



AEROSPACE MATERIAL SPECIFICATION	AMS4277™	REV. C
	Issued 1997-12 Reaffirmed 2017-11 Revised 2025-03 Superseding AMS4277B	
Aluminum Alloy, Sheet 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (7075-O) Annealed, Fine Grained (Composition similar to UNS A97075)		

RATIONALE

AMS4277C results from a Five-Year Review and update of this specification with changes to align product thickness requirements within the document (see 1.1 and Tables 2, 3, and 5), add provisions for use of AS6279 (see 3.6), update wording to prohibit unauthorized exceptions (see 3.3.3, 3.7, and 8.4), and update Applicable Documents (see Section 2).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of sheet 0.011 to 0.126 inch (0.28 to 3.20 mm), inclusive, in nominal thickness, with a grain size of ASTM No. 6 or finer (see 8.5).

1.2 Application

This sheet has been used typically for severely formed structural parts that will be subsequently heat treated and painted or otherwise protected from corrosion, but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause this sheet to become susceptible to stress-corrosion cracking after heat treatment; 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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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
ARP823	Minimizing Stress-Corrosion Cracking in Wrought High-Strength Aluminum Alloy Products
AS6279	Standard Practice for Production, Distribution, and Procurement of Metal Stock
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 B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM B666/B666M	Identification Marking of Aluminum and Magnesium Products
ASTM E112	Determining Average Grain Size

2.3 ANSI Accredited Publications

Copies of these documents are available online at <http://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 shown in Table 1, determined in accordance with AMS2355.

Table 1 - Composition

Element	Min	Max
Silicon	--	0.40
Iron	--	0.50
Copper	1.2	2.0
Manganese	--	0.30
Magnesium	2.1	2.9
Chromium	0.18	0.28
Zinc	5.1	6.1
Titanium	--	0.20
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Annealed in accordance with AMS2772 to the "O" temper (refer to ANSI H35.1/H35.1M).

3.3 Properties

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

3.3.1 As Annealed

3.3.1.1 Average Grain Size

Shall be ASTM No. 6 or finer, determined in accordance with ASTM E112 or by other technique agreed upon by the purchaser and producer.

3.3.1.2 Tensile Properties

Shall be as shown in Table 2.

Table 2A - Tensile properties, inch/pound units

Nominal Thickness Inches	Tensile Strength ksi, Max	Yield Strength at 0.2% Offset ksi, Max	Elongation in 2 Inches or 4D %, Min
0.011 to 0.014, incl	40.0	21.0	9
Over 0.014 to 0.126, incl	40.0	21.0	10

Table 2B - Tensile properties, SI units

Nominal Thickness Millimeters	Tensile Strength MPa, Max	Yield Strength at 0.2% Offset MPa, Max	Elongation in 50.8 mm or 4D %, Min
0.28 to 0.36, incl	276	145	9
Over 0.36 to 3.20, incl	276	145	10

3.3.1.3 Bending

Sheet 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 sheet with axis of bend parallel to the direction of rolling.

Table 3 - Bending parameters

Nominal Thickness Inches	Nominal Thickness Millimeters	Bend Factor
0.011 to 0.028, incl	0.28 to 0.51, incl	0
Over 0.020 to 0.091, incl	Over 0.51 to 2.31, incl	1
Over 0.091 to 0.126, incl	Over 2.31 to 3.20, incl	2

3.3.2 Response to Heat Treatment

Sheet shall have the following properties after being solution and precipitation heat treated to the -T62 temper in accordance with the time and temperature parameters of AMS2772:

3.3.2.1 Tensile Properties

Shall be as shown in Table 4.

Table 4A - Minimum tensile properties, inch/pound units

Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
Over 0.011 to 0.039, incl	76.0	67.0	8
Over 0.039 to 0.126, incl	78.0	68.0	9

Table 4B - Minimum tensile properties, SI units

Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
Over 0.28 to 0.99, incl	524	462	8
Over 0.99 to 3.20, incl	538	469	9

3.3.2.2 Bending

Sheet 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 5 times the nominal thickness of the sheet with axis of bend parallel to the direction of rolling.

Table 5 - Bending parameters

Nominal Thickness Inches	Nominal Thickness Millimeters	Bend Factor
0.011 to 0.020, incl	0.28 to 0.51, incl	7
Over 0.020 to 0.062, incl	Over 0.51 to 1.57, incl	8
Over 0.062 to 0.091, incl	Over 1.57 to 2.31, incl	9
Over 0.091 to 0.126, incl	Over 2.31 to 3.20, incl	10

3.3.3 Mechanical property requirements for sheet and plate outside the thickness range of 1.1 shall be as agreed upon by the purchaser and producer and reported per 4.4.1 (see 8.5).

3.4 Quality

Sheet, 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 sheet.