



Preferred Heat Shrink Products

SIMPLE, COMPREHENSIVE TUBING SOLUTIONS



FIT® Preferred Heat Shrink Products are made from premium compounds under the tightest manufacturing controls. This means **FIT®** will consistently have 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® Preferred Heat Shrink Product** line consists of many different tubing types each designed with unique attributes which offer tubing solutions for the broadest possible range of applications and environments.

The **FIT®** brand name is widely recognized wherever heat shrink products are used. Users prefer **FIT® Heat Shrink Products** more than any other source and ask for them by name.

The entire **FIT®** heat shrink offering has been designed to make product selection and identification as simple as possible. There's nothing easier! **FIT®** part numbers are easy to remember and clearly identify shrink ratios and sizes.

*Teflon® is a registered trademark of E.I. DuPont Co.
 **Kynar® is a trademark of ELF Atochem, North America, Inc.
 ***Viton® is a registered trademark of Dupont Dow Elastomers

MARKING: Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) have eliminated the surface printing requirement for both heat shrink and non-heat shrink tubing. All mandatory information, for both UL Recognized and CSA Certified tubing, will appear exclusively on the product packaging.

Product Type

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FIT® Preferred Heat Shrink Products

SIMPLE, COMPREHENSIVE TUBING SOLUTIONS

SELECTION GUIDE

PROTECT ~ substrates from moisture, UV light, corrosion, oxidation, dust, chemicals, abrasion, environmental conditions, solder joints and encapsulate.

INSULATE ~ wire terminations and connections, entire PC boards, from temperature and ambient conditions.

REPAIR ~ cable splices, reinsulate, cable jackets, connections, permanent or emergency quick fix.

FLEXIBILITY ~ with robotics cable, strain relief, prevent bending.

BUNDLE & HOLD ~ wire harness, cable, tubing and hose dressing on OEM equipment, breakouts, bundle in small spaces, conform to odd shapes.

SEAL ~ moisture protect, fill spaces/interstices, permanent or temporary, "pinching".

IDENTIFY & BEAUTIFY ~ circuit/ground indicator, color coding, organize, personalize/label, conceal mechanical attachments, improve physical appearance.

IRRADIATED POLYOLEFIN

FIT®-221 / FIT®-221B Pg. 114-116 MIL-DTL-23053/5C, Class 1, 2
General Purpose, Irradiated Polyolefin



FEATURES & BENEFITS:

- General purpose protection & repair
- Identification & beautifying substrates
- Insulation from environment
- Reduced longitudinal shrinkage
- Resistance to water, fungus, UV light*
- Large, economical, bulk packages (**FIT-221B**)

APPLICATIONS:

- General purpose insulation & repair
- Wire & cable harnessing & bundling
- Cable & connector protection
- Wire & tubing splicing & connecting
- **XTRA•GUARD® 1** applications
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 4 in - Packages: 4ft lengths, spools & cut pieces - Colors: Black, White, Clear**, Red, Yellow, Blue, Green

*black color only

**Not UL Recognized, CSA Certified

FIT®-221V Pg. 117 MIL-DTL-23053/5C, Class 1, 3 ~ CSA OFT Flame Test
Low Shrink Temp, Flame Retardant, Irradiated Polyolefin



FEATURES & BENEFITS:

- Lowest shrink temperature (90°C)
- Fastest recovery time
- UL VW-1 & CSA OFT flame retardancy
- Resistance to water, fungus, UV light*
- Large, economical, bulk packages
- New colors available!

APPLICATIONS:

- Where substrates are heat sensitive
- Where reduced shrink time saves costs
- Flame retardancy requirements
- Industrial applications
- Cable & connector protection
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 90°C ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 2 in - Packages: 4ft lengths, spools & cut pieces - Colors: Black, White, Red, Yellow, Green, Blue

*black color only

FIT®-260 Pg. 119 NEC Article 250-57B, Exception 3
Irradiated Polyolefin Ground Identification



FEATURES & BENEFITS:

- Color coding leads as a ground circuit
- Same physical characteristics as **FIT-221**

APPLICATIONS:

- Approved for use by NFPA for 600 volt ground lead identification
- E-OEM component identification
- Wire harness identification
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 1/8" - 1 in - Packages: Spools - Colors: Green with Yellow stripe. Each color covers a minimum of 30% surface area.

FIT®-295 Pg. 124 MIL-DTL-23053/6D, Class 1, 2
Semi-Rigid Irradiated Polyolefin



FEATURES & BENEFITS:

- 30% stronger than standard polyolefin
- 25% stiffer than standard polyolefin
- Low water absorption
- Resistance to water, fungus, UV light

APPLICATIONS:

- Strength & stiffness make it excellent for strain relief applications
- Heavy duty cable/connector protection
- Electrical cable splices
- Crimp terminals
- Solder joints

CHARACTERISTICS: Shrink Ratio: 2:1 @ 135°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 1/2" - Packages: 4ft lengths & cut pieces - Colors: Multiple

HIGH SHRINK RATIO

FIT®-321 Pg. 121 MIL-DTL-23053/4D, Class 3
Medium Wall, Adhesive Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Expanded to a 3 to 1 shrink ratio
- Increased wall thickness for durability
- Water resistant adhesive inner lining
- Permanent bonding adhesive

APPLICATIONS:

- Connectorized cable repair
- Water resistance & encapsulation
- Environmental & outdoor protection
- **XTRA•GUARD® 1, 2 & 3** applications

CHARACTERISTICS: Shrink Ratio: 3:1 @ 125°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -15% ~ Size: 1/8" - 1-1/2 in - Packages: 4ft lengths & cut pieces - Color: Black

FIT®-321V Pg. 120 CSA OFT Flame Test
Low Shrink Temp, Flame Retardant, Irradiated Polyolefin



FEATURES & BENEFITS:

- Expanded to a 3 to 1 shrink ratio
- Lowest shrink temperature (90°C)
- Fastest recovery time
- Reduced wall thickness
- UL VW-1 & CSA OFT flame retardancy

APPLICATIONS:

- Connectorized cable repair
- Where substrates are heat sensitive
- Delicate & intricate electronics protection
- Industrial applications
- Flame retardancy requirements
- Automated cutting machines

CHARACTERISTICS: Shrink Ratio: 3:1 @ 90°C ~ Temperature: -55°C to 125°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/32" - 1 in - Packages: Spools - Colors: Black, White

FIT®-421 Pg. 122 MIL-DTL-23053/5C, Class 1 Overexpanded
Over Expanded, Irradiated Polyolefin

FEATURES & BENEFITS:

- Over expanded to a 4 to 1 shrink ratio
- Large supplied diameter sizes
- Resistance to water, fungus, UV light
- Shrinks to 25% of its original size
- Conforms to odd shapes

APPLICATIONS:

- D-Sub connector strain relief
- RS-232 25 pin connector to cable coverage
- Covers the most irregular shapes & connectors
- PC board coverage/protection

CHARACTERISTICS: Shrink Ratio: 4:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -10% ~ Size: 1 in - 4 in - Packages: 4ft lengths - Color: Black

FIT®-621 Pg. 123
Heavy Wall, Adhesive Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Over expanded to a 6 to 1 shrink ratio
- Shrinks to 1/6 its original size
- Heavy duty adhesive inner lining
- Low water absorption
- Excellent durability & toughness
- Resistant to oils & chemicals
- Convenient pre-cut 6 inch lengths

APPLICATIONS:

- Protection in severe environments
- Large to small connector-to-cable protection
- Underground utility splice protection
- Corrosion protection of metal parts
- Protects substrates in direct burial applications
- Heavy duty abrasion resistance

CHARACTERISTICS: Shrink Ratio: 6:1 @ 120°C ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: -10% ~ Size: 5/8" - 4 in - Packages: 6 inch lengths - Color: Black

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Preferred Heat Shrink Products

SIMPLE, COMPREHENSIVE TUBING SOLUTIONS

SELECTION GUIDE

DUAL WALL / ADHESIVE LINED

FIT®-300 Pg. 125

MIL-DTL-23053/4D, Class 1

Surface Irradiated/Dual Extruded Polyolefin



FEATURES & BENEFITS:

- Melttable inner wall
- Encapsulates without adhesive
- Temporary sealing without sticky residue
- Increased wall thickness for added protection
- High shrink ratios
- Excellent dielectric properties

APPLICATIONS:

- Substrates requiring filled interstices
- Digital electronics where adhesive is unacceptable
- Temporary applications requiring encapsulation

CHARACTERISTICS: Shrink Ratio: 3:1 - 6:1 (depending on size) @ 135°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -10% ~ Size: 1/8" - 3/4" ~ Packages: 4ft lengths, cut pieces ~ Colors: Multiple

FIT®-700 Pg. 126

Bonding, Mastic Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Bonding adhesion to most materials
- Environmental & water-tight seal
- Prevents wicking & fills interstices
- Tubing sizes match 14AWG-2000MCM sizes
- Superior strength
- High voltage
- Pre-cut 12 inch pieces

APPLICATIONS:

- High voltage splices (up to 2 kV)
- Water resistant connections
- Underground utility applications
- Direct burial
- Outdoor insulation & protection
- **XTRA•GUARD® 3** applications

CHARACTERISTICS: Shrink Ratio: 3:1 @ 121°C ~ Temperature: -55°C to 90°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/4" - 4-1/2 in (14AWG-2000MCM) ~ Packages: 12 inch cut pieces ~ Color: Black

FIT®-750 Pg. 127

MIL-DTL-23053/4D, Class 2

Bonding, Adhesive Lined, Irradiated Polyolefin



FEATURES & BENEFITS:

- Bonding to substrates
- Similar to **FIT-221** with adhesive liner
- Total encapsulation
- Reduced diameters
- Permanent water & corrosion protection
- Internal isolation of individual substrates - "pinching"

APPLICATIONS:

- Moisture protection of substrates
- Permanent sealing of substrates
- Wire isolation within a harness
- Permanent joint splice repair
- General purpose usage with adhesive
- **XTRA•GUARD® 2** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -5% ~ Size: 1/4" - 1-1/2 in ~ Packages: 4ft lengths ~ Color: Black

SPECIALTY MATERIALS

FIT®-105 Pg. 118

MIL-I-23053/2C, Class 1†† ~ CSA OFT Flame Test

Irradiated PVC



FEATURES & BENEFITS:

- Low shrink temperature (100°C)
- 30% stronger than standard polyolefin
- UL VW-1 & CSA OFT flame retardancy
- Low water absorption & UV resistant
- Multiple package availability

APPLICATIONS:

- Use with PVC cable
- With heat sensitive substrates
- Fast recovery time
- Wire harnesses & cable assemblies
- Flame retardant requirements
- **XTRA•GUARD® 1** applications
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 100°C ~ Temperature: -35°C to 105°C ~ Longitudinal Shrinkage: -15% ~ Size: 3/64" - 2 in ~ Packages: 4ft lengths, spools & cut pieces ~ Color: Black

†† Inactive for new design, no longer used by the DOD except for replacement purposes

FIT®-350 Pg. 128

MIL-DTL-23053/8C ~ CSA OFT Flame Test

Flame Retardant Irradiated Kynar**



FEATURES & BENEFITS:

- Chemical resistance
- 3 times the tensile strength of standard polyolefin
- Excellent flame retardancy
- Excellent heat resistance
- Excellent chemical resistance

APPLICATIONS:

- High temperature environments
- Faster recovery time than Teflon*
- Exposure to chemicals
- Use with high temperature wire
- Caustic environments
- **XTRA•GUARD® 4** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 175°C ~ Temperature: -55°C to 175°C ~ Longitudinal Shrinkage: -10% ~ Size: 3/64" - 1 in ~ Packages: 4ft lengths & cut pieces ~ Color: Transparent

*Teflon® is a registered trademark of E. I. DuPont Co. **Kynar® is a trademark of ELF Atochem, North America, Inc. ***Viton® is a registered trademark of Dupont Dow Elastomers

SPECIALTY MATERIALS (CONTINUED)

FIT®-400 Pg. 129

MIL-DTL-23053/11C, Class 1

Temperature/Chemical Resistant FEP Teflon*

FEATURES & BENEFITS:

- Excellent chemical resistance
- Extreme temperature range of -67°C to 200°C
- Unmatched dielectric properties
- Thinnest wall thickness available
- Lower recovery temp than TFE Teflon*

APPLICATIONS:

- Fiber optic applications
- High temperature cable
- Limited space applications
- **XTRA•GUARD® 4 & 5** applications
- Digital electronics (signal sensitive equip.)
- Extremely caustic environments
- Fast recovery time
- Data & FEP Teflon* cable applications

CHARACTERISTICS: Shrink Ratio: 1.2:1 @ 176°C ~ Temperature: -67°C to 200°C ~ Longitudinal Shrinkage: -15% ~ Size: 0.034" - 0.44" (24AWG-0AWG) ~ Packages: 4ft lengths & 2ft lengths ~ Color: Natural

FIT®-500 Pg. 130

MIL-DTL-23053/12C, Class 3

Temperature/Chemical Resistant TFE Teflon*

FEATURES & BENEFITS:

- Supreme chemical resistance
- Most extreme temperature range of -67°C to 250°C
- High tensile strength
- Unmatched dielectric properties
- Extremely thin wall thickness
- Low friction coefficient

APPLICATIONS:

- Fiber optic applications
- TFE Teflon* cable applications
- Limited space applications
- Digital electronics (signal sensitive equip.)
- Extremely caustic environments

CHARACTERISTICS: Shrink Ratio: 1.5:1 @ 327°C ~ Temperature: -67°C to 250°C ~ Longitudinal Shrinkage: -20% ~ Size: 0.034" - 0.047" (30AWG-0AWG) ~ Packages: 2ft lengths ~ Color: Natural

FIT®-600 Pg. 131

MIL-DTL-23053/1C, Class 2† ~ MIL-R-46846 Type 1, Class 1†

Highly Flexible, Irradiated Elastomer



FEATURES & BENEFITS:

- Improved flexibility
- More than twice the tensile strength of silicone rubber
- Large tubing diameters
- Oil resistance & flame retardancy
- Abrasion resistance

APPLICATIONS:

- Military & commercial harnesses
- Cold temperature flexing
- Machine tool & automation equipment
- **XTRA•GUARD® 4** applications
- **XTRA•GUARD® Flexible Cable** applications

CHARACTERISTICS: Shrink Ratio: 1.75:1 @ 135°C ~ Temperature: -70°C to 121°C ~ Longitudinal Shrinkage: -10% ~ Size: 1/4" - 3in ~ Packages: Spools ~ Color: Black

† FIT-600 does not contain any polychloroprene/neoprene but meets the physical properties of MIL-DTL-23053/1C, Class 2 and MIL-R-46846 Type 1, Class 1 specifications.

