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Very-thin-wall, highly flame-retardant, metric-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.

**Temperature rating**

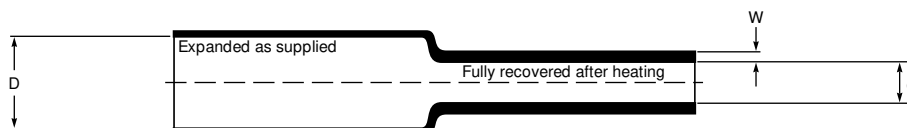
Full recovery temperature:	90°C
Continuous operating temperature:	-45°C to 125°C

**Specifications\***

Type	Raychem	UL	CSA
Versafit V4	RW-3023	E35586 VW-1	LR31929 VW-1

\*When ordering, always specify latest issue.

**Dimensions (millimeters)**



Size	As supplied		Fully recovered		Size	As supplied		Fully recovered	
	D Inside diameter	Wall thickness (nominal)	d (max.) Inside diameter	W (min.) Wall thickness**		D Inside diameter	Wall thickness (nominal)	d (max.) Inside diameter	W (min.) Wall thickness**
1.0	1.4 ± 0.25	0.10	0.50	0.25	5.0	5.5 ± 0.25	0.15	2.5	0.25
1.5	1.9 ± 0.25	0.10	0.75	0.25	6.0	6.5 ± 0.40	0.15	3.0	0.28
2.0	2.3 ± 0.25	0.10	1.00	0.25	7.0	7.5 ± 0.40	0.15	3.5	0.28
2.5	2.8 ± 0.25	0.15	1.25	0.25	8.0	8.5 ± 0.40	0.15	4.0	0.28
3.0	3.3 ± 0.25	0.15	1.50	0.25	9.0	9.5 ± 0.40	0.15	4.5	0.28
3.5	3.8 ± 0.25	0.15	1.75	0.25	10.0	10.5 ± 0.50	0.15	5.0	0.28
4.0	4.4 ± 0.25	0.15	2.00	0.25					

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

**Ordering information**

Colors	<b>Standard</b> Black <b>Nonstandard</b> 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
Marking	Marked with UL, CSA, and Japan -F- Mark legends.
Ordering description	Specify product name, size, and color; for example, V4 2.0-0 (0=Black).

## Specification values

	Property	Unit	Requirement	Method of test
<b>Physical</b>	Dimensions	mm	See reverse	ASTM D 2671
	Longitudinal change			
	ASTM D 2671	percent	+1, -15	ASTM D 2671
	UL 224	percent	+3, -3	UL 224
	Eccentricity (recovered)	percent	30 maximum	ASTM D 2671
	Tensile strength	MPa ( <i>psi</i> )	10.3 ( <i>1500</i> ) minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	ASTM D 2671
	Secant modulus (as supplied)	MPa ( <i>psi</i> )	103 ( <i>1.5 x 10<sup>4</sup></i> ) maximum	ASTM D 2671
	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/316°F)			UL 224
	Followed by tests for:			
	Tensile strength	MPa ( <i>psi</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	kV/mm ( <i>volts/mil</i> )	19.7 ( <i>500</i> ) minimum	ASTM D 2671
	Restricted shrinkage		Pass	UL 224
	<b>Electrical</b>	Dielectric withstand at 2500 V	seconds	60 minimum
Dielectric strength		kV/mm ( <i>volts/mil</i> )	19.7 ( <i>500</i> ) minimum	ASTM D 2671
Volume resistivity		ohm-cm	10 <sup>14</sup> minimum	ASTM D 2671
<b>Chemical</b>	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	MPa ( <i>psi</i> )	10.3 ( <i>1500</i> ) minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	ASTM D 2671
Dielectric strength	kV/mm ( <i>volts/mil</i> )	19.7 ( <i>500</i> ) minimum	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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