# FIT® Wire Management

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## 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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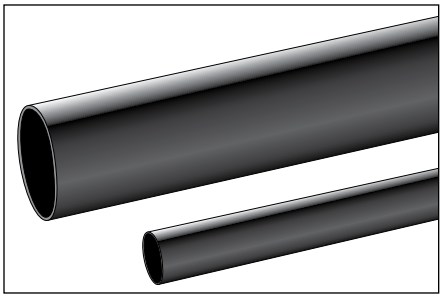
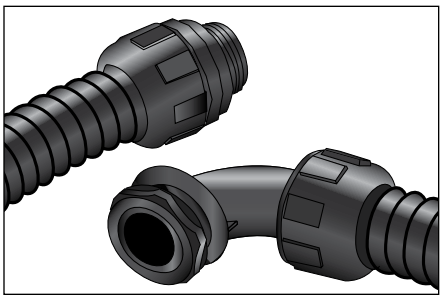


### PVC-105

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

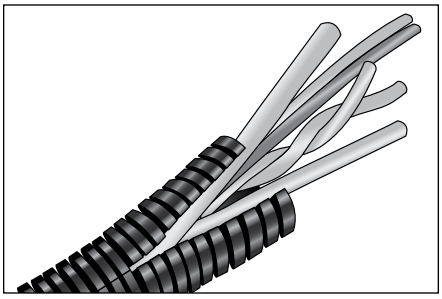


### Flexible Liquid-Tight PVC Tubing and Nylon Connectors

### 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.

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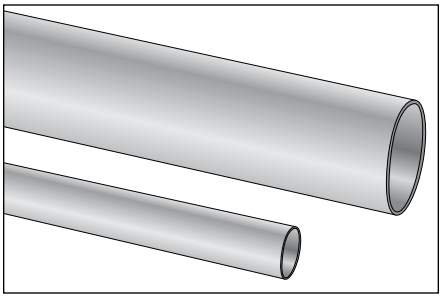
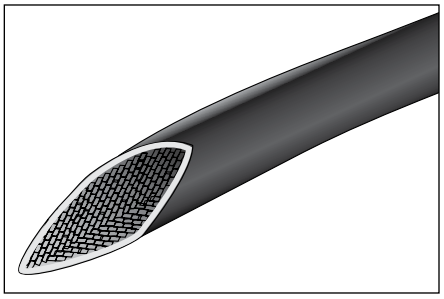


### Flexible PTFE Tubing

#### TFT-200 Thin-Wall Tubing

#### TFT-250 Standard-Wall Tubing

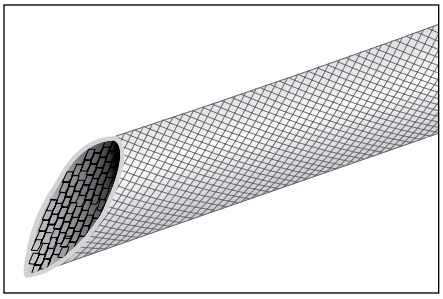
To improve the reliability of cable harnesses, PTFE tubing provides a heat and abrasion resistant wire insulator under the most adverse conditions. With an unmatched temperature range, exceptional abrasion resistance, and excellent dielectric properties, it maintains flexibility over its entire temperature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



### PVC-Coated Fiberglass Sleeving

#### PIF-130

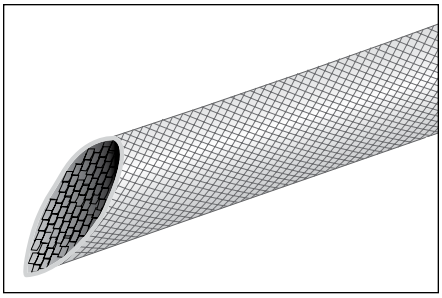
PIF-130 sleeving is a woven fiberglass braid impregnated with a heat-resistant, extremely tough, abrasion-resistant and flexible plastic insulation. The fiberglass is treated to remove all organic matter and resist fraying. The sleeving is completely compatible with all insulation and conductor types.



