



# AEROSPACE MATERIAL SPECIFICATION

AMS4002™

REV. A

Issued	2012-08
Reaffirmed	2017-11
Revised	2018-01

Superseding AMS4002

Aluminum Alloy Tubing, Seamless, Drawn  
1.8Cu - 1.0Mg - 0.8Si - 0.20Cr  
Solution Heat Treated, Stress-Relieved by Stretching, and Aged (2013-T6511)  
(Composition Similar to UNS A92013)

## RATIONALE

AMS4002A revises Condition (3.2), Properties (3.4.1.1), Reports (4.4.1) and Identification (5.1.1), and results from a Five-Year Review and update of this specification.

### 1. SCOPE

#### 1.1 Form

This specification covers an aluminum alloy in the form of seamless, drawn tubing having nominal wall thickness of 0.120 to 0.400 inch (3.00 to 10.00 mm) inclusive (see 8.4).

#### 1.2 Application

This material has been used typically for parts requiring a high-strength, non-weldable alloy, but usage is not limited to such applications. Parts are usually solution heat treated and aged before use.

### 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).

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

ARP1917      Clarification of Terms Used in Aerospace Metals Specifications

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

ASTM B660 Packaging/Packing of Aluminum and Magnesium Product

ASTM B666/B666M Identification Marking of Aluminum Products

## 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)

## 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	0.6	1.0
Iron	--	0.40
Copper	1.5	2.0
Manganese	--	0.25
Magnesium	0.8	1.2
Chromium	0.04	0.35
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

### 3.2 Condition

Product shall be supplied in the following condition and temper: Condition T6511, drawn, solution heat treated and stress-relieved by stretching to produce a nominal permanent set of 1.5%, but not less than 1%, nor more than 3%, and artificially aged (see ANSI H35.1/H35.1M).

3.2.1 Product 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 3.6.