



3M™ Heat Shrink Tubing FP-301 offers an outstanding balance of electrical, physical and chemical properties for a wide variety of industrial and military applications. Rated for 135°C continuous operation, all FP-301 tubing is split resistant, mechanically tough, easily marked and resists cold flow.

FP-301 tubing is rated for continuous operation at -55°C (-67°F) to 135°C (275°F), and is designed to withstand elevated temperatures to 300°C (572°F) for short periods. Minimum shrink temperature for all FP-301 tubing is 100°C (212°F).

<p>Shelf Life & Storage</p>	<p>3M™ Heat Shrink Tubing FP-301 has a 10-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).</p>
<p>Agency Approvals & Self Certifications</p>	<p>Meets requirements of:</p> <ul style="list-style-type: none"> • SAE-AMS-DTL-23053/5, Class 1, Class 2 (Clear)* • AMS-3636, AMS-3637 • UL Recognized, File E-39100, at 600 volts maximum @ 125°C • CSA Certified, CSA LR38227, at 600 volts maximum @ 125°C • ABS <p>*Formerly MIL-I-23053/5 and MIL-DTL-23053/5</p>
<p>Applications</p>	<p>FP-301 tubing is typically used as a shrink-fit electrical insulation over cable splices and terminations. It is also used for lightweight wire harness covering, wire marking, wire bundling, component packaging and fire-resistant covering.</p>
<p>Shrink Ratio</p>	<p>FP-301 tubing has a 2:1 shrink ratio. When freely recovered, the tubing will shrink to 50% of its as-supplied internal diameter. The recovered wall thickness is proportional to the degree of recovery.</p>
<p>Standard Colors</p>	<p>Black, Clear</p> <p>NOTE: The clear tubing is not flame retardant or UL listed.</p>
<p>Standard Packaging</p>	<p>Four-foot lengths</p>



Heat Shrink Tubing, Flexible, Polyolefin Product Specifications



Ordering Size (Nominal)	Part Number (Clear color)	Part Number (Black color)	Tubing Length	Expanded I.D. (Minimum) In. (mm)	Recovered I.D. (Maximum) In. (mm)	Recovered Wall Thickness (Nominal) In. (mm)
1/4 in	65-AC3MHS301C1448	65-AC3MHS301B1448	48 in	.250 (6,35)	.125 (3,18)	.025 (0,64)
1/2 in	65-AC3MHSC3011248	65-AC3MHSB3011248	48 in	.500 (12,70)	.250 (6,35)	.025 (0,64)
3/4 in	65-AC3MHSC3013448	65-AC3MHSB3013448	48 in	.750 (19,05)	.375 (9,53)	.030 (0,76)
1 in	65-AC3MHSC301148	65-AC3MHSB301148	48 in	1.000 (25,40)	.500 (12,70)	.035 (0,89)
1 1/2 in	65-AC3MHSC30111248	65-AC3MHSB30111248	48 in	1,500 (38,10)	.750 (19,05)	.040 (1,02)

Typical Properties: Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

Physical Property	Typical Value, US units (metric)
Tensile Strength	2400 psi
Ultimate Elongation	400%
Longitudinal Change	±5%
Secant Modulus (2%)	13,000 psi
Specific Gravity	1.3 (Opaque). .93 (Clear)
Operating Temperature	-67° to 275°F (-55° to +135°C)
Shrink Temperature (minimum)	212°F (100°C)
Heat Aging (336 hrs. @ 175° C)	Elongation 175%
Heat shock (4 hrs. @ 250° C)	No dripping, flowing, cracking, passes mandrel wrap test
Low Temperature Flexibility, (4 hrs @ -55° C)	No cracking
Scant Modules (2%)	13,000 psi
Flammability: Self-extinguish, Meets UL 224 All-Tubing Flame Test (Except Clear)	Pass
Electrical Property (Test Method)	Typical Value
Dielectric Strength	900 V/mil
Volume Resistivity	1015 ohm/cm
Chemical Property (Test Method)	Typical Value
Corrosion Resistance (Copper mirror)	Non-corrosive
Fungus Resistance	Non-nutrient
Water Absorption	0.2%
Solvent Resistance	Excellent