

Flexible, flame-retardant, high performance, polyolefin heat-shrinkable tubing

RNF-100 tubing is a high-quality, heat-shrinkable product for a wide variety of uses. It has become the industry standard for insulation, strain relief, wire bundling, and color-coding in both commercial and military applications. RNF-100 tubing meets the requirements of AMS-DTL-23053/5, Class 1 (colors) and Class 2 (clear).

It is also UL-recognized and CSA-certified at 125°C, 600 V.

Made from flame-retardant polyolefin, RNF-100 tubing has excellent physical, chemical, and electrical properties that meet industrial and military requirements for a highly reliable, general-purpose tubing. It sets itself apart in that it offers

a higher level of performance at elevated temperature, including mechanical abrasion and fluid resistance, than many heat-shrinkable polyolefin tubings available in the marketplace today.

Only a few sizes of RNF-100 tubing are required to cover many substrate diameters.

Temperature rating

| | |
|-----------------------------------|----------------|
| Minimum shrink temperature: | 121°C |
| Continuous operating temperature: | -55°C to 135°C |

Specifications*

| Type | Raychem | Military | UL  | CSA  |
|-------------------------|---------------|------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| RNF-100 Type 1 (colors) | RT-350 Type 1 | AMS-DTL-23053/5, Cl. 1 | E35586 | LR31929 |
| RNF-100 Type 2 (clear) | RT-350 Type 2 | AMS-DTL-23053/5, Cl. 2 | | |

*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* | d (max.) Recovered after heating | | D (min.) Expanded as supplied | d (max.) Recovered after heating | W Recovered after heating* | | | | | |
| 3/64 | 1.2 | 0.046 | 0.6 | 0.023 | 0.40 ± 0.08 | 0.016 ± 0.003 | 3/4 | 19.1 | 0.750 | 9.5 | 0.375 | 0.77 ± 0.08 | 0.030 ± 0.003 |
| 1/16 | 1.6 | 0.063 | 0.8 | 0.031 | 0.43 ± 0.08 | 0.017 ± 0.003 | 1 | 25.4 | 1.000 | 12.7 | 0.500 | 0.89 ± 0.12 | 0.035 ± 0.005 |
| 3/32 | 2.4 | 0.093 | 1.2 | 0.046 | 0.51 ± 0.08 | 0.020 ± 0.003 | 1 1/4 | 31.7 | 1.250 | 15.9 | 0.625 | 1.02 ± 0.15 | 0.040 ± 0.006 |
| 1/8 | 3.2 | 0.125 | 1.6 | 0.062 | 0.51 ± 0.08 | 0.020 ± 0.003 | 1 1/2 | 38.1 | 1.500 | 19.1 | 0.750 | 1.02 ± 0.15 | 0.040 ± 0.006 |
| 3/16 | 4.7 | 0.187 | 2.4 | 0.093 | 0.51 ± 0.08 | 0.020 ± 0.003 | 2 | 50.8 | 2.000 | 25.4 | 1.000 | 1.14 ± 0.16 | 0.045 ± 0.007 |
| 1/4 | 6.4 | 0.250 | 3.2 | 0.125 | 0.64 ± 0.08 | 0.025 ± 0.003 | 3 | 76.2 | 3.000 | 38.1 | 1.500 | 1.27 ± 0.20 | 0.050 ± 0.008 |
| 3/8 | 9.5 | 0.375 | 4.8 | 0.187 | 0.64 ± 0.08 | 0.025 ± 0.003 | 4 | 101.6 | 4.000 | 50.8 | 2.000 | 1.40 ± 0.23 | 0.055 ± 0.009 |
| 1/2 | 12.7 | 0.500 | 6.4 | 0.250 | 0.64 ± 0.08 | 0.025 ± 0.003 | 5 | 127.0 | 5.000 | 63.5 | 2.500 | 1.53 ± 0.23 | 0.060 ± 0.009 |

