Society of Automotive Engineers, Inc.
485 LEXINGTON AVENUE, NEW YORK, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATION

AMS 4385E
Superseding AMS 4385D
Issued 8-1-57
Revised 5-1-68

MAGNESIUM ALLOY SHEET AND PLATE
3.2Th - 0.70Zr (HK31A-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 components requiring weldability and good strength to weight ratio up to 550 F (288 C).

3. COMPOSITION:

	min	max
Thorium	2.5	4.0
Zirconium	0.45	1.0
Other Impurities, each	--	0.15
Other Impurities, total	--	0.30
Magnesium	remainder	

4. CONDITION:

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

4.2 Material Over 0.500 In. Thick: Cold rolled and partially annealed.

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 0.125, incl	34,000	26,000	0.0120	4
Over 0.125 to 0.250, incl	34,000	24,000	0.0114	4
Over 0.250 to 1.000, incl	34,000	25,000	0.0117	4
Over 1.000 to 3.000, incl	33,000	25,000	0.0117	4

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 ø 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 0.125, incl	20,000
Over 0.125 to 0.250, incl	22,000
Over 0.250 to 1.000, incl	20,000
Over 1.000 to 3.000, incl	17,000

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

5.3 Tensile Properties at 600 F (315.6 C): Material 0.016 to 0.250 in., excl, in thickness shall be capable of meeting the following requirements. Specimens shall be heated to 600 F ± 5 (315.6 C ± 2.8), held at ø 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.

Tensile Strength, psi	10,000 min
Elongation, % in 2 in.	20 min

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 the 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.