

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 4380A

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MAGNESIUM ALLOY SHEET AZ51X (Annealed)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. **COMPOSITION:**

Aluminum	4.1 - 5.5
Zinc	0.4 - 1.3
Manganese	0.15 min
Silicon	0.3 max
Calcium	0.3 max
Copper	0.05 max
Nickel	0.005 max
Iron	0.005 max
Total Other Elements	0.3 max
Magnesium	remainder

3. **CONDITION:** Annealed, conforming to the following physical properties: Tensile test specimens, in accordance with ASTM E8, Figure 2, are acceptable and shall be cut parallel to the direction of rolling, except from sheet less than 3/4 inch wide. Elongation requirements apply only to sheet 3/4 inch and over in width.

Tensile Strength, psi	46,000 max
Elongation, % in 2 in.	8.0 min

The above physical properties apply to sheet from 0.020 to 0.249 inch inclusive, in thickness.

4. **QUALITY:** Sheet shall be uniform in quality and condition, clean, sound, smooth and free from foreign material and from internal and external defects detrimental to fabrication or to the performance of parts. Sheet in which defects are revealed during fabrication will be subject to rejection.
5. **TOLERANCES:** Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2212.
6. **REPORTS:** (a) Unless otherwise specified, the vendor of sheet shall furnish with each shipment three copies of a notarized report stating that the physical properties and chemical composition of the sheet conform to the requirements specified. This report shall include the purchase order number, material specification number, size and quantity.

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



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7. IDENTIFICATION: (a) Unless otherwise specified, each sheet shall be marked with the manufacturer's identification and, in addition, the alloy name or number, or AMS 4380A, the nominal thickness in inches, and the temper. Characters shall be not less than 3/8 inch in height and shall be applied to each sheet by suitable means and suitable marking fluid and shall not be obliterated by normal handling.
- (b) Identification shall be applied to each flat sheet in rows of recurring symbols from one edge of the sheet to the opposite edge and with alternate rows staggered, spaced such that no piece larger than 8 inches square could be cut from sheet without bearing the alloy identification, or AMS 4380A, and the temper. The manufacturer's identification and the thickness shall appear in rows not more than 20 inches apart.
- (c) Coiled sheet shall be marked on the outside end of the coil and, when practicable, on the inside end also.
8. PROTECTIVE TREATMENT: Unless otherwise specified, sheet shall be given a suitable oil treatment for protection against corrosion during shipment and storage before fabrication. Finished and semi-finished parts shall be treated as specified on the drawing or purchase order.
9. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection. Unless otherwise stipulated, rejected material and parts will be returned to vendor at vendor's expense, unless purchaser receives, within three weeks of notification of rejection, other instructions for disposition.

NOTE. SIMILAR SPECIFICATIONS: (a) This specification meets the minimum requirements of AN-M-28, Condition A, Amendment 1, dated 25 April 1945.

(b) AN-M-28, Condition A; ASTM B90-46T, Alloy AZ51X, Condition A; Alloy AM-C54S-O; Alloy JS-1a; are listed for information only and shall not be construed as acceptable alternates unless all requirements of this AMS are met.