

## **Electronics**

# Versafit V4

# Raychem

Very-thin-wall, highly flame-retardant, imperial-sized heat-shrinkable tubing



Versafit V4 heat-shrinkable tubing is a cost-effective, environmentally friendly choice for many commercial applications. Versafit V4 tubing is a very thin-wall version of Versafit, a specially formulated polyolefin with low recovery temperature, excellent flexibility, and high flame-retardance (VW-1).

Versafit V4 tubing is typically applied where space savings is important,

offering the ability to pack components more closely than is possible with standard tubings. Versafit V4 tubing can shrink more than twice as fast as standard products. This rapid shrinking may be important in the prevention of overheating of temperature-sensitive components.

Unlike other typical flame-retardant tubings, Versafit V4 tubing is free of polybrominated biphenyls (PBBs)

and polybrominated biphenyl oxides (PBBOs). In Europe, these chemicals are classified as environmentally hazardous substances.

Versafit V4 products are UL-recognized at 125°C, 300 V, and CSA-certified at 125°C, 150 V, with UL VW-1 and CSA OFT flame-retardancy ratings.

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## Temperature rating

Full recovery temperature:	90°C
Continuous operating temperature:	-45°C to 125°C

# Specifications\* Image: CSA Type Raychem UL CSA Versafit V4 RW-3023 E35586 VW-1 LR31929 VW-1

## Dimensions (millimeters/inches)



	Inside diameter			Wall thicknes	SS	
	D (min.)	d (ma	ıx.)	W		
Size	Expanded as supplied	Reco	vered after heating	Recovered a	fter heating**	
3/64	1.2 0.046	0.6	0.023	$0.30 \pm 0.05$	0.012 ± 0.002	
1/16	1.6 <i>0.063</i>	0.8	0.031	$0.30 \pm 0.05$	0.012 ± 0.002	
3/32	2.4 0.093	1.2	0.046	$0.30 \pm 0.05$	0.012 ± 0.002	
1/8	3.2 <i>0.125</i>	1.6	0.062	0.33 ± 0.05	0.013 ± 0.002	
3/16	4.8 <i>0.187</i>	2.4	0.093	0.33 ± 0.05	0.013 ± 0.002	
1/4	6.4 0.250	3.2	0.125	0.36 ± 0.05	0.014 ± 0.002	
3/8	9.5 <i>0.375</i>	4.8	0.187	0.36 ± 0.05	0.014 ± 0.002	
1/2	12.7 <i>0.500</i>	6.4	0.250	0.36 ± 0.05	0.014 ± 0.002	
3/4	19.1 <i>0.750</i>	9.5	0.375	$0.46 \pm 0.08$	0.017 ± 0.003	
1	25.4 <i>1.000</i>	12.7	0.500	0.51 ± 0.08	0.020 ± 0.003	

<sup>\*\*</sup>Wall thickness will be less if tubing recovery is restricted during shrinkage.

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#### Ordering information

Colors	Standard	Black
	Nonstandard	Other colors available on request.
Size selection	Always order the largest size that will shrink snugly over the component being covered.	
Standard packaging	On spools	
Ordering description	Specify product name, size, and color; for example, V4 1/16-0 (0=Black).	

<sup>\*</sup>When ordering, always specify latest issue.

#### Specification values

	Property	Unit	Requirement	Method of test
Physical	Dimensions	mm (inches)	See reverse	ASTM D 2671
	Longitudinal change ASTM D 2671	percent	+1, -15	ASTM D 2671
	UL 224 Eccentricity (recovered)	percent	+3, -3 30 maximum	UL 224 ASTM D 2671
	Tensile strength	percent psi (MPa)	1500 <i>(10.3)</i> minimum	ASTM D 2671
			200 minimum	ASTM D 2671
	Ultimate elongation Secant modulus	percent psi (MPa)	2.5 x 10 <sup>4</sup> <i>(172)</i> maximum	ASTM D 2671
	(as supplied)	psi ( <i>iviPa)</i>		
	Low-temperature flexibility (1 hour at -30°C/-22°F)		No cracking	UL 224
	Heat shock (4 hours at 250°C/482°F)		No cracking	UL 224
	Heat aging (7 days at 158°C/ <i>316°F</i> )			UL 224
	Followed by tests for:			
	Tensile strength	psi <i>(MPa)</i>	70% minimum of unaged specimens	UL 224
	Ultimate elongation	percent	100 minimum	UL 224
	Flexibility	-	No cracking	UL 224
	Dielectric withstand at 2500 V	seconds	60 minimum	ASTM D 2671
	Dielectric breakdown	volts	50% minimum of unaged specimens	ASTM D 2671
	Dielectric strength	volts/mil (kV/mm)	500 <i>(19.7)</i> minimum	ASTM D 2671
	Restricted shrinkage		Pass	UL 224
Electrical	Dielectric withstand at 2500 V	seconds	60 minimum	ASTM D 2671
	Dielectric strength	volts/mil (kV/mm)	500 <i>(19.7)</i> minimum	ASTM D 2671
	Volume resistivity	ohm-cm	10 <sup>14</sup> minimum	ASTM D 2671
Chemical	Corrosive effect (7 days at 158°C/316°F)		No corrosion	ASTM D 2671
	Copper stability (7 days at 158°C/316°F)		No brittleness, glazing, cracking, or severe discoloration of tubing. No pitting or blackening of copper.	ASTM D 2671
	Followed by test for:			
	Ultimate elongation	percent	100 minimum	ASTM D 2671
	Flammability		Pass	UL 224, VW-1
	Water absorption (recovered) (24 hours at 23°C/73°F)	percent	0.5 maximum	ASTM D 2671
	Fungus resistance			ISO 846 Method B
	Followed by tests for:			
	Tensile strength	psi <i>(MPa)</i>	1500 <i>(10.3)</i> minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	ASTM D 2671
	<u> </u>	•		ASTM D 2671

Note: Consult RW-3023 for specific details about test procedures. Versafit and Raychem are trademarks of Tyco Electronics Corporation.

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

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