### Uncoated Fiberglass Sleeving

#### PIF-240

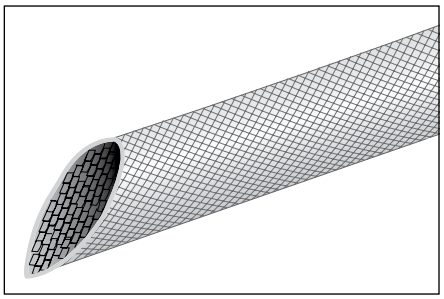
PIF-240 sleeving is extremely flexible and abrasion resistant. It is ideal for applications requiring operation up to 648°C. It is heat treated to remove all organic matter, and it is completely compatible with all insulation and conductor types.



### Acrylic-Coated Fiberglass Sleeving

#### AF-155

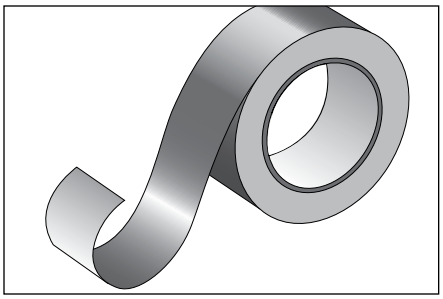
AF-155 is a specially designed fiberglass sleeving coated with a thermally stable, flexible, acrylic resin for wire and cable protection in electrical equipment. The most economical and versatile of all coated sleeving products, it offers high heat resistance, extreme flexibility, and resistance to cracking,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



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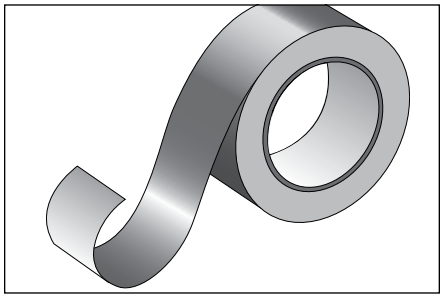
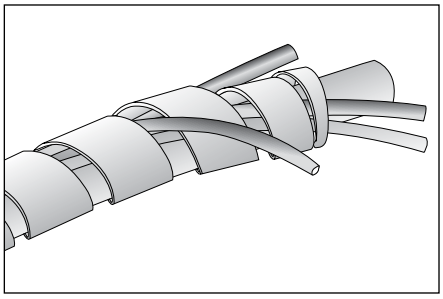


### Self-Fusing Silicone Tape

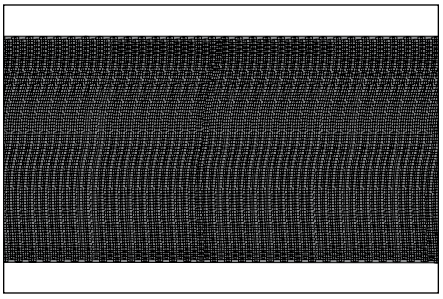
Where a masking wrap or permanently resilient insulation seal is necessary, self-adhering silicone tape is made of special unsupported silicone rubber compound that readily adheres to itself when wrapped under tension and fuses to form a homogenous mass within 24 hours at room temperature or 4 hours 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.

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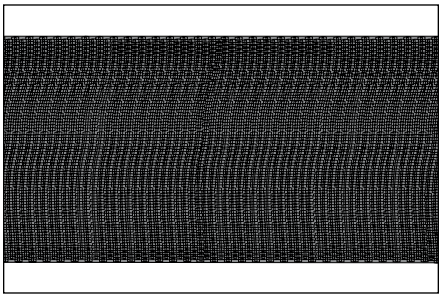


### Non-Fraying, Expandable Braid Sleeving

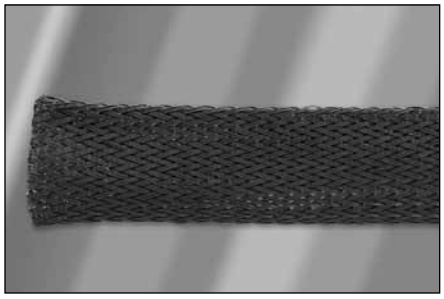
#### GRP-110NF, GRP-120NF

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

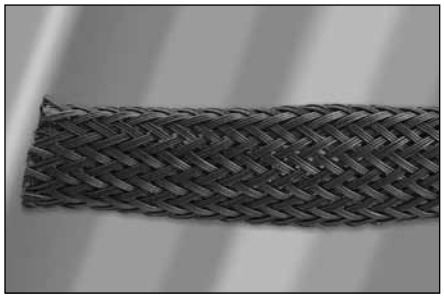
A unique split, semirigid braided construction allows GRP-130 and GRP-130NF sleeving to be installed quickly and easily. The lateral split opens up to accommodate a wide variety of bundling requirements, and then closes around the entire installation without the need for any additional fasteners. The 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.



