AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AMS 4377C
Superseding AMS 4377B
Issued 8-15-58
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MAGNESIUM ALLOY SHEET AND PLATE
3.0Al - 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
Iron	--	0.005
Nickel	--	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: The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.

5.1 Tensile Properties:

Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 6,500,000) psi, min	Extension Under Load in. in 2 in.	Elongation % in 2 in. or 4D, min
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 values, 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 0.063 in. and over in thickness shall be capable of meeting the following requirements. Specimens shall be tested in the longitudinal direction in accordance with the issue of ASTM E9 specified in the latest issue of AMS 2350.

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, 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.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number, thickness, size, and quantity.

8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

9. IDENTIFICATION: Unless otherwise specified, each sheet and plate shall be marked on one face, in the respective location indicated below. Symbols shall be applied using a suitable marking fluid and shall be sufficiently stable to withstand normal handling.

9.1 Flat Sheet and Plate 0.375 In. and Under Thick, 6 - 60 In., Incl, Wide, and 36 - 200 In., Incl, Long: Shall be marked in rows of symbols not less than 3/8 in. in height and recurring at intervals not greater than 3 feet. Rows shall run parallel to the direction of rolling of the piece and shall be spaced approximately 6 in. on centers across the width. Every third row shall show the manufacturer's identification and nominal thickness in inches. The other rows shall show the alloy number and temper, or AMS 4377, and shall be staggered.

9.2 Flat Sheet and Plate Over 0.375 In. Thick, or Over 60 In. Wide, or Over 200 In. Long: Shall be marked as in 9.1 above or, at vendor's discretion, shall be marked in one or two rows of symbols not less than 3/8 in. in height and running around the periphery of the piece. If one row is used, it shall show the alloy number and temper, or AMS 4377, manufacturer's identification, and nominal thickness in inches. If two rows are used, one row shall show the alloy number and temper, or AMS 4377; the second row shall show the manufacturer's identification and nominal thickness in inches.