

Creating a Machine Guarding Policy

A machine guarding policy is a critical part of the safety program at any firm where employees interact with machinery. In fact, according to OSHA, there was an average of 12 worker fatalities per day in US industries in 2015, and the “Machine and Machine Guarding” OSHA standard was among the top 10 most frequently violated OSHA standards⁽¹⁾. Clearly, a machine guarding policy is an important requirement in an industrial environment. Creating a machine guarding policy can be done with a step by step approach, as outlined in this white paper.

MACHINE GUARDING BASICS

First, it is important to have an understanding of the basics of machine guarding. According to OSHA⁽²⁾, the main requirements for machine safeguards are:

- **Prevent contact:** They should prevent contact between body parts and hazardous parts of the machine. It would be physically impossible for unintended contact to be made between moving machine parts and the worker.
- **Secure:** It should be difficult to remove a safeguard, since there would be a natural tendency for a worker to remove it if he or she thinks it's an inconvenience.
- **Protect from falling objects:** Nothing should be able to fall onto moving machine parts. Nuts and bolts or small tools could become dangerous airborne objects.
- **No new hazards:** A machine safeguard should not create a new hazard, such as diminished visibility or a sharp edge that the worker could contact.
- **No interference:** The safeguard should not make it difficult or awkward to perform the intended work.
- **Allow maintenance:** It should be possible to perform some basic maintenance such as lubrication with the safeguard in place.

As defined by OSHA, there are four main categories of machine safeguards that can be used to meet the above requirements:

- **Fixed** – a permanent part or feature of the machine, such as a screen, bar, plate, or other barrier.
- **Interlocked** – a feature that trips a stopping mechanism when it is opened or removed, using any number of devices to detect the stopping requirement.
- **Adjustable** – a feature of the machine that allows flexibility in placement or configuration to adjust to worker size or the task being performed.
- **Self-adjusting** – a mechanism that adjusts an opening size, for example, based on the work product moving through the machine.



Moving parts on a filling machine can be hazardous without safe guards such as on/off push buttons.

Most machine safeguards rely on physical presence for safety (as a barrier) or to trigger a stopping response. However, there are other devices that can be used to detect an unsafe situation and stop the machine's motion. These include:

- **Photoelectric** – interruption of a light beam stops the machine; a common example is an automatic garage door.
- **Radiofrequency** – when an electric field (such as in a capacitor) is broken, the machine stops.
- **Electromechanical** – an electrical contact is made (or broken) when an unsafe state is reached.
- **Pullback/restraint** – cables or straps attached to the operator's arms or hands limiting their motion depending on the action of the machine.
- **Two-hand control / trip** – both hands need to be activating a control for the equipment to work, which prevents the machine from operating if the worker is not in the correct (safe) position.

Training is also a required part of any machine guarding policy. All of the guidelines and safety features in the world won't help if operators don't know how to use them! The key parts of an effective training program are:

- Description and identification of hazards of each machine.
- Learning how to use each safeguard.
- Finding the appropriate response if a safeguard is damaged or not functioning properly.
- Understanding the conditions for removing safeguards (e.g., maintenance when the machine is down).

Given all of these requirements, it is useful to have a clear guideline on how to create a machine guarding policy. The information below provides an outline on how to construct such a policy.

MACHINE GUARDING POLICY CREATION

There are several components to a good machine guarding policy^(3,4). Many of these are standard parts of any good documentation, but they are worth mentioning here as well. An outline for a machine guarding policy would include:

1. Revision History

- Record date, highlight changes, and have unambiguous revision identification

2. Purpose and Scope

- A “mission statement” for the document, highlighting safety but also delineating specifics related to the company's business

3. Roles and Responsibilities

- Management
- Administrator
- Supervisors
- Machine operators
- Maintenance personnel

4. Machine Safeguarding Guidelines

- General guidelines on machine safeguard, aligned with the OSHA requirements listed above, and expanded for the specific environment (chemical, medical, industrial, etc.)

5. Machine Inspection

- Policies (e.g., frequency)
- Procedures
- Training and standards

6. Training – see above, plus:

- Protective equipment function and use
- Retraining when there are changes in assignment, equipment, or safeguarding

7. Recurring Review

- Assess safety program effectiveness
- Updates for new equipment or processes

8. Records Retention

- For safety and compliance purposes

9. Safety/Hazard Markings

- Should meet standards
- Should be consistent to maximize impact and effectiveness

10. Machine Safeguarding Audits

- Checklist for requirements
- Checklist for point of operation hazards
- Checklist for electrical hazards
- Checklist for mechanical hazards

11. Machine Safeguarding List

- List with specific safeguarding guidance for each type of equipment

12. Annual Evaluation Report

- Procedures reviewed
- Procedures modified
- Procedures added
- Occupational injuries log (OSHA Form 300 or equivalent)

Along with many useful OSHA guidelines for machine guarding policies^(1,2,3), there are templates available^(e.g. 5) that can guide users through some or all of the steps needed for a robust machine guarding policy.

SUMMARY

There are many safety policies required for any business, but those with machinery involved have a particular responsibility to maintain a safe environment for their workers. Thus, clear guidelines as provided in this white paper and OSHA standards can be helpful tools for any company that wants to formulate a machine guarding policy. We encourage you to review this carefully and to contact OMEGA with any questions about machine safeguarding products.

Source

1. <https://www.osha.gov/oshstats/commonstats.html>
2. https://www.osha.gov/SLTC/etools/machineguarding/additional_references.html
3. <https://www.osha.gov/Publications/OSHA3170.pdf>
4. http://www.getssafetytrained.com/TRAIN/Mod55/Building_Program.pdf
5. <https://www.emcins.com/ICEFiles/docs/lossControl/Machine-Grdng.docx>



Potential safety hazard: car engine crankshafts.