

AEROSPACE
MATERIAL
SPECIFICATION

AMS 4614F
Superseding AMS 4614E

Issued 10-15-40
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BRASS FORGINGS, FREE CUTTING
60Cu - 2.0Pb - 38Zn (CDA 37700)

UNS C37700

1. SCOPE:

1.1 Form: This specification covers one type of brass in the form of forgings and forging stock.

1.2 Application: Primarily for forged fittings, such as elbows, tees, and manifolds in fluid conducting systems.

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 2350 - Standards and Test Methods
AMS 2808 - Identification, Forgings

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

ASTM E10 - Brinell Hardness of Metallic Materials
ASTM E478 - Chemical Analysis of Copper Alloys

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

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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 analytical methods approved by purchaser:

	min	max
Copper	58.0	62.0
Lead	1.5	2.5
Iron	--	0.30
Other Elements, each	--	0.05
Other Elements, total	--	0.50
Zinc	remainder	

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

3.2.1 Forgings: As forged.

3.2.2 Forging Stock: As ordered by the forging manufacturer.

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

3.3.1 Forgings: Shall have hardness of 70 - 120 HB/10/1000/30, or equivalent, determined in accordance with ASTM E10.

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 imperfections detrimental to usage of the product.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all
Ø samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed 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
Ø requirements of this specification are classified as acceptance tests and shall be performed on each lot.

4.3 Sampling: Shall be as follows; a lot shall be all forgings of the same size and shape or not more than 10,000 lb (4500 kg) of forging stock of the same size and shape produced in a continuous run and presented for vendor's inspection at one time:

4.3.1 Composition: One sample from each lot.

4.3.2 Hardness: 10% of the forgings in each lot.

4.4 Reports:

4.4.1 The vendor of forgings shall furnish with each shipment three copies of a report showing the results of tests for chemical composition and hardness of each lot. This report shall include the purchase order number, lot number, AMS 4614F, size and melt source of forging stock, size or part number of forgings, and quantity.

4.4.2 The vendor of forging stock shall furnish with each shipment three copies of a report stating that the stock conforms to the chemical composition requirements. This report shall include the purchase order number, lot number, AMS 4614F, size, and quantity.

4.4.3 The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, AMS 4614F, contractor or other direct supplier of forgings, part number, and quantity. When forgings for making parts are produced or purchased by the parts vendor, that vendor shall inspect each lot of forgings to determine conformance to the requirements of this specification and shall include in the report either a statement that the forgings conform or copies of laboratory reports showing the results of tests to determine conformance.

4.5 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the product may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the product represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification: The product shall be identified as follows:

5.1.1 Forgings: In accordance with AMS 2808.

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