

Thin-wall, semirigid, fluoropolymer heat-shrinkable tubing

RW-175 heat-shrinkable tubing is a tough, semirigid, very-thin-wall insulation. It is especially suitable for applications requiring high-temperature performance, outstanding abrasion and cut-through resistance, or superior chemical and solvent properties. The translucent polyvinylidene fluoride material permits visual inspection of covered components.

RW-175 tubing provides electrical insulation and strain relief of multipin connectors and solder joints. It is also widely used as insulation for high-temperature components and heater leads. With its thin-wall construction, RW-175 is ideal for applications that require dense packing of components.

RW-175 provides protection from most industrial solvents, fuels, and chemicals – including JP-8, oxidants, and strong acids. It is UL-recognized and CSA-certified at 150°C, 600 V, with VW-1 and OFT flame-retardancy ratings.

Temperature rating

| | |
|---|----------------|
| Full recovery temperature: | 175°C |
| Continuous operating temperature: | -55°C to 175°C |
| Recommended maximum temperature for use as a primary insulator: | 135°C |

Specifications*

| Type | Raychem | Military | UL | CSA |
|--------|-----------|-----------------|-------------|-------------|
| RW-175 | RW-3029/2 | AMS-DTL-23053/8 | E35586 VW-1 | LR31929 OFT |

*When ordering, always specify latest issue.

Dimensions (millimeters/inches)



| Size | Inside diameter | | Wall thickness | | Size | Inside diameter | | Wall thickness | | | | | |
|------|-------------------------------|----------------------------------|---------------------------|-----------------------------|-------------|-------------------------------|----------------------------------|---------------------------|-----------------------------|------|-------|-------------|---------------|
| | D (min.) Expanded as supplied | d (max.) Recovered after heating | W Recovered after heating | W Recovered after heating** | | D (min.) Expanded as supplied | d (max.) Recovered after heating | W Recovered after heating | W Recovered after heating** | | | | |
| 3/64 | 1.2 | 0.046 | 0.6 | 0.023 | 0.25 ± 0.05 | 0.010 ± 0.002 | 1/2 | 12.7 | 0.500 | 6.4 | 0.250 | 0.33 ± 0.05 | 0.013 ± 0.002 |
| 1/16 | 1.6 | 0.063 | 0.8 | 0.031 | 0.25 ± 0.05 | 0.010 ± 0.002 | 3/4 | 19.1 | 0.750 | 9.5 | 0.375 | 0.43 ± 0.08 | 0.017 ± 0.003 |
| 3/32 | 2.4 | 0.093 | 1.2 | 0.046 | 0.25 ± 0.05 | 0.010 ± 0.002 | 1 | 25.4 | 1.000 | 12.7 | 0.500 | 0.48 ± 0.08 | 0.019 ± 0.003 |
| 1/8 | 3.2 | 0.125 | 1.6 | 0.062 | 0.25 ± 0.05 | 0.010 ± 0.002 | 1 1/2 | 38.1 | 1.500 | 19.1 | 0.750 | 0.51 ± 0.08 | 0.020 ± 0.003 |
| 3/16 | 4.7 | 0.187 | 2.4 | 0.093 | 0.25 ± 0.05 | 0.010 ± 0.002 | 2 | 50.8 | 2.000 | 25.4 | 1.000 | 0.51 ± 0.08 | 0.020 ± 0.003 |
| 1/4 | 6.4 | 0.250 | 3.2 | 0.125 | 0.33 ± 0.05 | 0.013 ± 0.002 | 3 | 76.2 | 3.000 | 38.1 | 1.500 | 0.64 ± 0.10 | 0.025 ± 0.004 |
| 3/8 | 9.5 | 0.375 | 4.7 | 0.187 | 0.33 ± 0.05 | 0.013 ± 0.002 | 4 | 101.6 | 4.000 | 50.8 | 2.000 | 0.76 ± 0.13 | 0.030 ± 0.005 |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

Ordering information

| | | |
|----------------------|--|------------------------------|
| Colors | Standard Nonstandard | Translucent (clear) Black |
| Size selection | Always order the largest size that will shrink snugly over the component being covered. | |
| Nonstandard sizes | Sizes of 2 inches and larger are by special order only. In addition, a variety of nonstandard sizes are available. | |
| Standard packaging | 4-foot lengths | |
| Ordering description | Specify product name, size, and color; for example, RW-175 1/4-X (X=Clear). | |

