



AEROSPACE MATERIAL SPECIFICATION

AMS4242™

REV. C

Issued	1986-07
Reaffirmed	2012-09
Revised	2015-09

Superseding AMS4242B

Aluminum Alloy, Castings
4.7Cu - 0.60Ag - 0.35Mn - 0.25Mg - 0.25Ti (B201.0-T7)
Solution Heat Treated and Overaged
(Composition similar to UNS A02010)

RATIONALE

AMS4242C revises Heat Treatment (3.5) and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of castings.

1.2 Application

These castings have been used typically for aircraft components requiring high strength and reliability, both at room and elevated temperatures, but usage is not limited to such applications.

1.3 Alloy B201.0, the alloy designated in this specification, has restricted composition within the limits of alloy A201.0.

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 +1 724-776-4970 (outside USA), www.sae.org.

AMS2175	Casting, Classification and Inspection of
AMS2360	Room Temperature Tensile Properties of Castings
AMS2644	Inspection Material, Penetrant

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AMS2694	In-Process Welding of Castings
AMS2771	Heat Treatment of Aluminum Alloy Castings
AMS2804	Identification Castings
AS1990	Aluminum Alloy Tempers

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 B557	Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products
ASTM B557M	Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products (Metric)
ASTM B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM E 29	Using Significant Digits in Test Data to Determine Conformance with Specifications
ASTM E34	Chemical Analysis of Aluminum- and Aluminum-Base Alloys
ASTM E101	Spectrographic Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique
ASTM E155	Reference Radiographs for Inspection of Aluminum and Magnesium Castings
ASTM E227	Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique
ASTM E607	Atomic Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique, Nitrogen Atmosphere
ASTM E716	Sampling Aluminum and Aluminum Alloys for Spectrochemical Analysis
ASTM E1251	Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by Argon Atmosphere, Point-to-Plane, Unipolar Self-Initiating Capacitor Discharge
ASTM E1417/E1417M	Liquid Penetrant Examination
ASTM E1742/E1742M	Radiographic Examination
ASTM G44	Exposure of Metals and Alloys by Alternate Immersion in Neutral 3.5% Sodium Chloride Solution

2.3 U.S. Government Publications

Copies of these documents are available online at <http://quicksearch.dla.mil>.

MIL-STD-1537	Electrical Conductivity Test for Measurement of Heat Treatment of Aluminum Alloys, Eddy Current Method
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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 E34, by spectrochemical methods in accordance with ASTM E101, ASTM E227, ASTM E607, ASTM E1251, or by other analytical methods acceptable to purchaser (see 3.4.1).

Table 1 – Composition

Element	min	max
Silicon	--	0.05
Iron	--	0.05
Copper	4.5	5.0
Manganese	0.20	0.50
Magnesium	0.20	0.30
Titanium	0.15	0.35
Silver	0.40	0.8
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.1.1 Test results may be rounded in accordance with the "rounding off" method of ASTM E29.

3.2 Condition

Solution heat treated and overaged to T7 temper (see AS1990).

3.3 Casting

Castings shall be produced from metal conforming to 3.1, determined by analysis of a specimen (3.4.1) cast after the last melt addition.

3.4 Test Specimens

3.4.1 Chemical Analysis Specimen

Shall be cast from each melt after the last melt addition and shall be tested to qualify the melt lot in accordance with 3.1. Spectrochemical sample shall be prepared in accordance with ASTM E716.

3.4.2 Tensile Specimens

Shall be cut from integrally-cast coupons. Each casting shall have two integrally-cast coupons to be removed after heat treatment, except as permitted in 3.4.2.1. One coupon shall remain with the casting in case reheat treatment and retesting are necessary. Specimens shall conform to ASTM B557 or ASTM B557M, and shall be either 0.500 inch (12.70 mm) diameter at the reduced parallel gage section, subsize specimens proportional to the standard, or standard sheet-type specimens, as required by 3.6.1.

3.4.2.1 Integrally-cast coupons may be removed prior to heat treatment only if documented procedures ensure that the coupons are marked with identification traceable to the casting and are heat treated with the corresponding casting.