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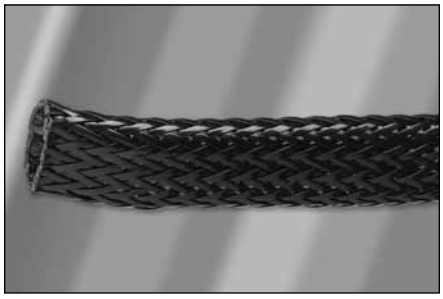
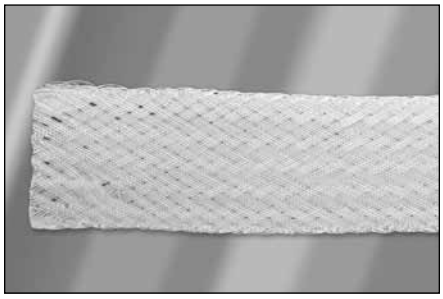


### Maximum Protection Expandable Sleeving

**GRP-180**

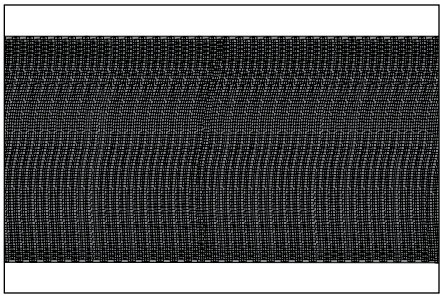
For a thick abrasion guard offering extreme protection against abrasion and cut-through on hoses and cables exposed to harsh conditions. GRP-180 provides fuller coverage for increased resistance to abrasion and penetration, and still expands for easy installation over long lengths. The braided construction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



### Extreme Performance Expandable Sleeving

**GRP-200**

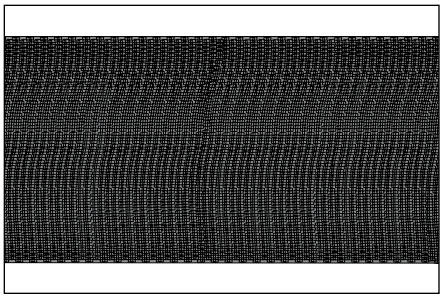
GRP-200 sleeving uses PTFE to allow the highest levels of performance, including resistance to chemicals, flame, and high temperatures. Thermal stability and low outgassing make it suited to aerospace, military, and high-tech applications. GRP-2000 sleeving is suitable for plenum applications.



### Expandable Polyester Braided Sleeving

**XS-100HD**

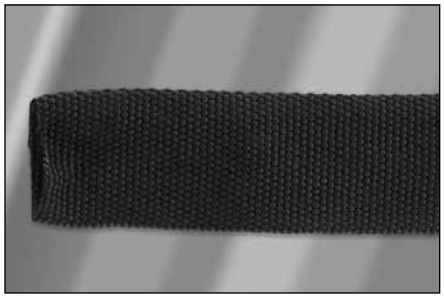
Spirally cut sleeving simplifies wiring, cabling, harnessing, and bundling where breakout or re-entry is required.



### 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.

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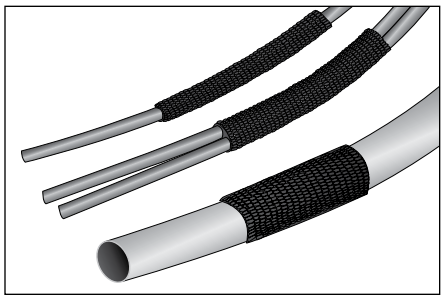


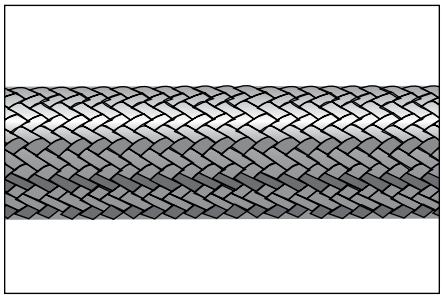
### Expandable Polyester Webbed Sleeving

