

# 3M™ Heat Shrink Tubing HDT

## Heavy-Duty, Polyolefin

Data Sheet

November 2018

### Description

3M™ Heat Shrink Tubing HDT is designed to provide reliable performance as well as excellent mechanical and environmental protection. This flame-retardant product combines the important advantage of easy handling and installation with maximum operating reliability and system protection. The tubing comes with a factory-applied sealant. This sealant is a heat-activated thermoplastic material that remains soft and flexible over long periods under adverse environmental conditions. During heating the sealant softens, bonds to underlying surfaces and fills small voids that might be present.

When cool, the sealant forms a barrier against water, moisture, dirt and other environmental contaminants. Heavy-duty tubing is fabricated from specially formulated cross-linked polyolefin, assuring long-term environmental protection. The tubing is also highly chemical, abrasive and split resistant.

The tubing is rated for continuous operation at -55°C (-67°F) to 110°C (230°F). Minimum shrink temperature is 121°C (250°F). Uncoated product (without sealant) is available on special order.

### Agency Approvals & Self Certifications

Meets the requirements of: AS23053/15, Class 1\*

For RoHS and REACH information, please visit [www.3M.com/regs](http://www.3M.com/regs)

\*Formerly MIL-I-23053/15, MIL-DTL-23053/15 and SAE-AMS-DTL-23053/15

### Standard Sizes and Dimensions (without adhesive)

| 3M Part Number | Cable Range      | Expanded I.D.<br>(Minimum)<br>in. (mm) | Recovered I.D.<br>(Minimum)<br>in. (mm) | Recovered Outer Wall Thickness<br>(Nominal)<br>in. (mm) | Length<br>in. | Std. Pkg.<br>Pieces/<br>Carton | Color         |
|----------------|------------------|--|---|---|---------------|--------------------------------|---------------|
| HDT-0300-48A   | #14 - #8 AWG     | .30 (7,62)                             | .10 (2,5)                               | .08 (2,0)   | 48            | 20                             | Red and Black |
| HDT-0400-48A   | #12 - #6 AWG     | .40 (10,2)                             | .15 (3,8)                               | .09 (2,3)   | 48            | 20                             | Red and Black |
| HDT-0800-48A   | #8 - 1/0 AWG     | .80 (20,3)                             | .20 (5,1)                               | .11 (2,8)   | 48            | 20                             | Red and Black |
| HDT-1100-48A   | #2 - 4/0 AWG     | 1.10 (27,9)                            | .37 (9,4)                               | .12 (3,0)   | 48            | 20                             | Red and Black |
| HDT-1500-48A   | 3/0 - 400 MCM    | 1.50 (38,1)                            | .50 (12,7)                              | .17 (4,3)   | 48            | 20                             | Black Only    |
| HDT-2000-48A   | 250 - 750 MCM    | 2.00 (50,8)                            | .65 (16,5)                              | .17 (4,3)   | 48            | 10                             | Black Only    |
| HDT-3000-48A   | 600 - 1250 MCM   | 3.00 (76,2)                            | 1.00 (25,4)                             | .17 (4,3)   | 48            | 10                             | Black Only    |
| HDT-4500-48A   | 1500 - 2500 MCM  | 4.50 (114,3)                           | 1.50 (38,1)                             | .17 (4,3)   | 48            | 5                              | Black Only    |
| HDT-6000-48A   | 2.1" - 4.8" O.D. | 6.00 (152,4)                           | 1.80 (45,7)                             | .17 (4,3)   | 48            | 5                              | Black Only    |
| HDT-7000-48A   | 2.5" - 5.6" O.D. | 7.00 (177,8)                           | 2.00 (50,8)                             | .17 (4,3)   | 48            | 5                              | Black Only    |

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**Shrink Ratio** 3M™ Heat Shrink Tubing HDT has a 3:1 shrink ratio. When freely recovered, the tubing will be 33.3% of its as supplied diameter. The recovered wall thickness is proportionate to the degree of recovery.

**Applications** Can be used as cable sleeve, flame retardant, polyolefin for 1 kV or other long term environmental protection – highly chemical, abrasion and split resistant

**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 Properties                                    | Typical Value<br>US units (metric) |
|--|------------------------------------|
| Tensile Strength                                       | 2400 psi                           |
| Ultimate Elongation                                    | 475%                               |
| Longitudinal Change                                    | +1, -10%                           |
| Secant Modulus   | 14,000 psi                         |
| Specific Gravity                                       | 1.28                               |
| *Heat Aging 7 Days @ 175°C (347°F)                     | Elongation 225%                    |
| *Heat Shock 4 hrs @ 225°C (437°F)                      | No dripping, cracking, flowing     |
| *Low Temperature Flexibility<br>4 hrs. @ -55°C (-67°F) | No cracking                        |
| Flammability   | Self-extinguish                    |

\*Outer wall only.

| Electrical Properties | Typical Value<br>US units (metric) |
|-----------------------|------------------------------------|
| Dielectric Strength   | 500 V/mil (60 mils)                |
| Volume Resistivity    | 10 <sup>14</sup> ohm-cm            |

| Chemical Properties   | Typical Value<br>US units (metric) |
|---|------------------------------------|
| Corrosion Effect  | Non-corrosive                      |
| Solvent Resistance<br>Tensile Strength<br>Dielectric Strength | 1500 psi<br>200 v/mil              |
| Water Absorption  | 0.02%                              |
| Fungus Resistance   | Non-nutrient                       |

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## Shelf Life & Storage

3M™ Heat Shrink Tubing HDT 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

Please contact your local distributor; available from [3M.com/electrical](http://3M.com/electrical) [Where to Buy] or call 1.800.245.3573.

Order this tubing by product name, size equivalent to the expanded inside diameter, package type and color. Always order the largest size that will shrink snugly over the component to be covered.

Example: HDT-1100-48A Tubing, 4 ft., Black

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