

MEDICAL TUBING—MT-LWA

Raychem Flexible, Modified Polyolefin, Heat Shrinkable Tubing for Process Aid Applications

ABOUT MT-LWA

MT-LWA is a 2:1 to 4:1 heat shrinkable, crosslinked medical grade modified polyolefin tubing product designed for process aid application for minimally invasive medical devices. It is nearly homogenous and essentially free from flaws, defects, pinholes, seams, cracks or inclusions. The product will recover to a predetermined size upon application of heat in excess of 110°C (230°F). With the Raychem crosslink advantage material can reflow nylon/pebax grade plastics.

Additional advantages include:

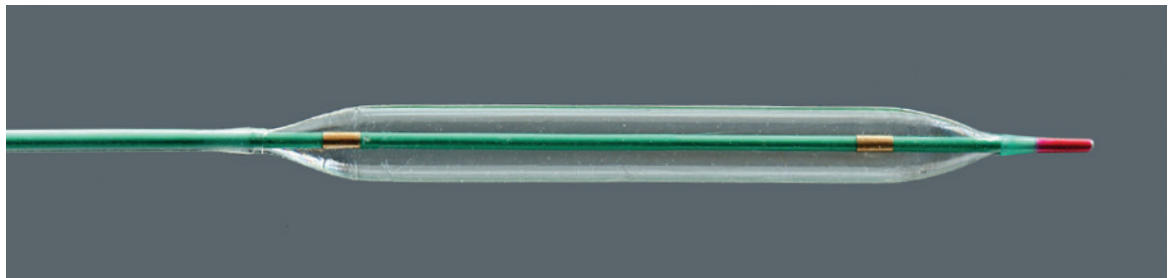
- Product is compliant to: RoHS, USP class VI biocompatibility
- Manufactured to ISO 10993 standards

Designed for the minimally invasive device market

- Processing aid for laser welding of stents and balloons
- Process aid for holding dissimilar materials in hot jaw bonding operations
- Process aid for Reflow sleeve
- Customer sizes and shrink ratios available

Process advantages: Raychem medical tubing product properties

- Easy tear capability—axial tear propagation
- Easy to remove after application
- Improves process reflow yields
- Customizable to low compression pressure for sensitive devices
- Shelf life stability
- Low temperature recovery (110°C)
- Designed for superior cosmetic clarity performance for laser weld applications



To order product samples, please visit www.te.com/medical.

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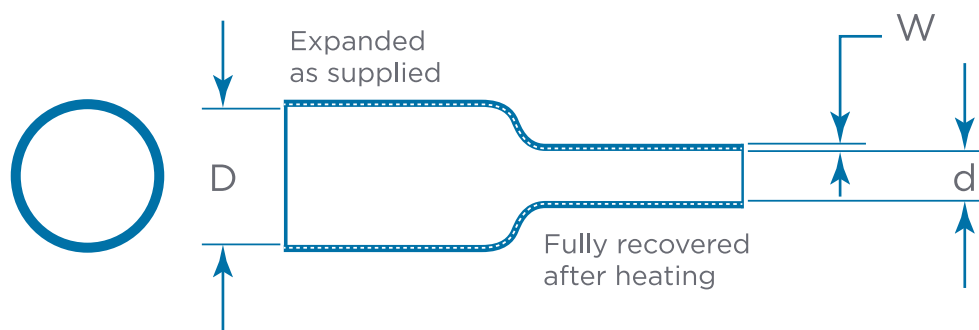


TABLE 1: 2:1 EXPANSION RATIO DIMENSIONS (±)

