

DWFR
Highly Flame-Retardant, Dual Wall Polyolefin Heat-Shrinkable Tubing

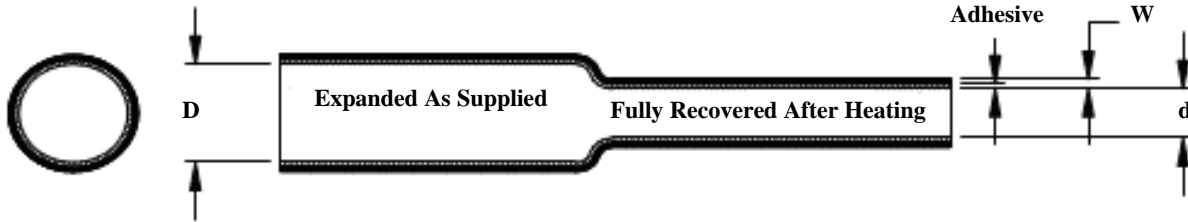


Table 1: Dimensions: mm (*in*)


Shrink Ratio	Size	Minimum Inside Diameter as supplied (D) mm (<i>in</i>)	Maximum Inside Diameter after recovery (d) mm (<i>in</i>)	Total Wall Thickness after recovery (W) mm (<i>in</i>)	Minimum Inner Meltable Wall Thickness after recovery mm (<i>in</i>)
3:1	3/1	3.0 (0.118)	1.0 (0.039)	1.12 ± 0.25 (.044 ± .010)	0.25 (0.010)
	6/2	6.0 (0.236)	2.0 (0.079)	1.14 ± 0.25 (.045 ± .010)	0.25 (0.010)
	9/3	9.0 (0.354)	3.0 (0.118)	1.40 ± 0.25 (.055 ± .010)	0.56 (0.022)
	12/4	12.0 (0.472)	4.0 (0.157)	1.78 ± 0.36 (.070 ± .014)	0.58 (0.023)
	19/6	19.0 (0.748)	6.0 (0.236)	2.25 ± 0.50 (.088 ± .020)	0.58 (0.023)
	24/8	24.0 (0.945)	8.0 (0.315)	2.54 ± 0.50 (.100 ± .020)	0.79 (0.031)
	40/13	40.0 (1.575)	13.0 (0.512)	2.54 ± 0.50 (.100 ± .020)	0.86 (0.034)
4:1	4/1	4.0 (0.157)	1.0 (0.039)	1.12 ± 0.25 (.044 ± .010)	0.25 (0.010)
	8/2	8.0 (0.315)	2.0 (0.079)	1.14 ± 0.25 (.045 ± .010)	0.25 (0.010)
	12/3	12.0 (0.472)	3.0 (0.118)	1.40 ± 0.25 (.055 ± .010)	0.56 (0.022)
	16/4	16.0 (0.630)	4.0 (0.157)	1.78 ± 0.36 (.070 ± .014)	0.58 (0.023)
	24/6	24.0 (0.945)	6.0 (0.236)	2.25 ± 0.50 (.088 ± .020)	0.58 (0.023)
	32/8	32.0 (1.260)	8.0 (0.315)	2.54 ± 0.50 (.100 ± .020)	0.79 (0.031)
	52/13	52.0 (2.047)	13.0 (0.512)	2.54 ± 0.50 (.100 ± .020)	0.86 (0.034)

Material:

The tubing shall be fabricated from a modified irradiated polyolefin compounded to produce a homogeneous, uniform product whose outside surface is essentially free from flaws, defects, pinholes, seams, cracks, or inclusions. The interior wall is coated with a thermoplastic adhesive. The standard color is black.

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Customer Drawing

		Tubing TE CONNECTIVITY 300 Constitution Drive Menlo Park, CA 94025 USA		Title: DWFR Highly Flame-Retardant, Dual Wall Polyolefin Heat-Shrinkable Tubing	
		TE Connectivity reserves the right to amend this drawing at any time. Users should evaluate the suitability of the product for their application		Document No : DWFR	
Cage Code: 06090	Scale: None	Size: A	Rev. Date: 28-January-16	Rev. E	Sheet: 1 of 2

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Properties:

PROPERTY	UNIT	REQUIREMENT	TEST METHOD
PHYSICAL			
*Dimensions	mm (<i>in</i>)	In accordance with Table 1	ASTM D 2671
Longitudinal Change	Percent	0, -15%	ASTM D 2671
*Tensile Strength	psi (<i>MPa</i>)	1500 minimum (<i>10.3</i>)	ASTM D 2671
*Ultimate Elongation	Percent	200 minimum	
Secant Modulus (Expanded)	psi (<i>MPa</i>)	2.5×10^4 maximum (<i>172</i>)	ASTM D 882, 2% strain
Cold Bend Test at $-30 \pm 1.0^\circ\text{C}$ ($-22 \pm 1.8^\circ\text{F}$) for 1 hour	---	No cracking	UL 224, section 5.9
*Heat Shock 4 hours at $250.0 \pm 1.0^\circ\text{C}$ ($482 \pm 1.8^\circ\text{F}$)	---	No dripping, flowing or cracking of outer wall	UL 224, section 5.8
Heat Resistance 168 hours at $158.0^\circ\text{C} \pm 1.0^\circ\text{C}$ ($316.4 \pm 1.8^\circ\text{F}$) Followed by test for: - Tensile Strength - Elongation	psi (<i>MPa</i>) Percent	Min. 70% of original 100% minimum	UL 224
Sealing Efficiency		No openings on reheat	AMS-DTL 23053/4
ELECTRICAL			
Dielectric Strength	Volts/mil (<i>volts/mm</i>)	300 minimum (<i>11,811 min</i>) on dual wall specimen	ASTM D 2671
Volume Resistivity	ohm-cm	10^{14} minimum on dual wall specimen	ASTM D 2671
CHEMICAL			
Corrosion of the bare copper 168 hours at $158.0^\circ\text{C} \pm 1.0^\circ\text{C}$ ($316.4 \pm 1.8^\circ\text{F}$)	---	No pitting or blackening of copper	UL 224, section 5.16
Copper stability 168 hours at $158.0^\circ\text{C} \pm 1.0^\circ\text{C}$ ($316.4 \pm 1.8^\circ\text{F}$) Followed by test for: - Elongation	Percent	Show no sign of degradation 100% minimum	UL 224, section 5.17
Flammability	---	Self-extinguishing within 1 minute, 25% maximum flag burn and 0% cotton burn	UL 224, VW-1
Water Absorption 24 hours at 23°C (73°F)	Percent	0.5 maximum	ASTM D 2671

* Denotes Lot Acceptance Test

Customer Drawing

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