AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 4152 B

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ALUMINUM ALLOY
Copper Magnesium Manganese (24S-T)
Extruded

1. ACKNOWLEDGMENT: A vendor must mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Rods, bars, or shapes.

3. COMPOSITION:

Copper	3.8 - 4.9
Magnesium	1.2 - 1.8
Manganese	0.3 - 0.9
Iron	0.50 max
Silicon	0.50 max
Chromium	0.25 max
Zinc	0.10 max
Other elements, each	0.05 max
Other elements, total	0.15 max
Aluminum	remainder

4. CONDITION: (a) Heat treated conforming to the following minimum physical properties:

Form	Diameter or Least Thickness*	Tensile Strength	Yield Strength at Offset 0.2% or at Extension Indicated		Elongation
				Extension Under Load	
	inches	lb per sq in.	lb per sq in.	inch in 2"	% in 2 in.
Rods & Bars	Up to 1.500	62,000	40,000	0.0118	12
	1.500 and over	62,000	40,000	0.0118	10
Shapes	(0.050 - 0.249	57,000	42,000	0.0122	12
	(0.250 - 0.749	60,000	44,000	0.0125	12
	(0.750 - 1.499	65,000	46,000	0.0129	10
	(1.500 and over	70,000	52,000	0.0141	10

*Note: In cases where significant portions of cross-sections are indicated on the drawing, test specimens shall be taken from the indicated portion, and physical properties of such specimens shall meet the foregoing requirements based upon their respective thicknesses.

(b) The material shall have a minimum hardness of Brinell 100 but shall not be rejected on the basis of hardness if it conforms to the minimum tensile requirements.

5. QUALITY: The material shall be uniform in quality and temper, free from blisters, fins, seams, cracks, segregations, and other defects which adversely affect its strength, use, or machinability. It is subject to coarse etching, and any other tests necessary to insure high quality. If material defects are revealed during fabrication, the material is subject to rejection.

6. TOLERANCES: The following variations in diameter or thickness are permissible:

(a) Rods and bars.-

Diameter or Least Thickness inches	Tolerance, inch	
	Rounds	Squares, Hexagons Octagons, Rectangles
Up to 0.0359 incl.	± 0.0005	--
0.036 to 0.064 incl.	± 0.001	± 0.0015
0.065 to 0.500 incl.	± 0.0015	± 0.002
0.501 to 1.000 incl.	± 0.002	± 0.0025
1.001 to 1.500 incl.	± 0.0025	± 0.003
1.501 to 3.499 incl.	± 0.008	--
3.500 to 5.000 incl.	± 1/32 - 1/64	--
5.001 to 8.000 incl.	± 1/16 - 1/32	--

(b) Shapes.-

Dimensions inches	Tolerance inch, plus and minus
Up to 0.125 incl.	0.010
0.126 to 0.500 incl.	0.015
0.501 to 1.000 incl.	0.020
1.001 to 2.000 incl.	0.025
2.001 to 3.000 incl.	0.030
3.001 to 4.000 incl.	0.035
4.001 to 5.000 incl.	0.040
5.001 to 6.000 incl.	0.045
6.001 to 7.000 incl.	0.050
7.001 to 8.000 incl.	0.055
8.001 to 9.000 incl.	0.060
9.001 to 10.000 incl.	0.065
10.001 to 11.000 incl.	0.070
11.001 to 12.000 incl.	0.080

7. REPORTS: The manufacturer shall furnish three copies of a notarized report stating that the physical properties and chemical composition of the material are within the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.

8. IDENTIFICATION: (a) Unless otherwise specified, each rod, bar, or shape 5/8 inch and over in diameter or least thickness, shall be marked with the manufacturer's identification and, in addition, the alloy name or number or AMS 4152 and the temper. The characters shall be not less than 1/8 inch in height and shall be applied continuously at intervals not exceeding 2 feet. The characters shall be clearly legible and applied to the material by suitable means and suitable marking fluid, and shall not be obliterated by normal handling or heat treatment.

(b) Rods, bars, or shapes less than 5/8 inch in diameter or least thickness may be identified by other means as agreed upon by the vendor and purchaser.