Standard Sizes	As Supplied		Recovered			
	Inside Diameter Minimum (D)		Inside Diameter Maximum (d)		Wall Thickness (W)	
Size	in.	mm.	in.	mm.	in.	mm.
1/32	0.040 ± 0.005	1.02 ± 0.13	0.013 ± 0.002	0.33 ± 0.05	0.010 ± 0.002	0.25 ± 0.05
3/64	0.055 ± 0.005	1.40 ± 0.13	0.020 ± 0.003	0.51 ± 0.08	0.012 ± 0.002	0.31 ± 0.05
1/16	0.072 ± 0.005	1.83 ± 0.13	0.027 ± 0.004	0.69 ± 0.10	0.017 ± 0.003	0.43 ± 0.08
3/32	0.107 ± 0.008	2.72 ± 0.20	0.042 ± 0.004	1.07 ± 0.10	0.020 ± 0.003	0.51 ± 0.08
1/8	0.140 ± 0.010	3.56 ± 0.25	0.057 ± 0.005	1.45 ± 0.13	0.020 ± 0.003	0.51 ± 0.08
3/16	0.205 ± 0.010	5.21 ± 0.25	0.086 ± 0.007	2.18 ± 0.18	0.020 ± 0.003	0.51 ± 0.08
1/4	0.275 ± 0.015	6.99 ± 0.38	0.117 ± 0.008	2.97 ± 0.20	0.025 ± 0.003	0.64 ± 0.08
3/8	0.415 ± 0.020	10.54 ± 0.51	0.171 ± 0.016	4.34 ± 0.41	0.025 ± 0.003	0.64 ± 0.08

TABLE 2: 3:1 EXPANSION RATIO DIMENSIONS (MIN./MAX)

Standard Sizes	As Supplied		Recovered			
	Inside Diameter Minimum (D)		Inside Diameter Maximum (d)		Wall Thickness (W)	
Size	in.	mm.	in.	mm.	in.	mm.
.032	0.032	0.81	0.011	0.28	0.010 ± 0.002	0.25 ± 0.05
.047	0.053	1.35	0.013	0.33	0.012 ± 0.002	0.31 ± 0.05
.063	0.063	1.60	0.021	0.53	0.016 ± 0.002	0.41 ± 0.05
.078	0.078	1.98	0.025	0.64	0.016 ± 0.002	0.41 ± 0.05
.094	0.094	2.39	0.031	0.79	0.020 ± 0.003	0.51 ± 0.08
.110	0.110	2.79	0.034	0.86	0.020 ± 0.003	0.51 ± 0.08
.125	0.125	3.18	0.042	1.07	0.020 ± 0.003	0.51 ± 0.08
.188	0.188	4.78	0.063	1.60	0.020 ± 0.003	0.51 ± 0.08
.250	0.250	6.35	0.083	2.11	0.025 ± 0.003	0.64 ± 0.08
.375	0.375	9.53	0.125	3.18	0.025 ± 0.003	0.64 ± 0.08

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TABLE 3: PROPERTIES

Property	Unit	Requirement	Test Method
Physical			
Dimensions*	inches (<i>mm</i>)	In accordance with Table 1	
Longitudinal change*	percent	+0, -10 maximum	ASTM D 2671
Concentricity as supplied*	percent	70 minimum (2:1 Exp. ratio) 60 minimum (3:1 Exp. ratio)	ASTM D 2671
Tensile strength*	psi (<i>MPa</i>)	1500 minimum (<i>10:3</i>)	ASTM D 2671,
Ultimate elongation*	percent	200 minimum	20"/minute
Secant modulus* (expanded)	psi (<i>MPa</i>)	2.5 x 10 ⁴ maximum (<i>172</i>)	ASTM D 2671
Heat resistance 168 hours at 175°C (347°F) Followed by test for: Ultimate elongation	percent	100 minimum	ASTM D 2671, 20"/minute
Electrical			
Dielectric strength	volts/mil (<i>volts/mm</i>)	500 minimum (<i>19.7</i>)	ASTM D 2671
Dielectric withstand 3000V, 60Hz	sec	60 minimum	ASTM D 2671
Chemical			
Fluid resistance 24 hours at 23 ± 3°C (77 ± 5°F) Isopropyl alcohol 5% saline solution Disinfectant Followed by tests for: Dielectric strength	volts/mil (<i>volts/mm</i>)	400 minimum (<i>15.7</i>)	ASTM D 2671
Tensile strength	psi (<i>MPa</i>)	1000 minimum (<i>6.9</i>)	ASTM D 2671
Heavy metals analysis Cadmium Mercury Lead Bismuth Antimony	ppm	1 maximum (total of all metals)	USP XXII Physiochemical tests-plastic (Note 1)

*Denotes lot acceptance test

Note 1: Sample preparation and extraction is per USP XXII. Metals analysis may be colorimetric as described in USP XXII or by equivalent quantitative analytical method.



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