

GUARDING PART REVOLUTION MECHANICAL

POWER PRESSES

Part revolution clutch is defined in 29 CFR 1910.211(d)(6) as a type of clutch that can be disengaged at any point before the crankshaft has completed a full revolution and the press slide a full stroke.

The largest hazard associated with part revolution mechanical power presses is point of operation. There are several options to guarding the point of operation on these presses. Refer to 29 CFR 1910.217 for a complete list of requirements for Part Revolution Mechanical Power Presses.

Point of Operation Guarding for Part Revolution Mechanical Power Presses

Barrier Guard – Designed to keep employees from reaching over, through, under or around the guard or otherwise accessing the point of operation. Barrier guards are the preferred type of guarding. Types of barrier guards:

- Die enclosure guard
- Fixed barrier guard
- Interlocked press barrier guard
- Adjustable barrier guard

Presence Sensing Devices – Creates a sensing field or area that signals the clutch/brake control to deactivate the clutch and activate the brake of the press when any part of the operator's body or a hand tool is within the field or area. This stops the machine stroke if the sensing field is interrupted by the operator or other employees in the area. These are commonly called light curtains. The safety distance from the sensing field to the point of operation must be greater than the distance determined by the safety distance formula in 29 CFR 1910.217(c)(3)(iii)(e).

Two Hand Control – Requires concurrent pressure from both hands of the operator during the die-closing portion of the stroke of the press keeping the operators hands away from the point of operation during the machine stroke. Each operator must have a set of two hand controls. The safety distance between each hand control device and the point of operation must be greater than the distance determined by the safety distance formula in 29 CFR 1910.217(c)(3)(vii)(c).

Pullback – Operators wear wrist bands attached to the pullback device. As the die closes the pullback device pulls the wrist bands away from the die located within the press. Pullbacks must be provided for each operator. The pullback devices must be inspected prior to each shift, following a new die set up, and when there is a change in operators.

Restraint – Prevents the operator's hands from being able to reach the point of operation. Restraints must be provided for each operator and must be adjusted properly to be effective. Types of restraints include:

- Arm-type restraint device
- Overhead restraint device
- Sliding restraint device

Type "A" or "B" Gate – The gates close before the down stroke begins enclosing the point of operation. Type "A" Gate will stay closed until the upstroke is complete. Type "B" Gate will open during the upstroke after the machine reaches the portion of the stroke where the pinch point has been eliminated.

Resources

<http://www.osha.gov/SLTC/etools/machineguarding/index.html> (OSHA's Machine Guarding E-Tool)

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9841 (OSHA's Mechanical Power Presses Standard 29 CFR 1910.217)

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9835 (OSHA's Machinery and Machine Guarding Definitions 29 CFR 1910.211)