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How to Use a Cornice and Box-and-Pan Brake

A brake bends sheet along a straight line between a clamping bar and a bending leaf.

Which brake

Machine	What it does	Limit in the Handbook
Bar folder	Turns edges; bend only as wide as the jaws are deep	Narrow work (H-31 p. 4-21)
Cornice brake	Folds sheet through the jaws front to rear without obstruction	12 to 22 gauge, 3 to 12 ft long (p. 4-21)
Box and pan (finger) brake	As a cornice brake, plus boxes and pans: remove the fingers in the way	Check every remaining finger is seated and tight (p. 4-22)
Press brake	Heavier and more complex parts, hat channels, with gooseneck or offset dies	Cornice and box brakes top out near 0.090 in annealed aluminum, 0.063 in 7075-T6 or 0.063 in stainless (p. 4-22)

Typical mistakes

Mistake	What happens	Fix
Setting exactly 90 degrees	Part opens to 87 or 88 degrees	Set about 93 degrees (spring-back, p. 4-22)
Fingers not tight on a finger brake	Fingers shift during the bend	All unremoved fingers securely seated and tightened
Radius too tight for the temper	Cracks along the bend	Check the minimum bend radius chart
Thick stock on a light brake	Beyond capacity, damage	Capacity is set by the maker; use a press brake for thicker parts
Nose radius of the fingers too small	Wrong inside radius	Nose radius shims, made to the bend length (p. 4-22)

Key points

- **Not approved data.** The SRM or drawing gives bend radius, material condition and method.
- **Spring-back.** The 87 to 88 degree figure is the Handbook's example, not a rule for all metals.

SOURCES · FAA-H-8083-31B, AMT Handbook: Airframe, Chapter 4

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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.