

Machine Guarding Keeps You Safe

Machine guards are your first line of defense against injuries caused by machine operation. Each machine must have adequate safeguards to protect operators from the machine's hazards.

Hazards Involved with Machine Operation

Each machine has its own unique mechanical and non-mechanical hazards. Machines can cause severe injuries: amputations, fractures, lacerations, or crushing injuries. Machines can also cause minor injuries: bruises, abrasions, sprains or strains, burns, or cuts.

Examples of mechanical hazards that can hit, grab, crush, or trap an operator are:

- Hazardous motions-rotating machine parts, reciprocating motions (sliding parts or up/down motions), and transverse motions (materials moving in a continuous line-a power transmission belt).
- Points of operation-the areas where the machine cuts, shapes, bores, or forms the stock being fed through it.
- Pinch points and shear points-areas where a part of the body can be caught between a moving part and a stationary object.

Examples of non-mechanical hazards that can injure operators, or other people in the area, include chips, splashes, sparks, or sprays that are created as the machine is running.

Methods of Safeguarding

There are five general types of safeguards that can be used to protect workers:

- Guards-These are physical barriers that prevent contact. They can be fixed, interlocked, adjustable, or self-adjusting.
- Devices-These limit or prevent access to the hazardous area. These devices can be: presence-sensing devices, pullback or restraint straps, safety trip controls, two-hand controls, or gates.
- Automated feeding and ejection mechanisms-These eliminate the operator's exposure to the point of operation while handling stock.
- Machine location, or distance-This method removes the hazard from the operator's work area.
- Miscellaneous aids-These methods can be used to protect both operators and people in the area.

Examples include shields to contain chips, sparks, or sprays; holding tools that an operator uses to handle materials going into the point of operation; and awareness barriers to warn people about hazards in the area.

Operating Instructions

Following the machine's operating instructions ensures that the machine is being run correctly and safely. Understand how the machine works, and reduce your risk of injury, by following the instructions. Each machine should have its own set of operating instructions that outline:

- What to look for during the pre-start-up inspection.
- The location of the machine's control panel(s), and how each control functions to operate the machine.
- How to adjust the machine (including how to adjust any adjustable guards), and how to feed stock into the machine during the job set-up.
- How to start, run, and shut-down the machine under normal operations.
- How to perform emergency shut-down procedures.

The pre-start-up inspection procedures include an inspection of the machine's safeguards. Check that fixed guards are secure, in proper alignment, and intact. Check adjustable guards for proper operation and damage. Test trip cables, electrical sensing devices, safety tripods, interlocks, etc. to make sure that they are functioning properly before you start the job.

Missing or Damaged Guards

Report a machine that is missing a guard. It is unsafe to operate the machine until the guard is replaced. If your inspection shows a damaged guard, also report it. The damaged guard may not be providing adequate protection. If a guard becomes damaged while you are operating the machine, stop the machine and have the guard inspected. It may need to be replaced or repaired before you can continue to work safely.

Maintenance Allowed During Normal Operation

Routine adjustments or lubrication that can be done without removing or bypassing a guard may be done without taking any extra precautions.

Ask your supervisor about extra precautions that need to be taken if routine or repeated adjustments, tool changes, or other minor work requires that a guard be removed or bypassed.

Know When to Use Lockout/Tagout

If unexpected machine start-up could cause injury, use a lockout/tagout program. Any major repair or tool change that would expose workers to the machine's hazards requires lockout/tagout. For example, if a machine gets jammed, and a guard has to be removed or bypassed in order to remove the jam, the machine needs to be locked out to protect the person who is reaching into the point of operation to clear it.

Responding to Injuries and Accidents

Machine entrapment injuries can be severe. Follow your company's procedures for reporting the injury to management and for calling emergency medical personnel.



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