Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 4635C
Superseding AMS 4635B

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UNS C62300

ALUMINUM BRONZE RODS, BARS, AND FORGINGS
87Cu - 10Al - 3.0Fe (CDA 623)

1. SCOPE:

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

1.2 Application: Primarily for parts requiring strength and corrosion resistance at moderate temperatures.

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 Society of Automotive Engineers, Inc., 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
AMS 2375 - Control of Forgings Requiring First-Article Approval
AMS 2808 - Identification, Forgings

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

ASTM B249 - General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes
ASTM E10 - Brinell Hardness of Metallic Materials
ASTM E478 - Chemical Analysis of Copper-Base Alloys

2.3 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 E478, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

	min	max
Copper	84.5	--
Aluminum	9.0	11.0
Iron	2.0	4.0
Manganese	--	0.30
Tin	--	0.20
Other Elements, total	--	0.50

3.2 Condition: The product shall be supplied in the following condition:

3.2.1 Bars and Rods: As rolled or extruded and stress relieved.

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 Hardness: Shall be 155 - 190 HB/10/1000 or equivalent, determined in accordance with ASTM E10 on the surface except on rounds where a flat, as necessary for accuracy, may be made.

3.3.2 Forging Stock: As agreed upon by purchaser and vendor.

3.4 Quality: The product, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external defects detrimental to usage of the product.

3.5 Tolerance: Unless otherwise specified, tolerances for bars and rods shall conform to AMS 2221 as applicable to refractory alloys.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and, for forgings, as preproduction tests.

4.2.1 For direct U.S. Military procurement of forgings, substantiating test data and, when requested, preproduction forgings shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be in accordance with the following:

4.3.1 Bars and Rods: ASTM B249.

4.3.2 Forgings and Forging Stock: As agreed upon by purchaser and vendor.

4.4 Approval: When specified, approval and control of forgings shall be in accordance with AMS 2375.