AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 4025

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ALUMINUM ALLOY SHEET AND STRIP
Magnesium Silicon Copper (61S-0)

1. ACKNOWLEDGMENT: A vendor must mention this specification number in all quotations and when acknowledging purchase orders.

2. COMPOSITION:

Magnesium	0.8 - 1.2
Silicon	0.4 - 0.8
Copper	0.15 - 0.40
Chromium	0.35 max
Iron	0.70 max
Manganese	0.15 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: (a) Annealed conforming to the following physical properties when test specimens are cut across the direction of rolling, except from strips less than 9 inches wide which may be cut lengthwise:

Thickness inches	Tensile Strength lb per sq in., max	Elongation % in 2 in., min	Bend Factor
0.010 - 0.020	22,000	14	0
0.021 - 0.064	22,000	16	0
0.065 - 0.128	22,000	18	1
0.129 - 0.258	22,000	18	2
0.259 - 0.500	22,000	18	3

(b) The material shall not crack when cold bent 180°, in any direction, over a diameter equal to the bend factor times the thickness.

4. PHYSICAL PROPERTIES: (a) Unless otherwise specified, the material after proper heat treating (quenching and aging) shall conform to the following minimum physical properties when test specimens are cut across the direction of rolling, except from strips less than 9 inches wide which may be cut lengthwise:

Thickness inches	Tensile Strength lb per sq in.	Yield Strength at 0.2% Set or at Extension Indicated lb per sq in.	Extension Under Load inch in 2"	Elongation % in 2 in.	Bend Factor
0.010 - 0.020	42,000	35,000	0.0110	8	2
0.021 - 0.036	42,000	35,000	0.0110	10	3
0.037 - 0.064	42,000	35,000	0.0110	10	4
0.065 - 0.128	42,000	35,000	0.0110	10	5
0.129 - 0.258	42,000	35,000	0.0110	10	6
0.259 - 0.500	42,000	35,000	0.0110	10	7

(b) The heat treated material shall not crack when cold bent 180° over a diameter equal to the bend factor times the thickness, the axis of the bend being parallel to the direction of rolling.

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 is subject to rejection.

6. TOLERANCES: The following variations in standard thicknesses are permissible for the widths shown:

*Standard Thickness inches	Tolerance in % of nominal thickness (%T) or in inches, plus or minus: 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" to66"incl.
0.249, 0.204) 0.188, 0.156)	4%T	5%T	5%T	5%T	6%T	8%T
0.125, 0.102	0.0045	0.005	0.005	0.005	0.007	0.010
0.091, 0.081	0.003	0.004	0.004	0.005	0.006	0.008
0.064	0.003	0.004	0.004	0.005	0.006	0.006
0.051	0.003	0.004	0.004	0.005	0.006	0.006
0.040	0.0025	0.003	0.003	0.004	0.005	
0.032	0.002	0.0025	0.0025			
0.025, 0.020	0.002	0.0025				
0.018, 0.016	0.002					
**0.014	0.0015					
**0.012	0.0015					
**0.010	0.0015					

*Standard Thickness	Tolerance in % of nominal thickness (%T) or in inches, plus or minus: Widths over 66" to 72" incl.	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 106" incl.
0.249, 0.204) 0.188, 0.156)	10%	10%	11%	11%	12%	14%
0.125, 0.102	0.012	0.013	0.014	0.016	0.018	0.020
0.091, 0.081	0.010	0.010	0.011	0.012		
0.064	0.007	0.008	0.009			
0.051	0.007					

*Intermediate thicknesses take the tolerance of the next heavier standard thickness.
**Tolerance applies up to maximum width of 28 inches in these thicknesses.

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