# Press Brake

## Air Bending Explained

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## What is a Press Brake?

A mechanical device for bending metal sheets.

Used in manufacturing metal components for various industries likeautomobiles, electronics, and construction.

Ensures efficient, precise bending processes.

# Air Bending Explained

## What is Air Bending?

- A moderate bending-forming technology.
- Involves three-point contact: the punch tip and die edges.
- Defined by depth to determine the bending angle.

## Why Air Bending?

- Suitable for a wide range of bending angles.
- Ideal for CNC controller use, reducing prediction errors like rebound.
- Faster, time-saving, less tool replacement.

# Steps in Air Bending

**Die Preparation:**

Selecting appropriate molds based on metal type and desiredangle.

**Placing the Sheet:**

Positioning metal on the die groove.

**Applying Pressure:**

Top punch descends, creating the bend.

**Forming the Bend:**

Determined by punch depth and die shape.

**Evaluation & Adjustment:** Adjusting pressure and depth for accurate angles.

## Advantages & Disadvantages

| Advantages | Disadvantages |
|---|---|
| Versatile for different materials and thicknesses | Not suitable for high precision requirements. |
| Requires less pressure, reducing surface damage | Material properties can affect bending accuracy. |
| Time and cost-efficient | Older equipment may yield inaccurate results. |

## Applications

### Where is Air Bending Used?

- Automotive, aerospace, and construction industries.
- Ideal for high-speed, efficient, and accurate metal fabrication.

## Comparison with Other Methods

### Coining & Bottom Bending:

- **Coining:** High precision for coin production.
- **Bottom Bending:** High precision, better for specific shapes.

## Material Considerations

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### Best Materials for Air Bending:

- Low-strength metals like aluminum alloys and stainless steel.

### Material Properties Affecting Bending:

- Strength, solidness, plasticity.
- Precautions for high-strength materials.

## Technical Aspects

01

### Managing Springback:

Overbending techniques to compensate for material recovery.

02

### Bend Allowance Calculation:

Critical for accurate final component shaping.

## FAQs

**Minimum Bend Radius?**

Depends on material and bending angle.

**Types of Presses for Air Bending:**

Hydraulic and electric press brakes.

## Conclusion

### The Importance of Expertise:

- Choosing the right supplier and equipment is crucial for optimal results.
- ADH Machine Tool: Over 40 years of experience in press brakes and pipe bending equipment.