# FIT® Heat-Shrink Tubing

# FIT® Heat-Shrink Tubing

Whether your concerns are mechanical strain relief, environmental sealing, or organizing wires, Alpha Wire's FIT heat-shrink tubing is ideal for solving many challenges in electrical and electronic wiring:

- **Protect** substrates from moisture, UV light, corrosion, oxidation, dust, chemicals, abrasion, environmental conditions, solder joints, and encapsulates
- **Insulate** wire terminations and connections, entire printed circuit boards, from electrical and environmental conditions
- **Repair** cable splices, insulation damage and cuts, cable jackets, and connections, with permanent or temporary quick fixes
- **Relieve** strain on cables and connectors to prevent harmful flexing or bending
- **Bundle and organize** wire harness, cable, tubing, and hose dressing on OEM equipment, breakouts, bundle in small spaces, conform to odd shapes
- **Seal** connections, backshells, and other gaps from moisture and other contaminants
- **Identify** circuits through color coding, grouping, and labeling

## FIT heat-shrink products

Our FIT heat-shrink tubing offers a reliable way to protect and seal terminations or add additional mechanical ruggedness. FIT preferred heat-shrink products are made from premium compounds under the tightest manufacturing controls. This means FIT tubing consistently provides excellent physical characteristics such as low longitudinal shrinkage and wide temperature ranges while providing an elegant appearance when used alone or on OEM equipment.

The FIT line consists of various tubing types, each designed with unique attributes that offer tubing solutions for the broadest possible range of applications and environments. FIT products are always in stock and come in an unprecedented variety of package sizes.

Beyond the widely used polyolefin tubing that is suited to the broadest range of general-purpose needs, we offer a number of other materials for higher or lower shrink temperatures, wider operating temperatures, and such special needs as outstanding chemical resistance or increased flexibility.


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

| Material | Features | Shrink Temperature | Shrink Ratio (approx.) | FIT Family |
|---|---|---|---|---|
| **Single-Wall Cross-linked Polyolefin for General-Purpose Use** | | | | |
| **Cross-linked polyolefin** | General-purpose heat-shrink tubing<br>Range of shrink ratios | 90°C | 2:1 | FIT-221 |
| | | 90°C | 4:1 | FIT-421 |
| **Flame-retardant cross-linked polyolefin** | Low shrink temp<br>Passes UL VW-1 flame test | 90°C | 2:1 | FIT-221V |
| | | 90°C | 3:1 | FIT-321V |
| **Cross-linked polyolefin** | Approved for 600-V ground lead identification<br>Green with yellow stripe<br>Passes UL VW-1 flame test | 90°C | 2:1 | FIT-260 |
| **Semirigid cross-linked polyolefin** | 30% stronger and 25% stiffer than standard polyolefin | 110°C | 2:1 | FIT-295 |
| **Dual-Wall Polyolefin for Additional Sealing** | | | | |
| **Surface cross-linked, dual extruded** | Meltable inner wall to encapsulate without adhesive | 140°C | 2.5:1 | FIT-300 |
| | | 110°C | 3:1 | FIT-321 |
| | | 121°C | 5.6:1 | FIT-621 |
| **Bonding, thermoplastic adhesive lined** | Bonds to most materials<br>High voltage: to 2 kV at 90°C continuous use | 120°C | 3:1 | FIT-700 |
| **Bonding, adhesive lined** | Permanent water and corrosion protection | 110°C | 2:1 | FIT-750 |
| **Special-Application Tubing** | | | | |
| **Irradiated PVC** | Low shrink temperature<br>Passes UL VW-1 flame test<br>30% stronger than standard polyolefin | 100°C | 2:1 | FIT-105 |
| **Cross-linked PVDF** | High shrink temperature<br>Fast recovery time<br>Excellent chemical, heat, and flame resistance<br>Passes UL VW-1 flame test<br>3x the tensile strength of standard polyolefin | 170°C | 2:1 | FIT-350 |
| **FEP** | High shrink temperature<br>Excellent chemical resistance<br>Excellent dielectric properties<br>Thinnest wall thickness available | 200°C | 1.2:1 | FIT-400 |
| **PTFE** | High shrink temperature<br>Excellent chemical resistance<br>Excellent dielectric properties<br>Very thin wall thickness | 250°C | 1.5:1 | FIT-500 |
| **Chlorinated polyolefin** | Highly flexible<br>Oil and abrasion resistant<br>Passes UL VW-1 flame test | 130°C | 2:1 | FIT-600 |
| **Flexible fluoroelastomer** | High shrink temperature<br>Excellent chemical resistance<br>Flexible | 120°C | 2:1 | FIT-650 |
| **Polyethylene/ polyester** | Superior abrasion resistance<br>Excellent flexibility<br>Resists harsh environments | 80°C | 2:1 | FIT-FABRIC |
| **Cross-linked silicone rubber** | High flexibility available<br>Pliable<br>Scrape abrasion resistant<br>Passes UL VW-1 flame test | 200°C | 1.7:1 | FIT-FLEX |
| **Cross-linked PVDF** | Transparent after shrink<br>Fast recovery time<br>Excellent chemical, heat, and flame resistance<br>Passes UL VW-1 flame test<br>2x the tensile strength of standard polyolefin | 150°C | 2:1 | FIT-CLEAR |

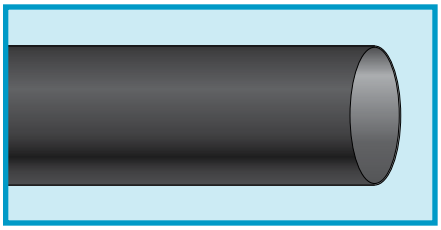
## Heat Guns

Alpha heat guns are the perfect complement to our tubing, making it easy to apply FIT heat-shrink tubing quickly and efficiently.

The lightweight, durable guns are designed to make application of heat-shrink tubing fast and reliable. They are well suited to both industrial production and field use.

# Heat-Shrink Tubing

## FIT®-105 Heat-Shrink Tubing
## 2:1 Shrink Ratio, Irradiated PVC



**AMS DTL-23053/2 Class 1 (except longitudinal shrinkage)**
**UL 224 VW-1**
**CSA 198**

- Low shrink temperature
- Fast recovery time
- 30% stronger than standard polyolefin
- Low water absorption
- UV resistant

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

### Shrink Temperature
- 100°C min.
- 105°C full recovery

### Material
- Irradiated PVC

### Color
- Black

### Physical Properties
- Tensile strength: 3000 psi (20.68 N/mm²)
- Elongation: 300% min
- Longitudinal change: +1%/-25%
- Specific gravity: 1.32
- Flame retardant
- Shelf life: 1 year at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 1.0% max.
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 1083 V/mil (426.3 kV/cm)
- Volume resistivity: $10^{12}$ ohm-cm

### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-105-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.020 | 0.51 | 25, 100, 500, 1000 | 7.6, 30.5, 152, 305 |
| **FIT-105-1/16** | 0.062 | 1.57 | 0.031 | 0.79 | 0.020 | 0.51 | 25, 100, 500, 1000 | 7.6, 30.5, 152, 305 |
| **FIT-105-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.020 | 0.51 | 25, 100, 1000 | 7.6, 30.5, 305 |
| **FIT-105-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.025 | 0.64 | 25, 100, 1000 | 7.6, 30.5, 305 |
| **FIT-105-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.025 | 0.64 | 25, 100, 1000 | 7.6, 30.5, 305 |
| **FIT-105-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 | 25, 100, 1000 | 7.6, 30.5, 305 |
| **FIT-105-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.030 | 0.76 | 25, 100, 500 | 7.6, 30.5, 152 |
| **FIT-105-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.030 | 0.76 | 25, 100, 250 | 7.6, 30.5, 76.2 |
| **FIT-105-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.035 | 0.89 | 25, 100, 250 | 7.6, 30.5, 76.2 |
| **FIT-105-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.040 | 1.02 | 25, 100, 250 | 7.6, 30.5, 76.2 |
| **FIT-105-1-1/2** | 1.500 | 38.10 | 0.750 | 19.05 | 0.045 | 1.14 | 25, 100 | 7.6, 30.5 |

### Packaged Assortments

Assorted sizes of 6” (15 cm) lengths

**FIT-105-MS-1**

| Contents | Tubing Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-105-3/64** | 0.046 | 1.17 | 10 |
| **FIT-105-1/16** | 0.062 | 1.57 | 10 |
| **FIT-105-3/32** | 0.093 | 2.36 | 10 |
| **FIT-105-1/8** | 0.125 | 3.18 | 10 |
| **FIT-105-3/16** | 0.187 | 4.75 | 10 |
| **FIT-105-1/4** | 0.250 | 6.35 | 10 |

**FIT-105-MS-2**

| Contents | Tubing Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-105-3/8** | 0.375 | 9.53 | 10 |
| **FIT-105-1/2** | 0.500 | 12.70 | 10 |
| **FIT-105-3/4** | 0.750 | 19.05 | 10 |
| **FIT-105-1 IN** | 1.000 | 25.40 | 10 |

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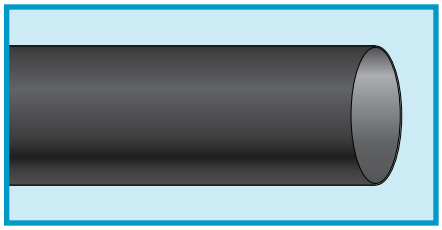
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-221 Heat-Shrink Tubing
## 2:1 Shrink Ratio, XLPO



**AMS-DTL-23053/5 Class 1 (except clear)**
**AMS-DTL-23053/5 Class 2 (clear)**
**UL 224 (except clear)**
**CSA 198 (except clear)**

- Excellent general-purpose tubing
- Low water absorption
- UV resistant (black only)

### Operating Temperature

- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature

- 90°C min.
- 121°C full recovery

### Material

- Cross-linked polyolefin

### Color

- Black, white, red, yellow, blue, green, clear*

*Clear tubing may exhibit some color tint that is the result of the product's chemistry; the tint is variable and can be any color

### Physical Properties

- Tensile strength: 1500 psi (10.34 N/mm²)
- Elongation: 200% min
- Longitudinal change: ±5%
- Specific gravity: 1.35 (colors)/ 1.00 (clear)
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max.
- Fluid resistance: 1000 psi (6.89 N/mm²)
- Lead free

### Electrical Properties

- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability

See table, next page

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm |
| **FIT-221-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.016 | 0.41 |
| **FIT-221-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.017 | 0.43 |
| **FIT-221-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.020 | 0.51 |
| **FIT-221-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.020 | 0.51 |
| **FIT-221-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.020 | 0.51 |
| **FIT-221-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 |
| **FIT-221-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.025 | 0.64 |
| **FIT-221-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.025 | 0.64 |
| **FIT-221-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.030 | 0.76 |
| **FIT-221-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.035 | 0.89 |
| **FIT-221-1-1/2** | 1.500 | 38.10 | 0.750 | 19.05 | 0.040 | 1.02 |
| **FIT-221-2IN** | 2.000 | 50.80 | 1.000 | 25.40 | 0.045 | 1.14 |
| **FIT-221-3IN** | 3.000 | 76.20 | 1.500 | 38.10 | 0.050 | 1.27 |
| **FIT-221-4IN** | 4.000 | 101.60 | 2.000 | 50.80 | 0.055 | 1.40 |

