

Jay Industries, Inc.

Machine Guarding Policy

Policy

No employee shall operate or cause to be operated any machinery without proper protective guards in place. No employee shall modify or disable any protective guards on machinery without contacting the Maintenance Supervisor for approval or implementing the Lockout/Tagout procedures.

Machine guards shall be provided to protect the operator and other employees from hazards such as exposed belts, pulleys, sheaves, drive shafts, drive couplings, chains, rotating parts, flying chips and sparks and any other similar safety risk.

Authority and Responsibility

Maintenance Department is responsible for:

1. Inspecting machines for appropriate guarding during annual safety inspections or as requested;
2. Reporting any questionable conditions that are discovered to the responsible department;
3. Initiating or assisting in the investigation of injuries related to machine guarding and recommending changes, if needed.

Operational Departments are responsible for:

1. Contacting the Maintenance Department for approval of alternative guarding methods;
2. Implementing engineering controls as deemed necessary;
3. Facilitating equipment specific training with regard to machine guarding;
4. Ensuring those employees who need to modify or disable any protective guards attend Lockout/Tagout training; and
5. Ensuring all tagged Out Of Service tools/equipment are replaced appropriately.

Employees are responsible for:

1. Complying with all aspects of this program;
2. Asking for a demonstration of a tool prior to use or reading the instructions;
3. Reporting all damaged or malfunctioning tools or equipment to their supervisor and removing or tagging such tools or equipment Out Of Service;
4. Contacting their immediate supervisor when alternative guarding methods are necessary;
5. Following the Lockout/Tagout program.

Supervisors and Managers are responsible for:

1. Complying with all aspects of this program;
2. Initiating or assisting in the investigation of injuries related to machine guarding and recommending changes, if needed;
3. Ensuring that Jay Industries is compliant with all aspects of this program.

General Requirements

Guards shall be affixed to the machine where possible. If attachment to the machine is not possible machine guards shall be affixed elsewhere. Machine guarding should be designed to prevent access to the hazard from all accessible directions including front, top, bottom and back side. When designing machine guarding, think about the motions of employees reaching Over, Under, Around, Through. Examples of guarding methods include: barrier guards, two-hand palm buttons, or electronic safety devices.

Machines shall be operated with guards in place except when a guard has to be removed following a documented procedure that ensures personnel protection. Such procedures may include those for repair or adjustment. Guards shall be replaced before the machine is put back in service. Refer to the Lockout/Tagout program.

Special hand feeding tools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this policy, but shall only be used to supplement protection provided.

Basic Areas Requiring Safeguarding

Dangerous moving parts in three basic areas require safeguarding:

- *Point of operation:* The area on a machine where work is actually performed on the material being processed (e.g., cutting, shaping, boring, forming of stock);
- *Power transmission apparatus:* All components of the mechanical system which transmit energy to the part of the machine performing the work. These components include flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks, and gears; and
- *Other moving parts:* All parts of the machine which move while the machine is working including, but not limited to, reciprocating, rotating, and transverse moving parts, as well as feed mechanisms and auxiliary parts of the machine.

Exposure of Blades

When the periphery of the blades of a fan is less than seven feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than one-half inch.

Anchoring Fixed Machinery

All machines designed for a fixed location shall be securely anchored to prevent the machine from walking, moving, or falling.

Hazardous Mechanical Motions and Actions

Rotating motion can be dangerous because it can grip clothing, and through mere skin contact can force an arm or hand into a dangerous position. Collars, couplings, cams, clutches, flywheels, shaft ends, spindles, meshing gears, and horizontal or vertical shafting are some examples of common rotating mechanisms which may be hazardous. The danger increases when projections such as set screws, bolts, nicks, abrasions, and projecting keys or set screws are exposed on rotating parts.

Nip point hazards are caused by the in-turning sides of rotating parts. There are three main causes of nip points:

- Parts can rotate in opposite directions while their axes are parallel to each other. These parts may be in contact (producing a nip point) or in close proximity to each other. In the latter cases, the stock fed between the rolls produces the nip points. Machines with intermeshing gears that pose this hazard are rolling mills, and calendars.
- Parts can rotate in the same direction with each other. Some examples would be the point of contact between a power transmission belt and its pulley, a chain and a sprocket, or a rack and pinion.
- A part can rotate among a fixed part creating a shearing or crushing action. Examples are spoked handwheels or flywheels, screw conveyors, or the periphery of an abrasive wheel and an incorrectly adjusted work rest.
- Reciprocating motions may be hazardous because, during the back-and-forth or up-and-down motion, a worker may be struck by or caught between a moving and a stationary part.

Transverse motion (movement in a straight, continuous line) creates a hazard because a worker may be struck or caught in a pinch point or shear point by the moving part.

Cutting action may involve rotating, reciprocating, or transverse motion. The danger of cutting action exists at the point of operation where finger, arm and body injuries can occur and where flying chips or scrap material can strike the head, particularly in the eyes or face. Such hazards are present at the point of operation in cutting wood, metal, or other materials. Examples of mechanisms involving cutting hazards include bandsaws, circular saws, boring or drilling machines, turning machines (lathes), or milling machines.

Punching action results when power is applied to a slide (ram) for the purpose of blanking, drawing, or stamping metal or other materials. The danger of this type of action occurs at the point of operation where stock is inserted, held, and withdrawn by the hand. Typical machines used for punching operations are power presses.

Shearing action involves applying power to a slide or knife in order to trim or shear metal or other materials. A hazard occurs at the point of operation where stock is actually inserted, held, and withdrawn. Examples of machines used for shearing operations are mechanically, hydraulically, or pneumatically powered shears.

Bending action results when power is applied to a slide in order to draw or stamp metal or other materials. A hazard occurs at the point of operation where stock is inserted, held, and withdrawn. Equipment that uses bending action includes power presses, press brakes, and tubing benders.

Requirements for Safeguards

Safeguards shall meet these minimum general requirements:

- *Prevent contact:* The safeguard shall prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. An effective safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.
- *Secure:* Workers should not be able to easily remove or tamper with the safeguard. Guards and safety devices shall be made of durable material that will withstand the conditions of normal use. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible.
- *Protect from falling objects:* The safeguard shall ensure that no objects can fall into moving parts. A small tool which is dropped into a cycling machine could easily become a projectile that could strike and injure someone.
- *Create no new hazards:* A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.
- *Create no interference:* Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.
- *Allow safe lubrication:* If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

Non-mechanical Hazards

When machines produce noise which can startle or disrupt concentration, or the noise interferes with communications, or hinders the worker's safe job performance, refer to the Hearing Conservation program.

When the use of cutting fluids, coolants, and other potentially harmful substances are used to lubricate machinery, refer to the GHS Hazard Communication Program.

Training

Supervisors shall facilitate operator training involving instruction or hands-on training in the following:

- Description and identification of the hazards associated with particular machines;
- The safeguards on the particular machines including, but not limited to: how protection is provided; the hazards for which guards are designed; and how to use guards.
- What to do (contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.
- This training shall be provided to all new operators and maintenance or setup personnel, when any new or altered safeguards are put in service, or when workers are assigned to a new machine or operation.

Protective Clothing and Personal Protective Equipment

Other personal protective equipment may be necessary and shall be worn in accordance with the rules for the job being performed.

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