



AEROSPACE MATERIAL SPECIFICATION

AMS4871™

REV. H

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Superseding AMS4871G

Aluminum Bronze, Centrifugal and Chill Castings
85Cu - 11Al - 3.6Fe
Solution Heat Treated and Tempered
(Composition Similar to UNS C95420)

RATIONALE

AMS4871H stabilizes this document because it represents mature technology which is not expected to change in the future and thus no further revisions are anticipated.

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Documents

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1. SCOPE

1.1 Form

This specification covers an aluminum bronze alloy in the form of centrifugal and chill castings.

1.2 Application

These castings have been used typically for parts requiring high strength at moderate temperatures, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS2360	Room Temperature Tensile Properties of Castings
AMS2630	Inspection, Ultrasonic, Product Over 0.5 Inch (12.7 mm) Thick
AMS2694	In-Process Welding of Castings
AMS2750	Pyrometry
AMS2804	Identification, Castings

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E 8/E 8M Tension Testing of Metallic Materials
ASTM E 10 Brinell Hardness of Metallic Materials
ASTM E 478 Chemical Analysis of Copper Alloys
ASTM E 1417 Liquid Penetrant Testing
ASTM E 1742 Radiographic Examination

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 (3.1.1)	min	max
Copper (3.1.2)	83.5	--
Aluminum	10.5	12.0
Iron	3.0	4.3
Manganese	--	0.50
Nickel + Cobalt (3.1.2)	--	0.50
Sum of Named Elements (3.1.3)	99.5	--

3.1.1 These composition limits do not preclude the presence of other elements. Limits may be established and analysis required for unnamed elements by agreement between the manufacturer or supplier and purchaser.

3.1.2 In determining copper minimum, copper may be calculated as copper plus nickel.

3.1.3 When all the elements in the table are analyzed, the sum shall be 99.5% minimum, but such determination is not required for routine acceptance of each lot.

3.2 Condition

Solution heat treated and tempered, TF50 temper (See 8.2).

3.3 Casting

Castings shall be produced in lots from metal conforming to 3.1. Metal remelted from previously analyzed ingot may be poured directly into castings. Molten metal taken from alloying furnaces, with or without additions of foundry operating scrap (gates, sprues, risers, and rejected castings), shall not be poured into castings unless first converted to ingot, analyzed, and remelted or unless the composition of a sample taken after the last addition to the melt conforms to 3.1.

3.3.1 A melt shall be the metal withdrawn from a batch-furnace charge of 2000 pounds (907 kg) or less as melted for pouring castings or, when permitted by purchaser, a melt shall be 4000 pounds (1814 kg) or less of metal withdrawn from one continuous furnace in not more than 8 consecutive hours.

3.3.2 A lot shall be all castings poured from a single melt in not more than 8 consecutive hours and solution heat treated and tempered in the same heat treatment batch.