AERONAUTICAL MATERIAL SPECIFICATIONS

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

AMS 4037E

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ALUMINUM ALLOY SHEET AND PLATE
4.5Cu - 1.5Mg - 0.6Mn (2024; -T3 Sheet, -T4 Plate)

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 formed structural parts of good strength.

3. COMPOSITION:

Copper	3.8 - 4.9
Magnesium	1.2 - 1.8
Manganese	0.30 - 0.9
Iron	0.50 max
Silicon	0.50 max
Zinc	0.25 max
Chromium	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

ø 4. CONDITION:

4.1 Sheet: Solution heat treated and stretcher leveled.

4.2 Plate: Solution heat treated.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties: Test specimens shall conform to ASTM E8-57T except from material less than 3/4 in. wide, and shall be cut across the direction of rolling except from material less than 9 in. wide. Elongation requirements apply only to material 3/4 in. and over in width.

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Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,500,000) psi, min	Extension Under Load in. in 2 in.	Elongation % in 2 in. min
0.008 to 0.009, incl	63,000	42,000	0.0120	10
Over 0.009 to 0.020, incl	64,000	42,000	0.0120	12
Over 0.020 to 0.249, incl	64,000	42,000	0.0120	15
Over 0.249 to 0.499, incl	64,000	40,000	0.0116	12
Over 0.499 to 1.000, incl	62,000	40,000	0.0116	8
Over 1.000 to 1.500, incl	60,000	40,000	0.0116	7
Over 1.500 to 2.000, incl	60,000	40,000	0.0116	6
Over 2.000 to 3.000, incl	56,000	40,000	0.0116	4

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5.1.1 When a dispute occurs between purchaser and vendor over the yield strength value, yield strength determined by the offset method shall apply.

5.2 Bending: Material 0.499 in. and under in thickness shall withstand, 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
0.040 and under	4
Over 0.040 to 0.051, incl	5
Over 0.051 to 0.128, incl	6
Over 0.128 to 0.249, incl	8
Over 0.249 to 0.499, incl	10

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 the latest issue of AMS 2202 as applicable. Thickness tolerances shall conform to Table II.

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, in the respective location indicated below, with the manufacturer's identification, the alloy number and temper or AMS 4037, and nominal thickness in inches. The characters shall be not less than 3/8 in. in height, shall be applied using a suitable marking fluid, and shall not be obliterated by normal handling or heat treatment.

9.1 Flat Sheet and Plate: The alloy number and temper or AMS 4037 shall be marked in rows of recurring characters from one edge to the opposite edge with rows spaced such that no piece larger than approximately 12 in. square could be cut from the product without bearing the alloy identification. The manufacturer's identification and thickness shall be marked in rows not more than 20 in. apart.