

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4121

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Revised

ALUMINUM ALLOY BARS (ROLLED) Copper Silicon Manganese Magnesium (14S-T)

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

2. **FORM:** Bars, rods, and shapes.

3. **COMPOSITION:**

Copper	3.90 - 5.00
Silicon	0.50 - 1.20
Manganese	0.40 - 1.20
Magnesium	0.20 - 0.75
Iron	1.00 max
Zinc	0.25 max
Titanium	0.15 max
Chromium	0.10 max
Other impurities, each	0.05 max
Other impurities, total	0.15 max
Aluminum	remainder

4. **CONDITION:** (a) Solution and precipitation heat treated conforming to the following minimum physical properties:

Size	Tensile Strength	Yield Strength at 0.2% Offset or at Extension Indicated	Extension Under Load	Elongation
Inches	psi	psi	Inch in 2 in.	% in 4D
Over 0.125 in. diameter or least thickness to 36 sq. in. area, incl	65,000	55,000	0.0144	8

(b) If sizes other than those shown under (a) are ordered, physical properties shall be as agreed between vendor and purchaser.

(c) Bars, rods and shapes shall have hardness of not less than Brinell 125, using 500 kg load and 10 mm ball or the equivalent, or not less than Brinell 130, using 1000 kg load and 10 mm ball, but shall not be rejected on the basis of hardness if they conform to the minimum tensile requirements.

(d) Unless otherwise specified, rounds and hexagons 2.0 in. and under, squares 1.5 in. and under, and octagons 1.375 in. and under in diameter or least distance between parallel sides, and rectangles 4.0 in. and under in width and 1.5 in. and under in thickness, shall be supplied cold finished.

5. QUALITY: (a) Bars, rods, and shapes shall be uniform in quality and condition, clean, sound, and free from foreign material and from internal and external defects detrimental to fabrication or to performance of parts. Bars, rods and shapes in which defects are revealed during fabrication will be subject to rejection.
- (b) Bars, rods, shapes and parts shall be subject to inspection by any method which will reveal defects.
6. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2201 as applicable. Diameter or thickness and width tolerances shall be as specified below:
- (a) Rounds and hexagons 2.0 in. and under; squares 1.5 in. and under; octagons 1.375 in. and under and rectangles 4.0 in. and under in width and 1.5 in. and under in thickness----- Table V
- (b) Rounds over 2.0 in.----- Table I
- (c) Hexagons over 2.0 in.; squares over 1.5 in. and rectangles over 4.0 in. in width or over 1.5 in. in thickness----- Table II
7. REPORTS: (a) Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a notarized report stating that the physical properties and chemical composition of the product conform to the requirements specified. This report shall include the purchase order number, material specification number, size and quantity.
- (b) Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, contractor or other direct supplier of the product, part number and quantity. When the product for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of the product to determine conformance to the requirements of this specification, and shall include in the report a certification that the product conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.
8. IDENTIFICATION: (a) Unless otherwise specified, each bar, rod, and shape 5/8 in. and over in diameter, or equivalent, shall be marked with the manufacturer's identification and, in addition, the alloy name or number or AMS 4121, and the temper. The characters shall be not less than 1/8 in. in height and shall be applied continuously at intervals not exceeding 2 ft. The characters shall be clearly legible and applied to the bars, rods or shapes by suitable means and suitable marking fluid, and shall not be obliterated by normal handling or heat treatment.
- (b) Bars, rods and shapes less than 5/8 in. in diameter, or equivalent, may be identified by other means as agreed between vendor and the purchaser.
9. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection. Unless otherwise stipulated, rejected material or parts will be returned to vendor at vendor's expense, unless purchaser receives, within three weeks of notification of rejection, other instructions for disposition.