

Semirigid, flame-retardant, polyolefin heat-shrinkable tubing

Heat-shrinkable CRN tubing is ideally suited for wire strain-relief applications. It provides excellent strain-relief and insulation of weak points such as wire splices and terminations. CRN tubing helps ensure a reliable connection because it transfers the flex stress away from typically sensitive points such as solder and crimp joints.

CRN tubing has a broad range of uses including component protective covering and packaging. The flame-retardant material is fabricated from radiation-crosslinked polyolefin and exhibits excellent mechanical and chemical properties. It meets major military and industrial specifications for an all-purpose, semirigid tubing.

CRN tubing is abrasion-resistant. It's superior chemical properties permit satisfactory performance after exposure to common chemicals and solvents.

Only a few sizes of CRN tubing are required to cover a wide range of substrate diameters.

**Temperature rating**

Full recovery temperature:	135°C
Continuous operating temperature:	-55°C to 135°C

**Specifications\***

Type	Raychem	Military	UL	CSA
CRN Type 1 (colors)	RT-360 Type 1	AMS-DTL-23053/6 Cl. 1	E35586	LR31929 (Black only)
CRN Type 2 (clear)	RT-360 Type 2	AMS-DTL-23053/6 Cl. 2		

\*When ordering, always specify latest issue.

**Dimensions (millimeters/inches)**



Size	Inside diameter		d (max.)		Wall thickness	
	D (min.)	Expanded as supplied	Recovered after heating	Recovered after heating**	W	Recovered after heating**
3/64	1.2	0.046	0.6	0.023	0.51 ± 0.08	0.020 ± 0.003
1/16	1.6	0.063	0.8	0.031	0.51 ± 0.08	0.020 ± 0.003
3/32	2.4	0.093	1.2	0.046	0.51 ± 0.08	0.020 ± 0.003
1/8	3.2	0.125	1.6	0.062	0.51 ± 0.08	0.020 ± 0.003
3/16	4.8	0.187	2.4	0.093	0.64 ± 0.08	0.025 ± 0.003
1/4	6.3	0.250	3.2	0.125	0.64 ± 0.08	0.025 ± 0.003
3/8	9.5	0.375	4.8	0.187	0.76 ± 0.08	0.030 ± 0.003
1/2	12.7	0.500	6.4	0.250	0.76 ± 0.08	0.030 ± 0.003
3/4	19.0	0.750	9.5	0.375	0.89 ± 0.12	0.035 ± 0.005

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

**Ordering information**

Colors	Standard Black Nonstandard Clear (not flame-retardant)
Size selection	Always order the largest size that will shrink snugly over the component being covered.
Standard packaging	4-foot lengths
Ordering description	Specify product name, size, and color; for example, CRN 1/4-0 (0 = Black).

## Specification values

	Property	Unit	Requirement Type 1 (Colors)	Requirement Type 2 (Clear)	Method of test
<b>Physical</b>	Dimensions	mm ( <i>inches</i> )	See reverse	See reverse	ASTM D 2671
	Longitudinal change	percent	5 maximum	5 maximum	ASTM D 2671
	Tensile strength	psi ( <i>MPa</i> )	2000 ( <i>13.8</i> ) minimum	2000 ( <i>13.8</i> ) minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	200 minimum	ASTM D 2671
	Secant modulus (expanded)	psi ( <i>MPa</i> )	2.5 x 10 <sup>4</sup> ( <i>172</i> ) minimum	2.5 x 10 <sup>4</sup> ( <i>172</i> ) minimum	ASTM D 2671
	Specific gravity		1.35 maximum	1.0 maximum	ASTM D 792
	Low-temperature flexibility (4 hours at -55°C/-67°F)		No cracking	No cracking	AMS-DTL 23053 ASTM D 2671 Procedure C
	Heat shock (4 hours at 250°C/482°F)		No dripping, flowing, or cracking	No dripping, flowing, or cracking	AMS-DTL 23053 ASTM D 2671
	Heat resistance (168 hours at 175°C/347°F)				ASTM D 2671
	Followed by test for:				
Ultimate elongation	percent	150 minimum	150 minimum	ASTM D 2671	
<b>Electrical</b>	Dielectric strength	volts/mil ( <i>volts/mm</i> )	500 ( <i>19,680</i> ) minimum	500 ( <i>19,680</i> ) minimum	ASTM D 2671
	Volume resistivity	ohm-cm	10 <sup>14</sup> minimum	10 <sup>16</sup> minimum	ASTM D 2671
<b>Chemical</b>	Copper mirror corrosion (16 hours at 150°C/302°F)		No removal of copper	No removal of copper	ASTM D 2671 Procedure A
	Copper contact corrosion (168 hours at 150°C/302°F)		No pitting or blackening of copper	No pitting or blackening of copper	ASTM D 2671 Procedure B
	Flammability		Self-extinguishing within 1 minute; 25% of indicator burned or charred; no falling, burning particles.	Not applicable	ASTM D 2671 Procedure B
	Fungus resistance				ISO 846 Method B
	Followed by tests for:				
	Tensile strength	psi ( <i>MPa</i> )	2000 ( <i>13.8</i> ) minimum	2000 ( <i>13.8</i> ) minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	200 minimum	ASTM D 2671
	Dielectric strength	volts/mil ( <i>volts/mm</i> )	500 ( <i>19,680</i> ) minimum	500 ( <i>19,680</i> ) minimum	ASTM D 2671
	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 (100/130) (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> )	1600 ( <i>11.0</i> ) minimum	1600 ( <i>11.0</i> ) minimum	ASTM D 2671	

Note: Consult RT-360 for specific details about test procedures.

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\*Trademark of the Monsanto Company.

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

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