AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS4383A
Superseding AMS 4383
Issued 9-30-66
Revised 5-1-68

MAGNESIUM ALLOY SHEET AND PLATE
2.0Th - 0.80Mn (HM21A-T81)

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 components requiring weldability and good strength-to-weight ratio up to 700 F (371 C).

3. COMPOSITION:

	min	max
Thorium	1.5	2.5
Manganese	0.45	1.1
Other Impurities, each	--	0.10
Other Impurities, total	--	0.30
Magnesium	remainder	

4. CONDITION: Solution heat treated, cold worked, precipitation heat treated, and pickled.

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 Longitudinal and Long Transverse Tensile Properties: The following requirements apply to material 0.125 to 0.312 in., incl, thick and not over 48 in. wide:

Tensile Strength, psi	34,000 min
Yield Strength at 0.2% Offset or at 0.0117 in. in 2 in. Extension Under Load (E = 6,500,000), psi	25,000 min
Elongation, % in 2 in. or 4D	4 min

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 Longitudinal and Long Transverse Compressive Properties: Material 0.125 to 0.312 in., incl, thick and not over 48 in. wide shall be capable of showing compressive yield strength not lower than 22,000 psi. Yield strength shall be measured at 0.2% offset in accordance with the issue of ASTM E9 specified in the latest issue of AMS 2350.

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

5.3 Longitudinal and Long Transverse Tensile Properties at 600 F (315.6 C): Material 0.125 to 0.312 in., incl, thick and not over 48 in. wide shall be capable of showing tensile strength not lower than 15,000 psi. Specimens shall be heated to 600 F ± 5 (315.6 C ± 2.8), held at heat for 10 min. before testing, and tested at 600 F ± 5 (315.6 C ± 2.8) at a rate not greater than 0.05 in. per in. per min. through the 0.2% offset and at a rate of 0.11 - 0.14 in. per in. per min. above the 0.2% offset.

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from segregation and 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 latest issue of AMS 2202.

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 and its revision letter, 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 and its revision letter, 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, with the alloy number and temper, AMS 4383 or applicable Federal or Military specification designation, inspection lot number, manufacturer's identification, and nominal
ø thickness in inches. An inspection lot shall be material of the same alloy, temper, section, and size traceable to a heat treatment lot or lots and subjected to inspection at one time. The characters shall be of such size as to be clearly legible, shall be applied using a suitable marking fluid, and shall be sufficiently stable to withstand normal handling.

9.1 Flat Sheet and Plate Under 6 In. Wide: Shall be marked in one or more lengthwise rows of characters
ø recurring at intervals not greater than 3 feet. The inspection lot number may appear in the row marking or may appear at only one location on the piece.

9.2 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 lengthwise rows of characters recurring at intervals not greater than 3 ft, the rows being spaced approximately 6 in. on centers across the width and staggered. Every third row shall show the
ø manufacturer's identification and nominal thickness in inches. The other rows shall show the alloy number and temper and AMS 4383 or applicable Federal or Military specification designation. The inspection lot number may be included in the rows with the alloy, temper, and specification designations or may appear at only one location on each piece.

9.3 Flat Sheet and Plate Over 0.375 In. Thick, or Over 60 In. Wide, or Over 200 In. Long: Shall be marked as in 9.2 above or, at vendor's discretion, shall be marked in one or two rows of characters recurring at intervals not greater than 3 ft and running around the periphery of the piece. If one row is used, it shall
ø show all information of Paragraph 9 above except that the inspection lot number may be omitted. If two rows are used, one row shall show the alloy number and temper and AMS 4383 or applicable Federal or Military specification designation; the second row shall show the manufacturer's identification and nominal thickness in inches. The inspection lot number may be included in the line with the manufacturer's identification and nominal thickness or may appear at only one location on each piece.

9.3.1 If peripheral marking is applied to the full piece as produced but partial sheets or plates are supplied,
ø an arrow shall also be applied near one corner indicating direction of rolling.

9.4 Coiled Sheet: Shall be marked near the outside end of the coil. The inside end of the coil shall also be
ø marked or shall have attached a tag or label marked with the information of Paragraph 9 above.

9.5 Circles: Shall be marked with the information of Paragraph 9 above if the circle is 24 in. or more in
ø diameter. Circles less than 24 in. in diameter shall be identified as agreed upon by purchaser and vendor.