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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 4376F

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Reaffirmed MAY 1995

Submitted for recognition as an American National Standard

Superseding AMS 4376E

Plate, Magnesium Alloy
3.0Al - 1.0Zn - 020Mn (AZ31B-H26)
Cold Rolled and Partially Annealed

UNS M11311

1. SCOPE:

1.1 Form:

This specification covers a magnesium alloy in the form of plate.

1.2 Application:

This product has been used typically for moderate-strength parts requiring rigidity with low density, but usage is not restricted to such applications.

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 2202	Tolerances, Aluminum Alloy and Magnesium Alloy Sheet and Plate
MAM 2202	Tolerances, Metric, Aluminum Alloy and Magnesium Alloy Sheet and Plate
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 2811	Identification, Aluminum and Magnesium Alloy Wrought Products

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7154 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

2.2 ASTM Publications:

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

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products
ASTM E 9 Compression Testing of Metallic Materials at Room Temperature

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

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	2.5	3.5
Zinc	0.7	1.3
Manganese	0.20	--
Silicon	-	0.05
Copper	--	0.05
Calcium	-	0.04
Iron	--	0.005
Nickel	--	0.005
Other Elements, each (3.1.1)	--	0.10
Other Elements, total (3.1.1)	--	0.30
Magnesium	remainder	

3.1.1 Determination not required for routine acceptance.

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Plate 0.500 Inch (12.70 mm) and Under in Nominal Thickness: Cold rolled, partialy annealed, and pickled.

3.2.2 Plate Over 0.500 Inch (12.70 mm) in Nominal Thickness: Cold rolled and partially annealed.

3.3 Properties:

The plate shall conform to the following requirements:.

3.3.1 Tensile Properties: Shall be as specified in Table 2 and 3.3.1.1, determined in accordance with AMS 2355 or MAM 2355.

TABLE 2A - Tensile Properties

Nominal Thickness Inches	Tensile Strength ksi, min	Yield Strength at 0.2% Offset ksi, min	Elongation in 2 inches or 4D %, min
0.250 to 0.375, incl	39.0	27.0	6
Over 0.375 to 0.500, incl	38.0	26.0	6
Over 0.500 to 0.750, incl	37.0	25.0	6
Over 0.750 to 1.000, incl	37.0	23.0	6
Over 1.000 to 1.500, incl	35.0	22.0	6
Over 1.500 to 2.000, incl	35.0	21.0	6

TABLE 2B - Tensile Properties (SI)

Nominal Thickness Millimeters	Tensile Strength MPa, min	Yield Strength at 0.2% Offset MPa, min	Elongation in 50.8 mm or 4D %, min
6.35 to 9.52, incl	269	186	6
Over 9.52 to 12.70, incl	262	179	6
Over 12.70 to 19.05, incl	255	172	6
Over 19.05 to 25.40, incl	255	159	6
Over 25.40 to 38.10, incl	241	152	6
Over 38.10 to 50.80, incl	241	145	6

3.3.1.1 Tensile property requirements for plate over 2.000 inches (50.80 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

3.3.2 Compressive Properties: Shall be as specified in Table 3 and 3.3.2.1, determined in the longitudinal direction in accordance with ASTM E 9.

TABLE 3A - Compressive Yield Strength

Nominal Thickness Inches	Compressive Yield Strength at 0.2% Offset ksi, min
0.250 to 0.375, incl	22.0
Over 0.375 to 0.438, incl	21.0
Over 0.438 to 0.500, incl	18.0
Over 0.500 to 0.750, incl	17.0
Over 0.750 to 1.000, incl	16.0
Over 1.000 to 1.500, incl	15.0
Over 1.500 to 2.000, incl	14.0

TABLE 3B - Compressive Yield Strength (SI)

Nominal Thickness Millimeters	Compressive Yield Strength at 0.2% Offset MPa, min
6.35 to 9.52, incl	152
Over 9.52 to 11.12, incl	145
Over 11.12 to 12.70, incl	124
Over 12.70 to 19.05, incl	117
Over 19.05 to 25.40, incl	110
Over 25.40 to 38.10, incl	103
Over 38.10 to 50.80, incl	97

3.3.2.1 Compressive property requirements for plate over 2.000 inches (50.80 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

3.4 Quality:

Plate, 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 plate.

3.5 Tolerances:

Shall conform to all applicable requirements of AMS 2202 or MAM 2202.