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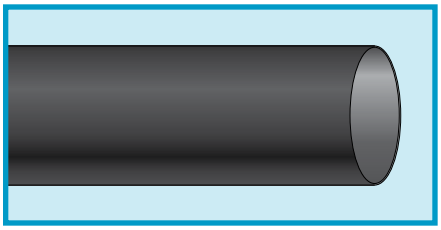
# Heat-Shrink Tubing

## FIT®-221 Heat-Shrink Tubing
## 2:1 Shrink Ratio, XLPO



**AMS-DTL-23053/5 Class 1 (except clear)**
**AMS-DTL-23053/5 Class 2 (clear)**
**UL 224 (except clear)**
**CSA 198 (except clear)**

### Availability

| Part No. | Spools | | Qty, Cut Pieces at Length | | | |
|---|---|---|---|---|---|---|
| | Ft | m | 4 ft (1.2 m) | 6" (152 mm) | 1" (25.4 mm) | 0.5" (12.7 mm) |
| FIT-221-3/64 | 1000* | 305* | 25 | 40 | 1000 | 1000 |
| FIT-221-1/16 | 70, 100*, 1000 | 21.3, 30.5*, 305 | 25 | 36 | 1000 | 1000 |
| FIT-221-3/32 | 65, 100*, 500 | 19.8, 30.5*, 152 | 25 | 32 | 1000 | 1000 |
| FIT-221-1/8 | 60, 100*, 500 | 18.2, 30.5*, 152 | 25 | 28 | 1000 | 1000 |
| FIT-221-3/16 | 50, 100*, 500 | 15.2, 30.5*, 152 | 25 | 24 | 1000 | 1000 |
| FIT-221-1/4 | 40, 100*, 250 | 12.2, 30.5, 76.2* | 25 | 20 | 1000 | 1000 |
| FIT-221-3/8 | 35, 50*, 200 | 10.6, 15.2*, 60.9 | 25 | 16 | 1000 | 1000 |
| FIT-221-1/2 | 32, 50*, 150 | 9.7, 15.2*, 45.7 | 5 | 14 | — | — |
| FIT-221-3/4 | 24, 50*, 250 | 7.3, 15.2*, 76.2 | 5 | 12 | — | — |
| FIT-221-1IN | 16, 50*, 250 | 4.8, 15.2, 76.2 | 5 | 8 | — | — |
| FIT-221-1-1/2 | 125* | 38.1* | 5 | 5 | — | — |
| FIT-221-2IN | 125* | 38.1* | 5 | 3 | — | — |
| FIT-221-3IN | 100* | 30.5* | 2 | 2 | — | — |
| FIT-221-4IN | 50* | 15.2* | 2 | — | — | — |

*Black and clear tubing only.

Spools may contain multiple lengths.

### Packaged Assortments

**Assorted sizes of 6" (152 mm) lengths**

**Each length is size identified.**

**FIT-221-MS-1** Assorted colors: Black, blue, red, green, yellow

| Contents | Tubing Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-221-3/64** | 0.046 | 1.17 | 6 |
| **FIT-221-1/16** | 0.063 | 1.60 | 6 |
| **FIT-221-3/32** | 0.093 | 2.36 | 6 |
| **FIT-221-1/8** | 0.125 | 3.18 | 6 |
| **FIT-221-3/16** | 0.187 | 4.75 | 6 |

**FIT-221-MS-2** Assorted colors: Black, blue, red, yellow

| Contents | Tubing Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-221-1/4** | 0.250 | 6.35 | 4 |
| **FIT-221-3/8** | 0.375 | 9.53 | 4 |
| **FIT-221-1/2** | 0.500 | 12.70 | 4 |
| **FIT-221-3/4** | 0.750 | 19.05 | 4 |

### FIT-221 Kits

**FIT-KIT-221BK**
Colors: Black

| Contents | Tubing Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-221-3/16** | 0.187 | 4.75 | 25 |
| **FIT-221-1/4** | 0.250 | 6.35 | 20 |
| **FIT-221-3/8** | 0.375 | 9.53 | 15 |
| **FIT-221-1/2** | 0.500 | 12.70 | 10 |
| **FIT-221-3/4** | 0.750 | 19.05 | 6 |
| **FIT-221-1IN** | 1.000 | 25.40 | 4 |

**FIT-KIT-221C** Assorted colors: Black, blue, red, white, green, yellow, clear

| Contents | Tubing Size | | Quantity | |
|---|---|---|---|---|
| | Inch | mm | Each Color | Total |
| **FIT-221-3/32** | 0.093 | 2.36 | 4 | 28 |
| **FIT-221-1/8** | 0.125 | 3.18 | 3 | 21 |
| **FIT-221-3/16** | 0.187 | 4.75 | 3 | 21 |
| **FIT-221-1/4** | 0.250 | 6.35 | 3 | 21 |
| **FIT-221-3/8** | 0.375 | 9.53 | 2 | 14 |
| **FIT-221-1/2** | 0.500 | 12.70 | 2 | 14 |

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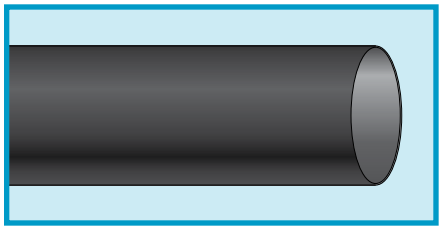
# Heat-Shrink Tubing

## FIT®-221B Heat-Shrink Tubing
## 2:1 Shrink Ratio, XLPO, Bulk Packaging



**AMS-DTL-23053/5 Class 1 (except clear)**
**AMS-DTL-23053/5 Class 2 (clear)**
**UL 224 (except clear)**
**CSA 198 (except clear)**

- Excellent general-purpose tubing
- Low shrink temperature
- Fastest recovery time
- Low water absorption
- UV resistant (black only)

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 90°C min.
- 121°C full recovery

### Material
- Cross-linked polyolefin

### Colors
- Black, blue, clear*

*Clear tubing may exhibit some color tint that is the result of the product's chemistry; the tint is variable and can be any color

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm²)
- Elongation: 200% min
- Longitudinal change: ±5%
- Specific gravity: 1.35 (colors)/ 1.00 (clear)
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max.
- Fluid resistance: 1000 psi (6.89 N/mm²)
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm |
| **FIT-221B-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.016 | 0.41 |
| **FIT-221B-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.017 | 0.43 |
| **FIT-221B-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.020 | 0.51 |
| **FIT-221B-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.020 | 0.51 |
| **FIT-221B-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.020 | 0.51 |
| **FIT-221B-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 |
| **FIT-221B-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.025 | 0.64 |
| **FIT-221B-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.025 | 0.64 |
| **FIT-221B-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.030 | 0.76 |
| **FIT-221B-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.035 | 0.89 |

### Availability

| Part No. | Spools (Length x No. of Spools) | | Qty, Cut Pieces at Length |
|---|---|---|---|
| | Ft | m | 4 ft (1.2 m) |
| **FIT-221B-3/64** | 1000 x 3 | 305 x 3 | 250 |
| **FIT-221B-1/16** | 1000 x 3 | 305 x 3 | 250 |
| **FIT-221B-3/32** | 500 x 3 | 152 x 3 | 250 |
| **FIT-221B-1/8** | 500 x 3 | 152 x 3 | 250 |
| **FIT-221B-3/16** | 500 x 2 | 152 x 2 | 250 |
| **FIT-221B-1/4** | 250 x 2 | 76.2 x 2 | 250 |
| **FIT-221B-3/8** | 200 x 2 | 60.9 x 2 | 250 |
| **FIT-221B-1/2** | 150 x 2 | 45. 7 x 2 | 200 |
| **FIT-221B-3/4** | 250 x 1<br>250 x 2 | 76.2 x 1<br>76.2 x 2 | 125 |
| **FIT-221B-1IN** | 250 x 1 | 76.2 x 1 | 75 |

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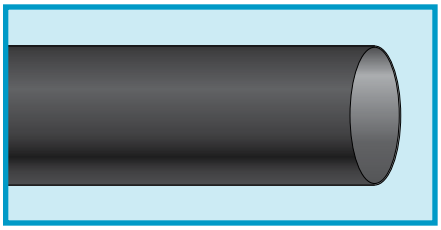
# Heat-Shrink Tubing

## FIT®-221V Heat-Shrink Tubing
## 2:1 Shrink Ratio, XLPO, Low Shrink Temperature



**AMS DTL-23053/5 Class 1 and 3**
**UL 224 VW-1**
**CSA 198**

- Excellent general-purpose tubing
- Low shrink temperature
- Fastest recovery time
- Low water absorption
- UV resistant (black only)

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 90°C min.
- 121°C full recovery

### Material
- Cross-linked polyolefin

### Colors
- Black, white, red, yellow, green, blue

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm²)
- Elongation: 200% min
- Longitudinal change: ±5%
- Specific gravity: 1.35
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max.
- Fluid resistance: 1000 psi (6.89 N/mm²)
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm |
| **FIT-221V-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.016 | 0.41 |
| **FIT-221V-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.017 | 0.43 |
| **FIT-221V-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.020 | 0.51 |
| **FIT-221V-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.020 | 0.51 |
| **FIT-221V-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.020 | 0.51 |
| **FIT-221V-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 |
| **FIT-221V-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.025 | 0.64 |
| **FIT-221V-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.025 | 0.64 |
| **FIT-221V-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.030 | 0.76 |
| **FIT-221V-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.035 | 0.89 |
| **FIT-221V-1-1/2** | 1.500 | 38.10 | 0.750 | 19.05 | 0.040 | 1.02 |
| **FIT-221V-2IN** | 2.000 | 50.80 | 1.000 | 25.40 | 0.045 | 1.14 |

### Availability

| Part No. | Spools (Length x No. of Spools) | | Qty, Cut Pieces at Length | |
|---|---|---|---|---|
| | Ft | m | 4 ft (1.2 m) | 6" (152 mm) |
| **FIT-221V-3/64** | 1000 x 3 | 305 x3 | 25, 250 | 40 |
| **FIT-221V-1/16** | 1000 x 1, 1000 x 3 | 305 x 1, 305 x 3 | 25, 250 | 36 |
| **FIT-221V-3/32** | 500 x 1, 500 x 3 | 152 x 1, 152 x 3 | 25, 250 | 32 |
| **FIT-221V-1/8** | 500 x 1, 500 x 3 | 152 x 1, 152 x 3 | 25, 250 | 28 |
| **FIT-221V-3/16** | 500 x 1, 500 x 2 | 152 x 1, 152 x 2 | 25, 250 | 24 |
| **FIT-221V-1/4** | 250 x 1, 250 x 2 | 76.2 x 1, 76.2 x 2 | 25, 250 | 20 |
| **FIT-221V-3/8** | 200 x 1, 200 x 2 | 60.9 x 1, 60.9 x 2 | 25, 250 | 16 |
| **FIT-221V-1/2** | 150 x 1, 150 x 2 | 45.7 x 1, 45.7 x 2 | 5, 200 | 14 |
| **FIT-221V-3/4** | 250 x 1 | 76.2 x 1 | 5, 125 | 12 |
| **FIT-221V-1IN** | 250 x 1 | 76.2 x 1 | 5, 75 | 8 |
| **FIT-221V-1-1/2** | 125 x 1 | 38.1 x 1 | 5 | 5 |
| **FIT-221V-2IN** | 125 x 1 | 38.1 x 1 | 5 | 3 |