#### 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.

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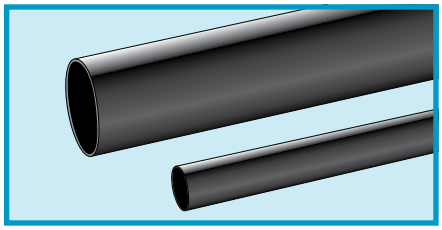
## Multipurpose PVC Tubing
## PVC-105



**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

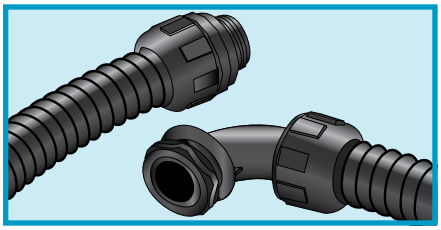
- See table
- PVC-105-24 to PVC-105-1 are available air spooled on the largest put-ups only

| 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

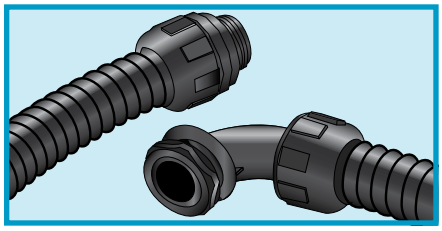
| Part No. | Trade Size | Inside Diameter, Min. | | Inside Diameter, Max. | | Outside Diameter, Min. | | Outside Diameter, Max. | |
|---|---|---|---|---|---|---|---|---|---|
| | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **FNT-1/4*** | 1/4 | 0.385 | 9.78 | 0.405 | 10.29 | 0.560 | 14.22 | 0.575 | 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

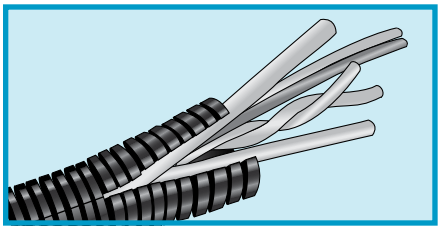
- Resists salt water, weak acids, gasoline, alcohol, oil, grease, and common solvents
- Flammability rating: UL 94V-2

### 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

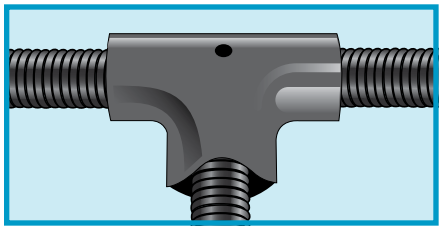
### Availability

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

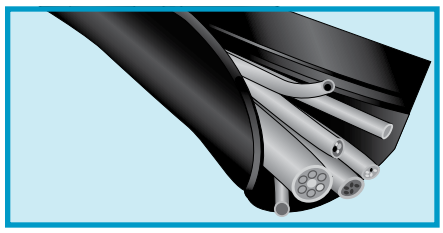
### Availability

Single pieces

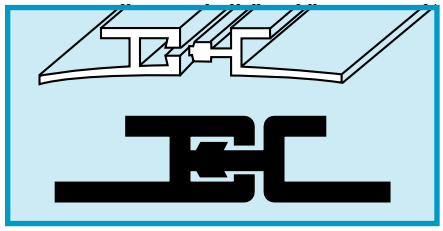
CA PROP 65 RoHS Compliant

# 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)

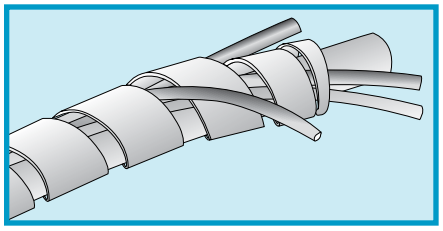
Each spool comes with two Loc-Trac fasteners and installation instructions.