FIT®-650 Pg. 132

MIL-DTL-23053/13B

Chemical and Temperature Resistant Irradiated Viton***

FEATURES & BENEFITS:

- Extreme temperatures -40°C to 200°C
- Excellent chemical resistance (water, oil, acid & fuels)
- Flexibility

APPLICATIONS:

- Chemical production applications
- Military electronics/aircraft
- In hostile environments requiring some flexibility
- **XTRA•GUARD® 5** applications
- **XTRA•GUARD® Flexible Cable** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 175°C ~ Temperature: -40°C to 200°C ~ Longitudinal Shrinkage: -20% ~ Size: 1/8" - 1 in ~ Packages: Spools ~ Color: Black

FIT® FABRIC Pg. 133

MVSS 302 Horizontal Burn Test

Highly Flexible, Heat Shrinkable Woven Fabric Tubing



FEATURES & BENEFITS:

- Superior abrasion resistance over a wide temperature range
- Outstanding flexibility and durability
- Tight grip without additional fixing
- Ease of installation, cuts with scissors
- Resistance to harsh environments
- Soft, safe handling

APPLICATIONS:

- Mechanical abrasion protection
- Severe environment protection
- Noise and rattle protection
- Halogen free environment
- Flexing applications

CHARACTERISTICS: Shrink Ratio: Approx. 2:1 or 3:1 @ 135°C depending on size ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: Up to 20% @ 2:1 Shrink Ratio, Up to 25% @ 3:1 Shrink Ratio ~ Size: 0.47" - 2.36" ~ Packages: Spools ~ Color: Black



FIT® Preferred Heat Shrink Products

GENERAL PURPOSE, IRRADIATED POLYOLEFIN

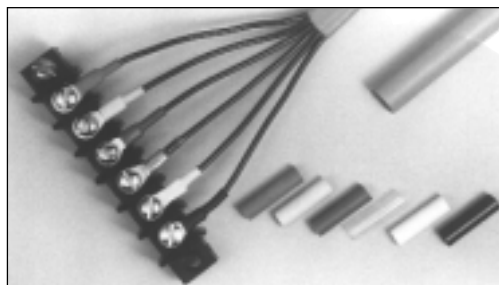
FIT®-221

MIL-DTL-23053/5C,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-221 FOR:

- General Purpose Protection and Repair
- Identification and Beautifying Substrates
- Insulation from Environment
- Reduced Longitudinal Shrinkage
- Resistance to Water, Fungus, UV Light (black only)
- Use with **XTRA•GUARD**® 1

2 TO 1 SHRINK RATIO



FIT®-221 APPLICATIONS:

- General Purpose Insulation and Repair
- Wire and Cable Harnessing and Bundling
- Cable and Connector Protection
- Wire and Tubing Splicing and Connecting
- **XTRA•GUARD**® 1 Applications
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- 4-Foot Lengths:
3/64 to 2 Inch – Black, White, Clear, Red, Yellow, Blue, Green
3 and 4 Inch – Black, Clear
- 6-Inch Lengths:
3/64 to 1 Inch – Black, White, Clear, Red, Yellow, Blue, Green
1-1/2 to 3 Inch – Black, Clear
- 1/2 or 1 Inch Cut Pieces: Black
- Spools: See Color Availability Chart Next Page

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Secant Modulus: 2.5 x 10⁴ max.
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/5C, Class 1, 2
- UL Standard 224 (except for Clear)
- CSA Standard 198 (except for Clear)

Recognized Component
Underwriters Laboratories Inc.

Certified
Canadian Standards Association

Packaged Assortments		
Assorted Sizes of 6" Lengths		
Each Length – Size Identified		
Assorted Colors		
Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT -221-MS-1	3/64" – 3/16" (5 Sizes)	6 per Size (30 Lengths)
FIT -221-MS-2	1/4" – 3/4" (4 Sizes)	4 per Size (16 Lengths)

Recommended For Use With
XTRA•GUARD® 1
Extra-Premium Grade PVC Jacketed
General Purpose Cables



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MIL-DTL-23053/5C,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198



Preferred Heat Shrink Products

GENERAL PURPOSE, IRRADIATED POLYOLEFIN

FIT®-221

Alpha Part No. And Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Recovered Wall Thickness		4 Ft. Lengths Total Ftg.	Standard Packages				
	Inches	mm	Inches	mm	Inches	mm		Spools		No. Cut Pieces 6 Inch	No. Cut Pieces 1/2" or 1"	
FIT-221-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000			40	1000
FIT-221-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100	70	36	1000
FIT-221-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100	65	32	1000
FIT-221-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100	60	28	1000
FIT-221-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100	50	24	1000
FIT-221-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100	40	20	1000
FIT-221-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50	35	16	1000
FIT-221-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50	32	14	--
FIT-221-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50	24	12	--
FIT-221-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50	16	8	--
FIT-221-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	--	--	5	--
FIT-221-2	2.000	50,80	1.000	25,40	0.045	1,16	20	125	--	--	3	--
FIT-221-3	3.000	76,20	1.500	38,10	0.050	1,27	8	100	--	--	2	--
FIT-221-4	4.000	101,60	2.000	50,80	0.055	1,40	8	50	--	--	1	--

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SPOOL COLOR AVAILABILITY CHART

FIT-221 Tubing Size	Put-Up	Colors
3/64"	1000'	Black, Clear
1/16"	1000'	All Colors*
	100'	Black, Clear
3/32"	70'	All Colors
	500'	All Colors
	100'	Black, Clear
1/8"	65'	All Colors
	500'	All Colors
	100'	Black, Clear
3/16"	60'	All Colors
	500'	All Colors
	100'	Black, Clear
1/4"	50'	All Colors
	250'	All Colors
	100'	Black, Clear
	40'	All Colors

FIT-221 Tubing Size	Put-Up	Colors
3/8"	200'	All Colors
	50'	Black, Clear
1/2"	35'	All Colors
	150'	All Colors
	50'	Black, Clear
3/4"	32'	All Colors
	250'	All Colors
	50'	Black, Clear
1"	24"	All Colors
	250'	All Colors
	50"	Black, Clear
1-1/2"	16"	All Colors
	125'	Black, Clear
2"	125'	Black, Clear
3"	100'	Black, Clear
4"	50'	Black, Clear

*All colors include black, white, clear, red, yellow, blue, green

**SEE PAGE 116
FOR
ECONOMICAL BULK PACKAGES!**

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**CHOOSE
 FIT-221B FOR:**

- General Purpose Protection and Repair
- Identification and Beautifying Substrates
- Insulation from Environment
- Reduced Longitudinal Shrinkage
- Resistance to Water, Fungus, UV Light (black only)
- Use with **XTRA•GUARD® 1**

**FIT-221B
 APPLICATIONS:**

- General Purpose Insulation and Repair
- Wire and Cable Harnessing and Bundling
- Cable and Connector Protection
- Wire and Tubing Splicing and Connecting
- **XTRA•GUARD® 1** Applications
- Automated Cutting Machines (spools)



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- All Bulk Packages: Black, Clear

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Secant Modulus: 2.5 x 10⁴ max.
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/5C, Class 1, 2
- UL Standard 224 (except for Clear)
- CSA Standard 198 (except for Clear)



Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		NEW BULK PACKAGES				
	Inches	mm	Inches	mm	Inches	mm	Qty. in Box	Total Spool Size	Total Ftg.	No. of Pcs.	Total Ftg.
FIT-221B-3/64	0.046	1,17	0.023	0,58	0.016	0,41	3x1000	3000	250x4	1000	
FIT-221B-1/16	0.063	1,60	0.031	0,78	0.017	0,43	3x1000	3000	250x4	1000	
FIT-221B-3/32	0.093	2,36	0.046	1,17	0.020	0,50	3x500	1500	250x4	1000	
FIT-221B-1/8	0.125	3,18	0.062	1,58	0.020	0,50	3x500	1500	250x4	1000	
FIT-221B-3/16	0.187	4,75	0.093	2,36	0.020	0,50	2x500	1000	250x4	1000	
FIT-221B-1/4	0.250	6,35	0.125	3,18	0.025	0,63	2x250	500	250x4	1000	
FIT-221B-3/8	0.375	9,53	0.187	4,75	0.025	0,63	2x200	400	250x4	1000	
FIT-221B-1/2	0.500	12,70	0.250	6,35	0.025	0,63	2x150	300	200x4	800	
FIT-221B-3/4	0.750	19,10	0.375	9,53	0.030	0,76	1x250	250	125x4	500	
FIT-221B-1	1.000	25,40	0.500	12,70	0.035	0,88	1x250	250	75x4	300	

2 TO 1 SHRINK RATIO

**Recommended For Use With
 XTRA•GUARD® 1
 Extra-Premium Grade PVC Jacketed
 General Purpose Cables**



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MIL-DTL-23053/5C,
 CLASSES 1 & 3
 UL STANDARD 224
 CSA STANDARD 198



Preferred Heat Shrink Products
LOW SHRINK TEMP., FLAME RETARDANT IRRADIATED POLYOLEFIN

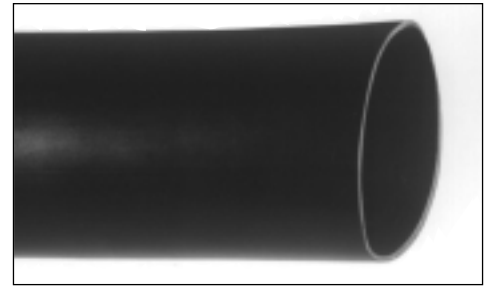
FIT®-221V

**CHOOSE
 FIT®-221V FOR:**

- Lowest Shrink Temperature (90°C)
- Fastest Recovery Time
- UL VW-1 & CSA OFT Flame Retardancy
- Resistance to Water, Fungus, UV Light (black only)
- Large, Economical, Bulk Packages
- Colors Available!