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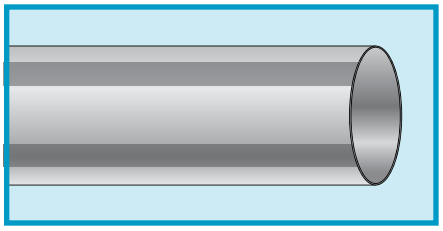
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-260 Heat-Shrink Tubing
## 2:1 Shrink Ratio, XLPO, Ground Lead Identification



**UL 224 VW-1**
**CSA 198**

- Excellent general-purpose tubing
- Low water absorption

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 90°C min.
- 120°C full recovery

### Material
- Cross-linked polyolefin

### Color
- Green/yellow

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: ±5%
- Specific gravity: 1.35
- Flame retardant
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max.
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

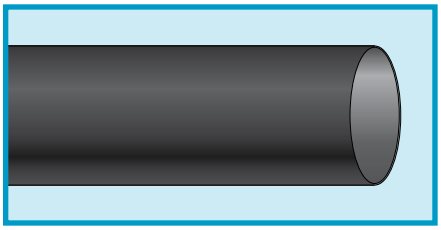
### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-260-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.020 | 0.51 | 500 | 152 |
| **FIT-260-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 | 250 | 76.2 |
| **FIT-260-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.025 | 0.64 | 250 | 76.2 |
| **FIT-260-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.025 | 0.64 | 250 | 76.2 |
| **FIT-260-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.030 | 0.76 | 250 | 76.2 |
| **FIT-260-1** | 1.000 | 25.40 | 0.500 | 12.70 | 0.035 | 0.89 | 100 | 30.5 |

# Heat-Shrink Tubing

## FIT®-295 Heat-Shrink Tubing
## 2:1 Shrink Ratio, Semirigid XLPO



**AMS-DTL-23053/6 Class 1 (Black)**
**AMS-DTL-23053/6 Class 2 (Clear)**
**UL 224 VW-1 (Black)**
**CSA 198 (Black)**

- 30% stronger than standard XLPO
- 25% stiffer than standard XLPO
- Low water absorption
- UV resistant (black only)

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 110°C min.
- 135°C full recovery

### Material
- Semirigid cross-linked polyolefin

### Colors
- Black, clear

### Physical Properties
- Tensile strength: 2000 psi (17.79 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: ±5%
- Specific gravity: 1.35 (black)/1.00 (clear)
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max. (black)/0.02% max. (clear)
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability Qty, Cut Pieces at Length | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | 4 ft (1.2 m) | 6" (152 mm) |
| **FIT-295-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.020 | 0.51 | 25 | 40 |
| **FIT-295-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.020 | 0.51 | 25 | 36 |
| **FIT-295-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.020 | 0.51 | 25 | 32 |
| **FIT-295-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.020 | 0.51 | 25 | 28 |
| **FIT-295-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.025 | 0.64 | 25 | 24 |
| **FIT-295-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.025 | 0.64 | 25 | 20 |
| **FIT-295-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.030 | 0.76 | 25 | 16 |
| **FIT-295-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.030 | 0.76 | 5 | 14 |

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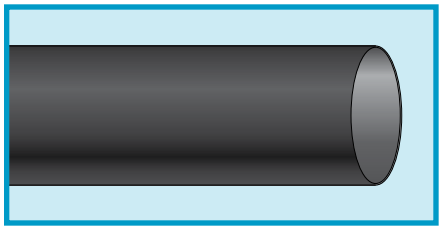
# Heat-Shrink Tubing

## FIT®-300 Heat-Shrink Tubing
## 2.5:1 Shrink Ratio, Dual-Wall Semirigid XLPO



**AMS-DTL-23053/4 Class 1**
**UL 224 (Except clear)**

- Meltable inner wall for encapsulation without adhesives
- Thicker wall for added protection
- High shrink ratios
- Excellent dielectric properties

### Applications
- Temporary sealing without sticky residue
- Substrates requiring filled interstices

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL)

### Shrink Temperature
- 140°C min.

### Material
- Dual-wall semirigid cross-linked polyolefin

### Colors
- Black, white, red, yellow, blue, slate, brown

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: +1%/-10%
- Specific gravity: 0.99
- Shelf life: 3 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)
- Lead free
- Halogen free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{16}$ ohm-cm

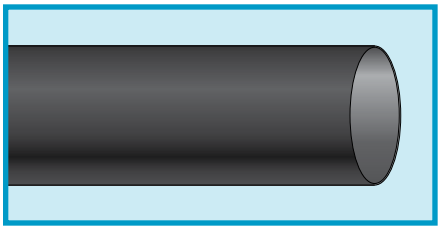
### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability Qty, Cut Pieces at Length | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | 4 ft (1.2 m) | 6" (152 mm) |
| **FIT-300-1/8** | 0.125 | 3.18 | 0.023 | 0.58 | 0.038 | 0.97 | 25 | 14 |
| **FIT-300-3/16** | 0.187 | 4.75 | 0.060 | 1.52 | 0.043 | 1.09 | 25 | 12 |
| **FIT-300-1/4** | 0.250 | 6.35 | 0.080 | 2.03 | 0.047 | 1.19 | 25 | 10 |
| **FIT-300-3/10** | 0.300 | 7.62 | 0.050 | 1.27 | 0.100 | 2.54 | 25 | 4 |
| **FIT-300-3/8** | 0.375 | 9.53 | 0.135 | 3.43 | 0.050 | 1.27 | 25 | 8 |
| **FIT-300-1/2** | 0.500 | 12.70 | 0.195 | 4.95 | 0.055 | 1.40 | 5 | 6 |
| **FIT-300-3/4** | 0.750 | 19.05 | 0.313 | 7.95 | 0.065 | 1.65 | 5 | 4 |
| **ST-3001-IN** | 1.000 | 25.40 | 0.400 | 10.16 | 0.075 | 1.91 | 5 | -- |

RoHS Compliant

# Heat-Shrink Tubing

## FIT®-321 Heat-Shrink Tubing
## 3:1 Shrink Ratio, Dual-Wall XLPO, Adhesive Lined



**AMS-DTL-23053/4 Class 3**
**UL 224**
**CSA 198**

- Thicker wall for increased durability
- Water-resistant inner permanent-bonding adhesive

### Operating Temperature
- -55°C to +125°C

### Shrink Temperature
- 110°C min.
- 110°C full recovery

### Material
- Dual-wall flexible polyolefin with thick-wall adhesive

### Color
- Black

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm²)
- Elongation: 250% min
- Longitudinal change: +1%/-15%
- Flame tested
- Shelf life: 3 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 1.0% max
- Fluid resistance: 900 psi (6.20 N/mm²)
- UV resistant
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 300 V/mil (118 kV/cm)
- Volume resistivity: $10^{12}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Melt Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **FIT-321-1/8** | 0.125 | 3.18 | 0.024 | 0.61 | 0.037 | 0.94 | 0.020 | 0.51 |
| **FIT-321-1/4** | 0.252 | 6.40 | 0.073 | 1.85 | 0.047 | 1.19 | 0.020 | 0.51 |
| **ST-303-3/8** | 0.374 | 9.50 | 0.118 | 3.00 | 0.051 | 1.30 | 0.025 | 0.64 |
| **FIT-321-1/2** | 0.500 | 12.70 | 0.157 | 3.99 | 0.071 | 1.80 | 0.030 | 0.76 |
| **ST-303-3/4** | 0.748 | 19.00 | 0.236 | 5.99 | 0.071 | 1.80 | 0.035 | 0.89 |
| **FIT-321-1** | 0.945 | 24.00 | 0.315 | 8.00 | 0.098 | 2.49 | 0.040 | 1.02 |
| **FIT-321-1-1/2** | 1.575 | 40.01 | 0.512 | 13.00 | 0.098 | 2.49 | 0.040 | 1.02 |

### Availability

| Part No. | Qty, Cut Pieces at Length | |
|---|---|---|
| | 4 ft (1.2 m) | 6" (152 mm) |
| **FIT-321-1/8** | 25 | 28 |
| **FIT-321-1/4** | 25 | 20 |
| **FIT-321-1/2** | 5 | 14 |
| **FIT-321-1** | 5 | 8 |
| **FIT-321-1-1/2** | 5 | 5 |

### Packaged Assortments
Assorted sizes of 6" (15 cm) lengths

**FIT-321-MS-1** Colors: Black

| | Size | | Quantity |
|---|---|---|---|
| | Inch | mm | |
| **FIT-321-1/8** | 0.125 | 3.18 | 5 |
| **FIT-321-1/4** | 0.252 | 6.40 | 5 |
| **FIT-321-1/2** | 0.500 | 12.70 | 5 |
| **FIT-321-1** | 0.945 | 24.00 | 5 |

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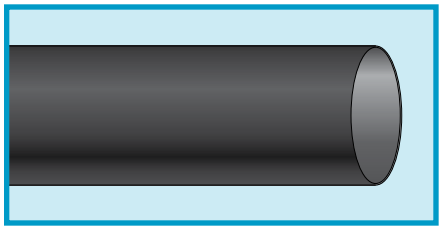
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-321V Heat-Shrink Tubing
## 3:1 Shrink Ratio, Flexible XLPO, Thin Wall



**AMS-DTL-23053/5 Class 1 and 3 (except dimensions)**
**UL 224 VW-1**
**CSA 198**

- Low shrink temperature
- Fast recovery time
- Reduced wall thickness

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 90°C min.
- 135°C full recovery

### Material
- Flexible cross-linked thin-wall polyolefin

### Colors
- Black, white

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: +5%/-15%
- Specific gravity: 1.35
- Flame retardant
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

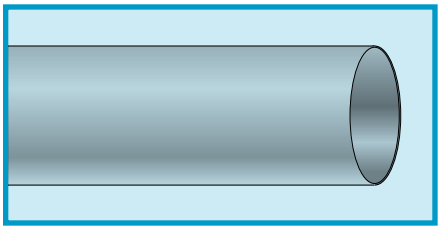
### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-321V-3/32** | 0.060 | 1.52 | 0.020 | 0.51 | 0.020 | 0.51 | 500 | 152 |
| **FIT-321V-1/8** | 0.120 | 3.05 | 0.040 | 1.02 | 0.024 | 0.61 | 500 | 152 |
| **FIT-321V-1/4** | 0.240 | 6.10 | 0.080 | 2.03 | 0.028 | 0.71 | 250 | 76.2 |
| **FIT-321V-3/8** | 0.360 | 9.14 | 0.120 | 3.05 | 0.031 | 0.79 | 200 | 60.9 |
| **FIT-321V-1/2** | 0.472 | 11.99 | 0.160 | 4.06 | 0.033 | 0.84 | 150 | 45.7 |
| **FIT-321V-3/4** | 0.720 | 18.29 | 0.240 | 6.10 | 0.039 | 0.99 | 250 | 76.2 |
| **FIT-321V-1IN** | 0.945 | 24.00 | 0.315 | 8.00 | 0.048 | 1.22 | 250 | 76.2 |

