

# What Is Press Brake Tonnage?

## Overview of Press Brake Tonnage

- Press brake tonnage refers to the maximum bending force or bending capacity that a press brake exerts on the metal sheet.
- Tonnage determines the maximum force required for the press brake to achieve precise bending angles.
- The actual working tonnage cannot exceed the maximum bearing capacity of the press brake and dies.
- Choosing the appropriate tonnage can avoid common problems such as tool damage, inaccurate bending, and insufficient force.

1

## Main Factors Affecting Press Brake Tonnage

### 1. Bending Method

- Air bending requires the lowest tonnage
- Bottom bending requires higher tonnage than air bending
- Coining requires the highest tonnage

### 2. Die Opening Width

- In air bending, the wider the die opening, the lower the required tonnage
- The narrower the die opening, the higher the required tonnage

### 3. Friction and Speed

- A smooth metal sheet surface helps reduce the required tonnage
- Increasing the bending speed can lower the required tonnage

### 4. Material Thickness, Tensile Strength, and Bending Length

- The thicker the material and higher the tensile strength, the greater the required tonnage
- The longer the bending length, the greater the required tonnage

### 5. Tooling Factors

- Different dies have different maximum bearing tonnage
- Die radius and bending radius affect the required tonnage
- The ratio of die opening width to material thickness also needs to be considered

2

## Methods to Determine Press Brake Tonnage

### • Using Calculation Formulas

- Basic Formula: 
$$P = \frac{K \times L \times T^2}{V} \times C$$

- Formula Considering Tensile Strength:

$$P = \frac{0.7 \times L \times T \times UTS}{1000}$$

- Referring to Tonnage Charts
- Using Online Calculators

3

## Choosing the Appropriate Press Brake

- Select based on the type, specifications, length, and processing method of the material to be worked
- Ensure that the press brake tonnage meets the requirements
- Consider that the workpiece length does not exceed the machine's maximum length
- Pay attention to the side frame distance limit to avoid exceeding the machine's centerline load limit

4

## Conclusion

- Correctly determining the press brake tonnage is crucial for product quality and equipment lifespan
- Utilizing formulas, charts, and calculators can help obtain the required tonnage
- ADH Machine Tool specializes in manufacturing high-quality press brakes that can meet precise and reliable bending needs

5