FEDERAL SUPPLY CLASS
5970

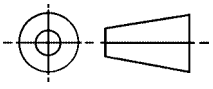
NOTICE

THIS DOCUMENT HAS BEEN TAKEN DIRECTLY FROM U.S. MILITARY SPECIFICATION MIL-I-23053/3A, AMENDMENT 1, NOTICE 1 AND CONTAINS ONLY MINOR EDITORIAL AND FORMAT CHANGES REQUIRED TO BRING IT INTO CONFORMANCE WITH THE PUBLISHING REQUIREMENTS OF SAE TECHNICAL STANDARDS. THE INITIAL RELEASE OF THIS DOCUMENT IS INTENDED TO REPLACE MIL-I-23053/3A, AMENDMENT 1, NOTICE 1. ANY PART NUMBERS ESTABLISHED BY THE ORIGINAL SPECIFICATION REMAIN UNCHANGED.

THE ORIGINAL MILITARY SPECIFICATION WAS ADOPTED AS AN SAE STANDARD UNDER THE PROVISIONS OF THE SAE TECHNICAL STANDARDS BOARD (TSB) RULES AND REGULATIONS (TSB 001) PERTAINING TO ACCELERATED ADOPTION OF GOVERNMENT SPECIFICATIONS AND STANDARDS. TSB RULES PROVIDE FOR (A) THE PUBLICATION OF PORTIONS OF UNREVISED GOVERNMENT SPECIFICATIONS AND STANDARDS WITHOUT CONSENSUS VOTING AT THE SAE COMMITTEE LEVEL, AND (B) THE USE OF THE EXISTING GOVERNMENT SPECIFICATION OR STANDARD FORMAT.

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LISTS ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENT RELATING TO QUALIFIED PRODUCTS LISTS (QPL'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS SAE TECHNICAL DOCUMENT.

THIRD ANGLE PROJECTION



ISSUED 2000-06

PREPARED BY SAE COMMITTEE AMS-CE

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AMS SPECIFICATION

INSULATION SLEEVING, ELECTRICAL, HEAT SHRINKABLE, POLYVINYL CHLORIDE, SEMI RIGID, CROSSLINKED AND NON-CROSSLINKED

AMS-I-23053/3
SHEET 1 OF 6

Printed in the U.S.A.

TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790 SAE WEB ADDRESS: http://www.sae.org

THE COMPLETE REQUIREMENTS FOR PROCURING THE SLEEVING DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE ISSUE IN EFFECT OF MIL-I-23053.

INACTIVE FOR NEW DESIGN

REQUIREMENTS:

THESE SLEEVINGS SHALL BE EXCLUDED FROM USE IN ALL SPACE VEHICLES, ALL AIRCRAFT, AND IN ENCLOSURES WHICH ARE SEALED OR PRIMARILY DEPENDENT ON RECIRCULATED ATMOSPHERE FOR COOLING.

CONTINUOUS OPERATING TEMPERATURE RANGE: -20°C (-4°F) TO +105°C (221°F).

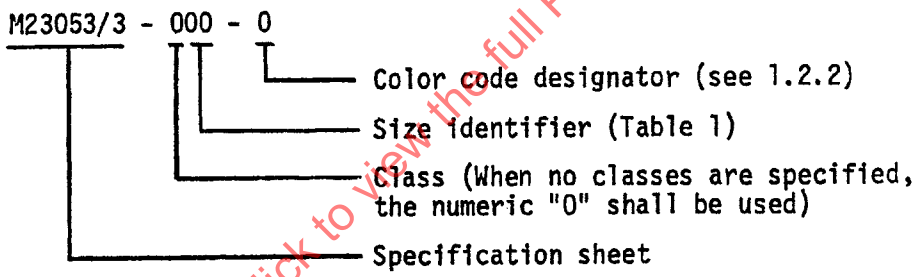
CLASSIFICATION: THE HEAT SHRINKABLE SLEEVING SHALL BE FURNISHED IN THE FOLLOWING CLASSES, AS SPECIFIED:

CLASS 1 - CROSSLINKED
CLASS 2 - NON-CROSSLINKED

COLOR: THE SLEEVING SHALL BE FURNISHED IN THE COLOR SPECIFIED BY THE PROCURING ACTIVITY AND IN CLEAR. COLORS SHALL CONFORM TO CLASS I OF MIL-STD-104.