# Heat-Shrink Tubing

## FIT®-350 Heat-Shrink Tubing
## 2:1 Shrink Ratio, PVDF



**AMS-DTL-23053/8**
**UL 224 VW-1**

- Chemical resistant
- Heat resistant
- 3x the tensile strength of standard XLPO

### Operating Temperature
- -55°C to +135°C
- -55°C to +150°C (UL)

### Shrink Temperature
- 170°C min.
- 175°C full recovery

### Material
- Cross-linked polyvinylidene fluoride

### Color
- Clear

### Physical Properties
- Tensile strength: 5000 psi (34.47 N/mm²)
- Elongation: 150% min
- Longitudinal change: ±10%
- Specific gravity: 1.80
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 5000 psi (34.47 N/mm²)
- Lead free

### Electrical Properties
- 600 V (UL)
- Dielectric strength: 800 V/mil (315 kV/cm)
- Volume resistivity: $10^{13}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | 4 ft (1.2 m) | 6" (152 mm) |
| **FIT-350-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.010 | 0.25 | 25 | 32 |
| **FIT-350-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.010 | 0.25 | 25 | 28 |
| **FIT-350-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.010 | 0.25 | 25 | 24 |
| **FIT-350-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.010 | 0.25 | 25 | 20 |
| **FIT-350-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.010 | 0.25 | 25 | 16 |
| **FIT-350-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.012 | 0.30 | 25 | 12 |
| **FIT-350-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.012 | 0.30 | 25 | 8 |
| **FIT-350-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.012 | 0.30 | 5 | 4 |
| **FIT-350-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.017 | 0.43 | 5 | 2 |
| **FIT-350-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.019 | 0.48 | 5 | 1 |

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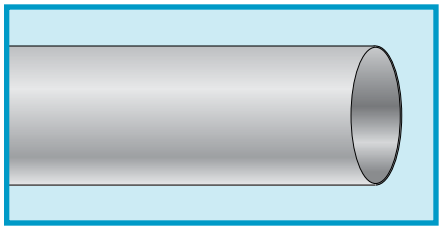
# Heat-Shrink Tubing

## FIT®-400 Heat-Shrink Tubing
## 1.2:1 Shrink Ratio, FEP



### AMS-DTL-23053/11 Class 1

- Chemical resistant
- Wide temperature range
- Excellent dielectric properties
- Thinnest wall thickness available
- Lower recovery temperature than PTFE

### Operating Temperature

- -75°C to +200°C

### Shrink Temperature

- 175°C full recovery

### Material

- FEP

### Color

- Natural

### Physical Properties

- Tensile strength: 2000 psi (13.79 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: ±15%
- Specific gravity: 2.17
- Flame rating: UL 94V-0
- Shelf life: 4 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fluid resistance: pass
- Fungus resistance: no growth
- Water absorption: 0.01% max
- Lead free

### Electrical Properties

- Dielectric strength: 2000 V/mil (787 kV/cm)
- Volume resistivity: $10^{17}$ ohm-cm

### Availability

See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability Qty, Cut Pieces at Length | |
|---|---|---|---|---|---|---|---|---|
| | Inch | Mm | Inch | mm | Inch | mm | 4 ft (1.2 m) | 2 ft (0.6 m) |
| **FIT-400-24** | 0.031 | 0.79 | 0.027 | 0.69 | 0.008 | 0.20 | 25 | – |
| **FIT-400-22** | 0.036 | 0.91 | 0.032 | 0.81 | 0.008 | 0.20 | 25 | – |
| **FIT-400-20** | 0.045 | 1.14 | 0.039 | 0.99 | 0.008 | 0.20 | 25 | – |
| **FIT-400-18** | 0.060 | 1.52 | 0.049 | 1.24 | 0.008 | 0.20 | 25 | – |
| **FIT-400-16** | 0.075 | 1.91 | 0.061 | 1.55 | 0.009 | 0.23 | 25 | – |
| **FIT-400-14** | 0.092 | 2.34 | 0.072 | 1.83 | 0.009 | 0.23 | 25 | – |
| **FIT-400-12** | 0.115 | 2.92 | 0.089 | 2.26 | 0.009 | 0.23 | 25 | – |
| **FIT-400-10** | 0.141 | 3.58 | 0.114 | 2.90 | 0.010 | 0.25 | 25 | – |
| **FIT-400-9** | 0.158 | 4.01 | 0.124 | 3.15 | 0.010 | 0.25 | 25 | – |
| **FIT-400-8** | 0.180 | 4.57 | 0.143 | 3.63 | 0.010 | 0.25 | 25 | – |
| **FIT-400-7** | 0.197 | 5.00 | 0.158 | 4.01 | 0.011 | 0.28 | 25 | – |
| **FIT-400-6** | 0.225 | 5.72 | 0.180 | 4.57 | 0.011 | 0.28 | 25 | – |
| **FIT-400-5** | 0.248 | 6.30 | 0.198 | 5.03 | 0.011 | 0.28 | – | 50 |
| **FIT-400-4** | 0.290 | 7.37 | 0.226 | 5.74 | 0.011 | 0.28 | – | 50 |
| **FIT-400-3** | 0.310 | 7.87 | 0.249 | 6.32 | 0.011 | 0.28 | – | 50 |
| **FIT-400-2** | 0.365 | 9.27 | 0.280 | 7.11 | 0.012 | 0.30 | – | 50 |
| **FIT-400-1** | 0.400 | 10.16 | 0.311 | 7.90 | 0.012 | 0.30 | – | 50 |
| **FIT-400-0** | 0.440 | 11.18 | 0.349 | 8.86 | 0.012 | 0.30 | – | 50 |

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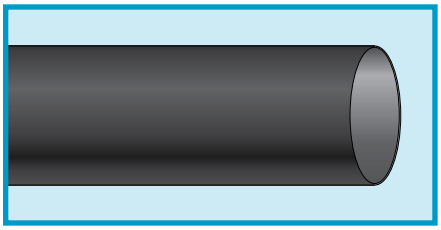
# Heat-Shrink Tubing

## FIT®-421 Heat-Shrink Tubing
## 4:1 Shrink Ratio, XLPO



**AMS-DTL-23053/5 Class 1**
**UL 224 VW-1**

- High-shrink ratio
- Large supplied diameters
- Conforms to irregular shapes
- Low water absorption
- UV resistant

### Operating Temperature
- -55°C to +135°C
- -55°C to +125°C (UL)

### Shrink Temperature
- 90°C min.
- 121°C full recovery

### Material
- Cross-linked polyolefin

### Color
- Black

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: +5%/-15%
- Specific gravity: 1.35
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)
- UV resistant
- Lead free

### Electrical Properties
- 600 V (UL)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability Qty, Cut Pieces at Length | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | 4 ft (1.2 m) | 15 ft (4.5 m) |
| **FIT-421-1IN** | 1.000 | 25.40 | 0.260 | 6.60 | 0.045 | 1.14 | 5 | — |
| **FIT-421-1-1/2** | 1.500 | 38.10 | 0.375 | 9.53 | 0.045 | 1.14 | 5 | — |
| **FIT-421-2IN** | 2.000 | 50.80 | 0.550 | 13.97 | 0.045 | 1.14 | 5 | — |
| **FIT-421-3IN** | 3.000 | 76.20 | 0.810 | 20.57 | 0.045 | 1.14 | 2 | — |
| **FIT-421-4IN** | 4.000 | 101.60 | 1.050 | 26.67 | 0.045 | 1.14 | 2 | |

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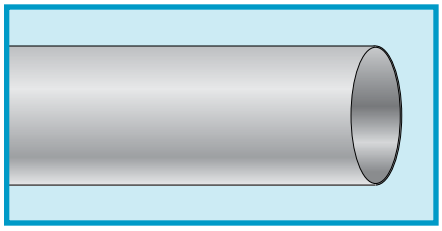
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-500 Heat Shrink Tubing
## 1.5:1 Shrink Ratio, PTFE



**AMS-DTL-23053/12 Class 3**

- Excellent chemical resistance
- Widest temperature range
- High tensile strength
- Excellent dielectric properties
- Extremely thin wall thickness
- Low friction coefficient

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

### Shrink Temperature
- 327°C full recovery

### Material
- PTFE

### Color
- Natural

### Physical Properties
- Tensile strength: 2500 psi (17.21 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: ±20%
- Specific gravity: 2.20
- Flame rating: UL 94V-0
- Shelf life: 4 years at 18°C to 35°C

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

### Electrical Properties
- Dielectric strength: 800 V/mil (315 kV/cm)
- Volume resistivity: $10^{18}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability, Cut Pieces at Length |
|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | 2 ft (0.6 m) |
| **FIT-500-30** | 0.034 | 0.86 | 0.015 | 0.38 | 0.009 | 0.23 | 50 |
| **FIT-500-28** | 0.038 | 0.97 | 0.018 | 0.46 | 0.009 | 0.23 | 50 |
| **FIT-500-26** | 0.046 | 1.17 | 0.022 | 0.56 | 0.010 | 0.25 | 50 |
| **FIT-500-24** | 0.050 | 1.27 | 0.027 | 0.69 | 0.010 | 0.25 | 50 |
| **FIT-500-22** | 0.055 | 1.40 | 0.032 | 0.81 | 0.012 | 0.30 | 50 |
| **FIT-500-20** | 0.060 | 1.52 | 0.039 | 0.99 | 0.012 | 0.30 | 50 |
| **FIT-500-18** | 0.076 | 1.93 | 0.049 | 1.24 | 0.012 | 0.30 | 50 |
| **FIT-500-16** | 0.093 | 2.36 | 0.061 | 1.55 | 0.012 | 0.30 | 50 |
| **FIT-500-14** | 0.120 | 3.05 | 0.072 | 1.83 | 0.012 | 0.30 | 50 |
| **FIT-500-12** | 0.150 | 3.81 | 0.089 | 2.26 | 0.012 | 0.30 | 25 |
| **FIT-500-10** | 0.191 | 4.85 | 0.112 | 2.84 | 0.012 | 0.30 | 25 |
| **FIT-500-8** | 0.240 | 6.10 | 0.141 | 3.58 | 0.015 | 0.38 | 25 |
| **FIT-500-6** | 0.302 | 7.67 | 0.178 | 4.52 | 0.015 | 0.38 | 10 |
| **FIT-500-4** | 0.370 | 9.40 | 0.224 | 5.69 | 0.015 | 0.38 | 10 |
| **FIT-500-2** | 0.430 | 10.92 | 0.278 | 7.06 | 0.015 | 0.38 | 10 |
| **FIT-500-0** | 0.470 | 11.94 | 0.347 | 8.81 | 0.015 | 0.38 | 10 |

