

How Safe is Your Press Shop?

Knowing the requirements and best practices for pressroom safety puts power in the stamper's hands when it comes to OSHA compliance. In addition to creating a safe work environment, stampers can avoid the pitfalls of unnecessary costs and lost production.

BY TODD WENZEL

While many basic safety principals have remained relatively unchanged over the last decade, U.S. Occupational Safety and Health Administration (OSHA) has initiated more rigorous enforcement of OSHA safety standards for mechanical punch presses. In addition to OSHA standards that mandate specific requirements for users of mechanical presses, the American National Standards Institute (ANSI) provides stampers with voluntary recommendations. Yet despite these resources there are still deficiencies and uneven application of safety practices in metal-stamping plants across the United States.

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The Differences Between OSHA and ANSI

While most stampers have a general awareness of OSHA, many are not as familiar with ANSI. Understanding the difference between the two organizations is important. Quite simply, OSHA regulations establish laws that employers must meet. The U.S. government can impose penalties if employers fail to meet these regulations. ANSI, on the other hand, issues safety voluntary recommendations that result from meetings and conversations among experienced industry suppliers and manufacturers. These mutually agreed-upon safety standards and practices are based on a thorough examination of each industry's needs, with the goal of helping manufacturers safely operate their production systems.

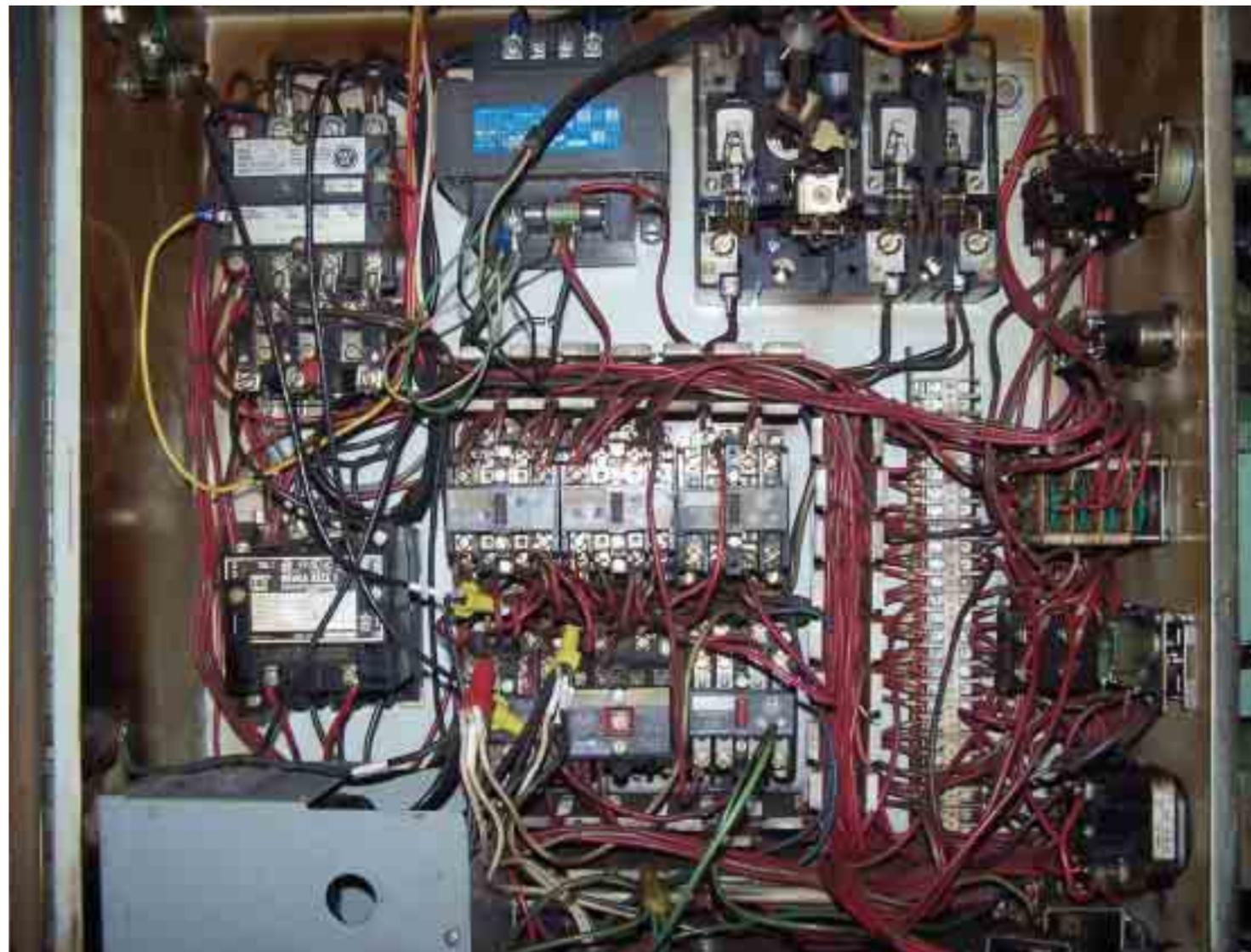
ANSI standards undergo periodic review and are updated to reflect any

