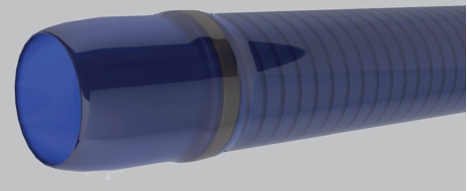


## MT-FEP

# FEP Heat Shrink Tubing

### Applications

- Process aid for reflowing catheter shafts
- Process aid for joint bonding



### PROFILE

- Shrink ratio  $\leq 1.6:1$
- Full recovery at 210°C (410°F) minimum
- Tight longitudinal change control as low as  $\pm 2\%$
- Manufactured to ISO 10993 standards
- Custom sizing, finishing options available
- Translucent for high optical clarity
- Color blending option available

### ABOUT

- MT-FEP is a fluorinated ethylene propylene (FEP) heat shrink tubing. FEP offers excellent consistency, high dielectric strength and is chemically inert. MT-FEP is lubricious and semi-rigid with shrink ratios up to 2:1\*. FEP is the industry gold standard for reflowing catheter shafts and bonding joints.
- For our MT-FEP, we can control longitudinal growth  $\pm 2\%$  ensuring consistency on lot-to-lot, reducing waste and cost.

\*Upper limit on select applications. Optimal shrink ratio is 1.6:1

TABLE 1: DIMENSIONS

Size	As Supplied		Recovered							
	Inside Diameter Minimum (D)		Inside Diameter Maximum (d)		Minimum		Wall Thickness (W) Maximum		Nominal	
	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.
1/32	0.035	0.9	0.025	0.6	0.006	0.15	0.010	0.25	0.008	0.20
3/64	0.045	1.1	0.032	0.8	0.006	0.15	0.010	0.25	0.008	0.20
1/16	0.063	1.6	0.040	1.0	0.006	0.15	0.010	0.25	0.008	0.20
3/32	0.093	2.4	0.056	1.4	0.006	0.15	0.010	0.25	0.008	0.20
1/8	0.125	3.2	0.075	1.9	0.007	0.18	0.013	0.33	0.010	0.25
3/16	0.188	4.8	0.115	2.9	0.007	0.18	0.013	0.33	0.010	0.25
1/4	0.250	6.4	0.150	3.8	0.007	0.18	0.013	0.33	0.010	0.25
3/8	0.375	9.5	0.225	5.7	0.009	0.23	0.015	0.38	0.012	0.30
1/2	0.500	12.7	0.300	7.6	0.011	0.28	0.019	0.48	0.015	0.38

TABLE 3: PROPERTIES

Property	Unit	Requirement	Test Method
<b>Physical</b>			
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> )	2000 minimum (10:3)	ASTM D 2671, 20"/minute
Ultimate elongation*	percent	200 minimum	
Secant modulus* (expanded)	psi ( <i>MPa</i> )	2.5 x 10 <sup>4</sup> maximum (172)	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
<b>Electrical</b>			
Dielectric strength	volts/mil ( <i>volts/mm</i> )	500 minimum (19.7)	ASTM D 2671
Dielectric withstand 3000V, 60Hz	sec	60 minimum	ASTM D 2671
<b>Chemical</b>			
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 (15.7)	ASTM D 2671
Tensile strength	psi ( <i>MPa</i> )	1000 minimum (6.9)	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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