

TMS MARKER SLEEVES (TMS)

TMS Markers are for use in permanent marking applications up to 135°C, and are especially designed for applications in which flexibility and flame retardancy are important criteria.

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1. SCOPE

This specification sheet, when used with RW 2500, defines the product characteristics and performance of Tyco Electronics TMS Marker Sleeves.

2. REQUIREMENTS

2.1 MATERIAL

The sleeving shall be fabricated from irradiated, thermally-stabilized, modified polyolefin compound. It shall be homogeneous and essentially free from flaws, defects, pinholes, bubbles, seams, cracks or inclusions.

2.2 COLOR

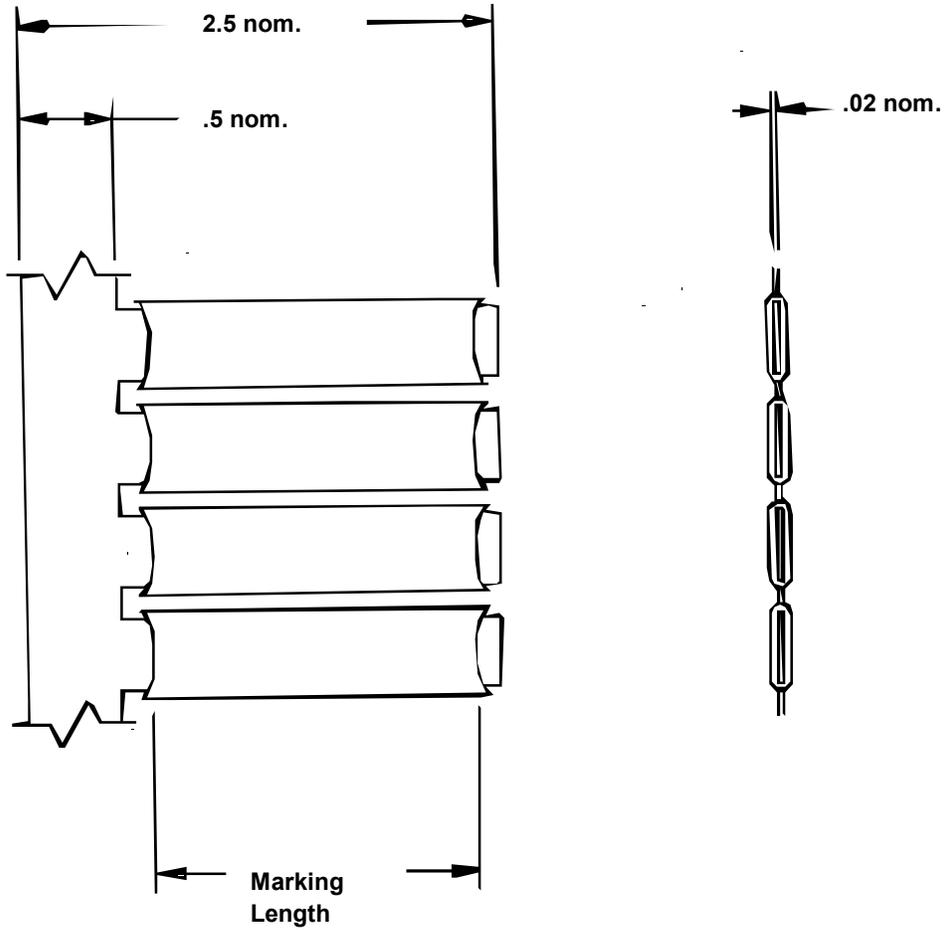
The sleeves shall be supplied in white, unless otherwise specified.

2.3 PROPERTIES

The sleeves shall meet the requirements of Table 3.

2.4 FORM

The sleeves shall be cut lengths in accordance with Table 1, mounted on bandoliers suitable for automatic marking. Each sleeve can accommodate up to and including 18 typed characters per line for 1.50-inch length, and up to and including 21 typed characters per line for 1.75-inch length, 12 pitch.



