



AEROSPACE MATERIAL SPECIFICATION

AMS4373™**REV. A**

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Superseding AMS4373

Aluminum Alloy, Rolled, Drawn or Cold Finished Bar, Rod, and Wire
4.0Cu - 0.70Mn - 0.60Mg - 0.50Si (2017; -O or when ordered -F)
(Composition Similar to UNS A92017)

RATIONALE

AMS4373A has been declared "STABILIZED" by AMS Committee D Nonferrous Alloys Committee. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because Committee D can find no producers for this document.

NOTE: This document was issued in August, 2018. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to the specification; including exceptions listed on the certification. In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

STABILIZED NOTICE

AMS4373A has been declared "STABILIZED" by SAE AMS Committee D Nonferrous Alloys and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE

1.1 Form

This specification covers the specific requirements for 2017 aluminum alloy bar, rod and wire produced by rolling, drawing or cold finishing supplied in the annealed (O temper) condition (see 8.4). When specified, product shall be supplied in the “as fabricated” (F) temper.

1.2 Application

These products have been used typically for formed structural parts which will be subsequently heat treated, but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause these products 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.

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 Heat-Treatable Aluminum Alloy Products
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

2.2 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)

2.3 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 B660 Packaging/Packing of Aluminum and Magnesium Products

ASTM B666/B666M Identification Marking of Aluminum and Magnesium Products

3. TECHNICAL REQUIREMENTS

3.1 Composition

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

Table 1

Chemical Composition 1/

Element	Percent	
	Minimum	Maximum
Copper	3.5	4.5
Manganese	0.40	1.0
Magnesium	0.40	0.8
Silicon	0.20	0.8
Iron	-	0.7
Zinc	-	0.25
Chromium	-	0.10
Titanium	-	0.15
Other Elements, each	-	0.05
Other Elements, total	-	0.15
Aluminum	Remainder	

1/ Analysis shall routinely be made only for the elements specifically mentioned in Table 1. If, however, the presence of other elements is indicated or suspected in the course of routine analysis, further analysis shall be made to determine conformance to the limits specified for other elements.

3.2 Condition

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

3.2.1 When specified, material may be provided in the "as fabricated" (F) temper. Requirements of 3.3.1 do not apply to the F temper.

3.3 Properties

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

3.3.1 As Annealed (O Temper)

3.3.1.1 Tensile Properties (O temper)

Shall be as shown in Table 2.

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
Up to 8.000 inclusive	35.0	--	16

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
203.20, incl	242	--	16

3.3.2 Response to Heat Treatment (-T42 Temper)

Product in the O temper, after solution heat treatment to the T42 temper (refer to ANSI H35.1/H35.1M) in accordance with AMS2772, shall have the properties shown in Table 3.

3.3.2.1 Tensile Properties (-T42)

Shall be as shown in Table 3.

Table 3

Table 3A - 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 %
-T42	Up to 8.000, incl	55.0	32.0	12

Table 3B - Minimum tensile properties, SI units

Temper	Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 2 mm or 4D %
-T42	Up to 203.2, incl	380	221	12

3.3.2.2 Bending (-T42 Temper Only)

When specified, the material shall withstand, without cracking, bending around a radius equal to the thickness times the bend factor shown in Table 4.

Table 4 - Bend test factor

Temper	Diameter, Thickness or Least Distance Between Parallel Faces, Inches	Bend Test Factor
T4	Up to 0.124, incl	3
	0.125 to 8.000, incl	6

3.3.3 Mechanical property requirements for product outside of the range covered by 1.1 shall be agreed upon between purchaser and producer.

3.4 Quality

The product, as received by 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 or ANSI H35.2M.

3.6 Exceptions

Any exceptions shall be authorized by 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 producer's tests and shall be responsible for the performance of all required tests. 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 (3.1), tensile properties as annealed (3.3.1.1) (not applicable to -F temper), response to heat treatment to the -T42 temper (3.3.2), and tolerances (3.5) are acceptance tests and, except for composition, shall be performed on each inspection 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 chemical composition, tolerances and showing the numerical results of tests on each inspection lot to determine conformance to the other acceptance test requirements. This report shall include the purchase order number, inspection lot number(s), AMS4373A, size, and quantity. The report shall also identify the producer, the product form, and the size of the mill product.