| 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<br>MIL-I-631D, Type A, Form U<br>MIL-P-21922B<br>ASTM 1248-65T Type 1 Class A, Grade 3<br>A-A-59602, Type 1, Class 1 | UL UZKX2<br>A-A-59602, Type 1, Class 3 | UL UZKX2<br>ASTM-D-4066, Group 2, Class 1 | UL UZKX2<br>ASTM-D-3295-01, Group 4<br>A-A-59602, Type 3, Class 1 (as noted) | UL UZKX2<br>MIL-I-631D, Type A, Form U<br>MIL-P-21922B, Type 1 Class L<br>A-A-59602, Type 1, Class 2 | — |

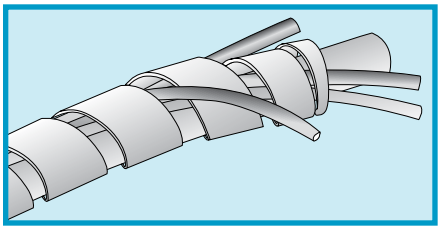
*Satisfactory except for high concentrations; not recommended for organic solvents.

CA PROP 65 RoHS Compliant

# FIT® Wire Management

## Spiral Wrap Tubing

## SW



- Flexible cable bundling
- Easy breakouts

See table for specifications

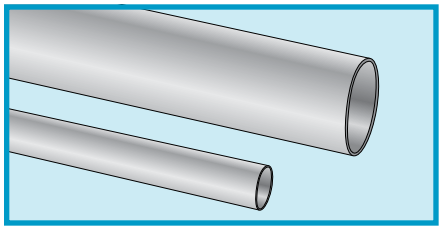
| Part No. | Material | Trade Size | Outside Diameter, Nom. | | Wall Thickness, Nom. | | Right-Hand Pitch, Nom. | | Standard Put-Ups* | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **SW-1** | Natural PE | 1/8 | 0.125 | 3.18 | 0.032 | 0.81 | 0.187 | 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

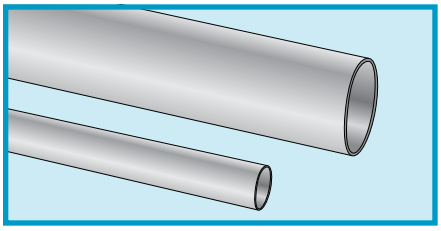
| Part No. | Inside Diameter, Min. | | Inside Diameter, Max. | | Wall Thickness, Min. | | Standard Put-Ups | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **TFT-200-30** | 0.010 | 0.25 | 0.015 | 0.38 | 0.009 | 0.23 | 100, 500, 1000 | 30.5, 152, 305 |
| **TFT-200-28** | 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

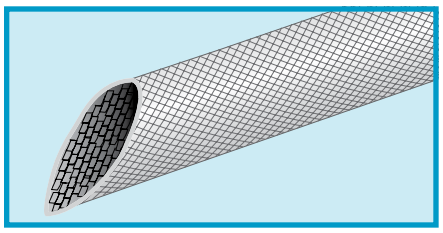
| Part No. | Inside Diameter, Min. | | Inside Diameter, Max. | | Wall Thickness, Min. | | Standard Put-Ups | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **TFT-250-24** | 0.020 | 0.51 | 0.026 | 0.66 | 0.012 | 0.30 | 100, 500, 1000 | 30.5, 152, 305 |
| **TFT-250-22** | 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 |

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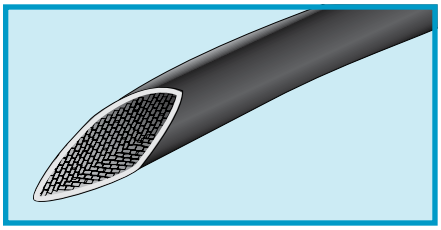
# FIT® Wire Management

## 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 |

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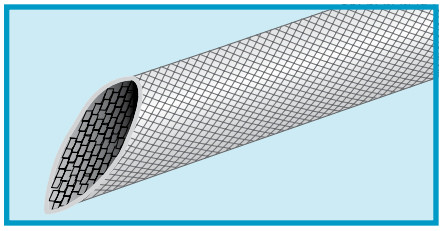
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# 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

