MIOSHA Fact Sheet

Press Brakes: Operator Protection

What is a press brake and what standards and rules apply?

A press brake is a machine used to punch, form, and bend metal. Press brakes are covered under General Industry Safety and Health Standard Part 1 General Provisions R4081.0034 (4) and (5). Press brakes are activated by a foot pedal, two hand controls, or both used in sequence.

When is operator protection required while operating a press brake?

Any time a press brake is in use and there is point of operation or pinch point opening more than ¼-inch, operator protection is required. Without protection a press brake is dangerous and can cause severe injuries.

What types of operator protection is used for press brakes?

Press brakes have various types of operator protection available depending on how the press brake is used. Refer to the Operator Protection Decision Flow Chart on page 2.

Point of Operation Guards and Devices

Presence sensing devices, such as light curtains are effective protection methods for press brakes. Light curtains can be set up to activate during the hazardous part of the cycle, and muted during the non-hazardous part of the cycle. Muting allows the bending to occur without interrupting the light curtains. Refer to diagram on page 2.

Two hand controls are effective when the parts are small, can be placed on holders, and parts don't require holding during the bend. Magnets and other devices can hold the part in place. Two hand controls can also be used to lower the ram to ¼-inch or less and then change to foot pedal to complete the bend.

Pullbacks and restraints can be used to prevent hands from entering the point of operation. ***Pullbacks*** are adjusted to allow more access to the die opening but pulling the hands back during the hazardous closing of the die. ***Restraints*** have a fixed position to prevent hands from entering the point of operation.

Barrier guarding is more common on press brakes when used in conjunction with other guards and devices. Barrier guards may protect exposed portions of the die other than where the bending takes place.

Other Operator Protection

Hand tools are required if guards or devices are not used and the operator is required to hold work pieces within 4-inches of the point of operation. They must be designed to prevent hands from entering the point of operation. A sign must be placed in plain view on the machine stating, "Hand tools shall be used to hold stock."

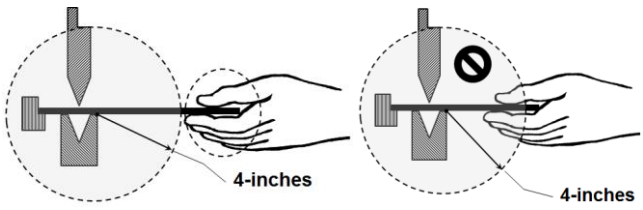
Hand tools may be used in conjunction with other guards or devices such as restraints, pullbacks or barrier guards to allow the operator to place small parts in the point of operation.

If there are 25 or more work pieces of one specific bend, a guard or device is required, and hand tools are not permitted alone as operator protection.

Safe distance is a form of operator protection that should be used only when other protection is not possible. Safe distance protection may be applied when the operator is not required to hold the work piece within 4-inches of the point of operation. Safe distance is measured 4-inches or more from tooling or the pinch point closest to the operator.

When safe distance is used for operator protection there is an increased risk of injury. Point of operation guards and devices are a more effective method of operator protection.

Foot pedal must be protected from unintended operation. If a foot pedal is to be used for operation, an additional form of safeguarding will be needed if the hands are within 4" of the point of operation. Each operator must have their own control.



