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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

An American National Standard

AMS 4614G

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Superseding AMS 4614F

BRASS FORGINGS, FREE CUTTING
60Cu - 2.0Pb - 37.5Zn
As Forged (M10)

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 SAE publications 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 ASTM, 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.

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2.3.1 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, Ø determined by wet chemical methods in accordance with ASTM E478, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Copper	58.0 - 62.0	
Lead	1.5 - 2.5	
Iron	--	0.30
Zinc + Sum of Named Elements (3.1.2)	99.5	--
Zinc (3.1.1)	remainder	

3.1.1 Applicable when zinc is not determined by analysis. The reported Ø (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.

3.1.2 Applicable only when zinc is determined by direct analysis. Ø

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

3.2.1 Forgings: As forged (M10) temper (See 8.2). Ø

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 imperfections detrimental to usage of the product.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all 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.

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4.2 Classification of Tests: Tests to determine conformance to all technical 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 pounds (4536 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 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 4614G, 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 a report stating that the stock conforms to the chemical composition requirements. This report shall include the purchase order number, lot number, AMS 4614G, size, and quantity.

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: Shall be as follows:

5.1.1 Forgings: In accordance with AMS 2808.

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

5.2 Packaging:

5.2.1 The product shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

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