changes in manufacturing methods and equipment. Because of this regular review process, ANSI standards tend to be more specific and cover more issues in greater detail than do OSHA regulations.

The Real Reason Deficiencies Exist In the Pressroom

Too many metal stampers do not fully understand OSHA requirements as they apply to the pressroom. The detailed regulations for mechanical presses can be daunting. Further, these standards change depending on the combination of the production method and guarding employed.

Also, OSHA inspectors may lack complete knowledge of the standards that apply to the pressroom. Because OSHA employees are responsible for a wide range of industries carrying highly detailed regulations, it is nearly



This typical relay-logic control from the mid-1970s meets four of the criteria on the checklist that indicate a noncompliant control—it contains less than nine relays; the original relays are not direct drive; it was built before 1980; and it includes several jumpers in the wiring not indicated on the original electrical schematic. If your control wiring looks like this, it should be inspected by an expert before it is allowed to control a press used for hands-in-die production.

possible since, unlike the OSHA representative who must enforce codes for multiple industries, the stamper need only learn one section.

To thoroughly train personnel in pressroom safety, begin by providing and reviewing copies relevant OSHA regulations and ANSI standards. Then implement formal training, available from a variety of sources.

The Precision Metalforming Association (PMA) provides safety-training materials—books, reports, videos and DVDs—specifically focused on stamping. It also offers a one-day course on pressroom safety in locations around the country. Learn more by visiting www.pma.org.

PMA member companies also enjoy another benefit, via its standing agreement with attorney Douglas B. M. Ehlke, an expert in legal issues affecting stampers. Under the agreement, Ehlke provides one hour of free consultation to any PMA member company. He also has expertise in the application of OSHA standards pertaining to stampers and has been an effective advocate for stampers contesting OSHA violations. Ehlke can be contacted at 253/839-5555; dehlke@oz.net

Additionally, some of the best courses for pressroom safety are offered by the manufacturers of safety equipment for mechanical presses. For example,

impossible for inspectors to become experts in each of the regulations they must enforce.

More often than not these two issues combine to produce one or both of the following scenarios. The first scenario occurs when an inspector inadvertently passes an actual violation in the pressroom without citing it. This can lead a stamper to believe that no violation exists, which then can create a double hazard: employees become exposed to injuries that could have been avoided; and the company can become saddled with expenses caused by a pressroom injury, forced to undergo a more thorough OSHA inspection and face potentially devastating fines. It is not unheard of for a stamper to ask an OSHA representative if a particular press-guarding setup complies, and be told incorrectly that it does. Unfortunately, the exposure

still exists and regardless of the misinformation, the stamper is not protected against future citations if an accident occurs or if a future inspection reveals the deficiency.

The second scenario occurs when an OSHA inspector cites a stamper for a violation when, in fact, no violation exists. The stamper then has two choices: quickly decide whether or not to challenge the citation, or, if the stamper lacks the necessary understanding to mount a defense, face a fine, costly mitigation of a nonexistent violation and a poor track record for safety.

