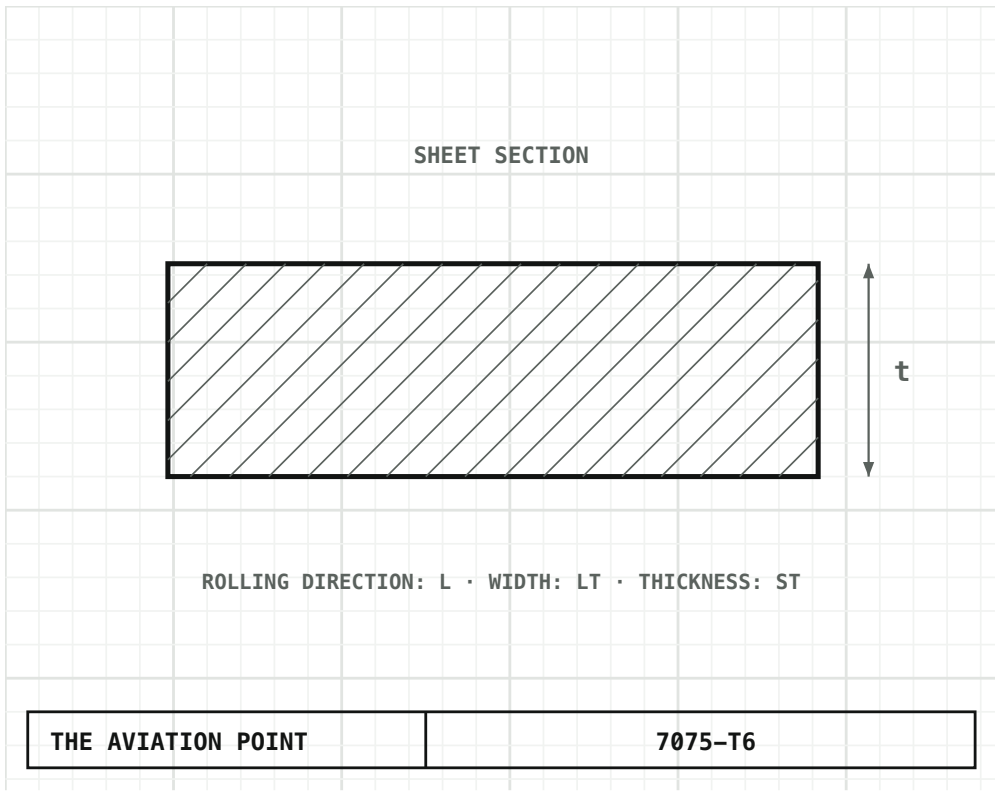
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7075-T6 — wrought aluminum alloy

Stronger than 2024, less tolerant of fatigue, notch damage and corrosion.



Schematic

Designation

Item	Value
Designation	7075-T6
Class	Aluminum
Type	wrought aluminum alloy

Composition

Element	Limit
Si	0.40
Fe	0.50
Cu	1.2–2.0
Mn	0.30
Mg	2.1–2.9
Cr	0.18–0.28
Zn	5.1–6.1
Ti	0.20
Al	Remainder

A single number is a maximum. Other elements: 0.05 each, 0.15 total, except where the Teal Sheets say otherwise. Source: Aluminum Association Teal Sheets (Aug 2018).

Specifications and forms

Specification	Form
AMS 4044, AMS 4045, AMS 4078, AMS-QQ-A-250/12, /24	Bare sheet and plate
AMS 4049, AMS-QQ-A-250/13, /25	Clad sheet and plate
AMS 4122, 4123, 4124, 4186, 4187, AMS-QQ-A-225/9	Bar and rod
AMS-QQ-A-200/11, /15	Extrusion
AMS 4126	Forging

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
Brinell hardness, 7075-T6	135 (500 kg load, 10 mm ball)	AC 43.13-1B CHG 1, Table 4-5
Sheet tensile stress behind the AN-3 bolt count in a splice	70,000 psi	AC 43.13-1B CHG 1, Table 4-9 engineering note d (table title lists bare 7075-T6 sheet)
Welding	Do not weld — severe cracking	AC 43.13-1B CHG 1, par. 4-89d
Density	0.101 lb/in³ (2.81 g/cm³)	MIL-HDBK-5J; Teal Sheets
Stress corrosion, T6 plate	L: A · LT: B · ST: D	MIL-HDBK-5J Table 3.1.2.3.1(a)

The 70,000 psi figure is the value the AC used to calculate its own splice table. It is a specific context, not a general-purpose allowable, and it is shared with the other alloys in the table title.