2 TO 1 SHRINK RATIO

**NOW IN COLORS AND
 ECONOMICAL BULK
 PACKAGES!**



**FIT®-221V
 APPLICATIONS:**

- Where Substrates are Heat Sensitive
- Where Reduced Shrink Time Saves Costs
- Flame Retardancy Requirements
- Industrial Applications
- Cable and Connector Protection
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 90°C

COLOR DESCRIPTION:

- Standard 4 Ft. Lengths and Spools: Black, White, Red, Yellow, Green, Blue
- Bulk 4 Ft. Lengths and Spools: Black Only
- 6 In. Pieces: Black Only

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/5C, Classes 1 & 3
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



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Canadian Standards Association

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Standard Packages		
	Inches	mm	Inches	mm	Inches	mm	4 Ft. Lengths Total Ftg.	Spools Total Ftg.	No. Cut Pieces 6 Inch
FIT-221V-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000	40
FIT-221V-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	36
FIT-221V-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	32
FIT-221V-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	28
FIT-221V-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	24
FIT-221V-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	20
FIT-221V-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	16
FIT-221V-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	14
FIT-221V-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	12
FIT-221V-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	8
FIT-221V-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	5
FIT-221V-2	2.000	50,80	1.000	25,40	0.045	1,14	20	125	3

Alpha Part No. and Size	BULK PACKAGES			
	SPOOLS		4 FT. LENGTHS	
	Qty. in Box	Total Ftg.	No. of Pcs.	Total Ftg.
FIT-221V-3/64	3x1000	3000	250x4	1000
FIT-221V-1/16	3x1000	3000	250x4	1000
FIT-221V-3/32	3x500	1500	250x4	1000
FIT-221V-1/8	3x500	1500	250x4	1000
FIT-221V-3/16	2x500	1000	250x4	1000
FIT-221V-1/4	2x250	500	250x4	1000
FIT-221V-3/8	2x200	400	250x4	1000
FIT-221V-1/2	2x150	300	200x4	800
FIT-221V-3/4	1x250	250	125x4	500
FIT-221V-1	1x250	250	75x4	300

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CHOOSE **FIT®-105** FOR:

- Low Shrink Temperature (100°C)
- 30% Stronger than Standard Polyolefin
- UL VW-1 and CSA OFT Flame Retardancy
- Low Water Absorption and UV Resistant
- Multiple Package Availability

2 TO 1 SHRINK RATIO



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FIT®-105 APPLICATIONS:

- Use with PVC Cable
- With Heat Sensitive Substrates
- Fast Recovery Time
- Wire Harnesses and Cable Assemblies
- Flame Retardant Requirements
- **XTRA•GUARD® 1** Applications
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 100°C

COLOR DESCRIPTION:

- All Standard Packages: Black
(White Available in Certain Sizes)

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -15%†
- Specific Gravity: 1.40
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Meets Requirements of MIL-I-631
- Fungus Resistance: No Growth (MIL-I-7444)
- Water Absorption: 0 to 1% Max. 24 Hrs. at 25°C

ELECTRICAL PROPERTIES:

- Dielectric Strength: 400V/mil (158 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Tot. Ftg.	Spools	
	Inches	mm	Inches	mm	Inches	mm		Tot. Ftg.	Tot. Ftg.
FIT-105-3/64	0.046	1,17	0.023	0,58	0.020	0,50	1000	500	100 25
FIT-105-1/16	0.062	1,58	0.031	0,78	0.020	0,50	1000	500	100 25
FIT-105-3/32	0.093	2,36	0.046	1,17	0.020	0,50	1000	100	25
FIT-105-1/8	0.125	3,18	0.062	1,58	0.025	0,63	1000	100	25
FIT-105-3/16	0.187	4,75	0.093	2,36	0.025	0,63	1000	100	25
FIT-105-1/4	0.250	6,35	0.125	3,18	0.025	0,63	1000	100	25
FIT-105-3/8	0.375	9,53	0.187	4,75	0.030	0,76	500	100	25
FIT-105-1/2	0.500	12,70	0.250	6,35	0.030	0,76	250	100	25
FIT-105-3/4	0.750	19,10	0.375	9,53	0.035	0,88	250	100	25
FIT-105-1	1.000	25,40	0.500	12,70	0.040	1,02	250	100	25
FIT-105-1-1/2	1.500	38,10	0.750	19,10	0.045	1,14	100	25	
FIT-105-2	2.000	50,80	1.000	25,40	0.050	1,27	100	50	25

Packaged Assortments

Assorted Sizes of 6" Lengths
Each Length - Size Identified

Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT-105-MS-1	3/64" - 1/4" (6 Sizes)	10 Lengths Per Size (60 Lengths)
FIT-105-MS-2	3/8" - 1" (4 Sizes)	10 Lengths Per Size (40 Lengths)

SPECIFICATIONS

- MIL-I-23053/2C, Class 1*
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association

*Military Specification Sheet MIL-I-23053/2C, is inactive for new design and is no longer used by the Department of Defense except for replacement purposes.
†Does not meet MIL-I-23053/2C requirements.



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UL STANDARD 224
 CSA STANDARD 198
 NEC ARTICLE 250-57B, EX.3



Preferred Heat Shrink Products

IRRADIATED POLYOLEFIN GROUND IDENTIFICATION

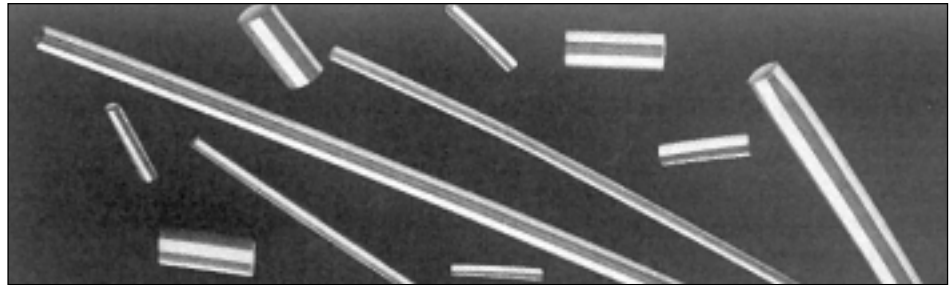
FIT®-260

**CHOOSE
 FIT®-260 FOR:**

- Color Coding Leads as a Ground Circuit
- Same Physical Characteristics as **FIT®-221**

**FIT®-260
 APPLICATIONS:**

- Approved for Use by NFPA for 600 Volt Ground Lead Identification
- E-OEM Component Identification
- Wire Harness Identification
- Automated Cutting Machines (spools)



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 120°C

COLOR DESCRIPTION:

- All Standard Packages: Green with Yellow Stripe
- Each Color will Cover at Least 30% of the Surface Area

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth
- Water Absorption: 0.1% Max.
- Chemical Resistance: JP-4, Skydrol 500, Aviation Gas and Hydraulic Fuel

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Rec. Wall Thickness		Std. Pkg. Spools Total Ft.
	Inches	mm	Inches	mm	Inches	mm	
FIT-260-1/8	0.118	3,00	0.059	1,50	0.020	0,51	500
FIT-260-1/4	0.236	6,00	0.118	2,99	0.025	0,64	250
FIT-260-3/8	0.315	8,00	0.158	4,01	0.025	0,64	250
FIT-260-1/2	0.472	11,98	0.236	6,00	0.025	0,64	250
FIT-260-3/4	0.748	18,99	0.355	9,02	0.030	0,76	250
FIT-260-1	1.024	26,00	0.512	14,00	0.035	0,89	100

NFPA-National Fire Protection Association
 When installed in accordance with NEC Article 250-57B, Exception 3.
 Grounding for equipment fastened in place or connected by permanent wiring methods (fixed)

2 TO 1 SHRINK RATIO

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- NEC Article 250-57B, Exception 3



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FIT® Preferred Heat Shrink Products

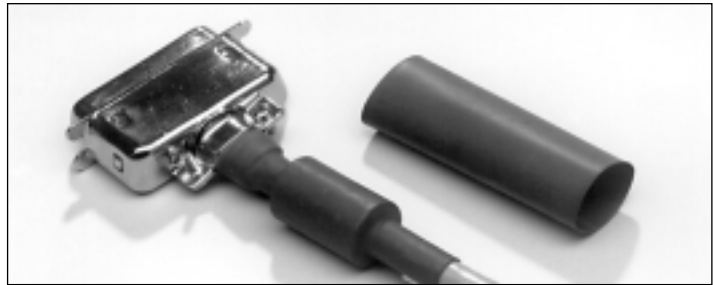
LOW SHRINK TEMP., FLAME RETARDANT IRRADIATED POLYOLEFIN

FIT®-321V

UL STANDARD 224
CSA STANDARD 198

CHOOSE FIT®-321V FOR:

- Expanded to a 3 to 1 Shrink Ratio
- Lowest Shrink Temperature (90°C)
- Fastest Recovery Time
- Reduced Wall Thickness
- UL VW-1 and CSA OFT Flame Retardancy



FIT®-321V APPLICATIONS:

- Connectorized Cable Repair
- Where Substrates are Heat Sensitive
- Delicate and Intricate Electronics Protection
- Industrial Applications
- Flame Retardancy Requirements
- Automated Cutting Machines

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 125°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 90°C

COLOR DESCRIPTION:

- All Standard Packages:
Black & White

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Secant Modulus: 2.5 x 10⁴ max.
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded		Nom. Rec. Wall Thickness		Spools Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-321V-3/32	0.093	2,36	0.031	0,8	0.023	0,58	500
FIT-321V-1/8	0.125	3,18	0.042	1,1	0.023	0,58	500
FIT-321V-1/4	0.250	6,35	0.083	2,2	0.023	0,58	250
FIT-321V-3/8	0.375	9,50	0.125	3,2	0.023	0,58	200
FIT-321V-1/2	0.500	12,70	0.166	4,3	0.024	0,61	150
FIT-321V-3/4	0.750	19,10	0.250	6,4	0.024	0,61	250
FIT-321V-1 IN	1.000	25,40	0.333	8,5	0.024	0,61	250

3 TO 1 SHRINK RATIO

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Recognized Component
Underwriters Laboratories Inc.



Passes UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



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Preferred Heat Shrink Products

MEDIUM WALL, ADHESIVE LINED, IRRADIATED POLYOLEFIN

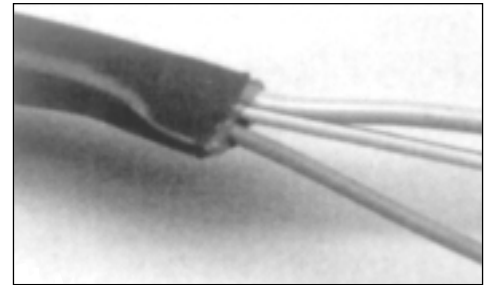
MIL-DTL-23053/4D, CLASS 3

FIT-321

CHOOSE **FIT**-321 FOR:

- Expanded to a 3 to 1 Shrink Ratio
- Increased Wall Thickness for Durability
- Water Resistant Adhesive Inner Lining
- Permanent Bonding Adhesive
- Use with **XTRA•GUARD**® 1

3 TO 1 SHRINK RATIO



FIT-321

APPLICATIONS:

- Connectorized Cable Repair
- Water Resistance and Encapsulation
- Environmental and Outdoor Protection
- XTRA•GUARD**® 1, 2 & 3 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- 55°C to 110°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 125°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1300 psi, (92 kg/cm²)
- Ultimate Elongation: 300%
- Longitudinal Shrinkage: -15%
- Heat Resistance: (168 Hrs. at 150°C) No Dripping, Cracking or Flowing
- Low Temperature Flexibility: (4 Hrs. at -55°C) No Cracking
- Flammability: Self-Extinguishing (Outer Jacket Only)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5% Max.

ELECTRICAL PROPERTIES:

- Dielectric Strength: 300V/mil (118 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Recovered Wall Thickness				Std. Pkg.	
	Inches	mm	Inches	mm	Total Wall	Melttable Wall	Inches	mm	4 Ft. Total Ftg.	No. Cut Pieces 6 Inch
FIT-321-1/8	0.120	3,05	0.040	1,02	0.040	1,02	0.020	0,50	100	28
FIT-321-1/4	0.240	6,10	0.080	2,03	0.040	1,02	0.020	0,50	100	20
FIT-321-1/2	0.470	11,90	0.160	4,06	0.070	1,75	0.030	0,76	20	14
FIT-321-1	0.940	23,90	0.320	8,13	0.100	2,54	0.040	1,02	20	8
FIT-321-1-1/2	1.570	39,90	0.510	13,00	0.100	2,54	0.040	1,02	20	5

Packaged Assortment		
Assorted Sizes of 6" Lengths		
Each Length - Size Identified		
Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT-321-MS-1	1/8" - 1" (4 Sizes)	5 Per Size (20 Lengths)

Recommended For Use With
XTRA•GUARD® 1
 Extra-Premium Grade PVC Jacketed
 General Purpose Cables

SPECIFICATIONS

- MIL-DTL-23053/4D, Class 3

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FIT® Preferred Heat Shrink Products

OVER EXPANDED, IRRADIATED POLYOLEFIN

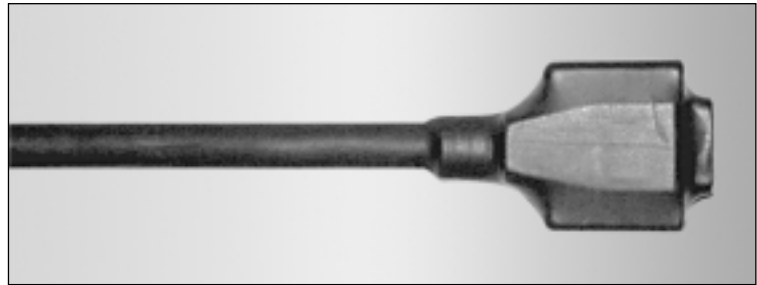
FIT®-421

MIL-DTL-23053/5C,
CLASS 1 OVER EXPANDED

CHOOSE **FIT**®-421 FOR:

- Over Expanded to a 4 to 1 Shrink Ratio
- Large Supplied Diameter Sizes
- Resistance to Water, Fungus, UV Light
- Shrinks to 25% of its Original Size
- Conforms to Odd Shapes

4 TO 1 SHRINK RATIO



FIT®-421 APPLICATIONS:

- D-Sub Connector Strain Relief
- RS-232 25 Pin Connector to Cable Coverage
- Covers the Most Irregular Shapes and Connectors
- PC Board Coverage/Protection

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-421-1	1.000	25,40	0.275	6,99	0.045	1,14	20
FIT-421-1-1/2	1.500	38,10	0.375	9,53	0.045	1,14	20
FIT-421-2	2.000	50,80	0.550	13,97	0.045	1,14	20
FIT-421-3	3.000	76,20	0.810	20,57	0.045	1,14	8
FIT-421-4	4.000	101,60	1.050	26,67	0.045	1,14	8

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 4 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/5C, Class 1 Over Expanded

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FIT® Preferred Heat Shrink Products

HEAVY WALL, ADHESIVE LINED, IRRADIATED POLYOLEFIN

FIT®-621

CHOOSE **FIT**®-621 FOR:

- Over Expanded to a 6 to 1 Shrink Ratio
- Shrinks to 1/6 its Original Size
- Heavy Duty Adhesive Inner Lining
- Low Water Absorption
- Excellent Durability and Toughness
- Resistant to Oils and Chemicals
- Convenient Pre-cut 6 Inch Lengths



FIT®-621 APPLICATIONS:

- Protection in Severe Environments
- Large to Small Connector-to-Cable Protection
- Underground Utility Splice Protection
- Corrosion Protection of Metal Parts
- Protects Substrates in Direct Burial Applications
- Heavy Duty Abrasion Resistance

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 90°C

SHRINKAGE RATIO:

- Approximately 6 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi, (84 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.4
- Low Temperature Flexibility:
To -55°C (No Cracking)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%
- Chemical Resistance: JP-8 Hydraulic Fluids, Deicing Fluid, Lubricating Oil

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹³ ohm cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Standard Package
	Inches	mm	Inches	mm	Inches	mm	
FIT-1-5/8	0.60	15,24	0.150	3,81	0.060	1,52	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-1-1/4	1.25	31,75	0.220	5,59	0.059	1,49	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-2	2.00	50,80	0.375	9,50	0.105	2,70	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet) 24 x 6 In. Lengths (12 Feet)
FIT-621-2-1/2	2.50	63,50	0.500	12,70	0.120	3,05	10 x 6 In. Lengths (1.5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-3	3.00	76,20	0.750	19,05	0.120	3,05	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-4	4.00	101,60	0.900	22,86	0.140	3,55	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)



FIT® Preferred Heat Shrink Products

SEMI-RIGID IRRADIATED POLYOLEFIN

FIT®-295

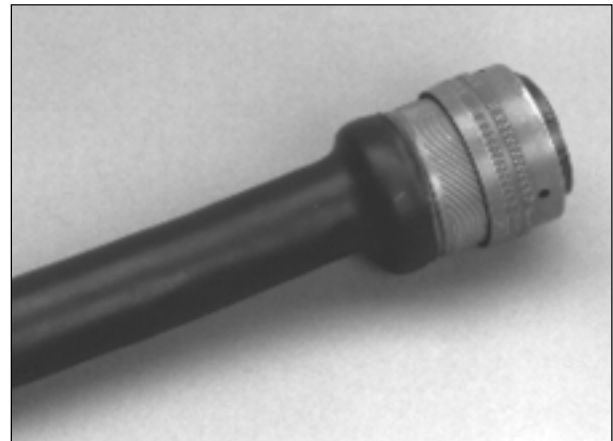
MIL-DTL-23053/6D,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-295 FOR:

- 30% Stronger Than Standard Polyolefin
- 25% Stiffer Than Standard Polyolefin
- Low Water Absorption
- Resistance to Water, Fungus, UV Light

FIT®-295 APPLICATIONS:

- Strength and Stiffness Make it Excellent for Strain Relief Applications
- Heavy Duty Cable/Connector Protection
- Electrical Cable Splices
- Crimp Terminals
- Solder Joints



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 135°C

COLOR DESCRIPTION:

- 3/64 Inch: Yellow, Black, Clear
- 1/16 Inch: White, Black, Clear
- 3/32 Inch: Blue, Black, Clear
- 1/8 Inch: Red, Black, Clear
- 3/16 Inch: Green, Black, Clear
- 1/4 Inch: Slate, Black, Clear
- 3/8 Inch: Brown, Black, Clear
- 1/2 Inch: White, Black, Clear

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg.	
	Inches	mm	Inches	mm	Inches	mm	4 Ft. Total Ftg.	No. Cut Pieces 6 Inch
FIT-295-3/64	0.046	1,17	0.023	0,58	0.020	0,50	100	40
FIT-295-1/16	0.063	1,60	0.032	0,81	0.020	0,50	100	36
FIT-295-3/32	0.093	2,36	0.045	1,14	0.020	0,50	100	32
FIT-295-1/8	0.125	3,18	0.063	1,60	0.020	0,50	100	28
FIT-295-3/16	0.187	4,75	0.093	2,36	0.025	0,63	100	24
FIT-295-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	20
FIT-295-3/8	0.375	9,53	0.187	4,75	0.030	0,76	100	16
FIT-295-1/2	0.500	12,70	0.250	6,35	0.030	0,76	20	14

2 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/6D, Class 1, 2
- UL Standard 224 (except for clear)
- CSA Standard 198 (black only)

UL Recognized Component
Underwriters Laboratories Inc.

CSA Certified
Canadian Standards Association



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Web Site: www.alphawire.com
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MIL-DTL-23053/4D,
CLASS 1
UL STANDARD 224



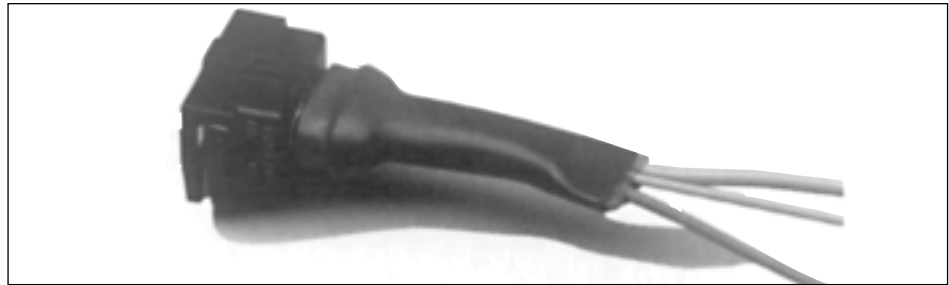
Preferred Heat Shrink Products

SURFACE IRRADIATED/DUAL EXTRUDED POLYOLEFIN

FIT®-300

**CHOOSE
FIT®-300 FOR:**

- Meltable Inner Wall
- Encapsulates Without Adhesive
- Temporary Sealing Without Sticky Residue
- Increased Wall Thickness for Added Protection
- High Shrink Ratios
- Excellent Dielectric Properties



**FIT®-300
APPLICATIONS:**

- Substrates Requiring Filled Interstices
- Digital Electronics Where Adhesive is Unacceptable
- Temporary Applications Requiring Encapsulation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 6 to 1 or 3 to 1 at 135°C Depending on Size

COLOR DESCRIPTION:

- 1/8 Inch: Brown, Black
- 3/16 Inch: Slate, Black
- 1/4 Inch: White, Black
- 3/8 Inch: Red, Black
- 1/2 Inch: Blue, Black
- 3/4 Inch: Yellow, Black
- 3/10 Inch: Blue, Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 0.99

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/4D, Class 1
- UL Standard 224 (black only)



Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Total Nom. Rec. Melttable Wall Thickness		Std. Pkg. 4 Ft. Lgths. No. Cut Pieces	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Total Ftg.	6 Inch
FIT-300-1/8	0.125	3,18	0.023	0,58	0.038	0,96	0.020	0,50	100	14
FIT-300-3/16	0.187	4,75	0.060	1,52	0.043	1,09	0.025	0,63	100	12
FIT-300-1/4	0.250	6,35	0.080	2,03	0.047	1,19	0.027	0,68	100	10
FIT-300-3/8	0.375	9,53	0.135	3,43	0.050	1,27	0.030	0,76	100	8
FIT-300-1/2	0.500	12,70	0.195	4,95	0.055	1,40	0.035	0,88	20	6
FIT-300-3/4	0.750	19,10	0.313	7,95	0.065	1,65	0.040	1,02	20	4
FIT-300-3/10	0.300	7,62	0.050	1,27	0.100	2,54	0.065	1,65	100	4



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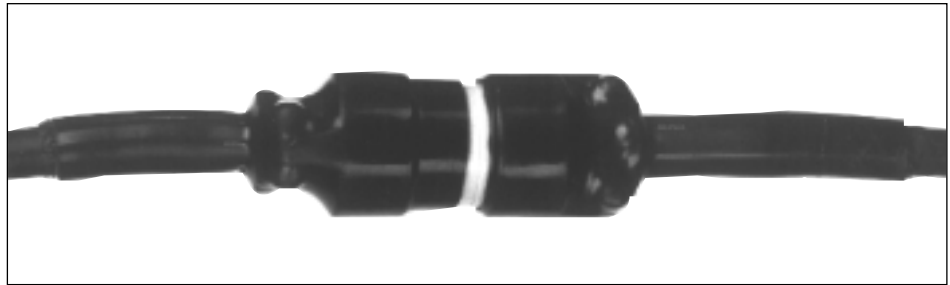
FIT® Preferred Heat Shrink Products

BONDING, MASTIC LINED, IRRADIATED POLYOLEFIN

FIT®-700

CHOOSE **FIT**®-700 FOR:

- Bonding Adhesion to Most Materials
- Environmental and Water-Tight Seal
- Prevents Wicking and Fills Interstices
- Tubing Sizes Match
14AWG-2000MCM Sizes
- Superior Strength
- High Voltage
- Pre-cut 12 Inch Pieces
- Use with **XTRA•GUARD**® 3



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FIT®-700 APPLICATIONS:

- High Voltage Splices (up to 2 kV)
- Water Resistant Connections
- Underground Utility Applications
- Direct Burial
- Outdoor Insulation and Protection
- **XTRA•GUARD**® 3 Applications

Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. No Pieces 12 Inch
	Inches	mm	Inches	mm	Inches	mm	
FIT-700-21	0.750	10,20	0.220	5,59	0.095	1,52	6
FIT-700-22	1.100	33,02	0.375	9,57	0.105	2,66	6
FIT-700-23	1.500	38,10	0.500	12,79	0.140	3,05	6
FIT-700-24	2.000	50,80	0.750	19,10	0.155	3,05	6
FIT-700-25	3.000	72,20	1.250	30,80	0.155	3,95	6
FIT-700-26	4.500	114,30	1.750	43,50	0.155	3,95	6

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 90°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 2250 psi, (159 kg/cm²)
- Ultimate Elongation: 350%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.09

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 350V/mil

3 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 3
Extra-Durable Outdoor
Direct-Burial Cables



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Email: info@alphawire.com

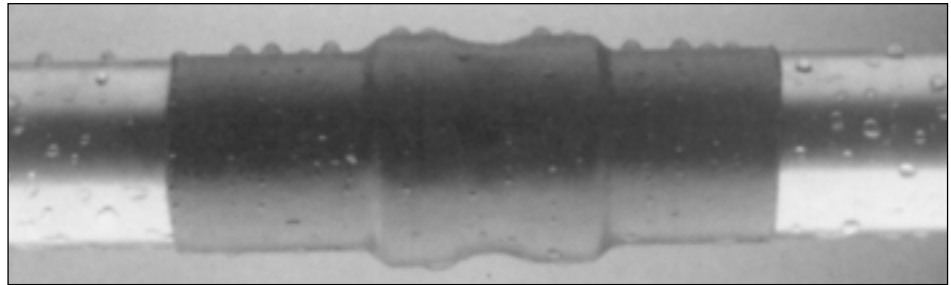
MIL-DTL-23053/4D,
CLASS 2
UL STANDARD 224

FIT[®]

Preferred Heat Shrink Products
BONDING, ADHESIVE-LINED, IRRADIATED POLYOLEFIN
FIT[®]-750

CHOOSE **FIT**[®]-750 FOR:

- Bonding to Substrates
- Similar to **FIT**[®]-221 with Adhesive Liner
- Total Encapsulation
- Reduced Diameters
- Permanent Water and Corrosion Protection
- Internal Isolation of Individual Substrates – “Pinching”
- Use with **XTRA**•**GUARD**[®] 2



FIT[®]-750 APPLICATIONS:

- Moisture Protection of Substrates
- Permanent Sealing of Substrates
- Wire Isolation Within a Harness
- Permanent Joint Splice Repair
- General Purpose Usage with Adhesive
- **XTRA**•**GUARD**[®] 2 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Flammability: Self-Extinguishing (Outer Jacket Only)
- Nominal Recovered Adhesive Thickness: 0.005" to 0.011" (0,13mm to 0,28mm)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: Does Not Support Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 400V/mil (158 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/4D, Class 2
- UL Standard 224



