



# AEROSPACE MATERIAL SPECIFICATION

AMS4113

REV. F

Issued 1968-11  
Reaffirmed 2008-05  
Revised 2014-12

Superseding AMS4113E

Aluminum Alloy, Extruded Profiles  
1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061-T6)  
Solution and Precipitation Heat Treated  
(Composition similar to A96061)

## RATIONALE

AMS4113F 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 extruded profiles such as angles, channels, tees, zees, I-beams, and H-beams.

#### 1.2 Application

These products have been used typically for parts requiring moderate strength, especially where such parts require brazing or welding during fabrication, but usage is not limited to such applications.

### 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 canceled 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 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS2355 Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings

AMS2772 Heat Treatment of Aluminum Alloy Raw Materials

AS1990 Aluminum Alloy Tempers

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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 B 660 Packaging/Packing of Aluminum and Magnesium Products

ASTM B 666/B 666M Identification Marking of Aluminum Products

## 2.3 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

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	0.40	0.8
Iron	--	0.7
Copper	0.15	0.40
Manganese	--	0.15
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

Extruded and solution and precipitation heat treated to the T6 temper (See AS1990) in accordance with AMS2772.

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

### 3.3 Properties

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

#### 3.3.1 Tensile Properties

Shall be as shown in Table 2.

**TABLE 2A - Minimum Tensile Properties, Inch/Pound Units**

Nominal Diameter or Least Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
Up to 0.250, excl	38.0	35.0	8
0.250 and over	38.0	35.0	10

**TABLE 2B - Minimum Tensile Properties, SI Units**

Nominal Diameter or Least Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 2 Inches or 4D %
Up to 6.35, excl	262	241	8
6.35 and over	262	241	10

### 3.4 Quality

Extruded profiles, 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 profiles.

### 3.5 Tolerances

Shall conform to all applicable requirements of ANSI H35.2 or ANSI H35.2M.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1 Responsibility for Inspection

The vendor of extruded profiles shall supply all samples for vendor'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 extruded profiles conform to specified requirements.

### 4.2 Classification of Tests

Composition (3.1), tensile properties (3.3.1), 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 vendor of 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), AMS4113F, size, and quantity. This report shall also identify the producer, the product form, and the size of the mill product.

### 4.5 Resampling and Retesting

Shall be in accordance with AMS2355.

## 5. PREPARATION FOR DELIVERY

### 5.1 Identification

Shall be in accordance with ASTM B 666/B 666M.