AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4035 B

Issued 6-13-40
Revised 4-1-46

ALUMINUM ALLOY SHEET AND PLATE

Copper Magnesium Manganese (24S-O)

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

2. COMPOSITION:

Copper	3.8 - 4.9
Magnesium	1.2 - 1.8
Manganese	0.3 - 0.9
Iron	0.5 max
Silicon	0.5 max
Chromium	0.25 max
Zinc	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

3. CONDITION: (a) Annealed, conforming to the following physical properties. Test specimens shall conform to ASTM E-8 except from sheet less than 3/4 inch wide, and shall be cut across the direction of rolling except from sheet less than 9 inches wide. Elongation requirements apply only to sheet 3/4 inch and over in width.

Thickness Inch	Tensile Strength psi max	Elongation % in 2 in. min	Bend Factor
0.010 - 0.032, incl.	35,000	12	0
0.033 - 0.064, incl.	35,000	12	1
0.065 - 0.128, incl.	35,000	12	2
0.129 - 0.249, incl.	35,000	12	4
0.250 - 0.500, incl.	35,000	12	6

(b) Sheet or plate shall withstand, without cracking, bending at room temperature through an angle of 180° around a diameter equal to the bend factor shown above times the nominal thickness of the sheet or plate, with axis of bend parallel to direction of rolling.

4. PHYSICAL PROPERTIES: (a) Unless otherwise specified, the sheet or plate after proper solution heat treatment and aging for not less than four days at room temperature shall conform to the following physical properties. Test specimens shall conform to ASTM E-8, except from sheet less than 3/4 inch wide, and shall be cut across the direction of rolling except from sheet less than 9 inches wide. Elongation requirements apply only to sheet 3/4 inch and over in width.

Thickness Inch	Tensile Strength psi min	Yield Strength (0.2% Offset) or at Extension Indicated psi min	Extension Under Load Inch in 2 in. min	Elongation % in 2 in. min	Bend Factor
0.010 - 0.020, incl.	62,000	40,000	0.0116	12	4
0.021 - 0.040, incl.	62,000	40,000	0.0116	15	4
0.041 - 0.051, incl.	62,000	40,000	0.0116	15	5
0.052 - 0.128, incl.	62,000	40,000	0.0116	17	6
0.129 - 0.249, incl.	62,000	40,000	0.0116	17	8
0.250 - 0.500, incl.	62,000	40,000	0.0116	12	10

(b) Sheet or plate shall withstand, without cracking, bending at room temperature through an angle of 180° around a diameter equal to the bend factor shown above times the nominal thickness of the sheet or plate, with axis of bend parallel to direction of rolling.

5. QUALITY: (a) Sheet and plate shall be uniform in quality and condition, clean, sound and free from foreign material and from internal and external defects detrimental to fabrication or to the appearance and performance of parts. Sheet or plate revealing defects during fabrication shall be subject to rejection.

(b) Sheet or plate and parts made therefrom shall be subjected to inspection by any method which will reveal defects.

6. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest revision of AMS 2202 as applicable. Thickness tolerances shall conform to Table II.

7. REPORTS: (a) Unless otherwise specified, the vendor of sheet or plate shall furnish three copies of a notarized report stating that the sheet or plate meets all the requirements of this specification. 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 or plate, part number, and quantity. When sheet or plate for making parts is produced or purchased by the parts vendor, the vendor shall inspect each lot of sheet or plate to determine conformance to the requirements of this specification, and shall include in the above report a certification that the sheet or plate conforms, or shall include copies of the laboratory report showing the results of tests to determine conformance.

8. IDENTIFICATION: (a) Unless otherwise specified, each flat sheet or plate shall be marked with the manufacturer's identification, and, in addition, the alloy name or number or AMS 4035, the thickness in inches, and the temper. The characters shall be not less than 3/8 inch in height and shall be applied in rows of constantly recurring symbols from edge of the sheet to the opposite edge with the rows spaced such that no piece larger than 8 inches square could be cut from the sheet without bearing the alloy identification, or AMS 4035, and the temper. The manufacturer's identification and the thickness of the piece shall appear in rows not more than 20 inches apart. The characters shall be clearly legible and applied to the material by suitable means and suitable marking fluid, and shall not be obliterated by normal handling.