Alpha Part No. and Size	Minimum Supplied I.D.		Std. Nom. Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT -750-1/4	0.250	6,35	0.125	3,18	0.030	0,76	100
FIT -750-3/8	0.375	9,53	0.187	4,75	0.031	0,78	100
FIT -750-1/2	0.500	12,70	0.250	6,35	0.032	0,81	20
FIT -750-3/4	0.750	19,00	0.375	9,53	0.037	0,94	20
FIT -750-1	1.000	25,40	0.500	12,70	0.039	0,99	20
FIT -750-1-1/2	1.500	38,10	0.750	19,00	0.046	1,17	20

2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•**GUARD**[®] 2
Extra-Rugged Polyurethane
Jacketed Cables

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FIT® Preferred Heat Shrink Products

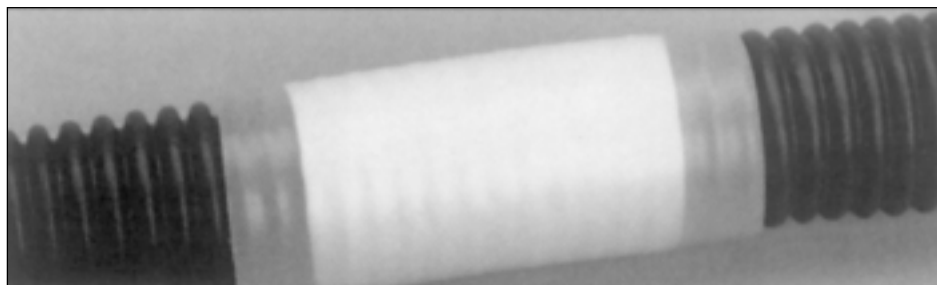
HIGHLY FLAME-RETARDANT IRRADIATED KYNAR*

FIT®-350

MIL-DTL-23053/8C
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-350 FOR:

- Chemical Resistance
- 3 Times the Tensile Strength of Standard Polyolefin
- Excellent Flame Retardancy
- Excellent Heat Resistance
- Excellent Chemical Resistance



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FIT®-350 APPLICATIONS:

- High Temperature Environments
- Faster Recovery Time than Teflon**
- Exposure to Chemicals
- Use with High Temperature Wire
- Caustic Environments
- **XTRA•GUARD**® 4 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 175°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 175°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

- Tensile Strength: 5000 psi, (352 kg/cm²)
- Ultimate Elongation: 150%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.80
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%
- Chemical Resistance: Solvents, JP4, Oxidants, Strong Acids and Bases

ELECTRICAL PROPERTIES:

- Dielectric Strength: 3/64" to 1/2" 800V/mil (315 kV/cm)
3/4" to 1" 600V/mil (236 kV/cm)
- Volume Resistivity: 2 x 10¹³ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.	No. Cut Pieces 6 Inch
	Inches	mm	Inches	mm	Inches	mm		
FIT-350-3/64	0.046	1,17	0.023	0,58	0.010	0,25	100	32
FIT-350-1/16	0.063	1,60	0.031	0,78	0.010	0,25	100	28
FIT-350-3/32	0.093	2,36	0.046	1,17	0.010	0,25	100	24
FIT-350-1/8	0.125	3,18	0.062	1,58	0.010	0,25	100	20
FIT-350-3/16	0.187	4,75	0.093	2,36	0.010	0,25	100	16
FIT-350-1/4	0.250	6,35	0.125	3,18	0.013	0,33	100	12
FIT-350-3/8	0.375	9,53	0.187	4,75	0.013	0,33	100	8
FIT-350-1/2	0.500	12,70	0.250	6,35	0.013	0,33	20	4
FIT-350-3/4	0.750	19,10	0.375	9,53	0.017	0,43	20	2
FIT-350-1	1.000	25,40	0.500	12,70	0.019	0,48	20	1

2 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/8C
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Recognized Component
Underwriters Laboratories Inc.



Passes UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association

*Kynar® is a registered trademark of ELF Atochem North America, Inc.
**Teflon® is a registered trademark of E.I. DuPont Co.



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Email: info@alphawire.com

CHOOSE FIT®-400 FOR:

- Excellent Chemical Resistance
- Extreme Temperature Range of -67°C to 200°C
- Unmatched Dielectric Properties
- Thinnest Wall Thickness Available
- Lower Recovery Temp than TFE Teflon*
- Use with **XTRA•GUARD® 4** and **XTRA•GUARD® 5**

FIT®-400 APPLICATIONS:

- Fiber Optic Applications
- High Temperature Cable
- Limited Space Applications
- **XTRA•GUARD® 4 & 5** Applications
- Digital Electronics (Signal Sensitive Equipment)
- Extremely Caustic Environments
- Fast Recovery Time
- Data and FEP Teflon* Cable Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -67°C to 200°C

SHRINKAGE RATIO:

- Approximately 1.2 to 1 at 176°C

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -15%
- Specific Gravity: 2.17
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%
- Chemical Resistance: All Chemicals at Room Temperature

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 2 x 10¹⁷ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/11C, Class 1



Alpha Part No. and Size (AWG)	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.	Std. Pkg. 2 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm		
FIT-400-24	0.031	0,79	0.027	0,68	0.008	0,20	100	—
FIT-400-22	0.036	0,91	0.032	0,81	0.008	0,20	100	—
FIT-400-20	0.045	1,14	0.039	0,99	0.008	0,20	100	—
FIT-400-18	0.060	1,52	0.049	1,25	0.008	0,20	100	—
FIT-400-16	0.075	1,90	0.061	1,55	0.009	0,22	100	—
FIT-400-14	0.092	2,33	0.072	1,83	0.009	0,22	100	—
FIT-400-12	0.115	2,92	0.089	2,26	0.009	0,22	100	—
FIT-400-10	0.141	3,58	0.114	2,90	0.010	0,25	100	—
FIT-400-9	0.158	4,01	0.124	3,15	0.010	0,25	100	—
FIT-400-8	0.180	4,57	0.143	3,63	0.010	0,25	100	—
FIT-400-7	0.197	5,00	0.158	4,01	0.011	0,27	100	—
FIT-400-6	0.225	5,72	0.180	4,57	0.011	0,27	100	—
FIT-400-5	0.248	6,29	0.198	5,03	0.011	0,27	—	100
FIT-400-4	0.290	7,36	0.226	5,74	0.011	0,27	—	100
FIT-400-3	0.310	7,87	0.249	6,33	0.011	0,27	—	100
FIT-400-2	0.365	9,27	0.280	7,11	0.012	0,30	—	100
FIT-400-1	0.400	10,20	0.311	7,90	0.012	0,30	—	100
FIT-400-0	0.440	11,22	0.349	8,87	0.012	0,30	—	100

1.2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 4
Extra-Protection, High/Low
Temperature TPE Jacketed Cables and
XTRA•GUARD® 5
Extra High-Temperature/
Chemical-Resistant FEP Teflon®
Jacketed Cables

*Teflon® is a registered trademark of E.I. DuPont Co.

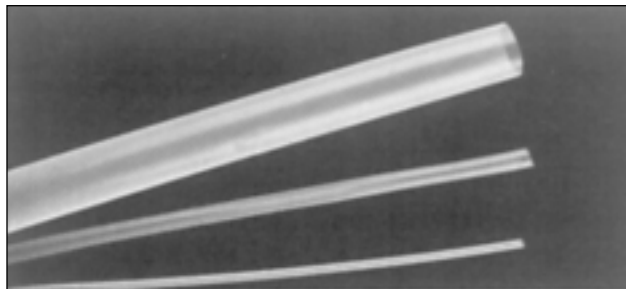
FIT® Preferred Heat Shrink Products

TEMPERATURE/CHEMICAL RESISTANT TFE TEFLON* FIT®-500

MIL-DTL-23053/12C,
CLASS 3

CHOOSE FIT®-500 FOR:

- Supreme Chemical Resistance
- Most Extreme Temperature Range of -67°C to 250°C
- Highest Tensile Strength
- Unmatched Dielectric Properties
- Extremely Thin Wall Thickness
- Low Friction Coefficient



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FIT®-500 APPLICATIONS:

- Fiber Optic Applications
- TFE Teflon* Cable Applications
- Limited Space Applications
- Digital Electronics (Signal Sensitive Equipment)
- Extremely Caustic Environments

CHARACTERISTICS

OPERATING TEMPERATURE:

- -67°C to 250°C

SHRINKAGE RATIO:

- Approximately 1.5 to 1 at 327°C

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Tensile Strength: 2500 psi, (176 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -20%
- Specific Gravity: 2.20
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%
- Chemical Resistance: All Chemicals at Room Temperature

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil (315 kV/cm)
- Volume Resistivity: 10¹⁸ ohm-cm

Alpha Part No. and Size (AWG)	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		2 Ft. Lengths Standard Pkg. Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-500-30	0.034	0,86	0.015	0,38	0.009	0,23	100
FIT-500-28	0.038	0,97	0.018	0,46	0.009	0,23	100
FIT-500-26	0.046	1,17	0.022	0,56	0.009	0,23	100
FIT-500-24	0.050	1,27	0.027	0,69	0.010	0,25	100
FIT-500-22	0.055	1,40	0.032	0,81	0.010	0,25	100
FIT-500-20	0.060	1,52	0.039	0,99	0.012	0,30	100
FIT-500-18	0.076	1,93	0.049	1,24	0.012	0,30	100
FIT-500-16	0.093	2,36	0.061	1,55	0.012	0,30	100
FIT-500-14	0.120	3,05	0.072	1,83	0.012	0,30	100
FIT-500-12	0.150	3,81	0.089	2,26	0.012	0,30	50
FIT-500-10	0.191	4,85	0.112	2,84	0.012	0,30	50
FIT-500-8	0.240	6,10	0.141	3,58	0.015	0,38	50
FIT-500-6	0.302	7,67	0.178	4,52	0.015	0,38	20
FIT-500-4	0.370	9,40	0.224	5,69	0.015	0,38	20
FIT-500-2	0.430	8,64	0.278	7,06	0.015	0,38	20
FIT-500-0	0.470	11,90	0.347	8,81	0.015	0,38	20

1.5 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/12C, Class 3

*Teflon® is a registered trademark of E.I. DuPont Co.



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MIL-DTL-23053/1C,
CLASS 2†,
MIL-R-46846, TYPE 1, CLASS 1†,
UL STANDARD 224, CSA STANDARD 198



Preferred Heat Shrink Products

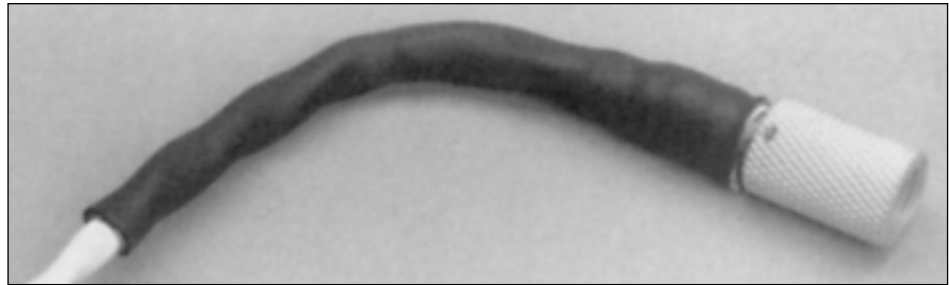
HIGHLY-FLEXIBLE IRRADIATED ELASTOMER

FIT®-600

CHOOSE

FIT®-600 FOR:

- Improved Flexibility
- More than Twice the Tensile Strength of Silicone Rubber
- Large Tubing Diameters
- Oil Resistance and Flame Retardancy
- Abrasion Resistance
- Use with **XTRA•GUARD® 4**



FIT®-600

APPLICATIONS:

- Military and Commercial Harnesses
- Cold Temperature Flexing
- Machine Tool and Automation Equipment
- **XTRA•GUARD® 4** Applications
- **XTRA•GUARD® Flexible Cable** Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 121°C

SHRINKAGE RATIO:

- Approximately 1.75 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 225%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.5
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: Inert
- Water Absorption: 1.0%
- Chemical Resistance: JP4, Aviation Gas, Hydraulic Fluids

ELECTRICAL PROPERTIES:

- Dielectric Strength: 1/4" to 1" 300V/mil (118 kV/cm)
1-1/4" to 3" 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/1C, Class 2†
- MIL-R-46846, Type 1, Class 1†
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test

Recognized Component Underwriters Laboratories Inc. **Passes UL VW-1 Flame Test** Underwriters Laboratories Inc. **Certified** Canadian Standards Association

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Put-Up Spools Feet
	Inches	mm	Inches	mm	Inches	mm	
FIT-600-1/4	0.250	6,35	0.143	3,63	0.035	0,88	25, 150
FIT-600-3/8	0.375	9,53	0.214	5,44	0.040	1,02	25, 150
FIT-600-1/2	0.500	12,70	0.286	7,26	0.048	1,22	25, 150
FIT-600-5/8	0.625	15,90	0.357	9,07	0.052	1,32	25, 150
FIT-600-3/4	0.750	19,10	0.428	10,91	0.057	1,45	25, 100
FIT-600-7/8	0.875	22,22	0.500	12,70	0.065	1,65	25, 100
FIT-600-1	1.000	25,40	0.570	14,58	0.070	1,78	25, 100
FIT-600-1-1/4	1.250	31,75	0.714	18,13	0.087	2,21	25, 100
FIT-600-1-1/2	1.500	38,10	0.857	21,87	0.095	2,41	25, 100
FIT-600-1-3/4	1.750	44,45	1.000	25,40	0.107	2,72	25, 75
FIT-600-2	2.000	50,80	1.140	28,95	0.110	2,79	25, 75
FIT-600-3	3.000	76,20	1.710	43,43	0.125	3,18	25, 50

1.75 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 4
Extra-Protection, High/Low
Temperature TPE Jacketed Cables and
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

† FIT-600 does not contain polychloroprene/neoprene but meets the physical properties of MIL-DTL-23053/1C, Class 2 and MIL-R-46846 Type 1, Class 1 specifications.