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

Ordering information

| | | |
|----------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Colors | Standard | Black (all sizes); clear, white, red, blue, green, and yellow (3/64" through 3") |
| | Nonstandard | Clear, white, red, blue, and yellow (4" and 5"); brown, orange, violet, and gray (all sizes) |
| Size selection | Always order the largest size that will shrink snugly over the component being covered. | |
| Standard packaging | On spools or in 4 foot lengths | |
| Ordering description | Specify product name, size, and color; for example, RNF-100-1/4-BK (BK=Black). | |

Specification values

| | | | Requirement | | |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------|
| | Property | Unit | Type 1 (colors) | Type 2 (clear) | Method of test |
| Physical | Dimensions | mm (<i>inches</i>) | See Reverse | See Reverse | ASTM D 2671 |
| | Longitudinal change | percent | +0, -5 | +0, -5 | ASTM D 2671 |
| | Tensile strength | psi (<i>Mpa</i>) | 1500 (<i>10.3</i>) minimum | 1500 (<i>10.3</i>) minimum | ASTM D 2671 |
| | Ultimate elongation | percent | 200 minimum | 200 minimum | ASTM D 2671 |
| | Secant modulus (as supplied) | psi (<i>Mpa</i>) | 2.5 X 10 ⁴ (<i>172</i>) maximum | 2.5 X 10 ⁴ (<i>172</i>) maximum | ASTM D 2671 |
| | Specific gravity | | 1.35 maximum | 1.0 maximum | ASTM D 2671 |
| | Low temperature flexibility (4 hours at -55°C/-67°F) | | No cracking | No cracking | AMS-DTL-23053 |
| | Heat shock (4 hours at 250°C/482°F) | | No dripping, flowing, or cracking | No dripping, flowing, or cracking | AMS-DTL-23053 |
| | Heat resistance (336 hours at 175°C/347°F) | | | | ASTM D 2671 |
| | Followed by test for: | | | | |
| | Ultimate Elongation | percent | 150 minimum | 150 minimum | ASTM D 2671 |
| | Color | | MIL-STD-104 | | MIL-STD-104 |
| | Color stability (48 hours at 175°C/347°F) | | MIL-STD-104 | | ASTM D 2671 |
| | Electrical | Dielectric strength | volts/mil (<i>volts/mm</i>) | 500 (<i>19,680</i>) minimum | 500 (<i>19,680</i>) minimum |
| Volume resistivity | | ohm-cm | 10 ¹⁴ minimum | 10 ¹⁶ minimum | ASTM D 2671 |
| Chemical | Copper mirror corrosion (16 hours at 175°C/347°F) | | No removal of copper | No removal of copper | ASTM D 2671 Procedure A |
| | Copper contact corrosion (168 hours at 160°C/320°F) | | No pitting or blackening of copper | No pitting or blackening of copper | ASTM D 2671 Procedure B |
| | Copper stability (16 hours at 160°C/320°F) | | No brittleness, glazing, cracking, or severe discoloration of tubing | No brittleness, glazing, cracking, or severe discoloration of tubing | ASTM D 2671 Procedure B |
| | Followed by test for: | | | | |
| | Ultimate Elongation | percent | 200 minimum | 200 minimum | ASTM D 2671 |
| | Flammability | | Self-extinguishing within 1 minute, 25% maximum flag burn | | ASTM D 2671 Procedure B |
| | Fungus resistance | | Rating of 1 or less | Rating of 1 or less | ASTM G 21 |
| | Water absorption (24 hours at 23°C/73°F) | percent | 0.5 maximum | 0.2 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) Water | | | | ASTM D 2671 |
| | Followed by tests for: | | | | |
| | Dielectric strength | volts/mil (<i>volts/mm</i>) | 400 (<i>15,760</i>) minimum | 400 (<i>15,760</i>) minimum | ASTM D 2671 |
| Tensile strength | psi (<i>Mpa</i>) | 1000 (<i>6.9</i>) minimum | 1000 (<i>6.9</i>) minimum | ASTM D 2671 | |

Note: Consult RT-350 for specific details about test procedures.
Raychem is a trademark of Tyco Electronics Corporation.

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

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