

3M™ Heat Shrink Tubing EPS-400

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

Data Sheet

November 2018

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 Recognized, UL File E-157227 at 600 Volts and 125 °C maximum
- CSA Recognized, CSA File LR38227
- For RoHS and REACH information, please visit www.3M.com/regs

Applications

3M 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

3M 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 121°C (250 °F).

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 | 30 |
| PVC | 10 |
| Lead | 15 |
| Aluminum | 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).

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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Electrical Markets Division

Austin, TX
800 676.8381
FAX: 800 828.9329
www.3M.com/oem

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