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

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Bend radii, 7075 (AC 43.13-1B Table 4-6)

Alloy and temper	0.016"	0.032"	0.064"	0.128"	0.182"	0.258"
7075-O	0	0 – 1t	0 – 1t	½t – 1½t	1t – 2t	1½t – 3t
7075-T6	2t – 4t	3t – 5t	4t – 6t	5t – 7t	5t – 7t	6t – 10t

Recommended radii for 90-degree bends, sheet thickness t. “0” means no radius required. Alclad sheet may be bent over slightly smaller radii than the uncoated alloy (Table 4-6 footnote 1).

Minimum bend radius, inches (AMT Handbook Chart 204)

Alloy and temper	0.020"	0.032"	0.040"	0.063"	0.125"	0.190"
7075-T6	.12	.19	.22	.31	.88	1.38

Selected thicknesses from FAA-H-8083-31B Chart 204, p. 4-61. Chart 204 and AC Table 4-6 do not agree everywhere: where they differ, use the larger radius or the SRM.

Design allowables — 7075-T6/T62 bare sheet

Property	A basis	B basis	Unit
Ftu, L	78	80	ksi
Ftu, LT	78	80	ksi
Fty, L	70	72	ksi
Fty, LT	68	70	ksi
Fcy, L	69	71	ksi
Fcy, LT	72	74	ksi
Fsu	47	48	ksi
Fbru, e/D = 1.5	121	124	ksi

Property	A basis	B basis	Unit
Fbru, e/D = 2.0	156	160	ksi
Fbry, e/D = 1.5	102	105	ksi
Fbry, e/D = 2.0	119	122	ksi
Elongation, LT (S-basis)	8	—	%
E	10.3	10.3	10^3 ksi
Ec	10.5	10.5	10^3 ksi
G	3.9	3.9	10^3 ksi
Density	0.101	0.101	lb/in^3

Form: sheet; temper: T6 and T62; specification: AMS 4045 and AMS-QQ-A-250/12; thickness 0.040–0.125 in. Bearing values are dry-pin values (MIL-HDBK-5J Section 1.4.7.1). The handbook prints E, Ec, G and density once across both bases, and the elongation in the A column with the B cell blank. Source: MIL-HDBK-5J (31 Jan 2003), Table 3.7.6.0(b1), p. 3-371. MIL-HDBK-5J (2003) is superseded by MMPDS; check current MMPDS before design use. Density 0.101 lb/in^3 is about 2.80 g/cm^3 (converted); the sheet weight calculator uses the same figure.

Forms and thicknesses in stock

Distributor sheet	Listed	Thickness, in
7075-T6 Aluminium Sheet	0.025"–0.125" · 4×2, 4×4, 6×4 ft	.025, .032, .040, .050, .063, .090, .125

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

Weight by thickness

Thickness, in	mm	lb/ft^2	kg/m^2
0.016	0.41	0.233	1.14
0.020	0.51	0.291	1.42
0.025	0.64	0.364	1.78
0.032	0.81	0.465	2.27
0.040	1.02	0.582	2.84
0.050	1.27	0.727	3.55
0.063	1.60	0.916	4.47
0.071	1.80	1.033	5.04
0.080	2.03	1.164	5.68
0.090	2.29	1.309	6.39
0.100	2.54	1.454	7.10
0.125	3.17	1.818	8.88

Computed for density 0.101 by our sheet weight calculator. Kilograms and millimetres converted.

Notes

- **Not a source of design allowables.** Strength, elongation, shear, bearing and modulus come from MMPDS with their basis and thickness range. The structural repair manual governs a repair.
- **Not for forming.** Cold straightening or forming of 7075-T6 can cause cracking (AC par. 4-58b). If a part must be bent tight, that is a design question, not a shop one.
- **Not a drop-in for 2024-T3.** Different fatigue and fracture behaviour. Material substitution in a structural repair is approved-data territory.

SOURCES · FAA AC 43.13-1B CHG 1, Chapter 4 — Tables 4-4, 4-5, 4-6, 4-9; pars. 4-54, 4-58, 4-89; Chapter 6 — pars. 6-16, 6-18, Figure 6-9 · FAA-H-8083-31, AMT Handbook — Airframe, Volume 1, Chapter 4, pp. 4-30 to 4-31 · MIL-HDBK-5J, Metallic Materials and Elements for Aerospace Vehicle Structures · MIL-HDBK-5J, Table 3.7.6.0, p. 3-371 · MMPDS · MIL-HDBK-5J, Chapter 3 · Aluminum Association, International Alloy Designations, rev. Aug 2018 · Distributor listings

SCAN · OPEN THIS DATA SHEET
theaviationpoint.com/parts/materials/7075-t6/

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