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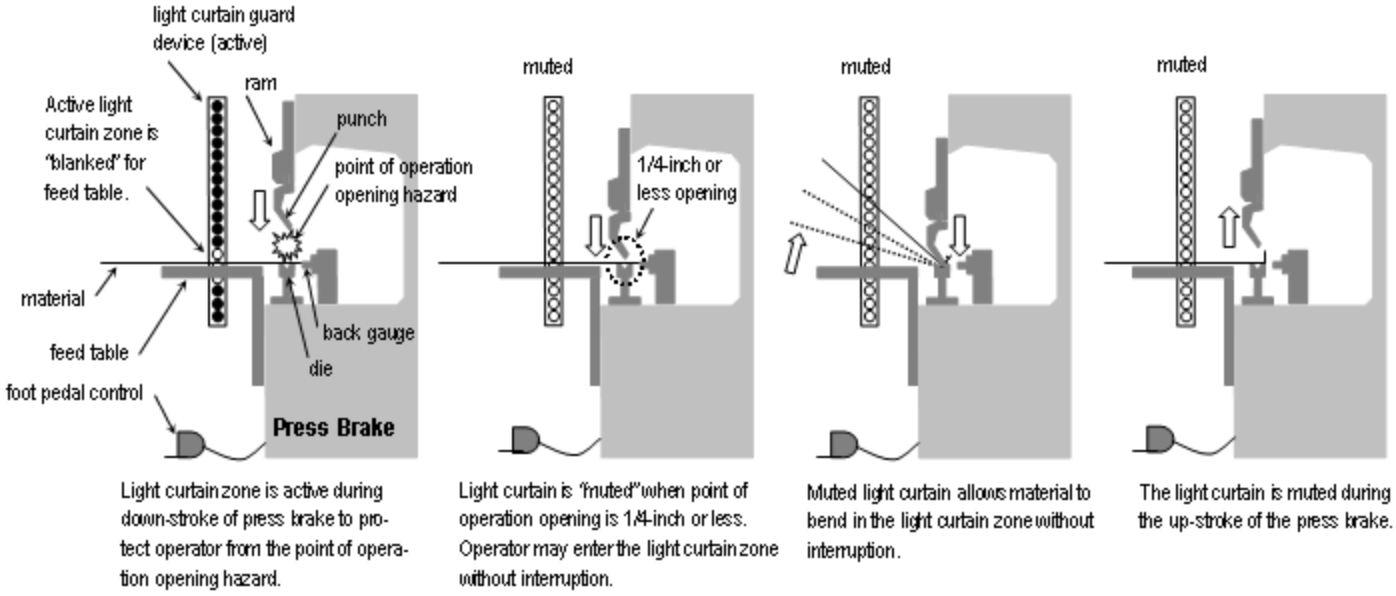
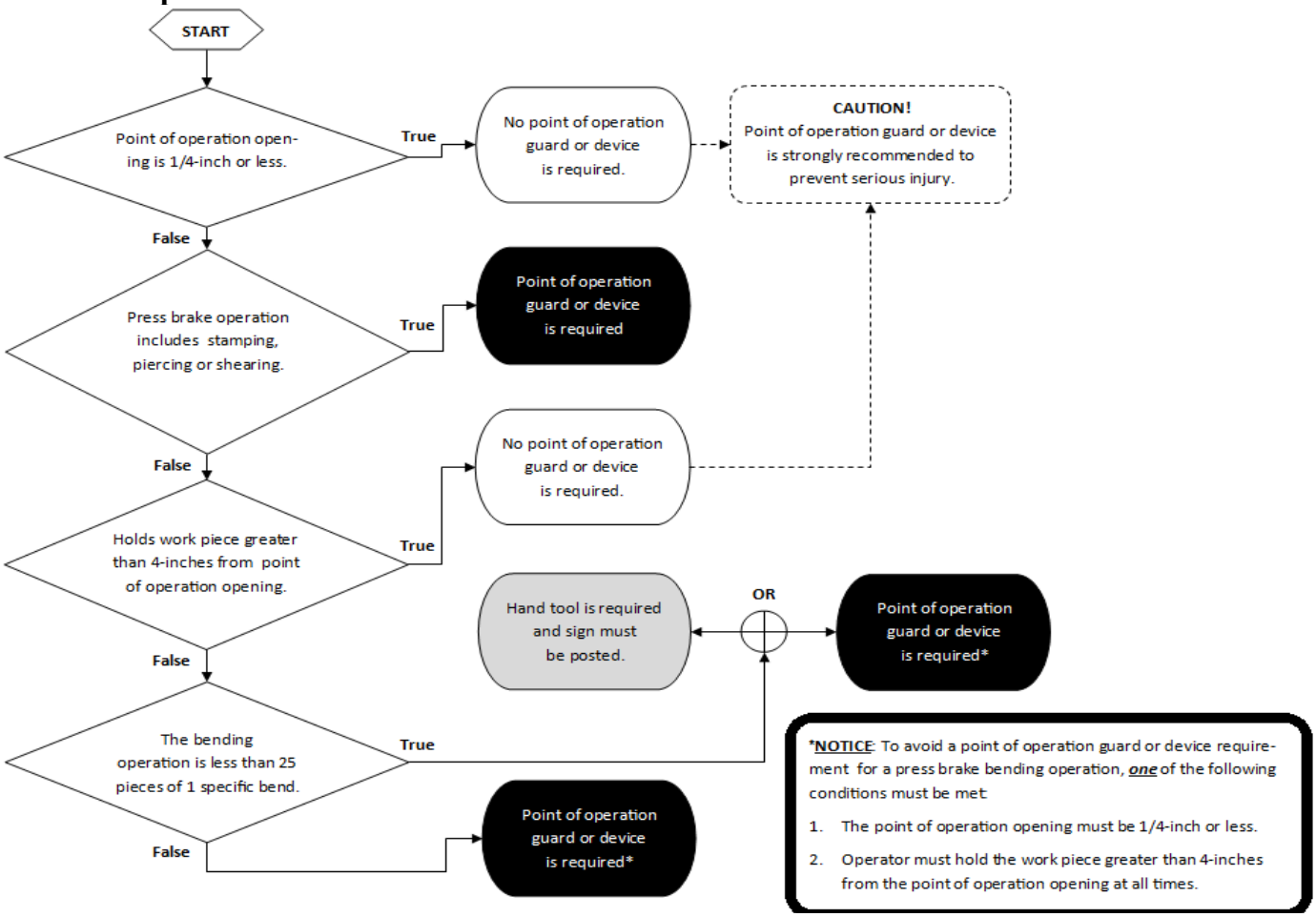
(MIOSHA/CET-0194 • Revised 11/13/2020)

Light Curtain Function Example Diagram



Press Brake Operator Protection Decision Flow Chart



Through the MIOSHA and Precision Metalforming Association Alliance, this fact sheet was developed for informational purposes.