

AEROSPACE MATERIAL SPECIFICATIONS

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

AMS 4016E

Issued 12-5-39
Revised 1-31-64

ALUMINUM ALLOY SHEET AND PLATE 2.5Mg - 0.25Cr (5052-H32)

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 parts requiring moderate forming and where resistance to corrosion is important.
3. **COMPOSITION:**

	min	max
Magnesium	2.2	2.8
Chromium	0.15	0.35
Iron + Silicon	--	0.45
Zinc	--	0.10
Manganese	--	0.10
Copper	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

4. **CONDITION:** Strain hardened, stabilized (quarter-hard) and, unless otherwise specified, mill finish.
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 0.5 in. thick and 0.75 in. and over in width. Round specimens shall be used for material 0.5 in. and over in thickness and 0.75 in. and over in width. Material under 0.75 in. wide and under 0.5 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.

Nominal Thickness Inches	Tensile Strength psi	Elongation % in 2 in. or 4D, min
0.017 to 0.019, incl	31,000 - 38,000	4
Over 0.019 to 0.050, incl	31,000 - 38,000	5
Over 0.050 to 0.113, incl	31,000 - 38,000	7
Over 0.113 to 0.249, incl	31,000 - 38,000	9
Over 0.249 to 0.499, incl	31,000 - 38,000	11
Over 0.499 to 2.000, incl	31,000 - 38,000	12

- 5.2 Bending: Material 0.249 in. and under in thickness shall be capable of withstanding, without cracking, bending at room temperature through an angle of 180 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
Up to 0.050, incl	1
Over 0.050 to 0.113, incl	2
Over 0.113 to 0.249, incl	3

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.

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 4016, and shall be staggered.