Build Your Knowledge Base

Stampers can take control of these scenarios by becoming experts in the safety regulations pertaining to their pressrooms. While this may seem daunting at first glance, it's entirely

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Presence-sensing light curtains on these mechanical presses establish the primary point-of-operation guarding. When establishing the distance at which to establish the light curtain from the press, stampers should use a formula that accounts for the penetration factor, which considers the minimum size of an object that a presence-sensing device can still detect 100 percent of the time anywhere in the sensing field.

Link Systems provides a free-of-charge three-day OSHA seminar called The What, Why and How of OSHA Requirements for Mechanical Power Presses and Press Brakes. Learn more at www.linkelectric.com. Wintriss also provides a free press-safety seminar; visit www.wintriss.com.

Common Safety Questions

• What is control reliability?

In certain press applications, OSHA requires a control-reliable press control—one that is “self checking.” This means that no single component in the control system can fail in a way that prevents the normal ram-stopping action from occurring, and that no successive strokes be started until someone clears the failure. This standard has led to the development of redundant and self-checking press controls.

Dr. James Barrett Jr., president of Link Systems and a contributing writer for the ANSI standards, says: “A self-checking control requires three characteristics—redundancy, comparison and

a cycle which ‘exercises’ each element to be checked, to ensure it can provide both of its logic states. Redundancy provides a basis for comparison. Both redundant elements that perform the same task should provide similar states at a given time or the control should ‘lock out.’ It also is important that the comparison circuitry be included in such a way as to be checked by the cycle.”

• When is control reliability required?

OSHA regulation 1910.217 (c)(5) explains specifically when control reliability is required: “Where the operator feeds or removes parts by placing one or



both hands in the point of operation, and a two-hand control, presence-sensing device or type-B movable barrier (on a part-revolution clutch) is used for safeguarding.”

Such an operation offers more exposure for serious injury because hands actually enter the tool, and these guard-

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ing methods rely on the consistent safe stopping of the press upon command. Therefore, a control-reliable press control, as referred to in 1910.271 (b)(13), is required. This is the highest standard required by OSHA because it carries the highest operator risk.

• Does your press control meet the control-reliability standard?

Even though OSHA regulations have been in force for decades, many

mechanical punch presses still do not carry control-reliable controls. Very often this is due to changing methods of production on a given press. Certain operations do not require a control-reliable press control, so the stamper may forego an upgrade. But if the method of production or guarding changes, a formerly compliant press lacking a control-reliable press control suddenly violates OSHA regulations.

Use this checklist to decide if a press control should be inspected more thoroughly, to verify if it is control-reliable. While not an exhaustive list, these are the most common indicators of a non-compliant control.

- 1) Any relay logic control with less than nine relays;
- 2) Any relay logic control that uses AB type N relays or other relays that do not have captive contacts;
- 3) Any relay logic control built before 1980;
- 4) Any control that contains jumpers that do not appear in the original print;
- 5) No continuous-arm or prior-action pushbutton;
- 6) No way to lock the stroke selector;
- 7) No apparent brake monitor;
- 8) No pressure switch monitoring clutch air pressure;
- 9) No pressure switch monitoring air counterbalance pressure;
- 10) Chain-brake detection by a dead-man switch held closed by a spring-loaded base to which the cam switch mounts.

Proper Safety Distance for Presence Sensing

To find the proper formula used to calculate the safe distance from the operating machine at which to mount presence-sensing devices, log on to the ANSI website (www.ansi.org). Or, look in the installation manuals provided by most suppliers of presence-sensing devices. The formula accounts for the penetration factor, which considers the minimum size of an object that a presence-sensing device can still detect 100 percent of the time anywhere in the sensing field, and generates an additional distance to be added between the device and the hazard.

Never Stop Reviewing and Learning

Encourage continuous input regarding safety issues from supervisors on the shop floor, and perform a formal annual safety review. Also, systematically review guarding methods for a machine whenever a new tool or production method is introduced. **MF**