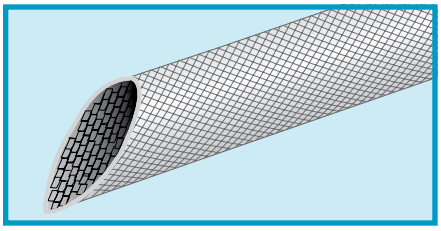
| Part No. | Inside Diameter, Min. | | Inside Diameter, Max. | | Wall Thickness, Min. | | Standard Put-Ups | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **PIF-200-24** | 0.020 | 0.51 | 0.027 | 0.69 | 0.011 | 0.28 | 100, 500, 1000 | 30.5, 152, 305 |
| **PIF-200-22** | 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 |

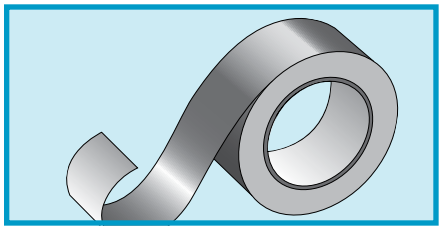
CA PROP 65 RoHS Compliant



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

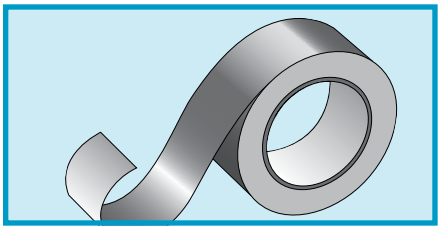
36-yard (33 m) rolls

| 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

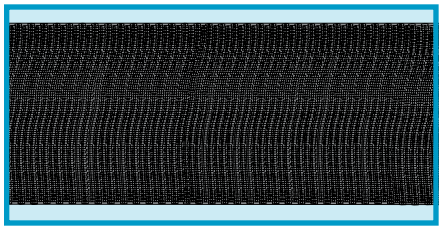
- 14-ft put-ups (all colors)
- 35-ft put-ups (black, red)

| 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 |

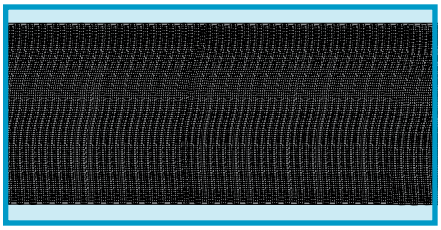
**Flame-Retardant Sleeving**

| 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 |

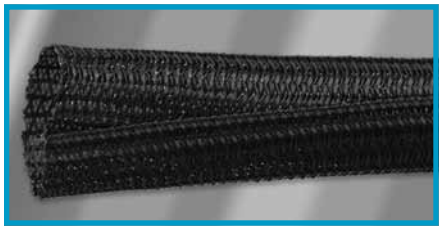
**Flame-Retardant Sleeving**

| 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

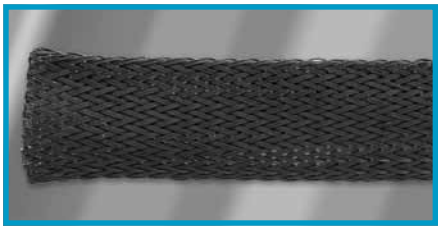
The GRP-130 installation tool makes installing long length of GRP-130 sleeving fast and easy. Simply insert your wire bundle into the tool's shank and slide the tool along the split in the sleeving. The tool deposits the wires and allows the split to close correctly.

| 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

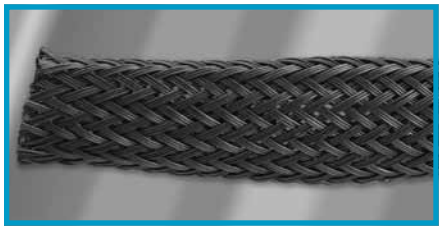
See table
Reels may contain multiple lengths

| 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

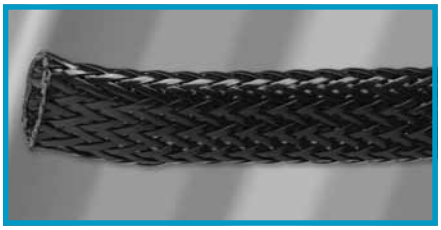
See table
Reels may contain multiple lengths

| 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 |

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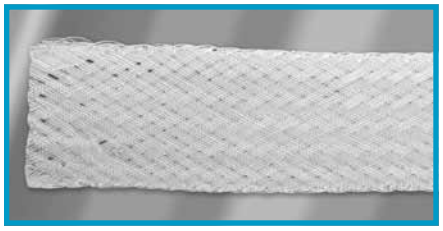
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# 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

