

TECHNICAL ARTICLE FOR PRODUCTION RESOURCES CUSTOMERS

Is your mechanical power press OSHA compliant?

If you use mechanical power presses in your operation it will pay you to know whether your presses comply with the [code of federal regulations title 29 part 1910.217](#). Failure to comply can result in a costly fine! 1910.217 is broken into several sections. We'll publish a series of articles covering all the sections with this first article treating 1910.217(a) general requirements and (b)guarding and construction, general. This piece is intended to cover significant issues not nitpicking detail. The intent is to allow you to quickly get an idea whether your machines comply. Elements treating full revolution clutch presses are ignored since this type of machine is rapidly falling out of use.

Generally, if your press was designed and made by a US builder on or after January 1, 1974 it's likely to be compliant with sections (a) and (b). This may not be the case if undocumented wiring changes have taken place. Additionally, you'll need to pay attention to (c)"safeguarding the point of operation" covered in another article. Also you should be aware of the industry consensus standard [ANSI B11.1](#) which is more demanding than the current OSHA standard. Some feel OSHA may adopt the more stringent provisions (we'll treat the differences in OSHA and ANSI in a later article).

- ❖ The general requirements of (a) require that anyone reconstructing or modifying a press do so in accordance with the standard.
- ❖ Excluded machines include press brakes, hydraulic presses, pneumatic presses, hot metal presses, forging presses, hammers, and riveting machines. It's important to note here that a press brake used as a power press is considered a power press.
- ❖ 1910.217(b) treats broken or falling components. Early on some employers started tying down motors and anything else on the top of the press. This is really not necessary; however, it is important to insure that a broken spring will not result in braking failure.

1910.217(b)(7) treats part revolution clutch (air clutch) presses in some detail; requirements follow:

- ❖ A red emergency stop control must be provided.
- ❖ Supervisory control of the stroke mode is required (keylock for off, inch, single, and continuous). **Note keys should not be left in the selector switch.**
- ❖ Inch mode has to prevent clutch engagement while one hand is in the point of operation. This means two hand inch or a single inch button located a good distance from the tool. Positioning or threading material with one hand while inching with another is not acceptable!
- ❖ Concurrent operation of the two hand control is required – you can't tie one button down
- ❖ The two hand control must keep the hands busy during the downstroke – this is not a trip device.
- ❖ Operations using more than one operator must have complete operator stations for each person.

- ❖ Machines run in the Continuous or Automatic mode require the operator to make a prior conscious act before engaging this mode – usually this requires the operator push a prior act arming switch then hold the two hand control through bottom dead center.
- ❖ If a foot switch is used a supervisory hand/foot selector is required (note: foot switches are not illegal; however, they do require appropriate point of operation safeguards or devices)
- ❖ Dual valves are required to prevent decay in stopping performance. Technically this is not required on a press that runs only continuous; however, if a light curtain is used as the point of operation guard common sense demands a dual valve.
- ❖ Air pressure switches or sensors monitoring the clutch and the counterbalance are required. The objective here is to detect a loss in pressure and stop the machine then prevent automatic restart if pressure comes back up.
- ❖ Lockable off disconnect switch is required
- ❖ Magnetic motor starters required, manual starters are unacceptable
- ❖ Control transformer with fused secondary to reduce voltages to control circuits to 120 vac or less
- ❖ Ground fault detection device
- ❖ Control circuit design to **minimize** the possibility of an unintended stroke in the event of a control component failure.
- ❖ **Control reliability** – required for hands in die operations that use a light curtain, two hand control, or type B sliding barrier device as the point of operation safeguard. When required the control circuit must insure that normal stopping action will occur in the event of a single component failure but prevent additional stroking until the failure is corrected. This requires redundancy and cross checking. If you have hands in die operations you should check with your press or control manufacturer to insure the control complies with this section.
- ❖ **Brake monitoring** - required for hands in die operations that use a light curtain, two hand control, or type B sliding barrier device as the point of operation safeguard. Two types of brake monitors are common –top stop over run and time based systems. The first is cheap and hard to adjust. Further it's a passive device which is never checked until the brake wears to the point the press blows through top dead center. Finally, it fails to measure down stroke stopping performance required to establish safety distance. An electronic time based monitor resolves all these shortcomings and is highly preferred.

Upcoming article will treat section c “safeguarding the point of operation”

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