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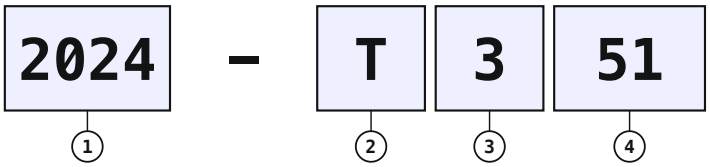
5086 Aluminum

A tough, medium-strength aluminum-magnesium alloy, stronger than 5052, for use from -452 to 150 °F.

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

THE MARKING

ALLOY NUMBER, THEN TEMPER



SERIES

FIRST DIGIT: MAIN ALLOYING ELEMENT

SERIES	ELEMENT	EXAMPLES
1xxx	Aluminum, 99 % or more	1100
2xxx	Copper	2024, 2219
3xxx	Manganese	3003
5xxx	Magnesium	5052, 5086
6xxx	Magnesium and silicon	6061, 6063
7xxx	Zinc	7075, 7050

BASIC TEMPER LETTERS

AC 43.13-1B TABLE 4-4

LETTER	MEANING
F	As fabricated. No property limits
O	Annealed: the softest temper
H	Strain-hardened (non heat-treatable)
T	Heat-treated to a stable temper

PARTS LIST

#	WHAT IT SAYS
1	Alloy number: the composition
2	T: heat-treated
3	3: solution treated, cold-worked
4	51: stretched 1 to 3 % set

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.
3. Based on AC 43.13-1B Table 4-4, AA Teal Sheets.

REVISIONS

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

The Aviation Point. Structural repair reference

TITLE: **Aluminum alloy and temper code**

DRAWING NO.	REV	SCALE	SHEET
TAP-DWG-047	**A**	**NTS**	**1 OF 1**

APPLIES TO: Wrought aluminum alloys

DO NOT SCALE DRAWING

Temper meanings from AC 43.13-1B Table 4-4. Full list: aluminum temper chart.

Key facts

Property	Value	Source
Density	0.096 lb/in³ (2.66 g/cm³)	MIL-HDBK-5J; Teal Sheets
Service range	-452 to 150 °F	MIL-HDBK-5J 3.5.3.0
Arc welding	A	MIL-HDBK-5J Table 3.1.3.4(a)
Spot welding	B (O), A (H tempers)	MIL-HDBK-5J Table 3.1.3.4(a)
E / Ec / G	10.2 / 10.4 / 3.85 × 10³ ksi	MIL-HDBK-5J Table 3.5.3.0(b)

Composition limits, weight percent

Element	Limit
Si	0.40
Fe	0.50
Cu	0.10
Mn	0.20–0.7
Mg	3.5–4.5
Cr	0.05–0.25
Zn	0.25
Ti	0.15
Al	Remainder

Design allowables, 5086 sheet and plate

Property, ksi	O A	O B	H32 A	H32 B	H34 S	H36 S
Ftu, L	35	36	40	41	44	47
Ftu, LT	35	36	40	41	44	47
Fty, L	14	15	28	30	34	38

Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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Property, ksi	O A	O B	H32 A	H32 B	H34 S	H36 S
Fty, LT	14	15	26	28	33	37
Fcy, L	14	15	26	28	32	35
Fcy, LT	14	15	28	30	34	38
Fsu	21	22	24	25	26	27
Fbru, e/D = 1.5	52	53	58	61	64	68
Fbru, e/D = 2.0	70	72	80	82	88	94
Fbry, e/D = 1.5	24	26	39	42	48	53
Fbry, e/D = 2.0	28	30	48	51	58	65

Specifications and product forms

Specification	Form
AMS-QQ-A-250/7	Sheet and plate
AMS-QQ-A-200/5	Extruded bar, rod and shapes

Key points

- **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 above 150 °F under constant high stress.**

SOURCES · 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

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