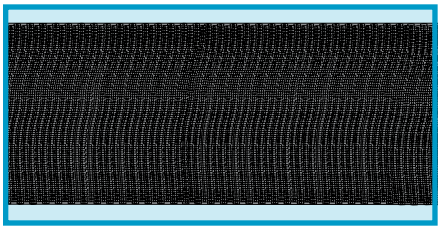
See table
Spools may contain multiple lengths

| 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

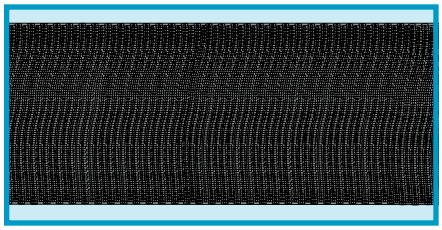
Spools may contain multiple lengths

| 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

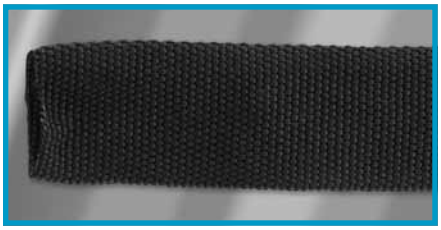
Spools may contain multiple lengths

| 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

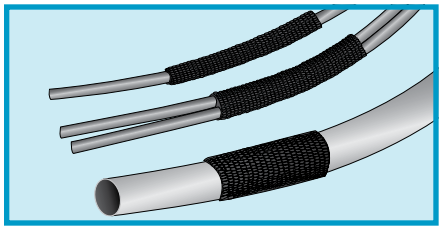
25 ft (7.6 m)
100 ft (304 m) for 0.71 through 1.59 sizes only

| 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.

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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.

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# 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%

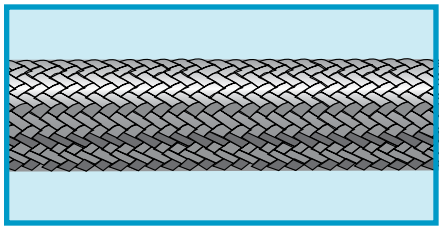
| Part No. | Finish | Color | Diameter, Nom. | | Break Strength, Min. | | Plies | Availability* | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Inch | mm | lb | kg | | lb | kg |
| **812030W** | Wax | Natural | 0.030 | 0.76 | 32 | 14.5 | 9 | 0.5 | 0.22 |
| **815040W** | Wax | Natural | 0.030 | 0.76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

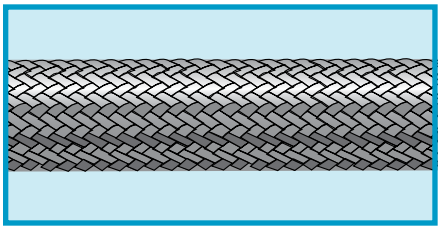
| Part No. | Flat Width, Nom. | | Thickness, Nom. | | Braid Construction | | | AWG Equivalent, Approx. | CMA, Nom. | Current-Carrying Capacity | Standard Put-Ups | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | AWG of Individ. Ends | Carriers | No. of Individ. Ends | | | 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 |

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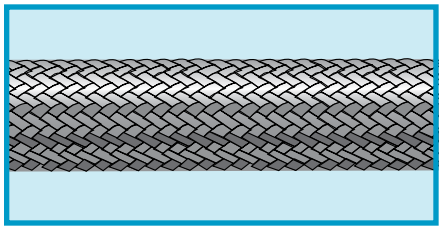
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# 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.

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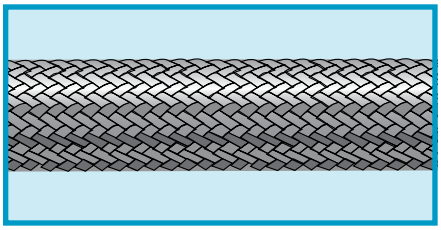
# FIT® Wire Wire Management

## 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 |

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

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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.);

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AVIC JONHON

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FORSTAR®

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