

Insulation Sleeving, Electrical, Heat Shrinkable,
Polyolefin, Heavy-Wall, Coated, Flexible, Outer Wall Crosslinked

FSC 5970

RATIONALE

Revise to include comments received by the government and industry, update references, align specification with SAE guidelines, and review specification for known technical problems.

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 polymer used in formulating the outer wall of this sleeving shall be a polyolefin.

Continuous operating temperature range: -67 °F (-55 °C) to +230 °F (+110 °C).

Color: The heat shrinkable sleeving shall be furnished in colors that conform to the requirements of Class II of MIL-STD-104. Black shall be the standard acquisition color. (See 1.2.1 and 3.4.2.1)

Longitudinal change: +1 -10 percent

Classes: The sleeving shall be furnished in the following classes, as specified (See 6.4a and 6.8):

Class 1 - Heavy Wall

Class 2 - Medium Wall

Coatings: The inner wall of the sleeving shall be coated with an adhesive or sealant type material which shall effectively seal the enclosed area against moisture.

Adhesive: Adhesive is for pressure retention and load bearing applications.

Sealant: Sealant is for water hold out applications.

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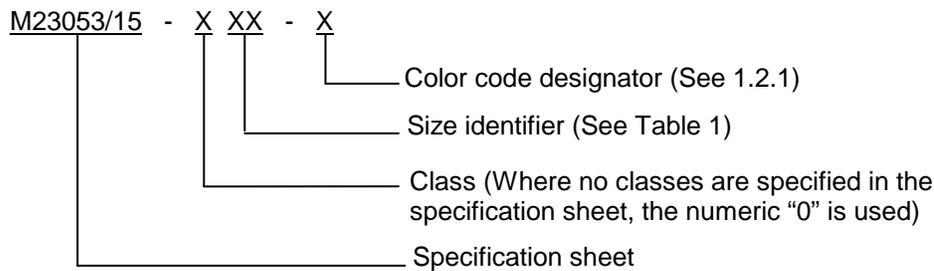
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Military part number: The Military part number shall consist of the basic number of this specification sheet and dash numbers shown as follows:



Example: Class 1, black sleeving, 3.00 inch (76.2 mm) as supplied ID sleeving shall be identified as M23053/15-105-0.

TABLE 1 - CONSTRUCTION DETAILS, INCHES (MM) ^{1/}

Military part number ^{1/}	As supplied ID minimum	After unrestricted shrinkage	
		ID maximum	Wall Thickness ^{2/}
<u>Class 1</u>			
M23053/15-101-0	0.750 (19.05)	0.220 (5.59)	0.105 (2.667)
M23053/15-102-0	1.100 (27.94)	0.375 (9.53)	0.120 (3.048)
M23053/15-103-0	1.500 (38.10)	0.500 (12.70)	0.140 (3.556)
M23053/15-104-0	2.000 (50.80)	0.750 (19.05)	0.155 (3.937)
M23053/15-105-0	3.000 (76.20)	1.250 (31.75)	0.155 (3.937)
M23053/15-106-0	4.000 (101.60)	1.750 (44.45)	0.155 (3.937)
M23053/15-107-0	0.300 (7.62)	0.100 (2.54)	0.050 (1.270)
M23053/15-108-0	0.400 (10.16)	0.150 (3.81)	0.060 (1.524)
M23053/15-109-0	1.300 (33.02)	0.375 (9.53)	0.120 (3.048)
M23053/15-110-0	1.700 (43.18)	0.500 (12.70)	0.155 (3.937)
M23053/15-111-0	2.700 (68.58)	0.900 (22.86)	0.155 (3.937)
M23053/15-112-0	4.500 (114.30)	1.750 (44.45)	0.170 (4.318)
<u>Class 2</u>			
M23053/15-201-	0.400 (10.16)	0.150 (3.81)	0.060 (1.524)
M23053/15-202-	0.750 (19.05)	0.220 (5.59)	0.060 (1.524)
M23053/15-203-	1.100 (27.94)	0.375 (9.53)	0.105 (2.667)
M23053/15-204-	1.300 (33.02)	0.375 (9.53)	0.105 (2.667)
M23053/15-205-	1.500 (38.10)	0.500 (12.70)	0.120 (3.048)
M23053/15-206-	1.700 (43.18)	0.500 (12.70)	0.140 (3.556)
M23053/15-207-	2.700 (68.58)	0.900 (22.86)	0.155 (3.937)
M23053/15-208-	2.000 (50.80)	0.750 (19.05)	0.140 (3.556)

^{1/} Diameter limits for objects to be enclosed shall be as recommended in technical data.

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

^{3/} As supplied ID is for uncoated product. An allowance of approximately 0.050 inch (1.3 mm) may be necessary depending on coating.

Unrestricted shrinkage: Test method 4.6.5.2; 392 °F ± 4 (200 °C ± 2) for 10 minutes maximum.

TABLE 2 - PHYSICAL PROPERTIES

Characteristic	Requirement	Test procedure and conditions
<u>As supplied:</u>		
ID, minimum	Table 1	4.6.3.1.1
Low temperature flexibility	No cracking	4.6.7.1 -67 °F ± 4 (-55 °C ± 2)
Heat shock	No cracking, flowing or dripping of outer wall	4.6.8 437 °F ± 6 (225 °C ± 3)
Secant modulus, psi (MPa), maximum	25 000 (172.4)	4.6.12.1 2 percent strain, ASTM D 882
Color stability	Pass	4.6.15 347 °F ± 4 (175 °C ± 2) 24 hours
<u>After unrestricted shrinkage:</u>		
ID, maximum	Table 1	4.6.3.1.2
Wall thickness	Table 1	4.6.3.2
Tensile strength, psi (MPa), minimum	1200 (8.3)	4.6.13 ASTM D 638, 2 inches/minute
Ultimate elongation, percent, minimum	200	4.6.13 ASTM D 638, 2 inches/minute
Dielectric strength, volts/mil (Kv/mm) minimum	200 (7.9)	4.6.2 ASTM D 2671
Volume resistivity, Ohm-cm, minimum	10 ¹³	4.6.2 ASTM D 876
Corrosion	No corrosion	4.6.10.1 and 4.6.10.2, 250 °F ± 4 (121 °C ± 2) for 16 hours
Flammability	<u>1</u>	4.6.14 Procedure C ASTM D 2671
Water absorption, percent, maximum	0.5	4.6.2 ASTM D570 24 hrs at 23 °C
Heat resistance, properties after:		4.6.9 347 °F ± 4 (175 °C ± 2), 168 hours
Ultimate elongation, percent, minimum	100	
Tensile strength, psi (MPa), minimum	1000 (6.9)	