AEROSPACE MATERIAL SPECIFICATION

AMS4268™	REV. B

Issued 2011-12
Revised 2024-12

Superseding AMS4268A

Aluminum Alloy, Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn; (2024-T81 Sheet, -T851 Plate), Solution Heat Treated, Cold Worked and Artificially Aged

(Composition similar to UNS A92024)

RATIONALE

AMS4268B results from a Five-Year Review and update of this specification with changes to clarify Condition (see 3.2), update wording to prohibit unauthorized exceptions (see 3.3.2, 3.7, and 8.3), relocate Definitions (see 2.4) and note regarding statistical analysis of properties (see 3.3.3), update Applicable Documents (see Section 2), and allow the use of the immediate prior specification revision (see 8.4).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of sheet and plate 0.010 to 1.500 inches (0.254 to 38.07 mm), inclusive, in thickness, supplied in the -T81/-T851 temper (see 8.5).

1.2 Application

These products have been used typically for high-strength parts requiring higher yield strength than is afforded by naturally aged tempers of this alloy and whose fabrication does not involve welding, 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 +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

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

For more information on this standard, visit
https://www.sae.org/standards/content/AMS4268B/

AMS-QQ-A-250/4A Aluminum Alloy 2024, Plate and Sheet

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 B666/B666M Identification Marking of Aluminum and Magnesium Alloy Products

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

ANSI H35.2 Dimensional Tolerances for Aluminum Mill Products

ANSI H35.2M Dimensional Tolerances for Aluminum Mill Products (Metric)

2.4 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

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

Table 1

Element	Min	Max
Silicon	--	0.50
Iron	--	0.50
Copper	3.8	4.9
Manganese	0.30	0.9
Magnesium	1.2	1.8
Chromium	--	0.10
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Sheet

Solution heat treated, cold worked, and artificially aged to the T81 temper (refer to ANSI H35.1/H35.1M). Solution and precipitation heat treatment shall be in accordance with AMS2772 and as follows:

3.2.1.1 Precipitation Aging Heat Treatment

The recommended precipitation heat treatment is 365 to 385 °F (185 to 196 °C) for 12 hours.

3.2.2 Plate

Solution heat treated, stretched to produce a nominal permanent set of 2%, but not less than 1-1/2% nor more than 3%, and artificially aged to the T851 temper (refer to ANSI H35.1/H35.1M). Solution and precipitation heat treatment shall be in accordance with AMS2772.

3.2.2.1 Precipitation Aging Heat Treatment

The recommended precipitation heat treatment is 365 to 385 °F (185 to 196 °C) for 12 hours.

3.2.2.2 Plate shall receive no further straightening operations after stretching.

3.3 Properties

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

3.3.1 Tensile Properties

Shall be as shown in Table 2 (see 3.3.3).

Table 2A - Minimum tensile properties, inch/pound units

Temper	Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 inches or 4D %
-T81	0.010 to 0.249, incl	67.0	58.0	5
-T851	Over 0.249 to 0.499, incl	67.0	58.0	5
	Over 0.499 to 1.000, incl	66.0	58.0	5
	Over 1.000 to 1.500	66.0	57.0	5

Table 2B - Minimum tensile properties, SI units

Temper	Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
-T81	0.254 to 6.32, incl	462	400	5
-T851	Over 6.32 to 12.67, incl	462	400	5
	Over 12.67 to 38.10, incl	455	400	5
	Over 25.40 to 38.07	455	393	5

3.3.2 Mechanical property requirements for product outside of the range covered by 1.1 shall be agreed upon between the purchaser and producer and reported per 4.4.1 (see 8.5).

3.3.3 The tensile properties in Table 2 were taken directly from QQ-A-250/4E Amendment 2 (refer to AMS-QQ-A-250/4A) and have not been independently verified by AMS statistical procedures.

3.4 Quality

The product, as received by the purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.

3.5 Ultrasonic Inspection

3.5.1 When specified, each plate 0.500 inch (12.70 mm) and over in nominal thickness shall be ultrasonically inspected in accordance with ASTM B594, Class B requirements.

3.6 Tolerances

Shall conform to all applicable requirements of ANSI H35.2/H35.2M.

3.7 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The producer of the product shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Composition (see 3.1), tensile properties (see 3.3.1), tolerances (see 3.6), and, when specified, ultrasonic soundness (see 3.5.1) are acceptance tests and, except for composition, shall be performed on each lot.

4.3 Sampling and Testing

Shall be in accordance with AMS2355.

4.4 Reports

The producer of the product shall furnish with each shipment a report stating that the product conforms to the composition and tolerances and showing numerical results of tests for the other acceptance test requirements. This report shall include the purchase order number, lot number, AMS4268B, size, and quantity. The report shall also identify the producer, the product form, and the size of the mill product.

4.4.1 When material produced to this specification is beyond the sizes allowed in the scope of tables, or other exceptions are taken to the technical requirements listed in Section 3 (see 5.1.1), the report shall contain a statement "This material is certified as AMS4268B(EXC) because of the following exceptions:" and the specific exceptions shall be listed.

4.5 Resampling and Retesting

Shall be in accordance with AMS2355.

5. PREPARATION FOR DELIVERY

5.1 Identification

Shall be in accordance with ASTM B666/B666M.