

REV.  
A

AS23053™/5

FEDERAL SUPPLY CLASS  
5970

## RATIONALE

CLASS 4 IS ADDED TO COVER 3:1 SHRINK RATIO SLEEVING AND OTHER REQUIREMENTS ASSOCIATED WITH THIS SHRINK RATIO SLEEVING.

## NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS23053.

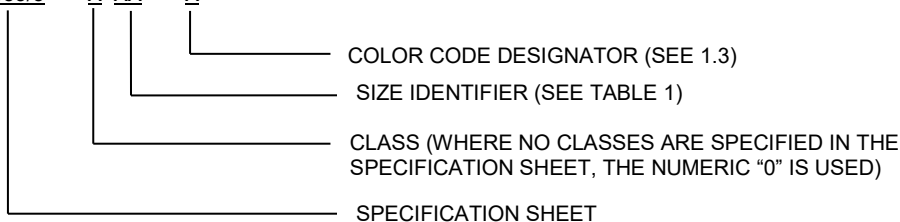
## REQUIREMENTS:

1. 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.
2. POLYMER TYPE: THE BASE POLYMER USED IN FORMULATING THIS SLEEVING SHALL BE A POLYOLEFIN.
3. CONTINUOUS OPERATING TEMPERATURE RANGE:  
CLASS 1, CLASS 2 AND CLASS 4: -67 °F (-55 °C) TO +275 °F (+135 °C);  
CLASS 3: -13 °F (-25 °C) TO +257 °F (+125 °C).
4. COLOR: CLASS 2 SHALL BE FURNISHED IN CLEAR. CLASSES 1, 3 AND 4 SHALL BE FURNISHED IN COLORS ONLY. COLORS SHALL CONFORM TO THE REQUIREMENTS OF CLASS 1 OF MIL-STD-104 (SEE 1.3 AND 3.3.3). OTHER COLORS MAY BE SUPPLIED (E.G., LIGHTER COLORS FOR READABILITY AFTER MARKING) AS AGREED UPON BETWEEN THE SUPPLIER AND THE END USER.
5. CLASSIFICATION: THE HEAT SHRINKABLE SLEEVING SHALL BE FURNISHED IN THE FOLLOWING CLASSES, AS SPECIFIED (SEE 7.3A):  
CLASS 1 - FLAME RESISTANT  
CLASS 2 - FLAMMABLE (CLEAR ONLY)  
CLASS 3 - HIGHLY FLAME RESISTANT  
CLASS 4: - CLASS 1 WITH 3:1 SHRINK RATIO (I.E., MIN SUPPLIED : MAX RECOVERED, ROUNDED)

NOTICE: CLASS 2 SLEEVING IS NOT INTENDED FOR AEROSPACE USE (SEE FLAMMABILITY SECTION BELOW).

6. LONGITUDINAL CHANGE: CLASSES 1 AND 2: ±5%, CLASS 1 - OVEREXPANDED SLEEVING +5, -50%; CLASS 3: ±5%; CLASS 4: +5, -20%.
7. PART NUMBER: THE PART NUMBER SHALL BE AS LISTED BELOW:

M23053/5 - X XX - X

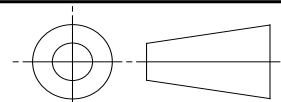


EXAMPLE: CLASS 1, GRAY (SLATE), .250 INCH (6.35 MM) AS SUPPLIED ID SLEEVING SHALL BE IDENTIFIED AS M23053/5-106-8.

NOTE: THE TERM "POLYOLEFIN" AS USED IN THIS SPECIFICATION INCLUDES COPOLYMERS, BLENDS AND MODIFIED POLYOLEFINS.

**SAE values your input. To provide feedback on this Technical Report, please visit**  
<http://standards.sae.org/AS23053/5A>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS23053



## AEROSPACE STANDARD

(R) INSULATION SLEEVING, ELECTRICAL, HEAT SHRINKABLE, POLYOLEFIN, FLEXIBLE, CROSSLINKED

AS23053™/5  
SHEET 1 OF 6

REV.  
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Documents

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8. DIMENSIONAL LIFE: THE DIMENSIONAL LIFE OF A PRODUCT APPLIES TO THE EXPANDED ID AND RECOVERED ID AND WALL THICKNESS DIMENSIONS OF THE PRODUCT AS SOLD BY THE MANUFACTURER, DISTRIBUTORS AND REBRAND DISTRIBUTORS. AS23053/5 PRODUCTS CAN BE EXPECTED TO HAVE A MINIMUM DIMENSIONAL LIFE OF 5 YEARS WHEN STORED BETWEEN 32 TO 95 °F (0 TO 35 °C). PRODUCTS STORED ABOVE THESE CONDITIONS MAY NOT MEET THE MINIMUM EXPANDED ID REQUIREMENTS OF THE DETAIL SPECIFICATION. A PRODUCT MAY BE USED BY THE FINAL PURCHASER BEYOND THE EXPECTED MINIMUM DIMENSIONAL LIFE, AS LONG AS THE EXPANDED ID, RECOVERED ID AND WALL THICKNESS OF THE PRODUCT MEET THE REQUIREMENTS OF THIS SPECIFICATION AT THE TIME OF USE.
9. UNRESTRICTED SHRINKAGE: TEST METHOD 5.5: 392 °F  $\pm$  4 °F (200 °C  $\pm$  2 °C) FOR 3 MINUTES.
10. FOR CLASS 4, ACTUAL WALL THICKNESS SHALL BE IN COMPLIANCE WITH THE MINIMUM THICKNESS SPECIFIED, AND THE SLEEVE SHALL NOT SPLIT WHEN IT IS CUT TO 2.0 INCHES  $\pm$  .1 INCH RECOVERED (SEE NOTE 9) ON A MANDREL SIZE OF 80 TO 85% OF THE "MINIMUM AS SUPPLIED" DIAMETER OF TABLE 1.