LONGITUDINAL CHANGE: +1
-10%

MILITARY PART NUMBER: THE MILITARY PART NUMBER SHALL CONSIST OF THE BASIC NUMBER OF THIS SPECIFICATION SHEET AND DASH NUMBERS AS SHOWN BELOW:



EXAMPLE: CLASS 1, RED, 0.063 INCH AS SUPPLIELD ID SLEEVING SHALL BE IDENTIFIED AS M23053/3-102-2.

TABLE I. CONSTRUCTION DETAILS (INCHES) 1/

Military Part Number	As supplied I.D. min.	After unrestricted shrinkage I.D. max.	After unrestricted shrinkage Wall thickness 2/
Class 1			
M23053/3-101-*	.046	.023	.034 ± .003
M23053/3-102-*	.063	.031	.034 ± .003
M23053/3-103-*	.093	.046	.034 ± .003
M23053/3-104-*	.125	.062	.034 ± .003
M23053/3-105-*	.187	.093	.034 ± .003
M23053/3-106-*	.250	.125	.034 ± .003
M23053/3-107-*	.375	.187	.034 ± .003
M23053/3-108-*	.500	.250	.034 ± .003
Class 2			
M23053/3-201-*	.063	.031	.020 ± .003
M23053/3-202-*	.093	.046	.025 ± .003
M23053/3-203-*	.125	.062	.025 ± .003
M23053/3-204-*	.187	.093	.025 ± .003
M23053/3-205-*	.250	.125	.025 ± .003
M23053/3-206-*	.312	.156	.025 ± .003
M23053/3-207-*	.375	.187	.025 ± .003
M23053/3-208-*	.500	.250	.025 ± .003
M23053/3-209-*	.750	.375	.025 ± .003
M23053/3-210-*	1.000	.500	.030 ± .005
M23053/3-211-*	1.500	.750	.035 ± .005
M23053/3-212-*	2.000	1.000	.040 ± .005

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

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

* - The asterisk in the part number shall be replaced by color code designations.

UNRESTRICTED SHRINKAGE: TEST METHOD 4.6.5; CLASS 1, 200 ± 2°C (392 ± 4°F) FOR 5 MINUTES; CLASS 2, 135 ± 2°C (275 ± 4°F) FOR 5 MINUTES.

TABLE II. PHYSICAL PROPERTIES 1/

Property	Requirement	Test Procedure and Conditions
As Supplied		
ID, min	Table I	4.6.3
Cold impact	No cracking	4.6.7.2 ASTM D 746, -10 ± 2°C (+14 ± 4°F)
Heat shock 2/	No cracks, flowing or dripping	4.6.8 Class 1: 200 ± 2°C (392 ± 4°F) Class 2: 180 ± 2°C (356 ± 4°F)
Secant modulus, PSI, min	70,000	4.6.13.1 ASTM D 882, 2% strain
Restricted shrinkage	No cracks	4.6.6.1.3 Class 1: 175 ± 2°C (347 ± 4°F) Class 2: 135 ± 2°C (275 ± 4°F)
Voltage withstand	Pass	4.6.6.2
Color stability	Pass	4.6.16 130 ± 2°C (266 ± 4°F), 48 hours
After Unrestricted Shrinkage		
ID, max	Table I	4.6.3
Wall thickness	Table I	4.6.3
Tensile strength, PSI, min	3,000	4.6.14 ASTM D 638, Speed C
Ultimate elongation, %, min	150	4.6.14 ASTM D 638, Speed C
Dielectric strength, volts per mil, min	480	4.6.2 ASTM D 876
Volume resistivity, ohms - cm, min	10^{11}	4.6.2 ASTM D 876
Water absorption, %, max	1.0	4.6.2 ASTM D 570, Procedure A