

## 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

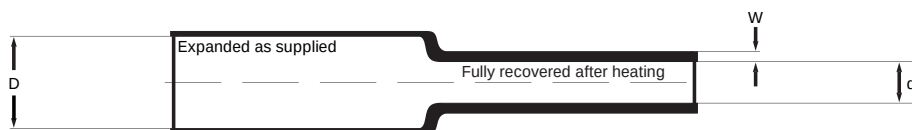
|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Full recovery temperature:                                      | 175°C          |
| Continuous operating temperature:                               | -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)



| Inside diameter |                                     | Wall thickness                         |                                   | Inside diameter |                                     | Wall thickness                         |                                   |
|-----------------|-------------------------------------|----------------------------------------|-----------------------------------|-----------------|-------------------------------------|----------------------------------------|-----------------------------------|
| Size            | D (min.)<br>Expanded<br>as supplied | d (max.)<br>Recovered<br>after heating | W<br>Recovered<br>after heating** | Size            | D (min.)<br>Expanded<br>as supplied | d (max.)<br>Recovered<br>after heating | W<br>Recovered<br>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             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|----------------------------|
| 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 (34.5) 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> (690) 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                           |                            |
| Electrical | Dielectric strength                                                                                                                                                                                                                                                                   | volts/mil ( <i>kV/mm</i> ) |                                       | ASTM D 2671                |
|            | Sizes 3/64 through 1/2                                                                                                                                                                                                                                                                |                            | 800 (31.5) minimum                    |                            |
|            | Sizes 3/4 through 2                                                                                                                                                                                                                                                                   |                            | 600 (23.6) minimum                    |                            |
| Chemical   | Volume resistivity                                                                                                                                                                                                                                                                    | ohm-cm                     | 10 <sup>13</sup> minimum              | ASTM D 2671                |
|            | 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 (34.5) 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 (31,500) minimum                  |                            |
|            | Sizes 3/4 through 2                                                                                                                                                                                                                                                                   |                            | 600 (23,600) 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 (27.6) minimum                    |                            |
|            | Sizes 3/4 through 2                                                                                                                                                                                                                                                                   |                            | 500 (19.7) minimum                    |                            |
|            | Tensile strength                                                                                                                                                                                                                                                                      | psi ( <i>MPa</i> )         | 5000 (34.5) minimum                   | ASTM D 2671                |

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

Skydrol is a trademark of Monsanto Company. Raychem is a trademark of Tyco Electronics Corporation.

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

### Tyco Electronics Corporation

300 Constitution Drive  
Menlo Park, CA 94025-1164  
USA  
Tel: (800) 926-2425 (US & Canada)  
Tel: +1 (650) 361-3860 (All other countries)

Faraday Road  
Dorcan, Swindon, SN3 5HH  
United Kingdom  
Tel: +44 1793 528171

3816 Noborito, Tama-ku  
Kawasaki, Kanagawa 214-8533  
Japan  
Tel: +81 44 900 5102

Asia Pacific Headquarters  
26 Ang Mo Kio, Industrial Park 2  
Singapore 569507  
Tel: +65 4866 151

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Tyco Electronics Corporation makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Tyco Electronics Corporation's only obligations are those in the Standard Terms and Conditions of Sale for these products and in no case will Tyco Electronics Corporation be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Tyco Electronics Corporation's Specifications are subject to change without notice. In addition, Tyco Electronics Corporation reserves the right to make changes in materials or processing without notification to the Buyer which do not affect compliance with any applicable specification.

**For more information about this product visit [www.tycoelectronics.com](http://www.tycoelectronics.com)**