

What Is Press Brake Bending?



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Press brake bending is a crucial procedure in the sheet metal processing industry, involving the forming of sheet metal into desired profiles using a press brake machine. This infographic explores the fundamentals of press brake bending and its significance in various industrial fields.

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The Press Brake Bending Process

1. The metal sheet is placed between the upper tool (punch) and the bottom tool (die)
2. The punch descends, forcing the workpiece into the die
3. The metal bends and takes the shape defined by the punch and die tools

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Basic Components of a Press Brake

1. **Frame:** Supports the machine's structure, usually a welded C-shaped frame
2. **Ram:** Moves up and down, applying force to the workpiece
3. **Backgauge:** Positions the workpiece accurately for consistent bends

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Types of Press Brake Bending

1. **Air Bending:** The most common method, using a V-shaped die and a punch to create a variety of angles
2. **Bottoming:** The workpiece is forced into the die, creating a sharp bend with minimal springback
3. **Coining:** Similar to bottoming, but with added pressure to create a coined or stamped appearance

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Factors Affecting Bending Results

1. **Material properties:** Thickness, hardness, and bendability of the sheet metal
2. **Bend allowance:** The additional material needed to account for stretching during bending
3. **Springback:** The tendency of the metal to partially return to its original shape after bending

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Applications of Press Brake Bending

Press brake bending is used in various industries, including:

- Aerospace
- Automotive
- Construction
- Electronics
- Home appliances

By understanding the principles and techniques of press brake bending, manufacturers can produce high-quality, precise sheet metal components for a wide range of applications.