

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<br>Nonstandard  | Translucent (clear)<br>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             |
|------------------------|---|------------------------------|--|----------------------------|
| <b>Physical</b>        | 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 <sup>5</sup> ( <i>690</i> ) minimum | ASTM D 2671                |
|                        | Specific gravity  |                              | 1.8 maximum                                | ASTM D 2671                |
|                        | Low-temperature flexibility<br>(4 hours at -55°C/-67°F)   |                              | No cracking                                | AMS-DTL-23053/8            |
|                        | Heat shock<br>(4 hours at 300°C/572°F)  |                              | No dripping, flowing,<br>or cracking       | AMS-DTL-23053              |
|                        | Heat resistance<br>(168 hours at 250°C/482°F)<br>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                                |                            |
|                        | <b>Electrical</b>   | 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 <sup>13</sup> minimum                   | ASTM D 2671                |
| <b>Chemical</b>        | Copper mirror corrosion<br>(16 hours at 175°C/347°F)  |                              | Noncorrosive                               | ASTM D 2671<br>Procedure A |
|                        | Copper contact corrosion<br>(168 hours at 175°C/347°F)<br>Followed by test for:   |                              | No pitting or blackening<br>of copper      | ASTM D 2671<br>Procedure B |
|                        | Ultimate elongation   | percent                      | 100 minimum                                | ASTM D 2671                |
|                        | Flammability<br>(average time of burning)   | seconds                      | 15 maximum                                 | ASTM D 2671<br>Procedure A |
|                        | Fungus resistance<br>Followed by tests for:   |                              |  | ISO 846<br>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<br>(24 hours at 23°C/73°F)   | percent                      | 0.5 maximum                                | ASTM D 2671                |
|                        | Fluid resistance<br>(24 hours at 23°C/73°F) in:<br>JP-8 fuel (MIL-T-5624)<br>Skydrol 500<br>Hydraulic fluid (MIL-H-5606)<br>Aviation gasoline 100/300 (MIL-G-5572)<br>Salt water (5% salt)<br>Anti-icing fluid (MIL-A-8243)<br>Lubricating oil (MIL-L-7808)<br>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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