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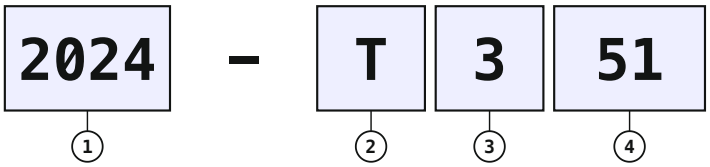
5052 Aluminum

The workable non heat-treatable alloy: good corrosion resistance, easy to bend, readily welded.

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	0.097 lb/in³ (2.68 g/cm³)	Teal Sheets
Brinell hardness, O / H36	47 / 73	AC 43.13-1B Table 4-5
Arc welding	A (O and H tempers)	MIL-HDBK-5J Table 3.1.3.4(a)
Spot welding	B (O), A (H32 to H38)	MIL-HDBK-5J Table 3.1.3.4(a)
E / Ec	10.1 / 10.2 × 10³ ksi	MIL-HDBK-5J Table 3.5.1.0(b1)

Composition limits, weight percent

Element	Limit
Si	0.25
Fe	0.40
Cu	0.10
Mn	0.10
Mg	2.2-2.8
Cr	0.15-0.35
Zn	0.10
Al	Remainder

Design allowables, 5052 sheet and plate (S basis)

Property, ksi	O	H32	H34	H36	H38
Ftu, L	25	31	34	37	39
Ftu, LT	—	31	34	37	39
Fty, L	9.5	23	26	29	32
Fty, LT	—	22	25	29	32

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	H32	H34	H36	H38
Fcy, L	—	22	25	—	—
Fcy, LT	—	23	26	—	—
Fsu	16	19	20	22	23
Fbru, e/D = 1.5	—	50	54	59	62
Fbru, e/D = 2.0	—	65	71	78	82
Fbry, e/D = 1.5	—	32	37	41	44
Fbry, e/D = 2.0	—	37	41	46	51

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

Alloy and temper	0.016"	0.032"	0.064"	0.128"	0.182"	0.258"
5052-O	0	0	0 – 1t	0 – 1t	0 – 1t	0 – 1t
5052-H32	0	0	½t – 1t	½t – 1½t	½t – 1½t	½t – 1½t
5052-H34	0	0	½t – 1½t	1½t – 2½t	1½t – 2½t	2t – 3t
5052-H36	0 – 1t	½t – 1½t	1t – 2t	1½t – 3t	2t – 4t	2t – 4t
5052-H38	½t – 1½t	1t – 2t	1½t – 3t	2t – 4t	3t – 5t	4t – 6t

Minimum bend radius, inches (AMT Handbook Chart 204)

Alloy and temper	0.020"	0.032"	0.040"	0.063"	0.125"	0.190"
5052-O, 6061-O, 5052-H32	.03	.03	.06	.06	.12	.19
7178-O, 2024-O, 5052-H34, 6061-T4, 7075-O	.03	.03	.06	.09	.25	.38

Specifications and product forms

Specification	Form
AMS 4015, AMS 4016, AMS 4017	Sheet and plate
AMS-QQ-A-250/8	Sheet and plate

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 a substitute for 2024 or 6061 in structure** without approved data.

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

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