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Minimum Bend Radius Chart

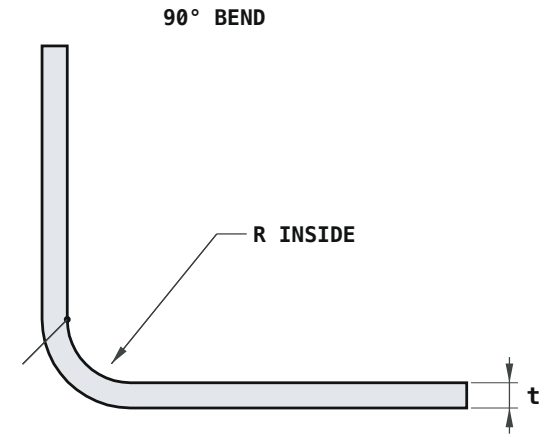
0.032 in 2024-T3 needs an inside radius of 2t to 4t for a 90° bend; 6061-T6 of the same thickness, ½t to 1½t.

1 Identification

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

SECTION

R AND T OF A 90° BEND



PARTS

PART	WHAT IT DOES
Bend	Inside radius R
Flange	Thickness t

KEY DATA

0.032 IN
2024-T3 needs an inside radius of 2t to 4t for a 90° bend; 6061-T6 ½t to 1½t.

TOO TIGHT
The sheet cracks on the outside of the bend.

SOURCE
AC 43.13-1B Table 4-6, by alloy, temper and thickness.

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.

REVISIONS

REV	DESCRIPTION	YEAR
A	First issue	2026

The Aviation Point.	Structural repair reference		
TITLE: Minimum bend radius			
DRAWING NO.: TAP-DWG-094	REV: A · 2026	SCALE: NTS	SHEET: 1 OF 1
CODE: TAP-D-BEND-RADIUS			
DO NOT SCALE DRAWING			

The chart — recommended radii for 90° bends

Alloy and temper	0.016"	0.032"	0.064"	0.128"	0.182"	0.258"
2024-O [1]	0	0-1t	0-1t	0-1t	0-1t	0-1t
2024-T3 [1,2]	1½t-3t	2t-4t	3t-5t	4t-6t	4t-6t	5t-7t
2024-T6 [1]	2t-4t	3t-5t	3t-5t	4t-6t	5t-7t	6t-10t
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
6061-O	0	0-1t	0-1t	0-1t	0-1t	0-1t
6061-T4	0-1t	0-1t	½t-1½t	1t-2t	1½t-3t	2½t-4t
6061-T6	0-1t	½t-1½t	1t-2t	1½t-3t	2t-4t	3t-4t
7075-O	0	0-1t	0-1t	½t-1½t	1t-2t	1½t-3t
7075-T6 [1]	2t-4t	3t-5t	4t-6t	5t-7t	5t-7t	6t-10t

Where the sources agree, and where they do not

Point	First source	Second source	Where they differ, and what governs
Radius	AC 43.13-1B Table 4-6: recommended radii for 90 degree bends in aluminum alloys, as multiples of t, thickness 0.016 to 0.258 in	Handbook ch. 4: minimum radii by alloy and thickness, the figure the chart follows	Agree in form. Where a manufacturer's value is larger, it governs.
Cracking	Handbook p. 4-22: material that cracks over small radii is formed annealed, then heat treated	AC 43.13-1B par. 4-55: minimum radius depends on alloy, temper and thickness	Agree.
Result	14 CFR 43.13(b): the work leaves the aircraft at least equal to its original condition	Bend lines orientated to the grain (AC 43.13-1B par. 4-55)	A bend that cracks is rejected; the larger radius is the repair.

2 Allowable damage

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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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3 Repair

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Key points

- **Approved data governs.** Where the SRM, AMM or a repair drawing specifies a bend radius, that figure applies.
- **90° bends only.** The table is explicitly for 90° bends. Tighter included angles bend the outer fiber further for the same radius.
- **Grain direction is not covered.** See above. This is the most common cause of a crack at a radius the chart permits.
- **Alclad differs.** The AC's own footnote says clad sheet tolerates slightly smaller radii. Slightly is not quantified, so do not take it as license for a specific number.
- **Freshly quenched 2024-T3 is a special case.** Footnote 2 allows appreciably smaller radii immediately after quenching — a heat-treat-and-form sequence, not something you can apply to stock sheet off the shelf.
- **Nothing here covers joggles, flanges with relief holes, or compound curvature.** Those are forming problems with their own rules.
- **Springback is not in the table.** The radius you bend to and the radius you get are different numbers, and the harder the temper the bigger the gap.

MAIN SOURCES · FAA AC 43.13-1B CHG 1, Chapter 4, Table 4-6 · FAA-H-8083-31, AMT Handbook — Airframe, Volume 1, Figure 4-124 · FAA AC 43.13-1B CHG 1, Acceptable Methods, Techniques, and Practices: Aircraft Inspection and Repair · 14 CFR 43.13, Performance rules · FAA-H-8083-31B, Aviation Maintenance Technician Handbook: Airframe, Chapter 4

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