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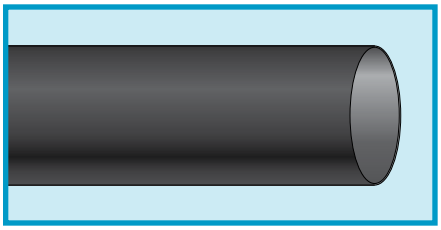
# Heat-Shrink Tubing

## FIT®-600 Heat Shrink Tubing
## 2:1 Shrink Ratio, Chlorinated PO



**AMS-DTL-23053/1 Class 1 and 2**

- More flexible than standard XLPO
- 2x the tensile strength of silicone rubber
- Large tubing diameters
- Oil resistant
- Abrasion resistant

### Operating Temperature
- -75°C to +121°C

### Shrink Temperature
- 130°C min.
- 130°C full recovery

### Material
- Chlorinated polyolefin

### Color
- Black

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 250% min
- Longitudinal change: +1%/-10%
- Specific gravity: 1.30
- Flame retardant
- Shelf life: 1 year at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 1.0% max
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)
- UV resistant
- Lead free

### Electrical Properties
- Dielectric strength: 300 V/mil (118 kV/cm)
- Volume resistivity: $10^{11}$ ohm-cm

### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-600-1/4** | 0.250 | 6.35 | 0.143 | 3.63 | 0.035 | 0.89 | 25, 150 | 7.6, 46 |
| **FIT-600-3/8** | 0.375 | 9.53 | 0.211 | 5.36 | 0.040 | 1.02 | 25, 150 | 7.6, 46 |
| **FIT-600-1/2** | 0.500 | 12.70 | 0.286 | 7.26 | 0.048 | 1.22 | 25, 150 | 7.6, 46 |
| **FIT-600-5/8** | 0.625 | 15.88 | 0.357 | 9.07 | 0.052 | 1.32 | 25, 150 | 7.6, 46 |
| **FIT-600-3/4** | 0.750 | 19.05 | 0.428 | 10.87 | 0.057 | 1.45 | 25, 100 | 7.6, 30.5 |
| **FIT-600-7/8** | 0.875 | 22.23 | 0.500 | 12.70 | 0.065 | 1.65 | 25, 100 | 7.6, 30.5 |
| **FIT-600-1IN** | 1.000 | 25.40 | 0.570 | 14.48 | 0.070 | 1.78 | 25, 100 | 7.6, 30.5 |
| **FIT-600-1-1/4** | 1.250 | 31.75 | 0.714 | 18.14 | 0.087 | 2.21 | 25, 100 | 7.6, 30.5 |
| **FIT-600-1-1/2** | 1.500 | 38.10 | 0.857 | 21.77 | 0.095 | 2.41 | 25, 100 | 7.6, 30.5 |
| **FIT-600-1-3/4** | 1.750 | 44.45 | 1.000 | 25.40 | 0.107 | 2.72 | 25, 75 | 7.6, 22.8 |
| **FIT-600-2IN** | 2.000 | 50.80 | 1.140 | 28.96 | 0.110 | 2.79 | 25, 75 | 7.6, 22.8 |
| **FIT-600-3IN** | 3.000 | 76.20 | 1.710 | 43.43 | 0.125 | 3.18 | 25, 50 | 7.6, 15.2 |

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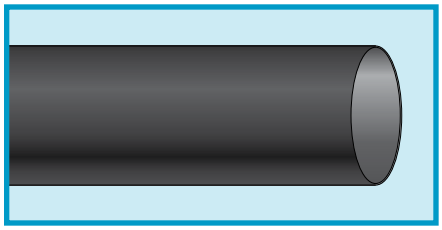
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-621 Heat Shrink Tubing

## 5.6:1 Shrink Ratio, Dual-Wall Flexible PO, Adhesive-Lined Inner Thick Wall



- High shrink ratios
- Heavy-duty adhesive lining
- Low water absorption
- Oil resistant
- Chemical resistant
- Abrasion resistant

### Operating Temperature

- -55°C to +90°C

### Shrink Temperature

- 121°C full recovery

### Material

- Polyolefin

### Color

Black

### Physical Properties

- Tensile strength: 1200 psi (8.27 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: -10%
- Specific gravity: 1.40
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 750 psi (5.17 N/mm$^2$)
- Halogen free
- Lead free

### Electrical Properties

- Dielectric strength: 200 V/mil (79 kV/cm)
- Volume resistivity: $10^{13}$ ohm-cm

### Availability

See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Adhesive Wall Thickness, Min. | | Availability, Qty, Cut Pieces at Length |
|---|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm | 6" (152 mm) |
| **FIT-621-5/8** | 0.600 | 15.24 | 0.150 | 3.81 | 0.060 | 1.52 | 0.050 | 1.27 | 3, 10 |
| **FIT-621-1-1/4** | 1.250 | 31.75 | 0.220 | 5.59 | 0.060 | 1.52 | 0.050 | 1.27 | 3, 10 |
| **FIT-621-2** | 2.000 | 50.80 | 0.374 | 9.50 | 0.106 | 2.69 | 0.050 | 1.27 | 3, 10, 24 |
| **FIT-621-2-1/2** | 2.500 | 63.50 | 0.500 | 12.70 | 0.120 | 3.05 | 0.050 | 1.27 | 3, 10 |
| **FIT-621-3** | 3.000 | 76.20 | 0.748 | 19.00 | 0.140 | 3.56 | 0.050 | 1.27 | 3, 10 |
| **FIT-621-4** | 4.000 | 101.60 | 0.898 | 22.81 | 0.155 | 3.94 | 0.050 | 1.27 | 3, 10 |

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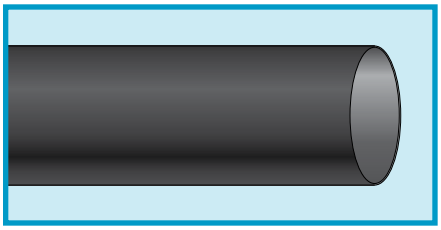
# Heat-Shrink Tubing

## FIT®-650 Heat Shrink Tubing
## 2:1 Shrink Ratio, Flexible Fluoroelastomer



**AMS-DTL-23053/13**

- Excellent chemical resistance
- Wide temperature range
- Flexible
- Oil resistant
- Fuel resistant

### Operating Temperature
- -40°C to +200°C

### Shrink Temperature
- 130°C min.
- 175°C full recovery

### Material
- Flexible fluoroelastomer

### Colors
- Black

### Physical Properties
- Tensile strength: 1200 psi (8.27 N/mm$^2$)
- Elongation: 250% min
- Longitudinal change: ±20%
- Flammability: self-extinguishing
- Shelf life: 2 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.50% max
- Fluid resistance: 1200 psi (8.27 N/mm$^2$)
- Lead free

### Electrical Properties
- Dielectric strength: 200 V/mil (79 kV/cm)
- Volume resistivity: $10^9$ ohm-cm

### Availability
100 ft (30.5 m)
Spools may contain multiple lengths

| Part No | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm |
| **FIT-650-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.031 | 0.79 |
| **FIT-650-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.035 | 0.89 |
| **FIT-650-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.035 | 0.89 |
| **FIT-650-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.035 | 0.89 |
| **FIT-650-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.035 | 0.89 |
| **FIT-650-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.042 | 1.07 |
| **FIT-650-1** | 1.000 | 25.40 | 0.500 | 12.70 | 0.049 | 1.24 |
| **ST-650-1-1/2*** | 1.500 | 38.10 | 0.750 | 19.50 | 0.055 | 1.40 |

*Available in 50 ft (76 m) spools only.

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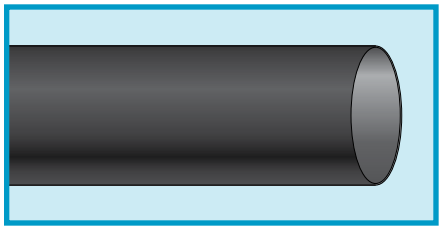
# Heat-Shrink Tubing

## FIT®-700 Heat Shrink Tubing
## 3:1 Shrink Ratio, Heavy-Wall XLPO, Thermoplastic Adhesive Lined



**ANSI C119:1**
**UL 486**
**CSA 198**

- Thermoplastic adhesive bonds to most materials
- Rated for 1 kV, 90°C continuous use
- Superior strength

### Operating Temperature
- -55°C to +110°C

### Shrink Temperature
- 120°C min.
- 120°C full recovery

### Material
- Heavy-wall cross-linked polyolefin
- Thermoplastic adhesive

### Color
- Black

### Physical Properties
- Tensile strength: 2100 psi (14.48 N/mm²)
- Elongation: 600% min
- Longitudinal change: +1%/-10%
- Specific gravity: 1.10
- Flame retardant
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.10% max
- Fluid resistance: excellent
- UV resistant
- Lead free

### Electrical Properties
- Dielectric strength: 500 V/mil (196.9 kV/cm)
- Volume resistivity: $10^{17}$ ohm-cm

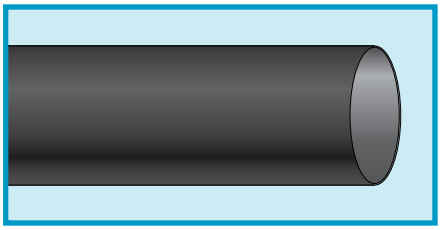
### Availability
Cut pieces (see table)

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Adhesive Wall Thickness, Min. | | Availability, Qty, Cut Pieces at Length |
|---|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm | 12" (304 mm) |
| **FIT-700-21** | 0.750 | 19.05 | 0.240 | 6.10 | 0.120 | 3.05 | 0.050 | 1.27 | 6 |
| **FIT-700-22** | 1.100 | 27.94 | 0.350 | 8.89 | 0.120 | 3.05 | 0.050 | 1.27 | 6 |
| **FIT-700-23** | 1.500 | 38.10 | 0.470 | 11.94 | 0.140 | 3.56 | 0.050 | 1.27 | 6 |
| **FIT-700-24** | 2.000 | 50.80 | 0.630 | 16.00 | 0.140 | 3.56 | 0.050 | 1.27 | 6 |
| **FIT-700-25*** | 3.000 | 76.20 | 1.250 | 31.75 | 0.160 | 4.06 | 0.050 | 1.27 | 6 |
| **FIT-700-26*** | 4.500 | 114.30 | 1.750 | 44.45 | 0.160 | 4.06 | 0.050 | 1.27 | 6 |

*Not UL or CSA listed

# Heat-Shrink Tubing

## FIT®-750 Heat Shrink Tubing
## 2:1 Shrink Ratio, XLPO, Adhesive Lined



**AMS-DTL-23053/4 Class 2**
**UL 224 VW-1**
**CSA 198**

- General-purpose adhesive-lined tubing
- Total encapsulation
- Bonding to substrates