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FIT® Preferred Heat Shrink Products

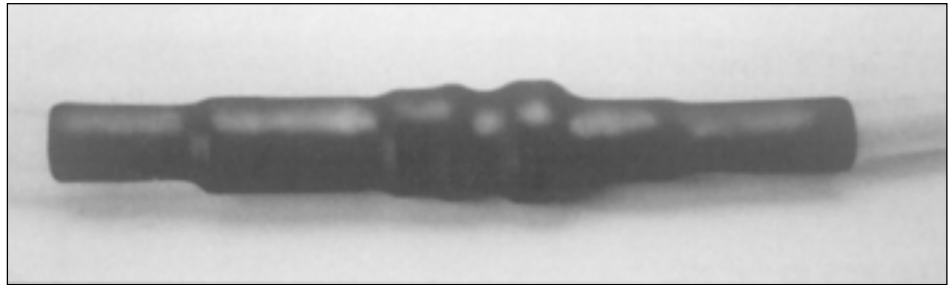
CHEMICAL AND TEMPERATURE RESISTANT IRRADIATED VITON*

FIT®-650

MIL-DTL-23053/13B

CHOOSE FIT®-650 FOR:

- Extreme Temperatures
-40°C to 200°C
- Excellent Chemical Resistance
(Water, Oil, Acid and Fuels)
- Flexibility
- Use with **XTRA•GUARD® 5**
and **XTRA•GUARD® Flexible**
Cables



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FIT®-650

APPLICATIONS:

- Chemical Production Applications
- Military Electronics/Aircraft
- In Hostile Environments Requiring
Some Flexibility
- **XTRA•GUARD® 5** Applications
- **XTRA•GUARD® Flexible Cable**
Applications

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. Spools Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-650-1/8	0.125	3,2	0.062	1,6	0.030	0,76	100
FIT-650-3/16	0.187	4,7	0.093	2,4	0.033	0,84	100
FIT-650-1/4	0.250	6,4	0.125	3,2	0.033	0,84	100
FIT-650-3/8	0.375	9,5	0.187	4,7	0.033	0,84	100
FIT-650-1/2	0.500	12,7	0.250	6,4	0.033	0,84	100
FIT-650-3/4	0.750	19,1	0.375	9,5	0.042	1,10	100
FIT-650-1	1.000	25,4	0.500	12,7	0.049	1,20	100

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 200°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 175°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi, (85 kg/cm²)
- Ultimate Elongation: 250%
- Longitudinal Shrinkage: -20%
- Specific Gravity: 2.0
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Shelf Life: 2 Years

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10⁹ ohm-cm

2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 5
Extra High-Temperature/
Chemical-Resistant FEP Teflon®
Jacketed Cables and
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

SPECIFICATIONS

- MIL-DTL-23053/13B

*Viton® is a registered trademark of Dupont Dow Elastomers



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Preferred Heat Shrink Products

HIGHLY FLEXIBLE, HEAT SHRINKABLE WOVEN FABRIC TUBING

FIT FABRIC

CHOOSE **FIT** FABRIC FOR:

- Superior Abrasion Resistance over a Wide Temperature Range
- Outstanding Flexibility and Durability
- Tight Grip without Additional Fixing
- Ease of Installation
- Resistance to Harsh Environments
- Soft, Safe Handling
- Cuts with Scissors



FIT FABRIC APPLICATIONS:

- Mechanical Abrasion Protection
- Severe Environment Protection
- Noise and Rattle Protection
- Halogen Free Environment
- Flexing Applications

2 TO 1 SHRINK RATIO

3 TO 1 SHRINK RATIO

New!

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 125°C

SHRINKAGE RATIO:

- Approximately 2 to 1 or 3 to 1 at 135°C Depending on Size

COLOR DESCRIPTION:

- All Standard Packages: Black

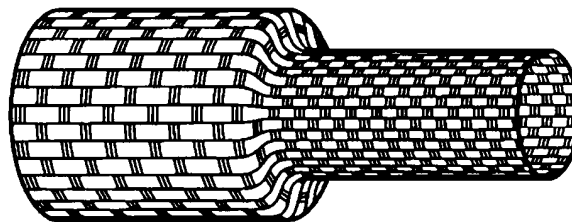
PHYSICAL PROPERTIES:

- Longitudinal Shrinkage:
Up to 20% @ 2:1 Shrink Ratio
Up to 25% @ 3:1 Shrink Ratio
- Flammability: Meets MVSS 302 Horizontal Burn Test

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Chemical Resistance: Antifreeze (50% Ethylene Glycol), Engine Oil, Mineral Hydraulic Fluid, Detergent (1% Teepol), Brake Fluid (DOT 4), Unleaded Gasoline, Diesel Fuel, Battery Acid

Alpha Part No.	Approx. Shrink Ratio	Minimum Supplied I.D.		Maximum Rec. I.D.		Non-Rec. Wall Thickness		Total Ftg.	Std. Spools Total Ftg.
		Inches	mm	Inches	mm	Inches	mm		
FIT FAB-1	2 to 1	0.47	12,0	0.24	6,0	0.039	0,99	50	200
FIT FAB-2	2 to 1	0.79	20,0	0.39	10,0	0.039	0,99	50	200
FIT FAB-3	2 to 1	1.18	30,0	0.59	15,0	0.039	0,99	50	200
FIT FAB-4	2 to 1	1.57	40,0	0.79	20,0	0.039	0,99	50	200
FIT FAB-5	2 to 1	1.97	50,0	0.98	25,0	0.039	0,99	25	100
FIT FAB-6	2 to 1	2.36	60,0	1.18	30,0	0.039	0,99	25	100
FIT FAB-7	2 to 1	2.76	70,0	1.38	35,0	0.039	0,99	25	100
FIT FAB-8	3 to 1	0.71	18,0	0.24	6,0	0.039	0,99	50	200
FIT FAB-9	3 to 1	1.18	30,0	0.39	10,0	0.039	0,99	50	200
FIT FAB-10	3 to 1	2.36	60,0	0.79	20,0	0.039	0,99	25	100



SPECIFICATIONS

- MVSS 302 Horizontal Burn Test



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FIT® Preferred Heat Shrink Products

HIGHLY-FLEXIBLE IRRADIATED SILICONE RUBBER

FIT® FLEX

UL STANDARD 224

CHOOSE **FIT**® FLEX FOR:

- Highest Flexibility Available
- Flexibility in Widest Temperature Range, -75°C to 200°C
- Scrape Abrasion Resistance
- Pliability when Substrate Requires "Give"
- Flame Retardancy
- Use with **XTRA•GUARD**® Flexible Cables



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FIT® FLEX APPLICATIONS:

- Robotics Cables
- Automation Equipment Dressing
- Environments With Varied Temperatures
- **XTRA•GUARD**® Flexible Cable Applications
- Fiber Optic Cable Bundles
- Assemblies and Harnesses Requiring Flexibility

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg., Spools Feet
	Inches	mm	Inches	mm	Inches	mm	
FIT-FLEX-2	0.112	2,84	0.070	1,77	0.040	1,02	25, 100
FIT-FLEX-3	0.190	4,82	0.116	2,94	0.040	1,02	25, 100
FIT-FLEX-5	0.305	7,74	0.184	4,67	0.040	1,02	25, 100
FIT-FLEX-6	0.391	9,93	0.240	6,09	0.060	1,52	25, 100
FIT-FLEX-9	0.588	14,93	0.357	9,06	0.060	1,52	25, 100
FIT-FLEX-12	0.825	20,95	0.475	12,06	0.080	2,03	25, 100
FIT-FLEX-20	1.217	30,91	0.790	20,06	0.080	2,03	25, 100

CHARACTERISTICS

OPERATING TEMPERATURE:

- -75°C to 200°C

SHRINKAGE RATIO:

- Approximately 1.70 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Gray

PHYSICAL PROPERTIES:

- Tensile Strength: 600 psi, (42 kg/cm²)
- Ultimate Elongation: 250%
- Longitudinal Shrinkage: -15%
- Specific Gravity: 1.25
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Water Absorption: 1.0%
- Shelf Life: 1 Year

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

1.7 TO 1 SHRINK RATIO

Recommended For Use With
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

SPECIFICATIONS

- UL Standard 224



Underwriters Laboratories Inc. Underwriters Laboratories Inc.



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Web Site: www.alphawire.com
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FIT MINIGUN:
UL STANDARD 499

Preferred Heat Shrink Products
GENERAL PURPOSE HEAT SHRINK KIT
FIT MGKIT 1

CHOOSE **FIT** MGKIT 1 FOR:

- A Convenient Kit Including Alpha's Smallest Heat Gun, **FIT** MINIGUN Along with an Economical, Functional Variety Pack of Alpha Wire's Industry-Leading **FIT**-221 General Purpose Irradiated Polyolefin Heat Shrinkable Tubing in 6-Inch Cut Pieces and in Various Colors and Sizes
- Convenience in the Shop or in the Field
- Cost Effective Solution for Electrical and Electronics Technicians

FIT MGKIT 1 APPLICATIONS:

- A Completely Portable and Extremely Compact System that Includes all Necessary Materials to Satisfy Strain Relief, Splicing, Connecting, Identification, Environmental Protection and Cable Repair Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- **FIT** MINIGUN Temperature Setting: Nozzle Temperature to 1000°F (538°C)

COLOR DESCRIPTION:

- **FIT** MINIGUN: Green
- **FIT**-221-R: See Chart For Tubing Colors

PHYSICAL PROPERTIES:

- **FIT** MINIGUN:
Cord Length: 6.0 Ft. (1.83m)
Net Weight: 9.2 Ounces (0.575 lbs.)
Workbench Storage Loop Included
- **FIT**-221-R: See Chart For Tubing Sizes
For More Detailed Information on **FIT**-221 General Purpose Irradiated Polyolefin Heat Shrinkable Tubing, See Page 114 in the Alpha Wire Master Catalog or Visit www.alphawire.com

ELECTRICAL PROPERTIES:

- **FIT** MINIGUN
Voltage: 120 Volt
Power: 360 Watts
Current: 3 Amps

SPECIFICATIONS

- UL Standard 499: (**FIT** MINIGUN)



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2 TO 1 SHRINK RATIO

New!

