



# AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

## AMS 4049E

Superseding AMS 4049D

Issued 10-1-51

Revised 11-1-67

### ALUMINUM ALLOY SHEET AND PLATE, ALCLAD 5.6Zn - 2.5Mg - 1.6Cu - 0.30Cr (Alclad 7075-T6)

- 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 structural use, including machine tapered parts. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.
- 3. COMPOSITION:**

	Core (7075)			Cladding (7072)	
	min	max		min	max
Zinc	5.1	- 6.1	Zinc	0.8	- 1.3
Magnesium	2.1	- 2.9	Silicon + Iron	--	0.7
Copper	1.2	- 2.0	Magnesium	--	0.10
Chromium	0.18	- 0.40	Copper	--	0.10
Iron	--	0.7	Manganese	--	0.10
Silicon	--	0.50	Other Impurities, each	--	0.05
Manganese	--	0.30	Other Impurities, total	--	0.15
Titanium	--	0.20	Aluminum	remainder	
Other Impurities, each	--	0.05			
Other Impurities, total	--	0.15			
Aluminum	remainder				

- 4. CONDITION:** Solution and precipitation heat treated.
- 5. TECHNICAL REQUIREMENTS:** The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.
  - 5.1 Cladding Thickness:** After rolling, the average cladding thickness shall be as shown. Routine measurements are not required.

Total Thickness of Composite Product Inches	Cladding Thickness Per Side % of Total Thickness	
	min	max
0.008 to 0.062, incl	3.2	---
Over 0.062 to 0.187, incl	2.0	---
Over 0.187 to 0.499, incl	1.2	---
Over 0.499 to 4.000, incl	1.2	3.0

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5.2 Tensile Properties:

Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (See 5.2.1)		Elongation % in 2 in. or 4D, min
		psi, min	Extension Under Load in. in 2 in.	
0.008 to 0.011, incl	68,000	58,000	0.0162	5
Over 0.011 to 0.039, incl	70,000	60,000	0.0166	7
Over 0.039 to 0.062, incl	72,000	62,000	0.0171	8
Over 0.062 to 0.187, incl	73,000	63,000	0.0169	8
Over 0.187 to 0.499, incl	75,000	64,000	0.0168	8
Over 0.499 to 1.000, incl	77,000	66,000	0.0168	6
Over 1.000 to 2.000, incl	77,000	66,000	0.0168	4
Over 2.000 to 2.500, incl	73,000	62,000	0.0160	3
Over 2.500 to 3.000, incl	70,000	60,000	0.0157	3
Over 3.000 to 3.500, incl	70,000	57,000	0.0151	3
Over 3.500 to 4.000, incl	67,000	53,000	0.0143	2

5.2.1 Extension under load is based upon the following values of E:

Nominal Thickness Inches	E
0.008 to 0.062, incl	9,500,000
Over 0.062 to 0.187, incl	9,800,000
Over 0.187 to 0.499, incl	10,000,000
Over 0.499 to 4.000, incl	10,300,000

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

5.3 Bending: Material shall be capable of withstanding, 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
0.008 to 0.020, incl	6
Over 0.020 to 0.063, incl	7
Over 0.063 to 0.091, incl	8
Over 0.091 to 0.125, incl	9
Over 0.125 to 0.249, incl	10
Over 0.249 to 0.499, incl	12

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 all applicable requirements of the latest issue of AMS 2202.