### Operating Temperature
- -55°C to +110°C
- -55°C to +125°C (UL, CSA)

### Shrink Temperature
- 110°C min.
- 110°C full recovery

### Material
- Adhesive-lined cross-linked polyolefin

### Color
- Black

### Physical Properties
- Tensile strength: 1500 psi (10.34 N/mm$^2$)
- Elongation: 200% min
- Longitudinal change: +1%/-5%
- All tubing flame tested
- Self-extinguishing within 1 minute
- Shelf life: 3 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5% max
- Fluid resistance: 1000 psi (6.89 N/mm$^2$)
- UV resistance
- Lead free

### Electrical Properties
- 600 V (UL, CSA)
- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{12}$ ohm-cm

### Availability
See table

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Adhesive Wall Thickness, Min. | | Availability, Qty, Cut Pieces at Length |
|---|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm | 4' (1219 mm) |
| **ST-302-1/8** | 0.125 | 3.18 | 0.063 | 1.60 | 0.027 | 0.69 | 0.002 | 0.05 | 25 |
| **ST-302-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.027 | 0.69 | 0.002 | 0.05 | 25 |
| **FIT-750-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.030 | 0.76 | 0.004 | 0.10 | 25 |
| **FIT-750-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.031 | 0.79 | 0.004 | 0.10 | 25 |
| **FIT-750-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.032 | 0.81 | 0.005 | 0.13 | 5 |
| **FIT-750-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.037 | 0.94 | 0.005 | 0.13 | 5 |
| **FIT-750-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.039 | 0.99 | 0.007 | 0.18 | 5 |
| **FIT-750-1-1/2** | 1.500 | 38.10 | 0.750 | 19.05 | 0.046 | 1.17 | 0.007 | 0.18 | 5 |

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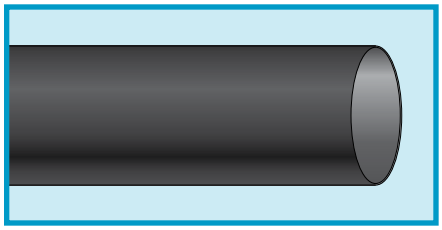
Specifications subject to change. For complete specifications and availability, visit www.alphawire.com.

# Heat-Shrink Tubing

## FIT®-FABRIC Woven Fabric Heat-Shrink Tubing
## 2:1 Shrink Ratio



**UL 1441 (125°C)**
**MVSS 302**

- Excellent abrasion resistance
- Outstanding flexibility and durability
- Easy installation: cuts with scissors

### Operating Temperature
- -40°C to +125°C

### Shrink Temperature
- 80°C min.
- 135°C full recovery

### Material
- Polyethylene-polyester fabric

### Color
- Black

### Physical Properties
- Flame retardant
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Lead free
- Halogen free
- UV resistant

### Availability
See table

Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-FAB-1** | 0.472 | 11.99 | 0.236 | 5.99 | 0.040 | 1.02 | 50, 200 | 15.2, 60.9 |
| **FIT-FAB-2** | 0.787 | 19.99 | 0.394 | 10.01 | 0.040 | 1.02 | 50, 200 | 15.2, 60.9 |
| **FIT-FAB-3** | 1.181 | 30.00 | 0.591 | 15.01 | 0.040 | 1.02 | 50, 200 | 15.2, 60.9 |
| **FIT-FAB-4** | 1.575 | 40.01 | 0.787 | 19.99 | 0.040 | 1.02 | 50, 200 | 15.2, 60.9 |
| **FIT-FAB-5** | 1.969 | 50.01 | 0.984 | 24.99 | 0.040 | 1.02 | 25, 100 | 7.6, 30.5 |
| **FIT-FAB-6** | 2.362 | 59.99 | 1.181 | 30.00 | 0.040 | 1.02 | 25, 100 | 7.6, 30.5 |
| **FIT-FAB-7** | 2.756 | 70.00 | 1.378 | 35.00 | 0.040 | 1.02 | 25, 100 | 7.6, 30.5 |

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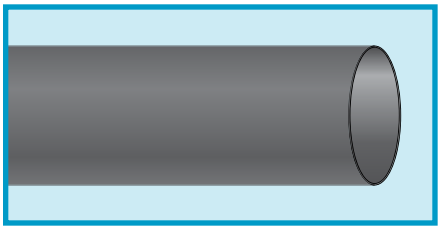
# Heat-Shrink Tubing

## FIT®-FLEX Highly Flexible Heat-Shrink Tubing
## 1.7:1 Shrink Ratio, Cross-linked Silicone Rubber



**UL 224 VW-1**

- Highly flexible over wide temperature range
- Scrape abrasion resistant
- Pliable

### Operating Temperature
- -50°C to +200°C

### Shrink Temperature
- 80°C min.
- 135°C full recovery

### Material
- Cross-linked silicone rubber

### Color
- Slate

### Physical Properties
- Tensile strength: 870 psi (5.99 N/mm$^2$)
- Elongation: 350% min
- Longitudinal change: -15%
- Specific gravity: 1.20
- Flammability: self-extinguishing
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption 1.0% max
- Lead free

### Electrical Properties
- 600 V
- Dielectric strength: 200 V/mil (79 kV/cm)
- Volume resistivity: $10^{12}$ ohm-cm

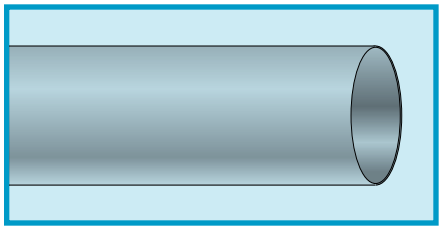
### Availability
25 ft (7.6 m)
100 ft (30.5 m)
Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm |
| **FIT-FLEX-2** | 0.165 | 4.19 | 0.071 | 1.80 | 0.055 | 1.40 |
| **FIT-FLEX-3** | 0.263 | 6.68 | 0.114 | 2.90 | 0.055 | 1.40 |
| **FIT-FLEX-5** | 0.394 | 10.01 | 0.173 | 4.39 | 0.055 | 1.40 |
| **FIT-FLEX-6** | 0.512 | 13.00 | 0.244 | 6.20 | 0.055 | 1.40 |
| **FIT-FLEX-9** | 0.757 | 19.23 | 0.354 | 8.99 | 0.059 | 1.50 |
| **FIT-FLEX-12** | 0.984 | 24.99 | 0.492 | 12.50 | 0.079 | 2.01 |
| **FIT-FLEX-20** | 1.378 | 35.00 | 0.748 | 19.00 | 0.079 | 2.01 |

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## FIT®-CLEAR Heat-Shrink Tubing
## 2:1 Shrink Ratio, Cross-Linked PVDF



**AMS-DTL-23053/18 Class 1**
**UL 224 VW-1**

- Excellent heat and chemical resistance
- Mechanical abrasion and cut-through resistance

### Operating Temperature
- -55°C to +175°C
- -55°C to +150°C (UL)

### Shrink Temperature
- 150°C full recovery

### Material
- Cross-linked polyvinylidene fluoride

### Color
- Clear

### Physical Properties
- Tensile strength: 3500 psi (24.13 N/mm²)
- Elongation: 200% min
- Longitudinal change: ±10%
- Specific gravity: 2.0
- Flame retardant
- Shelf life: 5 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption 0.5% max
- Fluid resistance: 2000 psi (13.79 N/mm²)
- Lead free

### Electrical Properties
- 600 V (UL)
- Dielectric strength: 400 V/mil (158 kV/cm)
- Volume resistivity: $10^{11}$ ohm-cm

### Availability
See table

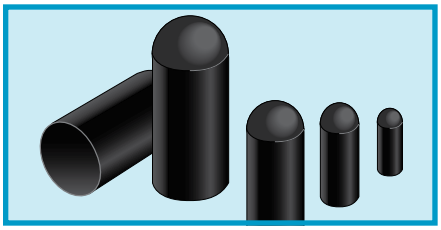
Spools may contain multiple lengths

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Availability | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Ft | m |
| **FIT-CLEAR-3/64** | 0.046 | 1.17 | 0.023 | 0.58 | 0.010 | 0.25 | 100 | 30.5 |
| **FIT-CLEAR-1/16** | 0.063 | 1.60 | 0.031 | 0.79 | 0.010 | 0.25 | 100 | 30.5 |
| **FIT-CLEAR-3/32** | 0.093 | 2.36 | 0.046 | 1.17 | 0.010 | 0.25 | 100 | 30.5 |
| **FIT-CLEAR-1/8** | 0.125 | 3.18 | 0.062 | 1.57 | 0.010 | 0.25 | 100 | 30.5 |
| **FIT-CLEAR-3/16** | 0.187 | 4.75 | 0.093 | 2.36 | 0.010 | 0.25 | 100 | 30.5 |
| **FIT-CLEAR-1/4** | 0.250 | 6.35 | 0.125 | 3.18 | 0.012 | 0.30 | 100 | 30.5 |
| **FIT-CLEAR-3/8** | 0.375 | 9.53 | 0.187 | 4.75 | 0.012 | 0.30 | 100 | 30.5 |
| **FIT-CLEAR-1/2** | 0.500 | 12.70 | 0.250 | 6.35 | 0.012 | 0.30 | 50 | 15.2 |
| **FIT-CLEAR-3/4** | 0.750 | 19.05 | 0.375 | 9.53 | 0.017 | 0.43 | 50 | 15.2 |
| **FIT-CLEAR-1IN** | 1.000 | 25.40 | 0.500 | 12.70 | 0.019 | 0.48 | 50 | 15.2 |
| **FIT-CLEAR-1-1/2** | 1.500 | 38.10 | 0.750 | 19.05 | 0.020 | 0.51 | 50 | 15.2 |
| **FIT-CLEAR-2IN** | 2.000 | 50.80 | 1.000 | 25.40 | 0.020 | 0.51 | 50 | 15.2 |

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## CAP Molded Heat-Shrink End Caps
## 2:1 Shrink Ratio, Semirigid Polyolefin



- Abrasion resistant
- Moisture resistant

### Operating Temperature

- -55°C to +135°C

### Shrink Temperature

- 135°C full recovery

### Material

- Semirigid polyolefin

### Color

- Black

### Physical Properties

- Tensile strength: 2500 psi (1.76 N/mm$^2$)
- Elongation: 300% min
- Recovered parts may have angularity of 30° to 45°
- Specific gravity: 1.25
- Flammability: self-extinguishing
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption 0.1% max
- UV resistant
- Lead free

### Electrical Properties

- Dielectric strength: 700 V/mil (276 kV/cm)
- Volume resistivity: $10^{16}$ ohm-cm

### Availability

25-piece packages

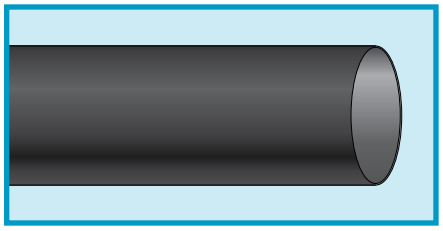
| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Length, Nom. | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **CAP-21** | 0.200 | 5.08 | 0.080 | 2.03 | 0.040 | 1.02 | 0.900 | 22.86 |
| **CAP-22** | 0.290 | 7.37 | 0.130 | 3.30 | 0.050 | 1.27 | 1.000 | 25.40 |
| **CAP-23** | 0.400 | 10.16 | 0.180 | 4.57 | 0.060 | 1.52 | 1.200 | 30.48 |
| **CAP-24** | 0.600 | 15.24 | 0.250 | 6.35 | 0.070 | 1.78 | 1.600 | 40.64 |
| **CAP-25** | 0.810 | 20.57 | 0.370 | 9.40 | 0.080 | 2.03 | 2.400 | 60.96 |
| **CAP-26** | 1.000 | 25.40 | 0.450 | 11.43 | 0.090 | 2.29 | 2.700 | 68.58 |
| **CAP-27** | 1.550 | 39.37 | 0.710 | 18.03 | 0.100 | 2.54 | 3.600 | 91.44 |

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## SPC Heat Shrink Tubing

## 3:1 Shrink Ratio, XLPO, Heavy-Wall Thermoplastic Bonding Layer



**AMS DTL-23053/15 Class 1**

- Adhesive lined for sealing
- Thick wall for extra abrasion resistance
- Rated to 1 kV

### Operating Temperature

- -55°C to +110°C

### Shrink Temperature

- 120°C min.

