SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-DTL-23053/16 | REV. A

Issued 1999-07
Revised 2012-08

Superseding AMS-DTL-23053/16

Insulation Sleeving, Electrical, Heat Shrinkable, Crosslinked, Elastomeric Polyolefin, Flexible

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 elastomer used in formulating this sleeving shall be an elastomeric polyolefin.

Continuous Operating temperature range: -103 °F (-75 °C) to +248 °F (+120 °C).

Color: The sleeving shall be furnished in a black color that conforms to Class II of MIL-STD-104 (See 1.2.1).

Longitudinal change: ±10 percent

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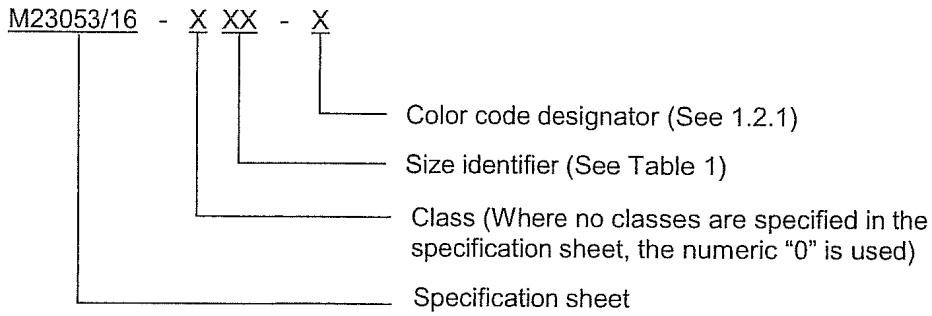
Military part number: The Military part number shall consist of the basic number of this specification sheet and dash numbers as follows:



Example: Black, 1.000 inch (25.4 mm) as supplied ID sleeving shall be identified as M23053/16-005-0.

TABLE 1 - CONSTRUCTION DETAILS, INCHES (MM) 1/

Military part number 1/	As supplied ID minimum	After unrestricted shrinkage	
		ID maximum	Wall Thickness 2/
M23053/16-001-0	0.250 (6.35)	0.125 (3.18)	0.035 (0.889)
M23053/16-002-0	0.375 (9.53)	0.187 (4.75)	0.040 (1.016)
M23053/16-003-0	0.500 (12.70)	0.250 (6.35)	0.048 (1.220)
M23053/16-004-0	0.750 (19.05)	0.375 (9.53)	0.057 (1.448)
M23053/16-005-0	1.000 (25.40)	0.500 (12.70)	0.070 (1.778)
M23053/16-006-0	1.500 (38.10)	0.750 (19.05)	0.095 (2.413)
M23053/16-007-0	2.000 (50.80)	1.000 (25.40)	0.110 (2.794)
M23053/16-008-0	3.000 (76.20)	1.500 (38.10)	0.125 (3.175)
M23053/16-009-0	4.000 (101.60)	2.000 (50.80)	0.140 (3.556)

1/ Diameter limits for objects to be enclosed shall be as recommended in technical data.
2/ the color code identified is the standard acquisition color.

Unrestricted shrinkage procedures: Test method 4.6.5; 347 °F ± 4 (175 °C ± 2) for 10 minutes.

TABLE 2 - PHYSICAL PROPERTIES 1/

Characteristic	Requirement	Test procedure and conditions
As supplied:		
ID, minimum	Table 1	4.6.3.1.1
Low temperature flexibility	No cracks	4.6.7.1 -85 °F ± 4 (-85° ± 4°F-65 °C ± 2)
Heat shock	No cracks, flowing or dripping	4.6.8 392 °F ± 4 (200 °C ± 2)
Restricted shrinkage	No cracks	4.6.6 302 °F ± 4 (150 °C ± 2)
Voltage withstand	Pass	4.6.6.3
After unrestricted shrinkage:		
ID, maximum	Table 1	4.6.3.1.2
Wall thickness	Table 1	4.6.3.2
Tensile strength, psi (MPa), minimum	1700 (11.7)	4.6.13 ASTM D 412
Ultimate elongation, percent, minimum	250	4.6.13 ASTM D 412
Tensile stress at 100 percent elongation, psi (MPa), maximum	1500 (10.4)	4.6.12.2 ASTM D 412
Dielectric strength, volts/mil (Kv/mm) minimum	300 (11.9) – up to an "as supplied ID" of 0.500 200 (7.9) – an "as supplied ID" of 0.500 and above	4.6.2 ASTM D 2671
Volume resistivity, 0hm-cm, minimum	1×10^9	4.6.2 ASTM D 876
Specific gravity, maximum	1.5	4.6.2 ASTM D 792
Corrosion	No corrosion or pitting	4.6.10.1 250 °F ± 4 (121 °C ± 2); 4.6.10.2 275 °F ± 4 (135 °C ± 2); for 16 hours
Water absorption, percent, maximum	2.0	4.6.2 ASTM D 570, 24 hrs at 23°C
Heat resistance, properties after:		4.6.9 302 °F ± 4 (150 °C ± 2), 168 hours
Tensile strength, psi (MPa), minimum	1500 (10.3)	
Ultimate elongation, percent, minimum	200	

TABLE 2 - PHYSICAL PROPERTIES 1/ (CONT.)

Characteristic	Requirement	Test procedure and conditions
Fluid resistance, properties after:		4.6.11
Tensile strength, psi (MPa), minimum	1500 (10.4)	
Ultimate elongation, percent, minimum	200	
Dielectric strength, volt/mil (Kv/mm), minimum	200 (7.9)	
Flammability	Self-extinguishing within one minute and no more than 25 percent of indicator flag burned or charred	4.6.14 Procedure B ASTM 2671
Fungus resistance	Rating less than 1	4.6.2 ASTM G 21
	or	
properties after:		4.6.17
Tensile Strength, psi (MPa), minimum	1700 (11.7)	
Ultimate elongation, percent, minimum	250	
Dielectric strength, volts/mil (Kv/mm), minimum	300 (11.9) – up to an "as supplied ID" of 0.500 200 (7.9) – an "as supplied ID" of 0.500 and above	

1/ Unless otherwise specified, requirements, test procedures and conditions are for all classes.

Storage life conditions: Supplier shall certify to storage at 65 to 95 °F (18 to 35 °C) for 2 years. Conformance to 3.5. See 3.5.2 for storage life extension.

Intended use: Heat shrinkable flexible elastomeric sleeving is intended for use on heavy duty cables or harness systems, such as ground support which see high levels of physical abuse and exposure to fuels and oils, coupled with high and low temperature extremes.

NOTES

A change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

Dimensions and properties in inch/pound units and the Fahrenheit temperatures are primary: dimensions and properties in SI units and the Celsius temperatures are shown as the approximate equivalents of the primary units and are presented only for information.

PREPARED BY AE-8D WIRE AND CABLE COMMITTEE