



AEROSPACE MATERIAL SPECIFICATION

AMS4236™**REV. E**

Issued 1980-07
Reaffirmed 2000-10
Revised 2026-03

Superseding AMS4236D

Aluminum Alloy Castings,
4.6Cu - 0.35Mn - 0.25Mg - 0.22Ti (A206.0-T4),
Solution Heat Treated and Naturally Aged
(Composition similar to UNS A12060)

RATIONALE

AMS4236E results from a Five-Year Review and update of this specification with changes to clarify that casting approval and reapproval actions are to be carried out by the cognizant engineering organization (see 4.2.3 and 4.4), update wording to prohibit unauthorized exceptions (see 3.6.1, 3.8, 4.5.1, and 8.7), provide casting Class inspection standards when none are specified (see 3.7.2), relocate Definitions (see 2.4), renumber provisions for consistency with other casting documents (see 3.7), update Form (see 1.1), Applicable Documents (see Section 2, 3.1, and 3.2), Composition (see 3.1), Identification (see 5.1.1), and Ordering Information (see 8.8), and allow use of the immediate prior revision of this specification (see 8.6).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of sand, investment, permanent mold, and composite mold castings with nominal wall thicknesses of up to 1.0 inch (25.4 mm), inclusive (see 8.8).

1.2 Application

Primarily for components requiring high strength combined with good ductility and impact strength. Certain design and processing procedures (see 8.3) may cause these castings to become susceptible to stress-corrosion cracking.

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 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), www.sae.org.

AMS2175 Castings, Classification and Inspection of

AMS2360 Room Temperature Tensile Properties of Castings

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Full document details: SAE AMS4236E

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4236E/>

Documents

Standard, visit Sharing Hub

AMS2694	In-Process Welding of Castings
AMS2771	Heat Treatment of Aluminum Alloy Castings
AMS2804	Identification, Castings
AS7766	Terms Used in Aerospace Metals Specifications

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 B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM E10	Standard Test Method for Brinell Hardness of Metallic Materials
ASTM E29	Using Significant Digits in Test Data to Determine Conformance with Specifications
ASTM E716	Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spark Atomic Emission Spectrometry
ASTM E1251	Analysis of Aluminum and Aluminum Alloys by Spark Atomic Emission Spectrometry
ASTM E1417/E1417M	Liquid Penetrant Testing
ASTM E1742/E1742M	Radiographic Examination
ASTM E3061	Analysis of Aluminum and Aluminum Alloys by Inductively Couple Plasma Atomic Emission Spectrometry (Performance Based Method)
ASTM G44	Exposure of Metals and Alloys by Alternate Immersion in Neutral 3.5% Sodium Chloride Solution

2.3 ANSI Publications

Copies of these documents are available online at <https://webstore.ansi.org>.

ANSI H35.1/H35.1M	Standard Alloy and Temper Designation System for Aluminum
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2.4 Definitions

Terms used in AMS are defined in AS7766 and as follows:

2.4.1 INTEGRALLY CAST SPECIMEN

An attached specimen that is cast in the mold and remains with the casting lot through the completion of all heat-treatment operation(s) required of the supplier. The casting drawing may identify a specific location for attachment of each integrally cast specimen.

2.4.2 MELT

A single homogeneous batch of molten metal to which all melt additions and processing have been completed and from which castings are poured.

2.4.3 MELT LOT

Castings poured from a single melt.

2.4.4 HEAT-TREAT LOT

Castings of the same part number, poured from a single melt, and solution heat treated in the same heat-treat batch.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the following percentages by weight shown in Table 1, determined in accordance with ASTM E1251, ASTM E3061, or by other analytical methods acceptable to the purchaser (see 3.4.1).

Table 1 - Composition

Element	Min	Max
Copper	4.2	5.0
Manganese	0.20	0.50
Magnesium	0.15	0.35
Titanium	0.15	0.30
Iron	--	0.10
Zinc	--	0.10
Silicon	--	0.05
Nickel	--	0.05
Tin	--	0.05
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 method of ASTM E29.

3.2 Condition

Solution heat treated and naturally aged to the T4 temper (refer to ANSI H35.1/H35.1M).

3.3 Casting

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

3.4 Cast Test Specimens

Chemical analysis specimens and tensile specimens shall be cast as follows:

3.4.1 Chemical Analysis Specimens

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

3.4.2 Tensile Specimens

Unless otherwise specified, tensile specimens shall be cut from the casting for testing to determine acceptance of the castings as in 3.6.1.1. Integrally cast or separately cast specimens, as in 3.6.1.2, shall only be used when permitted by the cognizant engineering organization.

3.4.2.1 Specimens Cut from a Casting

Shall be removed after heat treatment and machined to conform to ASTM B557 and shall be either 0.500-inch (12.70-mm) diameter at the reduced parallel gauge section, subsize specimens proportional to the standard, or standard or subsize sheet-type specimens, as required by 3.6.1.1.