

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS4610 C

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Page 1 of 3

BRASS RODS AND BARS Free Cutting - Half Hard

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

2. FORM: Rods and bars

3. APPLICATION: Primarily for screw machine parts.

4. COMPOSITION:

Copper	60.0 - 63.0
Lead	2.5 - 3.75
Iron	0.15 max
Total Other Elements	0.50 max
Zinc	remainder

5. CONDITION: (a) Half hard temper conforming to the following:

Nominal Diameter, Thickness or Width	Tensile Strength	Yield Strength at 0.2% Offset or at Extension Indicated	Elongation Under Load inch in 2 in.	*Hardness Rockwell
inches	psi, min	psi, min	% in 4D, min	
Rods (Rounds, Hexagons, Octagons)				
0.5 and under	60,000	28,000	0.0077	10 B 65 - 85
Over 0.5 to 1.0, incl	55,000	25,000	0.0073	15 65 - 85
Over 1.0 to 2.0, incl	50,000	20,000	0.0067	20 60 - 80
Over 2.0	45,000	15,000	0.0060	25 35 - 75
Bars (Squares, Rectangles)				
1.0 and under thick)	50,000	25,000	0.0073	10 45 - 85
2.0 and under wide)				
Over 1.0 thick) or)	45,000	17,000	0.0063	20 45 - 65
Over 2.0 wide)				

*Rods and bars shall not be rejected on the basis of hardness if tensile property requirements are met.

Note: Tensile test specimens from rods and bars over 1.5 inches in diameter or thickness shall have their axes located approximately midway between the center and surface.

(b) 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.

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.

(b) Material and parts shall be subject to inspection by any method which will reveal harmful defects.

7. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2221 as applicable. Diameter or thickness and width tolerances shall be as specified below:

(a) Rounds, Hexagons, Octagons	Table I, Non-refractory
(b) Squares	Table III
(c) Rectangles, thickness	Table III
(d) Rectangles, width	Table VII, Non-refractory

8. REPORTS: (a) Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a notarized report showing the results of tests to determine conformance to the requirements of this specification, or stating that the chemical composition and physical properties 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.

9. IDENTIFICATION: Rods and bars may be shipped loose, bundled, or boxed and shall be identified as follows:

(a) If loose or bundled, an attached metal tag shall be stamped with the purchase order number, AMS 4610C, and size.

(b) If boxed, the box shall be legibly marked with the purchase order number, AMS 4610C, and size.

10. 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.