

# AEROSPACE MATERIAL SPECIFICATION

Insulation Sleeving, Electrical, Heat Shrinkable,  
Fluoroelastomer, Flexible

FSC 5970

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The requirements for acquiring the sleeving described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-DTL-23053.

#### REQUIREMENTS:

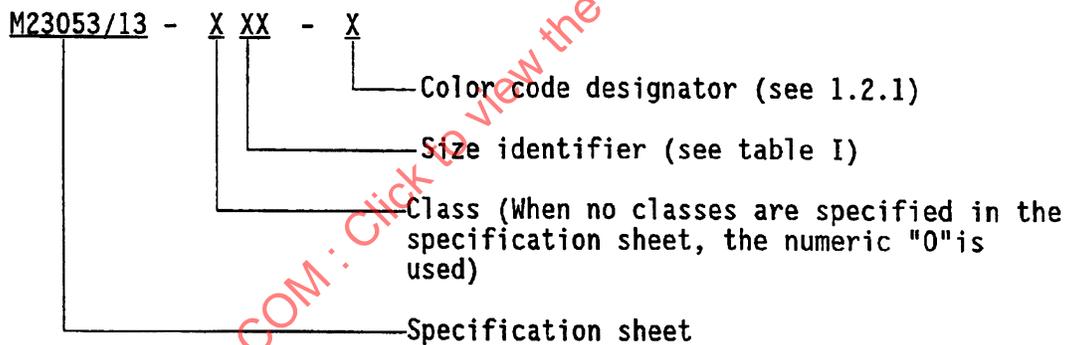
Polymer type: The base elastomer used in formulating this sleeving shall be fluoroelastomer.

Continuous operating temperature range: -40°C (-40°F) to +200°C (+392°F).

Color: The heat shrinkable sleeving shall be furnished in the color specified by the acquisition activity (see 6.2b); however, black shall be considered standard. Colors shall conform to the requirements of Class II of MIL-STD-104.

Longitudinal change:  $\pm 20$  percent.

Military part number: The Military part number shall consist of the basic number of this specification sheet and dash numbers as follows:



Example: Black, 0.500 inch (12.7 mm) as supplied ID sleeving shall be identified as M23053/13-004-0.

TABLE I. Construction details, inches (mm). 1/

Military part number 3/	As supplied ID minimum	After unrestricted shrinkage	
		ID maximum	Wall thickness 2/
M23053/13-001-*	.187(4.7)	.094(2.4)	.035 ± .007(.9 ± .18)
M23053/13-002-*	.250(6.4)	.125(3.2)	.035 ± .007(.9 ± .18)
M23053/13-003-*	.375(9.5)	.187(4.7)	.035 ± .007(.9 ± .18)
M23053/13-004-*	.500(12.7)	.250(6.4)	.035 ± .007(.9 ± .18)
M23053/13-005-*	.625(15.9)	.312(7.9)	.042 ± .008(1.1 ± .20)
M23053/13-006-*	.750(19.1)	.375(9.5)	.042 ± .008(1.1 ± .20)
M23053/13-007-*	.875(22.2)	.437(11.1)	.049 ± .011(1.2 ± .28)
M23053/13-008-*	1.000(25.4)	.500(12.7)	.049 ± .011(1.2 ± .28)
M23053/13-009-*	1.250(31.8)	.625(15.9)	.055 ± .015(1.4 ± .38)
M23053/13-010-*	1.500(38.1)	.750(19.1)	.055 ± .015(1.4 ± .38)
M23053/13-011-*	2.000(56.8)	1.000(25.4)	.065 ± .017(1.7 ± .43)
M23053/13-012-*	.125(3.2)	.063(1.6)	.065 ± .017(1.7 ± .43)

1/ Diameter limits for object to be enclosed shall be as specified in technical data.

2/ Wall thickness values are less when shrinkage is restricted.

3/ The asterisk in the part number shall be replaced by color code designations (see 1.2.1). Black is the standard color.

Unrestricted shrinkage: Test method 4.6.5; 200° ± 5°C (392° ± 9°F) for 10 minutes maximum.

Table II. Physical properties.

Characteristic	Requirement	Test procedure and conditions
<u>As supplied:</u>		
ID, minimum	Table I	4.6.3
Cold impact	No cracking	4.6.7.2 -40° ± 1° (-40° ± 2°)

TABLE II. Physical properties.

Characteristic	Requirement	Test procedure and conditions
Heat shock	No cracking, flowing or dripping	4.6.8 300° ± 5°C (572° ± 9°F)
Restricted shrinkage	No cracks	4.6.6.1.2 200° ± 2°C (392° ± 4°F)
Voltage with-stand	Pass	4.6.6.2
<u>After unrestricted shrinkage:</u>		
ID, maximum	Table I	4.6.3
Wall thickness	Table I	4.6.3
Tensile strength, psi (MPa), minimum	1,200 (8.2)	4.6.13, ASTM D412
Ultimate elongation, percent,	250	4.6.12, ASTM D412
Tensile stress at 200 percent elongation, psi (MPa), maximum	2,000(13.8)	4.6.2 ASTM D412
Dielectric strength, volts/mil, (Kv/mm), minimum	200(7.9)	4.6.2 ASTM D2671
Volume resistivity, Ohm-cm, minimum	10 <sup>9</sup>	4.6.2 ASTM D876
Corrosion	No corrosion or pitting	4.6.10.1 and 4.6.10.2 175° ± 2°(347° ± 4°F) for 16 hours.