

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4631

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Revised

ALUMINUM BRONZE Silicon

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

2. **FORM:** Rods, bars, forgings, or as ordered.

3. **COMPOSITION:**

Aluminum	6.5 - 8.0
Silicon	1.6 - 2.25
Total Impurities	0.5 max
Copper	remainder

4. **CONDITION:** (a) Rods and bars shall be supplied cold drawn and annealed conforming to the following minimum physical properties:

Diameter or Thickness <u>inches</u>	Tensile Strength lb per sq in.	Yield Strength at 0.2% Set or at Extension Indicated		Elongation % in 2 in.
		Extension Under Load inch in 2"	Extension Under Load inch in 2"	
0.5 and less	90,000	45,000	0.0104	15
Over 0.5 to 1.0, incl.	88,000	44,000	0.0103	15
Over 1.0 to 2.0, incl.	85,000	42,500	0.0101	20
Over 2.0 to 3.0, incl.	75,000	37,500	0.0094	30

(b) All material, including forgings, shall have a minimum hardness of Brinell 130, using 1000 kg load, on the surface except on rounds, where a flat, as necessary for Brinell accuracy, shall be made.

(c) A test specimen shall withstand, without cracking, total immersion for 15 minutes in an aqueous mercurous nitrate solution containing 100 gm of mercurous nitrate and 13 ml of nitric acid (sp gr 1.42) per liter of solution.

5. **QUALITY:** The material shall be uniform in quality and temper, clean, sound, smooth, and free from foreign material and all internal and external defects which adversely affect its strength, use or machinability. If material defects are revealed while machining the parts, the material is subject to rejection.

6. **TOLERANCES:** The following variations in diameter or thickness of rods or bars are permissible; all dimensions are in inches:

Diameter or Thickness <u>inches</u>	Tolerance, plus and minus	
	<u>Rounds</u>	<u>Squares, Hexagons, Octagons</u>
Up to 0.5	0.002	0.004
Over 0.5 to 1.0	0.003	0.005
Over 1.0 to 2.5	0.004	0.006
Over 2.5	0.20%	0.40%