### Material

- Cross-linked polyolefin

### Color

- Black

### Physical Properties

- Tensile strength: 2400 psi (138 N/mm$^2$)
- Elongation: 475% min
- Longitudinal change: +1%/-10%
- Specific gravity: 1.28
- Flame retardant, self-extinguishing
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.02%
- Fluid resistance: pass
- UV resistant
- Lead free

### Electrical Properties

- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{15}$ ohm-cm

### Availability

Sold in individual pieces
6 in. (0.1 m)
12 in. (0.3 m)
48 in. (1.2 m) bulk

| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Adhesive Wall Thickness, Min. | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **SPC-400*** | 0.400 | 10.16 | 0.150 | 3.81 | 0.060 | 1.52 | 0.050 | 1.27 |
| **SPC-800*** | 0.800 | 20.32 | 0.200 | 5.08 | 0.060 | 1.52 | 0.050 | 1.27 |
| **SPC-110*** | 1.100 | 27.94 | 0.375 | 9.53 | 0.105 | 2.67 | 0.050 | 1.27 |
| **SPC-150** | 1.500 | 38.10 | 0.500 | 12.70 | 0.120 | 3.05 | 0.050 | 1.27 |
| **SPC-200** | 2.000 | 50.80 | 0.750 | 19.05 | 0.120 | 3.05 | 0.050 | 1.27 |
| **SPC-300** | 3.000 | 76.20 | 1.000 | 25.40 | 0.120 | 3.05 | 0.050 | 1.27 |

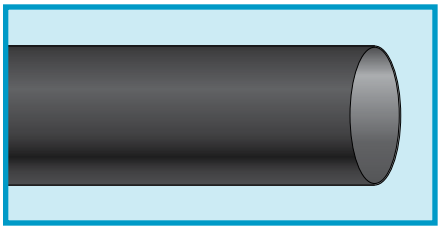
*Availability includes 6 in. (0.1 m) lengths.

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## SPCM Heat Shrink Tubing

## 3:1 Shrink Ratio, XLPO, Medium Wall, Thermoplastic Bonding Layer



**AMS DTL-23053/15 Class 2**

- Adhesive lined for sealing
- Medium wall for abrasion resistance
- Rated to 1 kV

### Operating Temperature

- -55°C to +200°C

### Shrink Temperature

- 120°C min.

### Material

- Cross-linked polyolefin

### Color

- Black

### Physical Properties

- Tensile strength: 2400 psi (1.38 N/mm$^2$)
- Elongation: 475% min
- Longitudinal change: +1%/-10%
- Specific gravity: 1.25
- Self-extinguishing
- Shelf life: 25 years at 18°C to 35°C

### Chemical Properties

- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.02%
- Fluid resistance: pass
- UV resistant
- Lead free

### Electrical Properties

- Dielectric strength: 500 V/mil (197 kV/cm)
- Volume resistivity: $10^{15}$ ohm-cm

### Availability

Sold in individual pieces
6 in. (0.1 m)
12 in. (0.3 m)
48 in. (1.2 m)

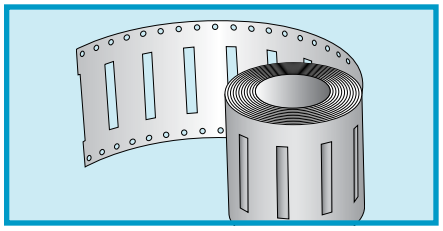
| Part No. | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | | Recovered Adhesive Wall Thickness, Min. | |
|---|---|---|---|---|---|---|---|---|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **SPCM400*** | 0.400 | 10.16 | 0.150 | 3.81 | 0.050 | 1.27 | 0.040 | 1.02 |
| **SPCM800*** | 0.800 | 20.32 | 0.220 | 5.59 | 0.060 | 1.52 | 0.040 | 1.02 |
| **SPCM110*** | 1.100 | 27.94 | 0.375 | 9.53 | 0.065 | 1.65 | 0.040 | 1.02 |
| **SPCM130** | 1.300 | 33.02 | 0.375 | 9.53 | 0.065 | 1.65 | 0.040 | 1.02 |
| **SPCM150** | 1.500 | 38.10 | 0.500 | 12.70 | 0.080 | 2.03 | 0.040 | 1.02 |
| **SPCM170** | 1.700 | 43.18 | 0.500 | 12.70 | 0.100 | 2.54 | 0.040 | 1.02 |
| **SPCM200** | 2.000 | 50.80 | 0.750 | 19.05 | 0.100 | 2.54 | 0.040 | 1.02 |
| **SPCM300** | 3.000 | 76.20 | 1.000 | 25.40 | 0.100 | 2.54 | 0.040 | 1.02 |

*Availability includes 6 in. (0.1 m) lengths.

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## FIT®-PRINT Heat-Shrinkable Identification System
## 3:1 Shrink Ratio, XLPO



**UL 224**
**CSA 198**
**MIL-STD-202F Method 215J**

- Permanent, smear-resistant marking
- Identification for cable or harness assemblies

### Operating Temperature
- -30°C to +105°C

### Shrink Temperature
- 90°C min.
- 125°C full recovery

### Material
- Cross-linked polyolefin

### Colors
- White, yellow

### Physical Properties
- Tensile strength: 1160 psi (8.0 N/mm$^2$)
- Elongation: 150% min
- Longitudinal change: 20%
- Flame retardant
- Shelf life: 3 years at 18°C to 35°C

### Chemical Properties
- Corrosive effect: none
- Fungus resistance: no growth
- Water absorption: 0.5%

### Electrical Properties
- Dielectric strength: 20 V/mil (7.9 kV/cm)
- Volume resistivity: $10^{14}$ ohm-cm

### Availability
250 tubing pieces per package

| Part No | Range | | | Supplied ID, Min. | | Recovered ID, Max. | | Recovered Wall Thickness, Nom. | |
|---|---|---|---|---|---|---|---|---|---|
| | AWG | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **FIT-PRINT-1/8** | 22 – 16 | 0.344 – 1.374 | 8.74 – 34.90 | 0.125 | 3.18 | 0.042 | 1.07 | 0.023 | 0.58 |
| **FIT-PRINT-1/4** | 16 – 8 | 1.374 – 3.264 | 34.90 – 82.92 | 0.250 | 6.35 | 0.083 | 2.11 | 0.023 | 0.58 |
| **FIT-PRINT-1/2** | 8 – 2 | 3.264 – 6.543 | 82.92 – 166.19 | 0.500 | 12.70 | 0.166 | 4.22 | 0.023 | 0.58 |
| **FIT-PRINT-1** | 2 – 4/0 | 6.543 – 10.2 | 166.19 – 259.08 | 1.000 | 25.40 | 0.333 | 8.46 | 0.023 | 0.58 |

To economically meet the wire identification needs of the electronic interconnect, industrial, computer office automation, marine, and electrical markets, FIT-PRINT sleeves allow smear-resistant, permanent identification. The sleeves, available in white or high-visibility bright yellow, feed directly into dot matrix printers (high carbon content ribbon recommended). A standard ball-point pen may also be used.

CA PROP 65 RoHS Compliant

# Heat-Shrink Tubing

## FIT®-KIT

## Assorted Heat-Shrink Tubing

- **For use in R&D labs, engineering development, and maintenance departments**

### FIT-KIT-1 for General-Purpose Indoor Applications

Tubing supplied in 6" (15.2 cm) lengths unless otherwise noted.

| Family | Material | Sizes | Range | Total Quantity |
|---|---|---|---|---|
| **FIT-105** | PVC | 9 | 3/64" – 3/4" | 18 |
| **FIT-221** | XLPO | 9 | 3/64" – 3/4" | 19 |
| **FIT-295** | SR-XLPO | 8 | 3/64" – 1/2" | 12 |
| **FIT-300** | XLPO | 5 | 1/8" – 1/2" | 10 |
| **FIT-350** | PVDF | 7 | 3/64" – 3/8" | 14 |
| **FIT-CRIMP** | Nylon | 22 – 10 AWG | — | 3 pc* |
| **Caps** | XLPO | 22, 23, 24 AWG | — | 6 pc |

*1 each of FIT-CRIMP 1, 2, and 3.

### FIT-KIT-2 for General-Purpose Indoor and Outdoor Applications

Tubing supplied in 6" (15.2 cm) lengths unless otherwise noted.

| Family | Material | No. of Sizes | Range | Total Quantity |
|---|---|---|---|---|
| **FIT-105** | PVC | 9 | 3/64" – 3/4" | 18 |
| **FIT-221** | XLPO | 9 | 3/64" – 3/4" | 19 |
| **FIT-295** | SR-XLPO | 8 | 3/64" – 1/2" | 12 |
| **FIT-300** | XLPO | 5 | 1/8" – 1/2" | 10 |
| **FIT-321** | Adhesive-Lined XLPO | 2 | 1/4" – 1/2" | 16, 24* |
| **FIT-350** | PVDF | 7 | 3/64" – 3/8" | 14 |
| **FIT-400** | FEP | 6 | 24 – 12 AWG | 22 |
| **FIT-500** | PTFE | 5 | 26 – 18 AWG | 17 |
| **FIT-600** | Chlorinated PO | 5 | 1/4" – 1" | 8 |
| **FIT-700** | Thermoplastic Adhesive-Lined XLPO | 2 | 21 – 22 | 2 |
| **FIT-750** | Adhesive-Lined XLPO | 1 | 3/8" | 10* |
| **FIT-CRIMP** | Nylon | 22 – 10 AWG | — | 3 pc** |
| **Caps** | XLPO | 22, 23, and 24 | — | 6 pc |

*1"/25.4 mm length.
**1 each of FIT-CRIMP 1, 2, and 3.

