

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 4264

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Submitted for recognition as an American National Standard

BRONZE, ALUMINUM SILICON, RODS, BARS, AND FORGINGS

90Cu - 7.0Al - 1.8Si

Drawn and Stress Relieved (HR50)

UNS C64200

1. SCOPE:

1.1 Form:

This specification covers one type of aluminum silicon bronze in the form of rods, bars, forgings, and forging stock.

1.2 Application:

This product has been used typically for parts requiring strength and wear resistance at moderate temperatures, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2221 Tolerances, Copper and Copper Alloy Bars and Rods

MAM 2221 Tolerances, Metric, Copper and Copper Alloy Bars and Rods

AMS 2808 Identification, Forgings

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2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

- ASTM B 154 Mercurous Nitrate Test for Copper and Copper Alloys
- ASTM B 249 General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes
- ASTM B 249M General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes (Metric)
- ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products
- ASTM E 8 Tension Testing of Metallic Materials
- ASTM E 8M Tension Testing of Metallic Materials (Metric)
- ASTM E 10 Brinell Hardness of Metallic Materials
- ASTM E 18 Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
- ASTM E 478 Chemical Analysis of Copper Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Aluminum	6.3	7.6
Silicon	1.5	2.2
Zinc	--	0.50
Iron	--	0.30
Nickel, including Cobalt	--	0.25
Tin	--	0.20
Arsenic	--	0.15
Manganese	--	0.10
Lead	--	0.05
Residual Elements, total	--	0.50
Copper plus Sum of Named Elements (See 3.1.1)	99.5	--
Copper, including Silver (3.1.2)	remainder	

- 3.1.1 Applicable when copper is not determined by analysis. The reported (certified) value is the difference between the sum of all other specified elements and 100% and will therefore include unnamed elements. Limits for unnamed elements may be established by agreement between purchaser and manufacturer or supplier.

3.1.2 Applicable only when copper is determined by direct analysis.

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Bars and Rods: Drawn and stress relieved (HR50) temper. (See 8.1).

3.2.2 Forgings: Stress relieved.

3.2.3 Forging Stock: As ordered by the forging manufacturer.

3.3 Properties:

The product shall conform to the following requirements:

3.3.1 Bars, Rods, and Forgings:

3.3.1.1 Longitudinal Tensile Properties:

3.3.1.1.1 Bars and Rods: Shall be as shown in Table 1 and 3.3.1.1.1.1, determined in accordance with ASTM E 8 or ASTM E 8M.

TABLE 1A - Minimum Tensile Properties, Inch/Pound Units

Nominal Diameter Distance Between Parallel Sides Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 4D %
Up to 0.5, incl	90.0	45.0	9
Over 0.5 to 1.0, incl	85.0	45.0	12
Over 1.0 to 2.0, incl	80.0	42.0	12
Over 2.0 to 3.0, incl	75.0	35.0	15

TABLE 1B - Minimum Tensile Properties, SI Units

Nominal Diameter Distance Between Parallel Sides Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 4D %
Up to 12.7, incl	621	310	9
Over 12.7 to 25.4, incl	586	310	12
Over 25.4 to 50.8, incl	552	290	12
Over 50.8 to 76.2, incl	517	241	15