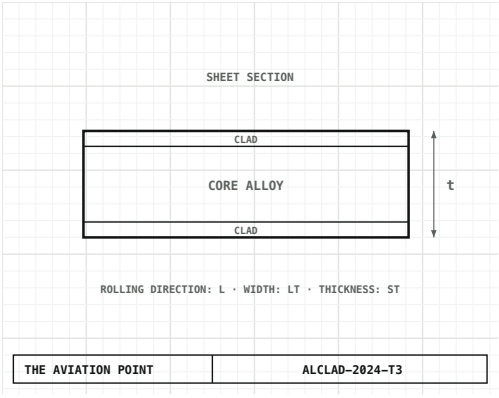
THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM

Alclad 2024-T3 — wrought aluminum alloy

2024 with a thin layer of pure or corrosion-resistant aluminum on each face.



Schematic

Designation

Item	Value
Designation	Alclad 2024-T3
Class	Aluminum
Type	wrought aluminum alloy

Composition

Element	Limit
Si	0.50
Fe	0.50
Cu	3.8–4.9
Mn	0.30–0.9
Mg	1.2–1.8
Cr	0.10
Zn	0.25
Ti	0.15
Al	Remainder

Limits for the core alloy. A single number is a maximum. Source: Aluminum Association Teal Sheets (Aug 2018).

Specifications and forms

Specification	Form
AMS-QQ-A-250/5	Clad sheet and plate

Specifications as listed by MIL-HDBK-5J. Federal QQ-A specifications passed to SAE as AMS-QQ-A. Check the current revision.

Properties

Property	Value	Source
Ftu, L, A basis, T3 sheet	60 ksi to 0.062 in · 62 ksi 0.063–0.128 in (bare: 64 ksi)	MIL-HDBK-5J Tables 3.2.3.0(e1), (b1)
Sheet tensile stress behind the AN-3 bolt count in a splice	70,000 psi in Table 4-9 · 55,000 psi in Table 4-10	AC 43.13-1B Tables 4-9, 4-10, engineering note d
Density	0.100 lb/in³ (2.78 g/cm³)	MIL-HDBK-5J
Cladding, plate from 0.250 in	2½ % nominal	MIL-HDBK-5J Table 3.2.3.0(e1)
Bending	Slightly smaller radii than bare	AC 43.13-1B Table 4-6, note 1

The handbook gives the cladding percentage in a note to thick material. Thin sheet follows the specification: check AMS-QQ-A-250/5. The two psi figures are the basis of the AC's AN-3 bolt rows, not strengths of the sheet: clad 2024-T3 is named in the title of both tables, and the AC does not say which governs it.

Design allowables, Alclad 2024-T3 flat sheet

Property, ksi	0.010–0.062 A	0.010–0.062 B	0.063–0.128 A	0.063–0.128 B
Ftu, L	60	61	62	63
Ftu, LT	59	60	61	62
Fty, L	44	45	45	47
Fty, LT	39	40	40	42
Fcy, L	36	37	37	39
Fcy, LT	42	43	43	45

Reference data. The aircraft manufacturer's documentation (SRM / IPC) takes precedence.

THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM

THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM · THE AVIATION POINT · THEAVIATIONPOINT.COM

Property, ksi	0.010–0.062 A	0.010–0.062 B	0.063–0.128 A	0.063–0.128 B
Fsu	37	38	38	39
Fbru, e/D = 1.5	97	99	101	102
Fbru, e/D = 2.0	121	123	125	127
Fbry, e/D = 1.5	68	70	70	73
Fbry, e/D = 2.0	82	84	84	88

Flat sheet, T3, thickness in inches, AMS-QQ-A-250/5, MIL-HDBK-5J Table 3.2.3.0(e1), p. 3-75. S, A and B are the MIL-HDBK-5J statistical bases. L is the longitudinal grain direction, LT the long transverse. Bearing values are dry-pin values. Clad sheet has a primary and a secondary modulus: see the handbook table.

Bend radii (AC 43.13-1B Table 4-6)

Alloy and temper	0.016"	0.032"	0.064"	0.128"	0.182"	0.258"
2024-O	0	0 – 1t	0 – 1t	0 – 1t	0 – 1t	0 – 1t
2024-T3	1½t – 3t	2t – 4t	3t – 5t	4t – 6t	4t – 6t	5t – 7t
2024-T6	2t – 4t	3t – 5t	3t – 5t	4t – 6t	5t – 7t	6t – 10t

Recommended radii for 90-degree bends, as multiples of sheet thickness t. Alclad sheet may go slightly tighter than bare (Table 4-6 note 1). The drawing or SRM governs.

Forms and thicknesses in stock

Distributor sheet	Listed	Thickness, in
2024T3 Alclad Aluminum Sheet	0.016"–0.250" · Alclad/bare · lb/ft²	.016, .020, .025, .032, .040, .050, .063, .071, .080, .090, .125, .160, .190, .250

As distributors list them, not a statement of what a specification allows.

Weight by thickness

Thickness, in	mm	lb/ft²	kg/m²
0.016	0.41	0.230	1.12
0.020	0.51	0.288	1.41
0.025	0.64	0.360	1.76
0.032	0.81	0.461	2.25
0.040	1.02	0.576	2.81
0.050	1.27	0.720	3.52
0.063	1.60	0.907	4.43
0.071	1.80	1.020	4.98
0.080	2.03	1.150	5.61
0.090	2.29	1.300	6.35
0.125	3.17	1.800	8.79
0.190	4.83	2.740	13.38

Weight as a distributor lists it. Kilograms and millimetres converted.

Notes

- **Not a source of design allowables.** Values are for reference. MMPDS and the SRM govern a repair.
- **Not a substitution approval.** A different alloy or temper needs approved data.
- **Not bare.** Values on this page do not apply to bare 2024.

SOURCES · FAA AC 43.13-1B CHG 1, Chapters 4 and 7 · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 4 · MIL-HDBK-5J, Chapter 3 · Aluminum Association, International Alloy Designations, rev. Aug 2018 · MMPDS · Distributor listings

SCAN · OPEN THIS DATA SHEET
theaviationpoint.com/parts/materials/alclad-2024-t3/