

Precision Press Brake

CERTIFICATE COURSE

FMA[®]



Certificate Course Outline

This seminar will teach you the theory and math fundamentals behind the machine. You'll understand the principles behind quality sheet metal bending through interactive instruction and sample work problems throughout the course. With easy-to-understand exercises, you will learn the skills needed to calculate accurate bend deductions, select the best tooling for the job, and determine the correct v-die opening to avoid part distortion.

Learning Objectives

Primary Types and Methods

- Know and understand basic precision sheet metal vocabulary, describe the care and use of precision hand measurement tools, and differentiate between press brake types and forming methods, including mechanical and electric press brakes, as well as bending methods such as air, bottom, and coin bending.

Calculations and Blueprints

- Understand fundamental mathematical concepts used in fabrication, from basic calculator functions to right-angle trigonometry, and develop skills in calculating bend allowance, bend deductions, setbacks, and mold lines, while interpreting blueprints for sheet metal in accordance with Y14.5 standards.

Punches

- Understand the types, styles, uses, and limits of press brake punches, and recognize press brake load limits in relation to tooling limits, as well as the effects of various bending methods on tooling selection.

Dies

- Understand the types, styles, uses, and limits of press brake dies, and learn how to make proper die selections to achieve desired results from engineering to the shop floor.

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Certificate Course Outline Cont.

Learning Objectives (cont.)

Forming

- Recognize forming types, including sharp, radius, and profound radius bends, and understand the processes of cold, warm, and hot forming, along with the effects of heating and cooling materials. Address basic plate forming issues such as cracking, bend reliefs, grain direction, and the selection and application of effective forming strategies

Additional and Methods

- Describe various press brake tools and methods, understand deep box forming with balanced and unbalanced tooling, and comprehend bump radius bending techniques, as well as the basics of urethane forming, including durometers and pad volumes.

Bottom Bending

- Review the bottom bending process and its application, understand its proper use, and discuss safety issues and potential dangers associated with bottom bending for both parts and machinery.

Press Brake Safety

- Review the basic inspection and quality control functions on the shop floor, understand general sheet metal safety practices, particularly regarding press brake operations, and outline OSHA regulations and unacceptable safety practices.