### FIT-KIT-7 for General-Purpose Indoor and Outdoor Applications

Tubing supplied in 6" (15.2 cm) lengths unless otherwise noted.

| Family | Material | No. of Sizes | Range | Total Quantity |
|---|---|---|---|---|
| **FIT-105** | PVC | 7 | 1/16" – 1/2" | 14 |
| **FIT-221** | XLPO | 7 | 1/16" – 1/2" | 28 |
| **FIT-260** | XLPO (Ground Lead) | 3 | 1/8" – 1/2"" | 6 |
| **FIT-300** | XLPO | 4 | 3/8" – 1/2" | 8 |
| **FIT-321** | Adhesive-Lined XLPO | 3 | 1/8" – 1/2" | 6 |
| **FIT-350** | PVDF | 7 | 1/6" – 1/2" | 14 |
| **FIT-400** | FEP | 7 | 24 – 12 AWG | 14 |
| **FIT-750** | Adhesive-Lined XLPO | 5 | 1/4" – 1" | 10 |
| **FIT-CRIMP** | Nylon | 22 – 10 AWG | — | 12 pc* |

*4 each of FIT-CRIMP 1, 2, and 3.

# Heat-Shrink Tubing

## FIT®-MGKIT-1

## Convenient Kit with FIT Minigun and FIT-221 Variety Pack

### FIT Minigun Characteristics

- UL 499
- To 300°C nozzle temperature
- 6 ft (1.83 m) power cord
- 10.3 oz (0.39 kg) net weight
- Workbench storage loop included
- 120 V
- 350 W
- 3 A
- Color: blue

### FIT-221-R Variety Kit

- UL 224
- CSA 198
- AMS-DTL-23053/5 Class 1
- 60 6" (15.2 cm) pieces in five sizes and various colors
- Cross-linked polyolefin
- 2:1 shrink ratio

**FIT-MGKIT-1 Contents**

| Part No. | Description | Quantity |
|---|---|---|
| **FIT MINIGUN** | Lightweight, portable heat gun | 1 |
| **FIT-221-R** | FIT-221R Variety Pack | 1 kit/60 pieces |

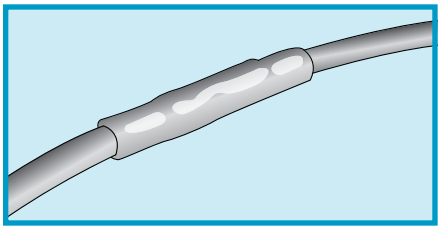
**FIT-221-R Kit Contents**

| | Tubing Size | | Number of 6" (15.2 cm) Pieces | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Inch | Mm | Black | White | Red | Blue | Yellow | Green |
| **FIT-221-1/8** | 0.125 | 3.18 | 4 | 3 | 2 | 2 | 2 | 1 |
| **FIT-221-3/16** | 0.187 | 4.75 | 4 | 3 | 2 | 2 | 2 | 1 |
| **FIT-221-1/4** | 0.250 | 6.35 | 4 | 3 | 2 | 2 | 2 | 1 |
| **FIT-221-3/8** | 0.375 | 9.53 | 3 | 2 | 1 | 1 | 1 | 1 |
| **FIT-221-1/2** | 0.500 | 12.70 | 3 | 2 | 1 | 1 | 1 | 1 |

RoHS Compliant

# Heat-Shrink Tubing

## FIT®-CRIMP Heat-Shrinkable Crimp Splices
## 2:1 Shrink Ratio, Nylon



**UL ZMVV**

### Operating Temperature

- -55°C to +125°C

### Materials

- Heat-shrinkable nylon
- Polyamide-based adhesive
- Tin-plated copper base metal

### Physical Properties

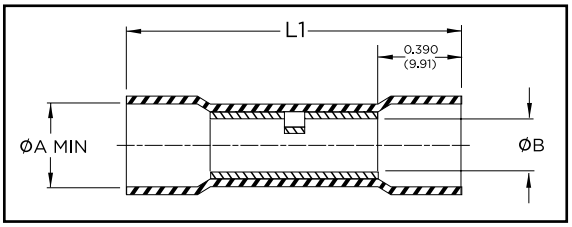
- Shelf life: 25 years at 18°C to 35°C
- Not flame retardant

### Chemical Properties

- Solvent resistance: isopropyl alcohol, trichloroethylene, gasoline, battery acid, diesel fuel, motor oil, anti-freeze, brake fluid, 5% salt water

### Availability

100-piece packages
500-piece packages




| Part No. | Wire Range | | Color | Length | | Supplied ID, Min. | | | | Recovered ID, Max. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L1 | | A | | B | | A | |
| | AWG | mm² | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| **FIT-CRIMP 1** | 22 – 18 | 0.26 – 0.96 | Red | 1.50 | 38.10 | 0.170 | 4.32 | 0.058 | 1.47 | 0.055 | 1.40 |
| **FIT-CRIMP 2** | 16 – 14 | 1.04 – 2.62 | Blue | 1.50 | 38.10 | 0.197 | 5.00 | 0.092 | 2.34 | 0.080 | 2.03 |
| **FIT-CRIMP 3** | 12 – 10 | 2.62 – 6.64 | Yellow | 1.70 | 43.18 | 0.255 | 6.48 | 0.138 | 3.51 | 0.110 | 2.79 |

Alpha's heat-shrinkable pre-insulated crimp splices completely seal electrical connections from corrosion caused by water, salts, and other contaminants. Unlike conventional splices, these adhesive-lined butt connectors provide a strong reinforced connection. They are lightweight and easy to install, too.

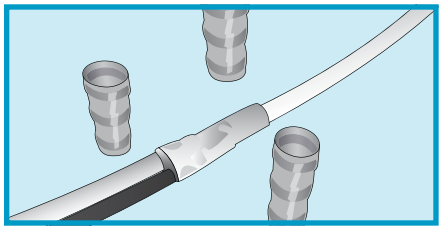
Simply insert the wires. The sleeve's transparent nylon insulation lets you inspect wire location and position your crimping tool fast.

Crimp the splice and then shrink and seal it with a common heat gun or other heat source. Reliable sealing plus quick and easy installation add up to protection you can count on whenever wire splices are required, including automobile and truck wiring, outdoor electrical equipment, marine equipment, telecommunications equipment, recreational equipment, and household appliances.

RoHS Compliant

# Heat-Shrink Tubing

## FIT®-SLV Soldering Sleeves



**ANSI J-STD-004**
**ANSI J-STD-006**
**NAS 1745**

### Operating Temperature

- -55°C to +105°C (SLV 12 – 16)
- -55°C to +125°C (SLV 22 – 26)

### Sleeve Color

- Transparent blue

### Materials

- PVDF heat-shrinkable sleeve

### Solder Preform:

- 105°C Series: 51.2% tin, 30.6% lead, 18.2% cadmium (143°C melting temperature)
- 125°C Series: 63% tin, 37% lead (183°C melting temperature)

### Physical Properties:

- Shelf life: 25 years at 18°C to 35°C

### Availability

25-piece packages
100-piece packages

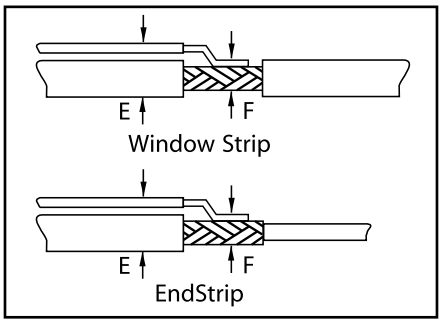
| Part No. | | Dimensions | | | | | |
|---|---|---|---|---|---|---|---|
| | | D1 min. | | D min. | | L nom. | |
| 105°C | 125°C | Inch | mm | Inch | mm | Inch | mm |
| **FIT-SLV-12** | **FIT-SLV-22** | 0.125 | 3.18 | 0.110 | 2.79 | 0.625 | 15.88 |
| **FIT-SLV-14** | **FIT-SLV-24** | 0.200 | 5.08 | 0.180 | 4.57 | 0.625 | 15.88 |
| **FIT-SLV-16** | **FIT-SLV-26** | 0.300 | 7.62 | 0.280 | 7.11 | 0.750 | 19.05 |

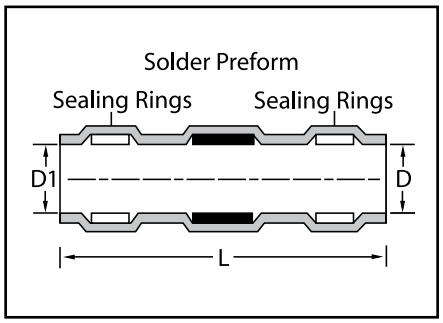
Alpha's FIT-SLV soldering sleeve is a one piece, shield ground termination system featuring a strong, low-cost soldered connection that is completely insulated and encapsulated. It consists of a heat-shrinkable thermoplastic sleeve containing a precisely engineered preform of fluxed solder and thermoplastic inserts at each end. When placed over a cable shield and heated, the solder melts and flows, connecting the ground lead and shield. The outer sleeve shrinks and the thermoplastic inserts melt, encapsulating the termination. The result is a perfectly soldered, strain-relieved and environmentally protected termination.

A solder preform ensures exact quantity of solder and flux, producing optimum solder connections for maximum strength and lowest voltage drop. Transparent heat-shrinkable insulating sleeve allows inspection of termination, and provides long-life strain relief. Meltable inserts insure complete environmental protection.

### Selection Guide

1. Measure maximum diameter (E) and minimum diameter (F) of combined cable and ground lead.
2. Find appropriate Alpha part number and sleeve size in the cable and sleeve dimensions chart.



# Heat-Shrink Tubing

## FIT® Heat Guns

| | FIT-GUN-1 | FIT-GUN-3 | FIT-Minigun |
|---|---|---|---|
| | | | |
| **Temperature, Low** | 60°C (140°F) | 316°C (600°F) | — |
| **Temperature, High** | 566°C (1050°F) | 510°C (950°F) | 300°C (572°F) |
| **Temperature Selection** | Slider switch: Off, Low, Medium, High | Slider switch: Off, Low, High | Rocker switch: Off, On |
| **Power** | 1400 W | 1300 W | 350 W |
| **Voltage** | 120 VAC/60 Hz | 120 VAC/60 Hz | 120 VAC/60 Hz |
| **Current** | 11.6 A | 10.0 A | 3 A |
| **Power Cord Length** | 6.5 ft (2 m) | 6.5 ft (2 m) | 6 ft (1.8 m) |
| **Net Weight** | 2.2 lb (1 kg) | 1.6 lb (0.68 kg) | 10.3 oz (0.39 kg) |
| **Color** | Black/gray | Black/gray | Blue |
| **Nozzle Attachments** | Reflector nozzle | — | Workbench loop |
| **Approvals** | UL 499 c UL us RoHS Compliant | UL 499 c UL us RoHS Compliant | UL 499 UL LISTED |
| **Part No.** | **FIT-GUN1** | **FIT-GUN3** | **FIT-MG1** |



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