



AEROSPACE MATERIAL SPECIFICATION

AMS4144™**REV. H**

Issued 1965-09
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Revised 2025-02

Superseding AMS4144G

Aluminum Alloy, Hand Forgings and Rolled Rings,
6.3Cu - 0.30Mn - 0.18Zr - 0.10V - 0.06Ti (2219-T852/T851),
Solution Heat Treated, Mechanically Stress Relieved, and Precipitation Heat Treated
(Composition similar to UNS A92219)

RATIONALE

AMS4144H results from a Five-Year Review and update of this specification with changes to update wording to prohibit unauthorized exceptions (see 3.3.1.3 and 8.5), relocate Definitions (see 2.4), and update Applicable Documents (see Section 2) and Ordering Information (see 8.6).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of hand forgings 17 inches (432 mm) and under in nominal thickness and rolled rings up to 6 inches (152 mm), inclusive, in nominal thickness at the time of heat treatment (see 8.6).

1.2 Application

These products have been used typically for applications that require good weldability and uniformity of strength of welds, moderate strength at room temperature, good short-term strength in the range of 500 to 600 °F, and for structural parts subject to warpage during machining, but usage is not limited to such applications. Certain design and fabricating procedures and service conditions may cause these products to become susceptible to stress-corrosion cracking; ARP823 recommends practices to minimize such conditions.

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.

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Documents

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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.

AMS2355	Quality Assurance, Sampling and Testing, Aluminum Alloys and Magnesium Alloy, Wrought Products (Except Forging Stock), and Rolled, Forged, or Flash Welded Rings
AMS2772	Heat Treatment of Aluminum Alloy Raw Materials
AMS2808	Identification, Forgings
ARP823	Minimizing Stress-Corrosion Cracking in Wrought High-Strength Aluminum Alloy Products
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 B594	Ultrasonic Inspection of Aluminum-Alloy Wrought Products
ASTM B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM E10	Brinell Hardness of Metallic Materials
ASTM E1417/E1417M	Liquid Penetrant Testing

2.3 ANSI Accredited 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.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2355.

Table 1 - Composition

Element	Min	Max
Silicon	--	0.20
Iron	--	0.30
Copper	5.8	6.8
Manganese	0.20	0.40
Magnesium	--	0.02
Zinc	--	0.10
Titanium	0.02	0.10
Vanadium	0.05	0.15
Zirconium	0.10	0.25
Other Elements, each	--	0.05
Other Elements total	--	0.15
Aluminum	remainder	

3.2 Condition

The product shall be solution heat treated, mechanically stress relieved, and precipitation heat treated to the T851 or T852 condition as applicable (refer to ANSI H35.1/H35.1M). Heat treatments shall be performed in accordance with AMS2772.

3.2.1 Rolled Rings

Shall be processed by either of the following procedures as specified by the purchaser:

Condition 1: Stress relieve by compression to produce a permanent set of 2 to 5% (-T852)

Condition 2: Stress relieve by tension to produce a permanent set of 2 to 5% (-T851)

3.2.1.1 Rolled rings shall be supplied in either Condition 1 or 2 (see 8.6).

3.2.2 Hand Forgings

Shall be stress relieved by compression to produce a permanent set of 2 to 5% (-T852).

3.3 Properties

The product shall conform to the following requirements, determined in accordance with AMS2355 on the mill product:

3.3.1 Tensile Properties

Shall be as follows:

3.3.1.1 Hand Forgings - T852 Temper

Specimens machined from hand forgings 17 inches (432 mm) and under in nominal thickness shall conform to the requirements of Table 2. Tests may be waived for any test direction having a dimension under 2 inches (51 mm). Tests need not be made in the longitudinal direction unless required by the purchaser (see 8.6).