AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4030B

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ALUMINUM ALLOY SHEET AND PLATE

Copper Manganese Magnesium (17S-0)

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

2. COMPOSITION:

Copper	3.50 - 4.50
Manganese	0.40 - 1.00
Magnesium	0.20 - 0.80
Iron	1.00 max
Silicon	0.80 max
Chromium	0.25 max
Titanium	0.15 max
Zinc	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

3. CONDITION: Annealed, conforming to the following physical properties. Test specimens shall be cut across direction of rolling, except from sheet less than 9 inches wide. Material up to and including 0.500 inch thick shall not crack when bent 180°, at room temperature, with axis of bend parallel to direction of rolling, over a diameter equal to bend factor times thickness of material. Test specimens shall conform to ASTM E8.

Thickness, Inches	Tensile Strength, psi, max	Elongation,* % in 2 in., min.	Bend Factor
0.010 - 0.032	35,000	12	0
0.033 - 0.064	35,000	12	1
0.065 - 0.128	35,000	12	2
0.129 - 0.249	35,000	12	4
0.250 - 0.500	35,000	12	6
0.501 - 1.000	35,000	12	-

*Applicable only to material 3/4 inch and over in width.

4. PHYSICAL PROPERTIES: Material after proper solution heat treatment and aging for not less than four days at room temperature shall conform to the following minimum physical properties. Test specimens shall be cut across direction of rolling, except from sheet less than 9 inches wide. Material up to and including 0.500 inch thick shall not crack when bent 180°, at room temperature, with axis of bend parallel to direction of rolling, over a diameter equal to bend factor times thickness of material. Test specimens shall conform to ASTM E8.

Thickness, Inches	Tensile Strength, psi	Yield Strength at 0.2% Offset or at 0.0106 in. Extension in 2 in. psi	Elongation % in 2 in.	Bend Factor
0.010 - 0.020	58,000	34,000	15	3
0.021 - 0.040	58,000	34,000	17	3
0.041 - 0.128	58,000	34,000	18	4
0.129 - 0.249	58,000	34,000	15	6
0.250 - 0.500	58,000	34,000	12	8
0.501 - 1.000	58,000	34,000	10	-

5. QUALITY: The material shall be uniform in quality and temper, commercially flat, clean, sound, smooth, and free from buckles, seams, cracks, laminations, blisters and other injurious defects within the limits of best commercial manufacturing practices. Material revealing defects during fabrication shall be subject to rejection.

6. TOLERANCES: Thickness shall be within the following tolerances:

(a). Flat sheet:-

	Tolerance in % of Nominal Thickness (%T) or in inches, plus or minus						
Nominal Thickness, Inches	Widths up to 36" incl.	Widths over 36" to 42" incl.	Widths over 42" to 48" incl.	Widths over 48" to 54" incl.	Widths over 54" to 60" incl.	Widths over 60" to 66" incl.	Widths over 66" to 72" incl.
*Up to 0.014	0.0015		*Tolerance applies up to maximum width of 28 inches				
0.015 - 0.018	0.002						
0.019 - 0.025	0.002	0.0025					
0.026 - 0.032	0.002	0.0025	0.0025				
0.033 - 0.040	0.0025	0.003	0.003	0.004	0.005		
0.041 - 0.064	0.003	0.004	0.004	0.005	0.006	0.006	0.007
0.065 - 0.091	0.003	0.004	0.004	0.005	0.006	0.008	0.010
0.092 - 0.125	0.0045	0.005	0.005	0.005	0.007	0.010	0.012
0.126 - 0.249	4%T	5%T	5%T	5%T	6%T	8%T	10%T

	Tolerance in % of Nominal Thickness (%T) or in inches, plus or minus				
Nominal Thickness, Inches	Widths over 72" to 78" incl.	Widths over 78" to 84" incl.	Widths over 84" to 90" incl.	Widths over 90" to 96" incl.	Widths over 96" to 102" incl.
0.051 - 0.064	0.008	0.009			
0.065 - 0.091	0.010	0.011	0.012		
0.092 - 0.125	0.013	0.014	0.016	0.018	0.020
0.126 - 0.249	10%T	11%T	11%T	12%T	14%T

(b) Coiled sheet:-

Nominal Thickness, Inches	Tolerance in inches, plus or minus	
	Widths up to 18" incl.	Widths over 18" to 24" incl.
Up to 0.016	0.0015	0.0015
0.017 - 0.025	0.0015	0.002
0.026 - 0.040	0.002	0.0025
0.041 - 0.064	0.0025	0.003
0.065 - 0.072	0.0035	0.004
0.073 - 0.081	0.004	0.004
0.082 - 0.091	0.0045	0.005
0.092 - 0.102	0.005	0.005

(c) Plate:-

Nominal Thickness, Inches	Tolerance in % of Nominal Thickness, plus or minus			
	Widths up to 54" incl.	Widths Over 54" to 72" incl.	Widths Over 72" to 90" incl.	Widths Over 90" to 120" incl.
0.250 - 0.374	5%T	6%T	7%T	8%T
0.375 - 0.500	5%T	5%T	6%T	7%T
0.501 - 1.000	4%T	4%T	5%T	6%T

7. REPORTS: (a) The material manufacturer shall furnish three copies of a notarized report stating that physical properties and chemical composition of the material are within the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.

(b) Unless otherwise specified, the parts manufacturer shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, part number, and quantity. When material for making parts is supplied by the parts manufacturer, the parts manufacturer shall inspect each lot of material to determine conformance with this specification and shall include in the report a certification that the material conforms to the specification.

8. IDENTIFICATION: (a) Unless otherwise specified, each flat sheet or plate shall be marked with the manufacturer's identification, and, in addition, "17S-0" or this specification number, 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 this specification number, 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.

(b) Coiled sheet shall be marked on the outside end of the coil, and, where practicable, on the inside end also.