AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 4631 A

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ALUMINUM BRONZE BARS
Silicon

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

2. FORM: Rods, bars and forgings.

3. APPLICATION: Strength and wear resistance at medium temperatures. This material has slightly more resistance to corrosion than AMS 4630.

4. COMPOSITION:

Copper	89.0 min
Aluminum	6.5 - 8.0
Silicon	1.6 - 2.25
Total Named Elements	99.5 min

5. CONDITION: (a) Rods and bars shall be supplied annealed, as necessary, to conform to the following minimum physical properties:

Nominal Diameter or Thickness, Inches	Tensile Strength, psi	Yield Strength at 0.2% Offset or at Extension Indicated, psi	Extension Under Load, inch in 2 in.	Elongation, % in 4D
0.5 and under	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) Rods, bars and forgings shall have hardness not lower than Brinell 130, using 1000 kg load, on the surface except on rounds, where a flat, as necessary for Brinell accuracy, shall be made, or not lower than Rockwell B 80 when taken on the 1/2 radius section.

(c) Rods and Bars.- Test specimens of full cross section having a length of either 6 in. or twice the diameter or minimum distance between parallel sides, whichever is greater, shall be capable of withstanding, without cracking, immersion for 15 min. in an aqueous solution containing 100 g of mercurous nitrate and 13 ml of nitric acid (sp gr 1.42) per liter of solution, using at least 10 ml of solution per sq. in. of test specimen surface area.

(d) Forgings.- Test specimens from forgings may be any convenient size or shape, or an entire forging may be used. Testing procedure for forgings shall be the same as in paragraph (c) above.

6. QUALITY: (a) Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts. Material in which defects are revealed during fabrication will be subject to rejection.