**TABLE 1 - CONSTRUCTION DETAILS, INCH (MM) <sup>1/</sup>**

| PART NUMBER 3/        | AS SUPPLIED<br>ID MINIMUM | AFTER UNRESTRICTED SHRINKAGE |                         |
|-----------------------|---------------------------|------------------------------|-------------------------|
|                       |                           | ID MAXIMUM                   | WALL THICKNESS 2/       |
|                       |                           |                              |                         |
| CLASS 1               |                           |                              |                         |
| M23053/5-101-*        | .046 (1.2)                | .023 (0.6)                   | .016 ± .003 (0.4 ± 0.1) |
| M23053/5-102-*        | .063 (1.6)                | .031 (0.8)                   | .017 ± .003 (0.4 ± 0.1) |
| M23053/5-103-*        | .093 (2.4)                | .046 (1.2)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-104-*        | .125 (3.2)                | .062 (1.6)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-105-*        | .187 (4.7)                | .093 (2.4)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-106-*        | .250 (6.4)                | .125 (3.2)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-107-*        | .375 (9.5)                | .187 (4.7)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-108-*        | .500 (12.7)               | .250 (6.4)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-109-*        | .750 (19.1)               | .375 (9.5)                   | .030 ± .003 (0.8 ± 0.1) |
| M23053/5-110-*        | 1.000 (25.4)              | .500 (12.7)                  | .035 ± .005 (0.9 ± 0.1) |
| M23053/5-111-*        | 1.500 (38.1)              | .750 (19.1)                  | .040 ± .006 (1.0 ± 0.2) |
| M23053/5-112-*        | 2.000 (50.8)              | 1.000 (25.4)                 | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-113-*        | 3.000 (76.2)              | 1.500 (38.1)                 | .050 ± .008 (1.3 ± 0.2) |
| M23053/5-114-*        | 4.000 (101.6)             | 2.000 (50.8)                 | .055 ± .009 (1.4 ± 0.2) |
| CLASS 1 OVER-EXPANDED |                           |                              |                         |
| M23053/5-115-*        | 1.000 (25.4)              | .275 (7.0)                   | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-116-*        | 2.000 (50.8)              | .550 (14.0)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-117-*        | 3.000 (76.2)              | .810 (20.6)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-118-*        | 4.000 (101.6)             | 1.050 (26.7)                 | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-119-*        | 1.000 (25.4)              | .462 (11.7)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-120-*        | 2.375 (60.3)              | .680 (17.3)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-121-*        | 3.000 (76.2)              | .840 (21.3)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-122-*        | 3.750 (95.3)              | .930 (23.6)                  | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-123-*        | 4.500 (114.3)             | 1.450 (36.8)                 | .045 ± .007 (1.1 ± 0.2) |
| CLASS 2               |                           |                              |                         |
| M23053/5-201-C        | .046 (1.2)                | .023 (0.6)                   | .016 ± .003 (0.4 ± 0.1) |
| M23053/5-202-C        | .063 (1.6)                | .031 (0.8)                   | .017 ± .003 (0.4 ± 0.1) |
| M23053/5-203-C        | .093 (2.4)                | .046 (1.2)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-204-C        | .125 (3.2)                | .062 (1.6)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-205-C        | .187 (4.7)                | .093 (2.4)                   | .020 ± .003 (0.5 ± 0.1) |
| M23053/5-206-C        | .250 (6.4)                | .125 (3.2)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-207-C        | .375 (9.5)                | .187 (4.7)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-208-C        | .500 (12.7)               | .250 (6.4)                   | .025 ± .003 (0.6 ± 0.1) |
| M23053/5-209-C        | .750 (19.1)               | .375 (9.5)                   | .030 ± .003 (0.8 ± 0.1) |
| M23053/5-210-C        | 1.000 (25.4)              | .500 (12.7)                  | .035 ± .005 (0.9 ± 0.1) |
| M23053/5-211-C        | 1.500 (38.1)              | .750 (19.1)                  | .040 ± .006 (1.0 ± 0.2) |
| M23053/5-212-C        | 2.000 (50.8)              | 1.000 (25.4)                 | .045 ± .007 (1.1 ± 0.2) |
| M23053/5-213-C        | 3.000 (76.2)              | 1.500 (38.1)                 | .050 ± .008 (1.3 ± 0.2) |
| M23053/5-214-C        | 4.000 (101.6)             | 2.000 (50.8)                 | .055 ± .009 (1.4 ± 0.2) |

|                                                                                     |                                                                                         |                                                                                                                            |                  |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------|
|  | <b>AEROSPACE STANDARD</b>                                                               | <b>AS23053™/5</b><br>SHEET 2 OF 6<br> | <b>REV.</b><br>A |
|                                                                                     | (R) INSULATION SLEEVING, ELECTRICAL, HEAT SHRINKABLE, POLYOLEFIN, FLEXIBLE, CROSSLINKED |                                                                                                                            |                  |



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