



AEROSPACE MATERIAL SPECIFICATION

AMS4359™**REV. A**Issued 2016-07
Revised 2024-04

Superseding AMS4359

Aluminum Alloy, Extruded Profiles (2395-T84),
3.95Cu - 1.15Li - 0.3Ag - 0.5Mg - 0.1Zr,
Solution Heat Treated, Stress Relieved by Stretching, and Aged

RATIONALE

AMS4359A results from a Five-Year Review and update of this specification with changes to prohibit unauthorized exceptions (see 3.3.1, 3.6, 4.4.1, 5.1.1, and 8.6), correct SI unit thickness ranges (see Tables 2B and 3B), correct SI unit elongation basis to 4D and correct values as needed (see Table 2B), relocate Definitions (see 2.4), update Applicable Documents (see Section 2), and allow the use of the immediate prior specification revision (see 8.5).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of extruded rods, bars, and profiles (shapes) 0.040 to 1.500 inches (1.02 to 38.10 mm), inclusive, in thickness, and produced with maximum cross-sectional area of 23.25 square inches (15000 mm²) and a maximum circumscribing circle diameter (circle size) of 15.5 inches (394 mm) (see 2.4.1 and 8.6).

1.2 Application

These extrusions have been used typically for structural aerospace applications requiring low density and high strength and stiffness combined with good corrosion resistance but are not limited to these applications.

1.2.1 Certain processing procedures may cause this product 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.

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

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SAE WEB ADDRESS:

Full document details: **SAE AMS4359A**

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4359A>

Documents

Sharing Hub

AMS2772	Heat Treatment of Aluminum Alloy Raw Materials
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 B666/B666M	Identification Marking of Aluminum and Magnesium Products
ASTM E9	Compression Testing of Metallic Materials at Room Temperature
ASTM G34	Exfoliation Corrosion Susceptibility in 2XXX and 7XXX Aluminum Alloys (EXCO Test)
ASTM G47	Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products
ASTM G85	Modified Salt Spray (Fog) Testing, Annex 2 (Cyclic Acidified Salt Spray Test - Dry Bottom MASTMAASIS)
ASTM G112	Conducting Exfoliation Corrosion Tests in Aluminum Alloys

2.3 ANSI Accredited Publications

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

ANSI H35.1/H35.1M	Alloy and Temper Designation Systems for Aluminum
ANSI H 35.2	Dimensional Tolerances for Aluminum Mill Products
ANSI H 35.2M	Dimensional Tolerances for Aluminum Mill Products (Metric)

2.4 Definitions

Terms used in AMS are defined in AS7766 and the following:

- 2.4.1 The circumscribing circle diameter is the diameter of the smallest circle that completely encloses the cross section of the as-extruded product.

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	--	0.08
Iron	--	0.10
Copper	3.6	4.3
Manganese	--	0.35
Magnesium	0.25	0.8
Zinc	--	0.25
Titanium	--	0.10
Silver	0.10	0.45
Lithium	0.9	1.4
Zirconium	0.05	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Extruded, solution heat treated and stress relieved by stretching to produce a nominal permanent set of 2 to 5% (target of 3%), and then artificially aged to the -T84 temper (refer to ANSI H35.1/H35.1M). Solution and precipitation heat treatment shall be performed in accordance with AMS2772 as applicable to 2XXX alloys. The actual practices are considered proprietary.

3.2.1 Products shall be supplied with an as-extruded surface finish; light polishing to remove minor surface conditions is permissible provided such conditions can be removed within specified dimensional tolerances.

3.2.2 Product may receive minor straightening, after stretching, of an amount necessary to meet the requirements of 3.5.

3.3 Properties

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

3.3.1 Mechanical property requirements for products outside the range covered by 1.1 and Table 2 shall be agreed upon by the purchaser and producer and reported per 4.4.1 (see 8.7).

3.3.2 Longitudinal and, when specified, long-transverse tensile properties shall be as specified in Table 2.

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

Nominal Thickness Inches	Specimen Orientation	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 inches or 4D %
0.040 to 0.125, incl	Longitudinal	84.0	78.0	6
	Long-Trans.	85.0	78.0	5
0.126 to 0.249, incl	Longitudinal	85.0	78.0	6
	Long-Trans.	85.0	78.0	5
0.250 to 0.499, incl	Longitudinal	85.0	79.0	6
	Long-Trans.	85.0	78.0	5
0.500 to 1.500, incl	Longitudinal	90.0	83.0	7
	Long-Trans.	85.0	78.0	5