FIT MGKIT 1 CONTENTS		
Alpha Part No.	Content Description	Quantity
FIT MINIGUN	Compact, Lightweight, Portable Heat Gun	1
FIT -221-R	FIT -221 VARIETY PACK (See Below For Tubing Sizes and Colors)	60 6 Inch Cut Pieces

FIT VARIETY PACK (FIT -221-R) CONTENTS						
FIT -221-R Tubing Size	Number of Cut Pieces					
	Black	White	Red	Blue	Yellow	Green
1/8"	4	3	2	2	2	1
3/16"	4	3	2	2	2	1
1/4"	4	3	2	2	2	1
3/8"	3	2	1	1	1	1
1/2"	3	2	1	1	1	1

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FIT® Preferred Heat Shrink Products

SHRINKABLE TUBING ASSORTMENTS

FIT® KITS-1, 2, 7

ALPHA **FIT**® KITS:

- For Use in Research and Development Labs, Engineering Development and Maintenance Departments



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See Page 137 For
Multi-Functional Heat Guns

See Page 138 For
FIT® FBT-1
Flameless Butane Torch

FIT ® KIT-1 CONTENTS - GENERAL PURPOSE INDOOR APPLICATIONS			
Alpha Part No.	Material	Sizes (assorted colors)	No. 6 In. Lengths
FIT-105	Vinyl	9 sizes 3/64" - 3/4"	18
FIT-221	Polyolefin	9 sizes 3/64" - 3/4"	19
FIT-295	Semi-Rigid Polyolefin	8 sizes 3/64" - 1/2"	12
FIT-300	Surface Irradiated Polyolefin	5 sizes 1/8" - 1/2"	10
FIT-350	Kynar**	7 sizes 3/64" - 3/8"	14
FIT CRIMPS 1, 2, 3		22 AWG - 10 AWG	3 pcs
CAP 22, 23, 24			6 pcs

FIT ® KIT-2 CONTENTS - GENERAL PURPOSE INDOOR OR OUTDOOR APPLICATIONS				
Alpha Part No.	Material	Sizes (assorted colors)	No. Lengths 6 In. 1 In.	
FIT-105	Vinyl	9 sizes 3/64" - 3/4"	18	—
FIT-221	Polyolefin	9 sizes 3/64" - 3/4"	19	—
FIT-295	Semi-Rigid Polyolefin	8 sizes 3/64" - 1/2"	12	—
FIT-300	Surface Irradiated Polyolefin	5 sizes 1/8" - 1/2"	10	—
FIT-350	Kynar**	7 sizes 3/64" - 3/8"	14	—
FIT CRIMPS 1, 2, 3		22 AWG - 10 AWG	3 pcs	—
CAP 22, 23, 24			6 pcs	—
FIT-321	Adhesive-Lined Polyolefin	2 sizes 1/4" - 1/2"	16	24
FIT-400	FEP Teflon*	6 sizes 12 - 24 AWG	22	—
FIT-500	TFE Teflon*	5 sizes 18 - 26 AWG	17	—
FIT-600	Elastomer	5 sizes 1/4" - 1"	8	—
FIT-700	Mastic Lined Cable Sleeves	2 sizes 21, 22	2	—
FIT-750	Adhesive Lined Cable Sleeves	1 size 3/8"	—	10

FIT ® KIT-7 CONTENTS - GENERAL PURPOSE INDOOR OR OUTDOOR APPLICATIONS			
Alpha Part No.	Material	Sizes (assorted colors)	No. 6 In. Lengths
FIT-105	Vinyl	7 sizes 1/6" - 1/2"	14
FIT-400	FEP Teflon*	7 sizes 24 - 12	14
FIT-221	2:1 Polyolefin	7 sizes 1/16" - 1/2"	28
FIT-750	Adhesive Lined Polyolefin	5 sizes 1/4" - 1"	10
FIT-260	Ground Lead Polyolefin	3 sizes 1/8" - 1/2"	6
FIT-300	Surface Irradiated Polyolefin	4 sizes 1/2" - 3/8"	8
FIT-321	3:1 Polyolefin	3 sizes 1/8" - 1/2"	6
FIT-350	Kynar**	7 sizes 3/64" - 1/2"	14
FIT CRIMPS	Shrink Nylon Crimps	3 sizes 1-3	12 pcs

*Teflon® is a registered trademark of E.I. DuPont
**Kynar® is a registered trademark of ELF Atochem North America, Inc.



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UL STANDARD 499
CSA C22.2 NO. 88

CHOOSE

FIT® GUNS FOR:

- All Alpha FIT® Shrinkable Products
- Two Temperature Settings

CHARACTERISTICS

TEMPERATURE SETTINGS:

- **FIT® GUN-1:**
Low: 300°C (570°F)
High: 566°C (1050°F)
- **FIT® GUN-3:**
Low: 400°C (750°F)
High: 585°C (1090°F)

COLOR DESCRIPTION:

- **FIT® GUN-1:** Blue/Black
- **FIT® GUN-3:** Blue

PHYSICAL PROPERTIES:

- **FIT® GUN-1:**
Cord Length: 6.5 Ft. (1,98 mm)
Net Weight: 1.6 Lbs. (0,73 kg)
- **FIT® GUN-3:**
Cord Length: 6.0 Ft. (1,82 mm)
Net Weight: 1.5 Lbs. (0,68 kg)

ELECTRICAL REQUIREMENTS:

- Voltage: 120 Volt
- Power:
FIT® GUN-1: 1400 watts
FIT® GUN-3: 1200 watts
- Current:
FIT® GUN-1: 11.6 amps
FIT® GUN-3: 10.0 amps

SPECIFICATIONS

- UL Standard 499
- CSA C22.2 No. 88



FIT® GUN-1

DURABLE, EFFICIENT AND MULTI-FUNCTIONAL.

FIT® GUN-1 is a two-temperature heat gun that is well balanced and lightweight to minimize operator fatigue. Depending on the application, the **FIT® GUN-1** has a dual temperature setting by means of a 3-position rocker switch. The low setting is at 300°C (570°F) while the high temperature is rated at 566°C (1050°F). The body frame is manufactured of a high impact resistant plastic housing. The ceramic encapsulated heating element, brushless D.C. motor and impeller designed fan blades make this gun ideal for industrial use. Equipped with a built-in slip-resistant stand and hook reflector nozzle attachment.



FIT® GUN-3

ECONOMICAL AND MULTI-FUNCTIONAL.

FIT® GUN-3 is a two-temperature heat gun that is lightweight in design. Depending on the application, the **FIT® GUN-3** has a dual temperature setting by means of a 3-position slider switch. The low setting is at 400°C (750°F) while the high temperature is rated at 585°C (1090°F). The body frame is manufactured of a durable plastic housing. Equipped with a built-in ring stand and hook reflector nozzle attachments.

FIT® Preferred Heat Shrink Products

POWERFUL FLAMELESS BUTANE TORCH

FIT® FBT-1

CHOOSE **FIT**® FBT-1 FOR:

- Where High Volume Flameless Heat is Required
- Portable Flameless Heat Repair
- Adjustable Temperature Control
- **FIT**® Preferred Heat Shrink Tubing Applications

FIT® FBT-1 APPLICATIONS:

- Maintenance/Repair
- Marine
- Automotive
- Aircraft

CHARACTERISTICS

OPERATING TEMPERATURE:

- Up to 750°C (1400°F)

COLOR DESCRIPTION:

- Blue

PHYSICAL PROPERTIES:

- Length: 190mm (7.5 in)
- Weight: (when gas-filled) 135 g
- Nozzle Size: I.D.: 14mm (0.55 in)
O.D.: 20mm (0.79 in)
- Operating Time (one gas filling):
Approximately 120 minutes at Mid Setting

CHEMICAL PROPERTIES:

- Butane Container Capacity: 20ml
- Refill: Standard Butane Fuel

AVAILABILITY

- One Piece Per Package



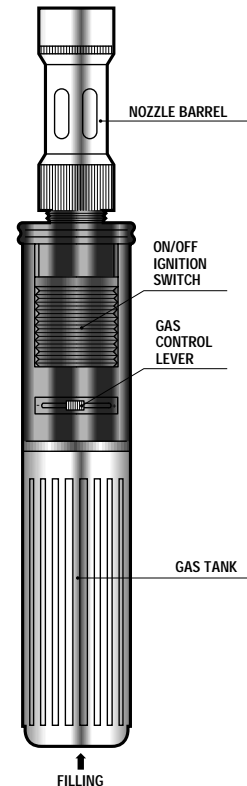
New!

THIS TOOL HAS BEEN ESPECIALLY DESIGNED FOR USE WITH 100% BUTANE GAS.

ANY OTHER BUTANE-PROPANE MIX OR OTHER FUEL GASES SHOULD NOT BE USED.

TO INSURE SAFE OPERATION WHEN USING THE **FIT**® FBT-1, PLEASE READ ALL INSTRUCTIONS CAREFULLY PRIOR TO USE.

BUTANE IS NOT INCLUDED.



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CHOOSE END CAPS FOR:

- Moisture Resistance
- Abrasion Resistance

END CAP APPLICATIONS:

- Wire Terminations
- Splice Terminations

CHARACTERISTICS

OPERATING TEMPERATURE:

- 55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

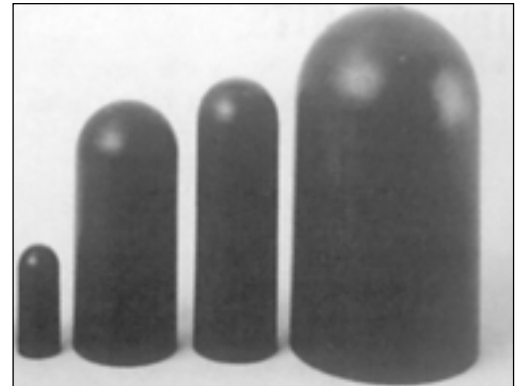
- Tensile Strength: 2500 psi, (176 kg/cm²)
- Ultimate Elongation: 300%
- Specific Gravity: 1.25
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 700V/mil (276 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm



Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Nominal Length		Standard Package
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
CAP-21	0.20	5,08	0.08	2,03	0.04	1,02	0.90	22,86	25 Pcs.
CAP-22	0.29	7,37	0.12	3,05	0.05	1,27	1.00	25,40	25 Pcs.
CAP-23	0.40	10,16	0.18	4,57	0.06	1,52	1.20	30,48	25 Pcs.
CAP-24	0.60	15,24	0.25	6,35	0.07	1,78	1.60	40,64	25 Pcs.
CAP-25	0.81	20,57	0.37	9,40	0.08	2,03	2.40	60,96	25 Pcs.
CAP-26	1.00	25,40	0.45	11,43	0.09	2,29	2.70	68,58	25 Pcs.
CAP-27	1.55	39,37	0.71	18,03	0.10	2,54	3.60	91,44	25 Pcs.

FIT® Preferred Heat Shrink Products

MOLDED IRRADIATED POLYOLEFIN BOOTS

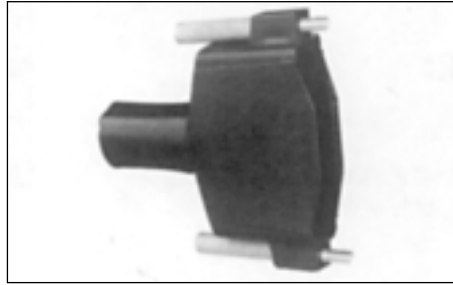
FIT®-BOOTS

CHOOSE FIT-BOOTS FOR:

- Connector Protection
- Environmental Seal

FIT-BOOT APPLICATIONS:

- D-Subminiature Connector Protection
- Cable/Connector Strain Relief



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE TEMPERATURE:

- 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

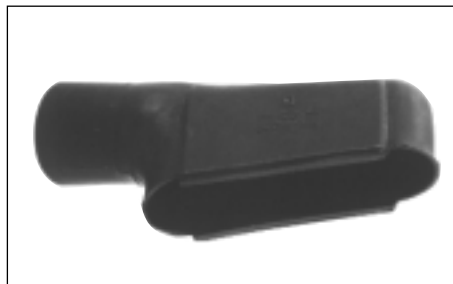
- Dielectric Strength: 200V/mil (70 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nominal Length Inches	Standard Package Pieces
	Inches	mm	Inches	mm		
FIT-D BOOT-9	0.42	10,7	0.15	3,8	1.20	10, 100
FIT-D BOOT-15	0.42	10,7	0.15	3,8	1.53	10, 100
FIT-D BOOT-25	0.42	10,7	0.20	5,1	2.11	10, 100
FIT-D BOOT-37	0.42	10,7	0.22	5,6	2.72	10, 100

Alpha's heat shrinkable D-subminiature **FIT® BOOTS** are designed to provide a solution to the strain relief of a D sub connector. Strain relief is achieved by a heat shrinkable adhesive coated collar which protects cables when tensioned, and provides added sealing protection.

The boot is supplied as a single piece which snaps on to the back of the connector. There are no small parts and no tools required. Jack screws are provided to ensure easy access into each connector.

FIT®-“D” BOOTS are flame retardant to UL94V2, and are available in four sizes, with 9 to 37 pin connectors.



SIDE ENTRY CONNECTORS

Alpha Part No.	Expanded ("A") Inches	Expanded ("A") mm	Fits Conn.	
			Type	Std. Cannon Pkg. Pcs.
FIT-BOOT-6	0.31	7,87	DE-9	1
FIT-BOOT-7	0.40	10,16	DA-15	1
FIT-BOOT-8	0.55	13,97	DB-25	1
FIT-BOOT-9	0.68	17,27	DC-37	1
FIT-BOOT-10	0.75	19,05	DD-50	1

END ENTRY CONNECTORS

Alpha Part No.	Expanded ("A") Inches	Expanded ("A") mm	Fits Conn.	
			Type	Std. Cannon Pkg. Pcs.
FIT-BOOT-11	0.31	7,87	DE-9	1
FIT-BOOT-12	0.40	10,16	DA-15	1
FIT-BOOT-13	0.55	13,97	DB-25	1
FIT-BOOT-14	0.68	17,27	DC-37	1
FIT-BOOT-15	0.75	19,05	DD-50	1

Designed specifically for subminiature rectangular connectors manufactured by ITT-Cannon and Cinch.

FIT® BOOTS replace metal molds and potting forms used on molded harnesses. **FIT® BOOTS** provide a strain relief and seal out contaminants. The boots are molded of a heat shrinkable, irradiated modified polyolefin compound with excellent physical and electrical properties.



