



<b>AEROSPACE MATERIAL SPECIFICATION</b>	<b>AMS4123™</b>	<b>REV. L</b>
	Issued 1946-11 Reaffirmed 2011-11 Revised 2024-03  Superseding AMS4123K	
Aluminum Alloy, Rolled or Cold Finished Bars and Rods, (7075-T651), Solution and Precipitation Heat Treated (Composition similar to UNS A97075)		

### RATIONALE

AMS4123L results from a Five-Year Review and update of this specification with changes to add provisions for AS6279 (see 3.7), update wording to prohibit unauthorized exceptions (see 3.3.1.1, 3.6, and 8.5), relocate Definitions (see 2.4), update Applicable Documents (see Section 2), and allow the use of the immediate prior revision of this specification (see 8.6).

#### 1. SCOPE

##### 1.1 Form

This specification covers an aluminum alloy in the form of bars and rods in the sizes and shapes described in 3.3.1 (see 8.7).

##### 1.2 Application

These products have been used typically for machined parts subject to excessive warpage during machining due to residual stresses and for parts requiring high strength and whose fabrication does not involve welding or forming, 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; 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](http://www.sae.org).

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SAE WEB ADDRESS:

For more information on this standard, visit  
<https://www.sae.org/standards/content/AMS4123L>

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 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)

## 2.3 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](http://www.astm.org).

ASTM B660	Packing/Packaging of Aluminum and Magnesium Products
ASTM B666/B666M	Identification Marking of Aluminum and Magnesium Products
ASTM E10	Brinell Hardness of Metallic Materials

## 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

Rolled or cold finished, solution heat treated, stress-relieved by stretching to produce a nominal permanent set of 1-1/2% but not less than 1% nor more than 3% and precipitation heat treated. Heat treatments shall be performed in accordance with AMS2772 (refer to ANSI H35.1/H35.1M).

3.2.1 Product shall receive no further straightening operations after stretching unless specifically authorized by the purchaser.

### 3.3 Properties

The product shall conform to the following requirements, determined in accordance with AMS2355 on the mill-produced size and as specified herein.

#### 3.3.1 Tensile Properties

Shall be as shown in Table 2 for rods 0.50 to 4.00 inches (12.7 to 101.6 mm) in diameter, for square, hexagonal, and octagonal bar 0.50 to 3.50 inches (12.7 to 88.9 mm) in nominal distance between parallel faces, and for rectangular bar 3.00 inches (76.2 mm) in nominal thickness with width up to 6.00 inches (152.4 mm) or for rectangular bar 0.50 to 3.00 inches (12.7 to 76.2 mm) in nominal thickness with width up to 10 inches (254 mm).

**Table 2 - Minimum tensile properties**

Property	Value
Tensile Strength	77.0 ksi (531 MPa)
Yield Strength at 0.2% Offset	66.0 ksi (455 MPa)
Elongation in 4D	7%

3.3.1.1 Mechanical property requirements for product outside of the range covered by 3.3.1 shall be agreed upon between the purchaser and producer and reported as in 4.4.1 (see 8.7).

### 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 or ANSI H35.2M.

### 3.6 Exceptions

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

3.7 Production, distribution, and procurement of metal stock shall comply with AS6279. This requirement becomes effective 18 months after publication of AMS4123L.

## 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), and tolerances (see 3.5) 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 the numerical results of tests on each inspection lot to determine conformance to the tensile property requirements. This report shall include the purchase order number, inspection lot number, AMS4123L, 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 or 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 AMS4123L(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.

5.1.1 When technical exceptions are taken (see 4.4.1), the material shall be marked with AMS4123(EXC).

### 5.2 Packaging

The product shall be prepared for shipment in accordance with ASTM B660 and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery.