

AEROSPACE MATERIAL SPECIFICATIONS

AMS 4377B

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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MAGNESIUM ALLOY SHEET AND PLATE 3A1 - 1.0Zn (AZ31B-H24)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for moderate strength parts requiring rigidity and low density. Special care is necessary to prevent corrosion.
3. COMPOSITION:

	min	max
Aluminum	2.5	3.5
Zinc	0.7	1.3
Manganese	0.20	--
Silicon	--	0.10
Copper	--	0.05
Calcium	--	0.04
Nickel	--	0.005
Iron	--	0.005
Other Impurities, total	--	0.30
Magnesium		remainder

4. CONDITION:

- 4.1 Material 0.500 In. and Under in Thickness: Cold rolled, partially annealed (-H24), and pickled.

- 4.2 Material Over 0.500 In. Thick: Cold rolled and partially annealed (-H24).

5. TECHNICAL REQUIREMENTS: When ASTM methods are specified for determining conformance to the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.

- 5.1 Tensile Properties: Test specimens shall conform to ASTM E8 and shall be taken parallel to the direction of rolling. Sheet type specimens shall be used for material less than 0.500 in. thick and 0.750 in. and over in width. Round specimens shall be used for material 0.500 in. and over in thickness and 0.750 in. and over in width. Material under 0.750 in. wide and under 0.500 in. thick may be tested in either full section or by use of round specimens; for such sizes, elongation requirements apply only when round specimens are used.

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Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 6,500,000)		Elongation % in 2 in. or 4D, min
		psi, min	Extension Under Load in. in 2 in.	
0.016 to 0.249, incl	39,000	29,000	0.0129	6
Over 0.249 to 0.374, incl	38,000	26,000	0.0120	8
Over 0.374 to 0.500, incl	37,000	24,000	0.0114	8
Over 0.500 to 1.000, incl	36,000	22,000	0.0108	8
Over 1.000 to 2.000, incl	34,000	20,000	0.0102	8
Over 2.000 to 3.000, incl	34,000	18,000	0.0095	8

5.1.1 When a dispute occurs between purchaser and vendor over the yield strength value, yield strength determined by the offset method shall apply.

5.1.2 If sizes other than those shown are ordered, tensile property requirements shall be as agreed upon by purchaser and vendor.

5.2 Compressive Properties: Material shall be capable of meeting the following requirements. Specimens shall be tested in the longitudinal direction in accordance with ASTM E9.

Nominal Thickness Inches	Yield Strength at 0.2% Offset psi, min
0.063 to 0.249, incl	24,000
Over 0.249 to 0.374, incl	20,000
Over 0.374 to 0.500, incl	16,000
Over 0.500 to 1.000, incl	13,000
Over 1.000 to 2.000, incl	10,000
Over 2.000 to 3.000, incl	9,000

5.2.1 If sizes other than those shown are ordered, compressive properties shall be as agreed upon by purchaser and vendor.

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

7. TOLERANCES: Unless otherwise specified, tolerances shall conform to all applicable requirements of the latest issue of AMS 2202. Flatness tolerances for material over 2.000 in. in thickness shall be as agreed upon by purchaser and vendor.