AERONAUTICAL MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 4612D

Issued 9-1-41
Revised 8-15-58

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
Other Elements, total	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 (E=15,000,000) psi, min	Extension Under Load in. in 2 in.	Elongation % in 4D, min
1.0 and under	67,000	45,000	0.0100	13
Over 1.0 to 2.5, incl	62,000	37,000	0.0089	18
Over 2.5 to 3.5, incl	54,000	25,000	0.0073	27
Over 3.5	54,000	22,000	0.0069	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.

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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 B	
	Rounds	Hexagons Octagons
1.0 and under	75 - 95	70 - 90
Over 1.0 to 2.5, incl	70 - 90	65 - 85
Over 2.5	70 - 90	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, ø whichever is greater, shall be capable of withstanding, without cracking, testing in accordance with ASTM B154-51, Procedure A.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth and free from foreign materials and from internal and external imperfections 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 stating that the product conforms to the chemical ø composition and technical requirements of this specification. 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.

10. IDENTIFICATION: Individual pieces or bundles shall have attached a metal tag stamped with the purchase order number, AMS 4612D, and nominal size, or shall be boxed and the box marked with the same information.