

3M™ Heat Shrink Tubing MW

Adhesive-Lined, 2.5:1, Semi-Rigid, Polyolefin

Data Sheet

September 2011

Description

3M™ Heat Shrink Tubing MW is a semi-rigid, 110°C heat-shrinkable polyolefin tubing that is co-extruded and selectively cross-linked to provide an integral, meltable inner wall.

When heated in excess of 135°C (275°F), the inner meltable wall of the tubing is simultaneously softened and forced by the shrink action into intimate contact with all underlying surfaces, interstices and small voids. Upon cooling, the MW tubing provides a tough protective and insulating barrier, highly resistant to penetration by moisture and the introduction of chemicals and solvents. Adhesive reflow will occur at temperatures above 80°C (176°F).

Agency Approvals & Self Certifications

Meets requirements of:

- SAE-AMS-DTL-23053/4, Class 1*
- AMS-3634
- UL Listed, UL File E-157227

*Formerly MIL-DTL-23053/4, Class 1

Applications

Applications for MW tubing include braided-shield pigtails, electrical wiring, mechanical assemblies, electronic components, electrical wire splices, breakouts, connections, solder joints, delicate wire terminations, end-sealing of electrical cables and rigid tubings.

For installation that may require rework, retrofit or repair in the field, MW tubing offers the extra advantage of easy removability. For circuit and component identification purposes, the tubings readily accept marking by means of print-wheel or hot-stamp techniques.

Shrink Ratio

MW tubing has a 2.5:1 shrink ratio. When fully recovered, the tubing will shrink 40% of its original 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°C (275°F), and will withstand higher operating temperatures for brief periods.

3M™ Heat Shrink Tubing MW

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) |
| 1/8 | .125 | (3,18) | .023 | (0,58) | .038 | (0,97) | .020 | (0,51) |
| 3/16 | .187 | (4,75) | .060 | (1,52) | .043 | (1,09) | .025 | (0,64) |
| 1/4 | .250 | (6,35) | .080 | (2,03) | .047 | (1,19) | .027 | (0,69) |
| 3/8 | .375 | (9,53) | .13 | (3,43) | .050 | (1,27) | .030 | (0,76) |
| 1/2 | .500 | (12,70) | .195 | (4,95) | .055 | (1,40) | .035 | (0,89) |
| 3/4 | .750 | (19,05) | .313 | (7,95) | .065 | (1,65) | .040 | (1,02) |
| 1 | 1.000 | (25,40) | .400 | (10,16) | .075 | (1,91) | .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 | 2200 PSI |
| Ultimate Elongation | 400% |
| Longitudinal Change | +1, -10% |
| Secant Modulus (2%) | 27,000 PSI |
| 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 |

| Electrical Property | Typical Value US units (metric) |
|----------------------------|------------------------------------|
| Dielectric Strength | 900 V/mil |
| Volume Resistivity | 10 ¹⁵ ohm/cm |

| Chemical Property | Typical Value US units (metric) |
|---|------------------------------------|
| Corrosion Resistance | Non-corrosive |
| Fungus Resistance | Non-nutrient |
| Water Absorption | 0.1% |
| Fluid Resistance JR4 Skydrol 600 Solution Gasoline Hydraulic Fluid | >1500 PSI @ V/mil @ 600 V/mil |

3M™ Heat Shrink Tubing MW

Standard Colors

Black

Also available in Blue, Clear, Red, White and Yellow. Price, MOQ and Lead Time will vary for these colors. Please contact Local Sales Representative or Customer Service Representative for more information.

NOTE: The clear tubing is not flame retardant or UL listed.

Shelf Life & Storage

3M™ Heat Shrink Tubing MW 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 and other lengths (including spooled) are available subject to factory quotation.

Please contact your local distributor; available from 3M.com/oem [Where to Buy] or call 1-800-676-8381.

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability

This product will be free from defects in material and manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

3M is a trademark of 3M Company.

**Electrical Markets Division**

6801 River Place Blvd.
Austin, TX 78726-9000
800 676.8381
FAX: 800 828.9329
www.3M.com/oem

Please recycle
© 3M 2011 All rights reserved
78-8129-9271-3 C