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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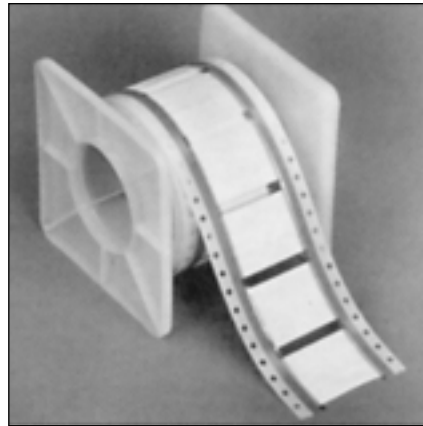
Web Site: www.alphawire.com
Email: info@alphawire.com

CHOOSE FIT®-PRINT FOR:

- Identification for Cable or Harness Assemblies
- Permanent/Smear-Resistant Marking
- Bright Yellow for High Visibility or White

FIT®-PRINT APPLICATIONS:

- Marine Electronics
- Industrial Computers
- Electrical Equipment



CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 105°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 125°C

COLOR DESCRIPTION:

- Yellow or White

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi
- Ultimate Elongation: 150%
- Longitudinal Shrinkage: -20%
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil

Alpha Part No.	Approx. Wire Gauge (AWG)		Minimum Supplied I.D.		Maximum Rec. I.D.		Rec. Wall Thickness Inches	Recom. Use Range	Non Sleeve Progression
	Min.	Max.	Inches	mm	Inches	mm			
FIT-PRINT-1/8	22	16	0.125	3,2	0.042	1,0	0.023±0.003	0.044 to 0.105	0.500
FIT-PRINT-1/4	16	8	0.250	6,4	0.083	2,1	0.023±0.003	0.091 to 0.215	0.666
FIT-PRINT-1/2	8	2	0.500	12,7	0.166	4,2	0.024±0.003	0.183 to 0.425	1.166
FIT-PRINT-1	2	400	1.000	25,4	0.333	8,4	0.025±0.003	0.366 to 0.850	2.000

SPECIFICATIONS

- UL Standard 224



AVAILABILITY

- 250 tubing pieces per package

PERMANENT WIRE IDENTIFICATION

Alpha's **FIT®-PRINT** Markers are designed to economically meet the wire identification needs of the electronic interconnect, industrial, computer office automation, marine and electrical markets. Made of irradiated modified polyolefin tubing with a 3:1 shrink ratio, these sleeves are designed for smear-resistant, permanent identification. The sleeves feed directly into standard typewriters or dot matrix printers. For best results, use a ribbon with a high carbon content and for write-on convenience, a standard ball point pen may also be used. Alpha's **FIT®-PRINT** Identification System can personalize and customize all cable assemblies without large inventory costs or special equipment.

FIT® Preferred Heat Shrink Products

FIT® WRAP SHRINKABLE POLYOLEFIN REPAIR

FIT®-RP

CHOOSE **FIT**® WRAP FOR:

- Environmental Seal
- Moisture Barrier
- Corrosion, Fungus Resistance
- 600 Volt Cable Seal

FIT® WRAP APPLICATIONS:

- Cable Jacket Repair When Cable Disconnect is Impossible



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 120°C
Depending Upon Size

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 3340 psi,
(236 kg/cm²)
- Ultimate Elongation: 620%
- Specific Gravity: 0.94
- Water Absorption: 0.1%

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth
- Chemical Resistance: Hydraulic Fluid (MIL-H-5606C), Lubricating Oil (MIL-L-7808G) and Diesel Fuel
- Corrosive Effect: Non Corrosive

ELECTRICAL PROPERTIES:

- Dielectric Strength: 790V/mil
(311 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm

Alpha Part No.	Minimum Rec. Diameter Range		Maximum Rec. Diameter Range		Flat Length Inches	Standard Package Pieces
	Inches	mm	Inches	mm		
FIT -RP806R	0.25	6,35	1.20	30,48	6	1
FIT -RP808R	0.25	6,35	1.20	30,48	8	1
FIT -RP1106R	0.60	15,24	1.80	45,72	6	1
FIT -RP1108R	0.60	15,24	1.80	45,72	8	1
FIT -RP1806R	0.95	24,13	2.70	68,58	6	1
FIT -RP1808R	0.95	24,13	2.70	68,58	8	1

SPECIFICATIONS

- ASTM - D638
- ASTM - G21
- ASTM - D570



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Web Site: www.alphawire.com
Email: info@alphawire.com

**CHOOSE
FIT[®]-SLV FOR:**

- Water Resistant Protection
- Heavy-Duty Splice Connection

**FIT[®]-SLV
APPLICATIONS:**

- Shield to Ground Terminations

CHARACTERISTICS

OPERATING TEMPERATURE:

- 105°C Series – 105°C
- 125°C Series – 125°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

- Tensile Strength: Ground Lead Breakage 25 Lb. (20 AWG)
- Solder Melt Temperature:
105°C Series: 145°C
125°C Series: 180°C

ELECTRICAL PROPERTIES:

- Dielectric Strength: 2000 Volt
- Insulation Resistance:
5 x 10⁹ ohms
- Voltage Drop: 2.5 Millivolts

SPECIFICATIONS

- MIL-F-14256, Type RMA Flux (105°C Series)
- QQ-S-571, Solder (125°C Series)

BRAID SHIELD GROUNDING SYSTEM

Alpha's **FIT**[®] Soldering Sleeve is a one piece, shield ground termination system featuring a strong, low-cost soldered connection which 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.

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

- 105°C Series: Kynar^{*} insulating sleeve containing solder alloy preform of 51.2% Tin, 30.6% Lead, 18.2% Cadmium
- 125°C Series: Kynar^{*} insulating sleeve containing preform of SN-63 composed of 63% Tin, 37% Lead

105°C SERIES

Alpha Part No.	E Max		Cable Dimensions F Min		L Nom.		Cable Dimensions A Min		B Min		Std. Package Pieces
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
FIT-SLV-12	0.125	3,2	0.055	1,4	0.620	15,8	0.125	3,2	0.110	2,8	25, 100
FIT-SLV-14	0.200	5,1	0.100	2,5	0.620	15,8	0.200	5,1	0.180	4,6	25, 100
FIT-SLV-16	0.300	7,6	0.160	4,0	0.750	19,1	0.300	7,6	0.280	7,1	25, 100

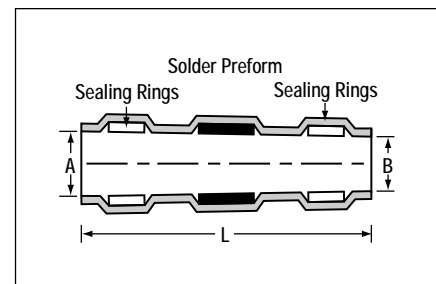
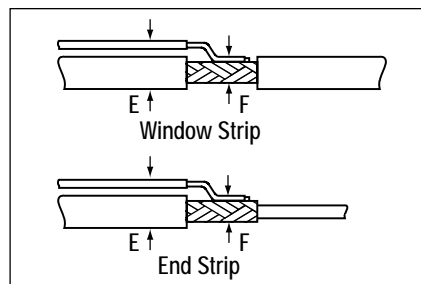
125°C SERIES

Alpha Part No.	E Max		Cable Dimensions F Min		L Nom.		Cable Dimensions A Min		B Min		Std. Package Pieces
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
FIT-SLV-22	0.125	3,2	0.055	1,4	0.620	15,8	0.125	3,2	0.110	2,8	25, 100
FIT-SLV-24	0.200	5,1	0.100	2,5	0.620	15,8	0.200	5,1	0.180	4,6	25, 100
FIT-SLV-26	0.300	7,6	0.160	4,0	0.750	19,1	0.300	7,6	0.280	7,1	25, 100

*Kynar[®] is a registered trademark of ELF Atochem North America, Inc.

SELECTION GUIDE

- Measure maximum diameter (E) and minimum diameter (F) of combined cable and ground lead.
- Find appropriate Alpha Part No. and sleeve size in the cable and sleeve dimensions chart.



FIT® Preferred Heat Shrink Products

SHRINKABLE NYLON CRIMP SPLICES

FIT® CRIMP

CHOOSE **FIT**® CRIMP FOR:

- Water and Corrosion Resistant Protection
- Strain Relief

FIT® CRIMP APPLICATIONS:

- Marine Electronics/Electrical Connections
- Appliance Manufacturing
- Mass Transit Wiring Systems
- Petroleum/Chemical Industries



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 125°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 180°C

COLOR DESCRIPTION:

- **FIT**® CRIMP 1: Red
- **FIT**® CRIMP 2: Blue
- **FIT**® CRIMP 3: Yellow

PHYSICAL PROPERTIES:

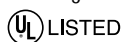
- Cut-Through Resistance: 70 Lbs. (31 kg)
- Wire Pullout:**
 - FIT**® CRIMP 1: 25 Lbs. (11 kg)
 - FIT**® CRIMP 2: 50 Lbs. (23 kg)
 - FIT**® CRIMP 3: 60 Lbs. (27 kg)
- Heat Aging: 168 Hours at 160°C, No Cracking
- Not Flame Retardant

CHEMICAL PROPERTIES:

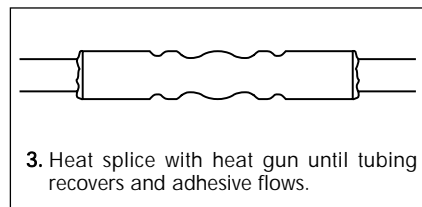
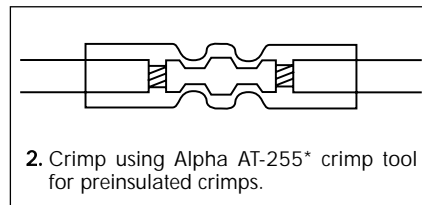
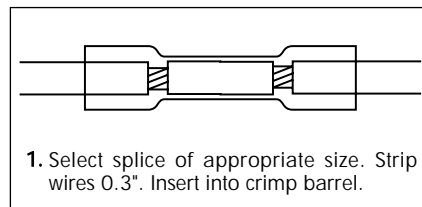
- Solvent Resistance: Isopropyl Alcohol, Trichloroethylene, Gasoline, Battery Acid, Diesel Fuel, Motor Oil, Anti-Freeze, Brake Fluid, 5% Salt Water

ELECTRICAL PROPERTIES:

- Dielectric Strength: 2500 Volts
- Insulation Resistance: 10³ megohms



Alpha Part No.	AWG Range of Barrel		Minimum Supplied I.D.		Maximum Rec. I.D.		Standard Package Pieces
	Min.	Max.	Inches	mm	Inches	mm	
FIT CRIMP 1	22	18	0.145	3,86	0.060	1,52	25, 100, 500
FIT CRIMP 2	16	14	0.180	4,57	0.080	2,03	25, 100, 500
FIT CRIMP 3	12	10	0.250	6,35	0.118	2,99	25, 100, 500



ENVIRONMENTALLY SEALED, BUTT CONNECTIONS

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.

*For details on the Alpha AT-255 Crimp Tool, see page 286

**After crimping and recovery.



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 Email: info@alphawire.com



Preferred Heat Shrink Products

FIT[®] HEAT SHRINK TUBING CROSS REFERENCE

ALPHA WIRE	PAGE NO.	SUMITOMO	RAYCHEM	3M	CANUSA	PANDUIT	INSULTAB	MANHATTAN/COLEFLEX
FIT-221	114	B2, A2	RNF-100	FP-301	CPX-100	HSTT, HSTTM	HS-101	ST221/ST219
FIT-221B	116	B2, A2	RNF-100	FP-301	CPX-100	HSTT	HS-101	ST221/ST219
FIT-221V	117	B2	VERSAFIT 2:1	FP301VW	CPX-876	HSTTV	HS-101	STF221
FIT-105	118	V				HSTTP	HS-105	ST100
FIT-260	119		DCPT	GYS				
FIT-321V	120	W3B2(3X)	VERSAFIT 3:1		CPX-300			
FIT-321	121	W3B2	ATUM 3:1	EPS-300		HSTTA	HS-101MV3:1	ST303
FIT-421	122	W3B2(4X)	RP-4800					
FIT-621	123		HRNF					
FIT-295	124	B8	CRN	SR-350		HSTTR	HS-101SR	ST295
FIT-300	125	W5DL	SCL	MW		HSTTRA	HS-101MV	ST300
FIT-700 (21-25)	126		SST	ITCS, MDT	CFW			SPC
FIT-750	127	O2B2	TAT-125	EPS-200		HSTTVA	HS-101MV2:1	ST302
FIT-350	128	K	KYNAR	KYNAR		HSTTK	HSK-600	ST350
FIT-400	129					HSTTF		ST400
FIT-500	130							ST500
FIT-600	131	R10	NT, NTFR	NST		HSTTN	HSN-100	ST700
FIT-650	132	FE3	VITON	VTN200			HS-VTN	ST650
FIT FLEX	134		SFRF					ST675
CAP	139		101A0XX					
FIT-SLV	143		S01-XX-R/S02-XX-R					
FIT-BOOTS	140		214A0XX,234A0XX					
FIT FABRIC	133		HFT5000,HFT3000					
FIT WRAP	142				CRLS			
FIT CRIMP	144		D406	MH-18,14,106				D406-XXXX
FIT-PRINT	141		TMS-SCE					



