775	165	100	30.5

*Not A-A-59569.

CA PROP 65 RoHS Compliant

FIT® Wire Wire Management

Silver-Plated Copper Braid
Tubular



A-A-59569

Color

- Silver

Material

- Silver-plated copper braid

Availability

See table

Spools may contain multiple lengths

Silver-Plated

Part No.	Inside Diameter, Nom.		Braid Construction			AWG Equivalent, Approx.	CMA, Nom.	Current-Carrying Capacity	Standard Put-Ups	
	Inch	mm	AWG of Indiv. Ends	Carriers	No. of Indiv. Ends			Amps	Ft	m
2191	1/16	1.59	36	24	48	19	1200	11	100	30.5
2193	7/64	2.78	36	24	96	16	2400	19	100	30.5
2194	1/8	3.18	36	24	120	15	3000	25	100	30.5
2195	5/32	3.97	36	24	240	12	6000	40	100	30.5
2196	11/64	4.37	36	24	168	14	4200	32	100	30.5
2197	13/64	5.16	34	24	192	11	7640	46	100	30.5
2198	1/4	6.35	36	24	384	10	9600	53	100	30.5

CA PROP 65 RoHS Compliant

Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

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