tyco Electronics

RW-175

Raychem

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

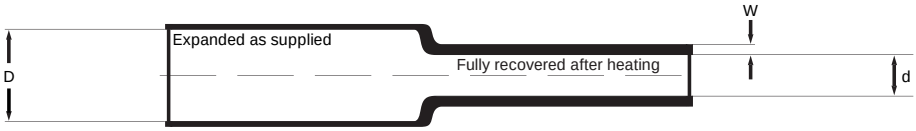
Full recovery temperature:	175°C
Continuous operating temperature:	–55°C to 175°C
Recommended maximum temperature for use as a primary insulator:	135°C

*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 D (min.) Expanded as supplied		Inside diameter d (max.) Recovered after heating		Wall thickness W Recovered after heating**	
3/64	1.2	*0.046*	0.6	*0.023*	0.25 ± 0.05	*0.010 ± 0.002*
1/16	1.6	*0.063*	0.8	*0.031*	0.25 ± 0.05	*0.010 ± 0.002*
3/32	2.4	*0.093*	1.2	*0.046*	0.25 ± 0.05	*0.010 ± 0.002*
1/8	3.2	*0.125*	1.6	*0.062*	0.25 ± 0.05	*0.010 ± 0.002*
3/16	4.7	*0.187*	2.4	*0.093*	0.25 ± 0.05	*0.010 ± 0.002*
1/4	6.4	*0.250*	3.2	*0.125*	0.33 ± 0.05	*0.013 ± 0.002*
3/8	9.5	*0.375*	4.7	*0.187*	0.33 ± 0.05	*0.013 ± 0.002*

Size	Inside diameter D (min.) Expanded as supplied		Inside diameter d (max.) Recovered after heating		Wall thickness W Recovered after heating**	
1/2	12.7	*0.500*	6.4	*0.250*	0.33 ± 0.05	*0.013 ± 0.002*
3/4	19.1	*0.750*	9.5	*0.375*	0.43 ± 0.08	*0.017 ± 0.003*
1	25.4	*1.000*	12.7	*0.500*	0.48 ± 0.08	*0.019 ± 0.003*
1 1/2	38.1	*1.500*	19.1	*0.750*	0.51 ± 0.08	*0.020 ± 0.003*
2	50.8	*2.000*	25.4	*1.000*	0.51 ± 0.08	*0.020 ± 0.003*
3	76.2	*3.000*	38.1	*1.500*	0.64 ± 0.10	*0.025 ± 0.004*
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**	Translucent (clear)
	Nonstandard	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 *(inches)*	See reverse	ASTM D 2671
	Longitudinal change	percent	+0, –10 maximum	ASTM D 2671
	Tensile strength	psi *(MPa)*	5000 *(34.5)* minimum	ASTM D 2671
	Ultimate elongation	percent	150 minimum	ASTM D 2671
	Secant modulus (expanded)	psi *(MPa)*	1 x 10^5 *(690)* 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 *(kV/mm)*		ASTM D 2671
	Sizes 3/64 through 1/2		800 *(31.5)* minimum	
	Sizes 3/4 through 2		600 *(23.6)* 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 *(MPa)*	5000 *(34.5)* minimum	ASTM D 2671
	Ultimate elongation	percent	150 minimum	ASTM D 2671
	Dielectric strength	volts/mil *(kV/mm)*		ASTM D 2671
	Sizes 3/64 through 1/2		800 *(31,500)* minimum	
	Sizes 3/4 through 2		600 *(23,600)* 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 *(kV/mm)*		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 *(MPa)*	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.

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