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AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 4615F

Issued APR 1943
Cancelled APR 1995

Superseding AMS 4615E

Submitted for recognition as an American National Standard

SILICON BRONZE RODS AND BARS
95.5Cu - 3.2Si
Hard Temper

UNS C65500

This specification has been "CANCELLED" by the Aerospace Materials Division, SAE, as of April, 1995. By this action, subject specification number and title will be deleted from the active specification index of Aerospace Material Specifications. Cancelled specifications are available from SAE upon request.

PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "D"

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1. SCOPE:

1.1 Form: This specification covers one type of bronze in the form of rods and bars.

1.2 Application: Primarily for bearings and for fittings in hydraulic pressure lines using AMS 4665 tubing.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2221 - Tolerances, Copper and Copper Alloy Rods and Bars
AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM B154 - Mercurous Nitrate Test for Copper and Copper Alloys
ASTM B249 - General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes
ASTM E8 - Tension Testing of Metallic Materials
ASTM E54 - Chemical Analysis of Special Brasses and Bronzes
ASTM E290 - Semi-Guided Bend Test for Ductility of Metallic Materials

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

2.3.2 Military Specifications:

MIL-C-3993 - Copper and Copper-Base Alloy Mill Products, Packaging Of

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E54, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods approved by purchaser:

	min	max
Copper	94.80	--
Silicon	2.80	3.50
Iron, Manganese, or Zinc	--	1.60
Tin	--	0.70
Lead	--	0.05
Total Named Elements	99.50	--

3.1.1 Lead in the range 0.20 - 0.80% may be added to the above composition when permitted by purchaser. In such case, lead shall be considered a specified element, and the minimum copper requirement may be reduced by an amount equal to that of the lead present.

3.2 Condition: Cold finished and stress-relieved if necessary, hard temper.

3.3 Properties: The product shall conform to the following requirements:

3.3.1 Tensile Properties: Shall be as specified in Tables I and II, determined in accordance with ASTM E8:

3.3.1.1 Rounds, Hexagons, Octagons, and Squares:

TABLE I

Nominal Diameter or Distance Between Parallel Sides Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset psi, min	Elongation in 2 in. or 4D %, min
Up to 0.250, incl	85,000	50,000	8
Over 0.250 to 1.500, incl	85,000	50,000	13

TABLE I (SI)

Nominal Diameter or Distance Between Parallel Sides Millimetres	Tensile Strength MPa, min	Yield Strength at 0.2% Offset MPa, min	Elongation in 50 mm or 4D %, min
Up to 6.25, incl	585	345	8
Over 6.25 to 37.50, incl	585	345	13