Specification values

| | Property | Unit | Requirement | Method of test |
|------------------------|---|------------------------------|--|----------------------------|
| Physical | Dimensions | mm (<i>inches</i>) | See reverse | ASTM D 2671 |
| | Longitudinal change | percent | +0, -10 maximum | ASTM D 2671 |
| | Tensile strength | psi (<i>MPa</i>) | 5000 (<i>34.5</i>) minimum | ASTM D 2671 |
| | Ultimate elongation | percent | 150 minimum | ASTM D 2671 |
| | Secant modulus (expanded) | psi (<i>MPa</i>) | 1 x 10 ⁵ (<i>690</i>) minimum | ASTM D 2671 |
| | Specific gravity | | 1.8 maximum | ASTM D 2671 |
| | Low-temperature flexibility (4 hours at -55°C/-67°F) | | No cracking | AMS-DTL-23053/8 |
| | Heat shock (4 hours at 300°C/572°F) | | No dripping, flowing, or cracking | AMS-DTL-23053 |
| | Heat resistance (168 hours at 250°C/482°F) Followed by test for: | | | ASTM D 2671 |
| | Ultimate elongation | percent | 50 minimum | ASTM D 2671 |
| | Vacuum outgassing | | | ASTM E 595 |
| | TML (total mass loss) | percent | 1.0 maximum | |
| | VCM (volatile condensable material) | percent | 0.1 maximum | |
| | Electrical | Dielectric strength | volts/mil (<i>kV/mm</i>) | |
| Sizes 3/64 through 1/2 | | | 800 (<i>31.5</i>) minimum | |
| Sizes 3/4 through 2 | | | 600 (<i>23.6</i>) minimum | |
| Volume resistivity | | ohm-cm | 10 ¹³ minimum | ASTM D 2671 |
| Chemical | Copper mirror corrosion (16 hours at 175°C/347°F) | | Noncorrosive | ASTM D 2671 Procedure A |
| | Copper contact corrosion (168 hours at 175°C/347°F) Followed by test for: | | No pitting or blackening of copper | ASTM D 2671 Procedure B |
| | Ultimate elongation | percent | 100 minimum | ASTM D 2671 |
| | Flammability (average time of burning) | seconds | 15 maximum | ASTM D 2671 Procedure A |
| | Fungus resistance Followed by tests for: | | | ISO 846 Method B |
| | Tensile strength | psi (<i>MPa</i>) | 5000 (<i>34.5</i>) minimum | ASTM D 2671 |
| | Ultimate elongation | percent | 150 minimum | ASTM D 2671 |
| | Dielectric strength | volts/mil (<i>kV/mm</i>) | | ASTM D 2671 |
| | Sizes 3/64 through 1/2 | | 800 (<i>31,500</i>) minimum | |
| | Sizes 3/4 through 2 | | 600 (<i>23,600</i>) minimum | |
| | Water absorption (24 hours at 23°C/73°F) | percent | 0.5 maximum | ASTM D 2671 |
| | Fluid resistance (24 hours at 23°C/73°F) in: JP-8 fuel (MIL-T-5624) Skydrol 500 Hydraulic fluid (MIL-H-5606) Aviation gasoline 100/300 (MIL-G-5572) Salt water (5% salt) Anti-icing fluid (MIL-A-8243) Lubricating oil (MIL-L-7808) Followed by tests for: | | | ASTM D 2671 |
| | Dielectric strength | volts/mil (<i>kV/mm</i>) | | ASTM D 2671 |
| | Sizes 3/64 through 1/2 | | 700 (<i>27.6</i>) minimum | |
| | Sizes 3/4 through 2 | | 500 (<i>19.7</i>) minimum | |
| Tensile strength | psi (<i>MPa</i>) | 5000 (<i>34.5</i>) minimum | ASTM D 2671 | |

Note: Consult RW-3029/2 for specific details about test procedures.

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Users should independently evaluate the suitability of the product for their application.

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