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400 Commonwealth Drive, Warrendale, PA 15096-0001

# AEROSPACE MATERIAL SPECIFICATION

**SAE**

**AMS 4350L**

Issued 22 JAN 1940  
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Superseding AMS 4350K

Submitted for recognition as an American National Standard

EXTRUSIONS, MAGNESIUM ALLOY  
6.5Al - 0.95Zn (AZ61A-F)  
As Extruded

UNS M11610

## 1. SCOPE:

### 1.1 Form:

This specification covers a magnesium alloy in the form of extruded bars, rods, wire, tubing, and shapes.

### 1.2 Application:

These products have been used typically for low-strength parts requiring rigidity and low density, but usage is not limited to such applications. Special care is necessary to prevent corrosion.

## 2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

### 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2205 Tolerances, Aluminum Alloy and Magnesium Alloy Extrusions

MAM 2205 Tolerances, Metric, Aluminum Alloy and Magnesium Alloy Extrusions

AMS 2355 Quality Assurance Sampling and Testing of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings

MAM 2355 Quality Assurance Sampling and Testing of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings, Metric (SI) Units

AMS 2911 Identification, Aluminum and Magnesium Alloy Wrought Products

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## 2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products

## 3. TECHNICAL REQUIREMENTS:

## 3.1 Composition:

(R)

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS 2355 or MAM 2355.

TABLE 1 - Composition

Element	min	max
Aluminum	5.8	7.2
Zinc	0.40	1.5
Manganese	0.15	--
Silicon	--	0.05
Copper	--	0.05
Nickel	--	0.005
Iron	--	0.005
Other Impurities, each (3.1.1)	--	0.10
Other Impurities, total (3.1.1)	--	0.30
Magnesium	remainder	

3.1.1 Determination not required for routine acceptance.

(R)

## 3.2 Condition:

As extruded.

3.2.1 Extrusions 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 the dimensional tolerances of 3.5.

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## 3.3 Properties:

Extrusions shall conform to the requirements of 3.3.1 and 3.3.2, determined in accordance with AMS 2355 or MAM 2355:

## 3.3.1 Tensile Properties: Shall be as specified 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 4D %
Solid Shapes:			
Up to 0.250, excl	38.0	21.0	8
0.250 to 2.499, incl	40.0	24.0	9
Over 2.499 to 4.999, incl but not over 25 square inches Cross-Sectional Area	40.0	22.0	7
Hollow and Semi-Hollow Shapes:			
All Wall Thicknesses	36.0	16.0	7
Tubing:			
0.028 to 0.750, incl, in Wall Thickness, 6.000 maximum OD	36.0	16.0	7

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 4D %
Solid Shapes:			
Up to 6.35, excl	262	145	8
6.35 to 63.47, incl	276	165	9

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TABLE 2B - Minimum Tensile Properties, SI Units (Continued)

Nominal Diameter or Least Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 4D %
<b>Solid Shapes:</b>			
Over 63.47 to 127.00, incl but not over 161 cm <sup>2</sup> Cross-Sectional Area	276	152	7
<b>Hollow and Semi-Hollow Shapes:</b>			
All Wall Thicknesses	248	110	7
<b>Tubing:</b>			
0.71 to 19.05, incl, in Wall Thickness 152.40 maximum OD	248	110	7

3.3.2 Hardness: Should be not lower than 50 HB/10/500 or 57 HB/10/1000 but the extrusions shall not be rejected on the basis of hardness if the tensile property requirements are met.

#### 3.4 Quality:

Extrusions, 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 extrusions.

#### 3.5 Tolerances:

Shall conform to all applicable requirements of AMS 2205 or MAM 2205.

### 4. QUALITY ASSURANCE PROVISIONS:

#### 4.1 Responsibility for Inspection:

(R)

The vendor of extrusions shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the extrusions conform to the requirements of this specification.

#### 4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for composition (3.1), tensile properties (3.3.1), and tolerances (3.5) are acceptance tests and shall be performed on each lot.