See Table 1

Dimensions are in inches

Figure 1

**TABLE 1
Sleeve Dimensions**

Product Description	AS SUPPLIED				AS RECOVERED			
	Equivalent Inside Diameter		Marking Length		Inside Diameter		Wall Thickness	
	Minimum		Minimum		Maximum			
	in.	mm.	in.	mm.	in.	mm.	in.	mm.
TMS-3/32-1.50	.093	2.36	1.50	38.10	.046	1.17	.023 ± .003	.58 ± .08
TMS-1/8-1.50	.125	3.17	1.50	38.10	.062	1.57	.023 ± .003	.58 ± .08
TMS-1/8-OX-1.50	.125	3.17	1.50	38.10	.046	1.17	.027 ± .003	.69 ± .08
TMS-3/16-1.50	.187	4.74	1.50	38.10	.093	2.36	.025 ± .003	.64 ± .08
TMS-3/16-OX-1.50	.187	4.74	1.50	38.10	.062	1.57	.029 ± .003	.74 ± .08
TMS-1/4-1.50	.250	6.35	1.50	38.10	.125	3.17	.025 ± .003	.64 ± .08
TMS-1/4-OX-1.50	.250	6.35	1.50	38.10	.093	2.36	.029 ± .003	.74 ± .08
TMS-3/8-1.50	.375	9.50	1.50	38.10	.187	4.75	.025 ± .003	.64 ± .08
TMS-3/8-OX-1.50	.375	9.50	1.70	43.18	.125	3.17	.028 ± .003	.71 ± .08
TMS-1/2-1.50	.475	12.07	1.60	40.64	.250	6.35	.025 ± .003	.64 ± .08
TMS-3/32-1.75	.093	2.36	1.75	44.45	.046	1.17	.023 ± .003	.58 ± .08
TMS-1/8-1.75	.125	3.17	1.75	44.45	.062	1.57	.023 ± .003	.58 ± .08
TMS-1/8-OX-1.75	.125	3.17	1.75	44.45	.046	1.17	.027 ± .003	.69 ± .08
TMS-3/16-1.75	.187	4.74	1.75	44.45	.093	2.36	.025 ± .003	.64 ± .08
TMS-3/16-OX-1.75	.187	4.74	1.75	44.45	.062	1.57	.029 ± .003	.74 ± .08
TMS-1/4-1.75	.250	6.35	1.75	44.45	.125	3.17	.025 ± .003	.64 ± .08
TMS-1/4-OX-1.75	.250	6.35	1.75	44.45	.093	2.36	.029 ± .003	.74 ± .08
TMS-3/8-1.75	.375	9.50	1.75	44.45	.187	4.75	.025 ± .003	.64 ± .08
TMS-3/4	.710	18.00	1.65	42.00	.375	9.53	.030 ± .004	.76 ± .10
TMS-1	1.500	38.00	1.65	42.00	.610	15.50	.045 ± .004	1.15 ± .10

**TABLE 2
Mandrel Dimensions for
Heat Shock, Heat Aging and
Low Temperature Flexibility**

SIZE	MANDREL DIAMETER	
	in.	mm.
3/32 through 3/16	5/16	7.9
1/4 through 1-1/2	3/4	19.0

TABLE 3
Requirements

PROPERTY	UNIT	REQUIREMENT	TEST METHOD
PHYSICAL			
Dimensions	Inches	In accordance with Table 1	
Dimensional Recovery 3 min. at 200°C (392°F)	Inches	In accordance with Table 1	Section 4.3.1.1 ASTM D 2671
Longitudinal Change 3 min. at 200°C (392°F)	Percent	10 maximum	
Tensile Strength	MPa (psi)	(10.3) 1500 minimum	Section 4.3.2.1 ASTM D 2671
Ultimate Elongation	Percent	200 minimum	2 inches/minute
Specific Gravity	---	1.35 maximum	Section 4.3.3 ASTM D 2671
Low Temperature Flexibility 4 hours at -55°C (-67°F)	---	No cracking	Section 4.3.5.1
Heat Shock 4 hours at 250°C (482°F) Followed by tests for: Print Performance	---	No dripping, flowing, or cracking	Section 4.3.6.1
	---	Legible	Section 4.3.9.2
Heat Aging 336 hours at 175°C (347°F) Followed by tests for: Print Performance	---	No cracking	Section 4.3.7.1
	---	Legible	Section 4.3.9.2
Copper Contact Corrosion 16 hours at 175°C (347°F)	---	No pitting or blackening of core	Section 4.3.14.1
Pull-Off Force Size: 3/32 thru 1/4	N (Pounds)	22 (5.0) maximum	Section 4.3.8
Size: 3/8 and 1/2	N (Pounds)	26 (6.0) maximum	
Size: 3/4 and 1-1/2	N (Pounds)	23 (5.2) maximum	
Print Performance (MIL-M-81531)	Rubs	50 minimum, legible	Section 4.3.9.2
(MIL-STD-202)	Strokes	50 minimum, legible	Section 4.3.9.3
ELECTRICAL			
Dielectric Strength	kV/mm (V/mil)	19.7 (500) minimum	Section 4.3.11.1 ASTM D 2671
Volume Resistivity	ohm-cm	10 ¹⁴ minimum	Section 4.3.12.1 ASTM D 2671
CHEMICAL			
Corrosive Effect 16 hours at 175°C (347°F)	---	Non Corrosive	Section 4.3.13.1 ASTM D 2671

**TABLE 3 (Continued)
Requirements**

PROPERTY	UNIT	REQUIREMENT	TEST METHOD
Flammability (FED-STD-228)	---	Burn time shall not exceed one minute, and not more than 25% of indicator flag shall be burned or charred. No dripping or flowing.	Section 4.3.15.3
Fungus Resistance	---	Rating of 1 or less	ASTM G 21
Water Absorption 24 hours at 23°C (73°F)	Percent	0.5 maximum	ASTM D 570
Fluid Resistance 24 hours at 23°C (73°F) JP-8 Fuel (MIL-T-83133) Skydrol 500* Hydraulic Fluid (MIL-H-5606) Aviation Gasoline (100/130) Lubricating Oil(MIL-L-7808) Salt Water (5% salt) Anti-icing Fluid (MIL-A-8243)	---	---	Section 4.3.19.1
Print Performance	---	Legible	Section 4.3.9.2

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