AERONAUTICAL MATERIAL SPECIFICATION

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

AMS4612 C

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BRASS, NAVAL
60.5Cu - 0.8Sn - 38.7Zn
Hard Temper

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. This material has slightly higher strength and lower ductility than AMS 4611.

4. COMPOSITION.

Copper	59.0 - 62.0
Tin	0.50 - 1.0
Lead	0.20 max
Iron	0.10 max
Total Other Elements	0.10 max
Zinc	remainder

5. CONDITION: Cold finished, hard temper.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Nominal Diameter or Distance Between Parallel Sides, Inches	Tensile Strength, psi, min	Yield Strength at 0.2% offset or at extension indicated		
		psi, min	Extension Under Load, inch in 2 in.	Elongation, % in 4D, min
1.0 and under	67,000	45,000	0.0100	20
Over 1.0 to 2.5, incl	62,000	37,000	0.0090	22
Over 2.5 to 3.5, incl	54,000	25,000	0.0074	27
Over 3.5	54,000	22,000	0.0070	30

6.1.1 Tensile test specimens from rods and bars over 1.5 in. in diameter or distance between parallel sides shall have their axes located approximately midway between center and surface.

6.2 Hardness: Material should have hardness as follows, or equivalent, but shall not be rejected on the basis of hardness if the tensile property requirements are met:

Nominal Diameter or Distance Between Parallel Sides, Inches	Hardness, Rockwell	
	Rounds	Hexagons, Octagons
1.0 and under	B 75 - 95	B 70 - 90
Over 1.0 to 2.5, incl	B 70 - 90	B 65 - 85
Over 2.5	B 70 - 90	B 60 - 80

6.2.1 Hardness determinations shall be made on the surface, except on rounds where a flat, as necessary for accuracy, may be made.

6.3 Mercurous Nitrate Test: Test specimens of full cross section having 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.

7. QUALITY: 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.

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

8.1 Rounds, Hexagons and Octagons: Table I, Non-refractory.

8.2 Squares: Table III.

8.3 Rectangles, Thickness: Table III.

8.4 Rectangles, Width: Table VII, Non-refractory.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the requirements of this specification or stating that the chemical composition and tensile properties of the product conform to the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.

9.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.