AEROSPACE MATERIAL SPECIFICATION

AMS4269™	REV. B

Issued 2011-12
Revised 2023-08

Superseding AMS4269A

Aluminum Alloy, Sheet and Plate
4.4Cu - 1.5Mg - 0.60Mn (2024-T361)
Solution Heat Treated and Cold Worked
(Composition similar to UNS A92024)

RATIONALE

AMS4269B results from a Five-Year Review and update of this specification with changes to update wording to prohibit unauthorized exceptions (see 3.3.2.2, 3.3.4, 3.6, and 8.4), relocate Definitions (see 2.4) and information regarding source of properties (see 3.3.5), update Applicable Documents (see Section 2), and allow the use of the immediate prior specification revision (see 8.3).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of sheet and plate 0.020 to 0.500 inch (0.508 to 12.70 mm), inclusive, in thickness, supplied in the -T361 temper (see 8.5).

1.2 Application

These products have been used typically for structural parts requiring formability, a combination of good strength and good corrosion resistance, 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

AS7766 Terms Used in Aerospace Metals Specifications

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/AMS4269B/

2.2 ANSI Accredited Publications

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

ANSI H35.1/H35.1M 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)

2.3 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

2.4 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 reduced approximately 6%, and naturally aged to the -T361 temper in accordance with AMS2772 (refer to ANSI H35.1/H35.1M).

3.2.2 Plate

Solution heat treated, cold reduced approximately 6%, and naturally aged to the -T361 temper in accordance with AMS2772 (refer to ANSI H35.1/H35.1M).

3.2.2.1 Plate shall receive no further straightening operations after cold reduction.

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 (-T361)

Shall be as shown in Table 2 (see 3.3.5).

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 %
-T361	0.020 to 0.062, incl	67.0	50.0	8
	Over 0.062 to 0.249, incl	68.0	51.0	9
	Over 0.249 to 0.499, incl	66.0	49.0	9
	0.500	66.0	49.0	10

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 %
-T361	0.508 to 1.57, incl	462	345	8
	Over 1.57 to 6.32, incl	469	352	9
	Over 6.32 to 12.67, incl	455	338	9
	12.70	455	338	10

3.3.2 Bend Test (-T361)

3.3.2.1 Product 0.020 to 0.249 inch (0.508 to 6.32 mm), inclusive, in nominal thickness shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown in Table 3 times the nominal thickness of the product with axis of bend parallel to the direction of rolling.

Table 3 - Bend test factor, "N"

Thickness of Material Inches	Thickness of Material Millimeters	N
0.020 to 0.032, incl	0.508 to 0.81, incl	4
Over 0.032 to 0.051, incl	Over 0.813 to 1.30, incl	4
Over 0.051 to 0.063, incl	Over 1.30 to 1.60, incl	8
Over 0.063 to 0.128, incl	Over 1.60 to 3.25, incl	8
Over 0.128 to 0.249	Over 3.25 to 6.32	8

3.3.2.2 Bending requirements for product over 0.249 inch (6.32 mm) in nominal thickness shall be as agreed upon by the purchaser and producer and reported per 4.4.1 (see 8.5).

3.3.3 Response to Temper Conversion (-T861)

When specified, product in the -T361 temper, after precipitation heat treatment to the -T861 temper (refer to ANSI H35.1/H35.1M) in accordance with AMS2772, shall have the properties shown in Table 4.

3.3.3.1 Tensile Properties (-T861)

Shall be as shown in Table 4 (see 3.3.5).

Table 4A - 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 %
-T861	0.020 to 0.062, incl	70.0	62.0	3
	Over 0.062 to 0.249, incl	71.0	66.0	4
	Over 0.249 to 0.500	70.0	64.0	4

Table 4B - 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 %
-T861	0.508 to 1.57, incl	483	427	3
	Over 1.57 to 6.32, incl	490	455	4
	Over 6.32 to 12.70	483	441	4

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

3.3.5 The tensile properties in Tables 2 and 4 were taken directly from QQ-A-250/4E Amendment 2 (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 Tolerances

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

3.6 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 3.5), and when specified, tensile properties for response to temper conversion (see 3.3.3) are acceptance tests and except for composition, shall be performed on each lot.

4.2.2 Periodic Tests

Bend testing (see 3.3.2) are periodic tests and shall be performed at a frequency selected by the producer unless frequency of testing is specified by the purchaser.