

3M™ Heat Shrink Tubing EPS-400

Adhesive-Lined, 4:1, Semi-Rigid, Polyolefin

Data Sheet

May 2010

Description

3M™ Heat Shrink Tubing EPS-400 is a medium-wall, semi-rigid tubing offering the advantages of integral, adhesive-lined construction. The tubing is made from flame-retardant, flexible polyolefin with an internal layer of special thermoplastic adhesive. The heat-shrinkable outer wall is selectively cross-linked, while the adhesive maintains high flow and excellent adhesion characteristics.

When heated in excess of 121°C (250°F), EPS-400 tubing rapidly shrinks to a skintight fit, forcing the melted adhesive to flow and cover the substrate. Upon cooling, the adhesive solidifies, forming a permanent, non-drying, flexible and water resistant barrier. Adhesive reflow will occur at temperatures above 80°C (176°F).

Agency Approvals & Self Certifications

Meets requirements of:

UL Listed, UL File E-157227

Applications

EPS-400 tubing offers excellent environmental protection for electronic components, wire splices, wire bundles and harness breakouts. Automotive, truck and marine wire splices and harness breakouts are also quickly and easily protected from a variety of harsh environments.

Shrink Ratio

EPS-400 tubing has a 4:1 shrink ratio. When fully recovered, the tubing will shrink 25% of its as-supplied diameter. The recovered wall thickness of the tubing is proportional to the degree of recovery.

The operating temperature range is from -55°C (-67°F) to 110 °C (230°F), with a shrink temperature minimum of 135 °F (275 °C).

Standard Sizes and Dimensions

Ordering Size (Nominal)	Expanded I.D. (Minimum)		Recovered I.D. (Maximum)		Total Recovered Wall Thickness (Nominal)		Meltable Recovered Wall Thickness	
	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)
.300	.300	(7,62)	.060	(1,52)	.033	(0,84)	.028	(0,71)
.350	.350	(8,89)	.080	(2,03)	.038	(0,97)	.033	(0,84)
.450	.450	(11,43)	.105	(2,67)	.043	(1,09)	.053	(1,35)
.700	.700	(17,78)	.175	(4,45)	.060	(1,52)	.055	(1,40)

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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)
Color	Black and other color-coded sizes
Tensile Strength	1900 PSI
Ultimate Elongation	400%
Longitudinal Change	+1, -10%
Secant Modulus (2%)	33,000 PSI
Specific Gravity	1.25
Heat Aging (outer wall only) 168 hrs @ 175°C	Elongation 175%
Heat shock (outer wall only) 4 hrs @ 250 °C	No dripping, flowing, cracking
Low Temperature Flexibility (outer wall only) 4 hrs @ -55 °C	No cracking
Flammability	Self-extinguishing

Electrical Property (Test Method)	Typical Value US units (metric)
Dielectric Strength	700 V/mil
Volume Resistivity	10 ¹⁴ ohm/cm

Chemical Property (Test Method)	Typical Value US units (metric)
Corrosion Resistance (Copper mirror)	Non-corrosive
Fungus Resistance	Non-nutrient
Water Absorption	0.3%
Fluid Resistance	Excellent

Adhesive	Typical Value
Peel Strength, pli Polyethylene PVC Lead Aluminum	30 10 15 40
Corrosive Effect (Copper mirror)	Non-corrosive

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Shelf Life & Storage	3M™ Heat Shrink Tubing EPS-400 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).
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Availability	Standard Packaging Four-foot lengths. Cut pieces are available subject to factory quotation. Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1-800-676-8381.
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