Guard Against Machine Injuries Meeting Kit

Each piece of machinery has its own unique mechanical and non-mechanical hazards. Machine guards are your first line of defense against injuries caused by machine operation.

MINIMUM REQUIREMENTS FOR GUARDS

Prevent contact. The guard must prevent hands, arms, and any other part of a operator's body from making contact with dangerous moving parts.

Secure. Operators should not be able to easily remove or tamper with the guard.

Protect from falling objects. The guard should ensure that no objects can fall into moving parts.

Create no new hazards. A guard cannot create a hazard such as a shear point, a jagged edge, or an unfinished surface.

Create no interference: Any guard that prevents the operator from performing the job quickly and comfortably might soon be overridden or disregarded.

Allow safe lubrication: If possible, operators should be able to lubricate the machine without removing the guards.

TYPES OF HAZARDS FOR WORKERS OPERATING AROUND EQUIPMENT

Hazardous Motions – including rotating machine parts, reciprocating motions, and transverse motions.

Points of Operation – the areas where the machine cuts, shapes, bores, or bends the stock being fed through it;

Pinch Points and Shear Points – the area where a part of the body or clothing could be caught between a moving part and a stationary object.

METHODS OF SAFEGUARDING AND PROTECTING WORKERS

Guards – 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 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 (materials).

Machine Location or Distance – this method removes the hazard from the operator's work area.

MACHINE GUARDING WORK

Fixed barrier guards are the first choice of engineering control to keep workers from contacting hazardous moving parts or to contain harmful fluids and projectiles.

ROUTINE MAINTENANCE DELIVERS SAFE WORKING CONDITIONS

Good maintenance and repair procedures contribute significantly to the safety of the maintenance crew as well as that of machine operators. Machine operators should be alert for signs of trouble, such as worn or cracked parts, inappropriate noises or damaged or missing safeguards.

By observing machine operators at their tasks and listening to their comments, maintenance personnel may learn where potential trouble spots are and give them early attention before they develop into sources of accidents and injury. Sometimes all that is needed to keep things running smoothly and safely is machine lubrication or adjustment.

TYPES OF MACHINE GUARDS USED ON A SHOP FLOOR

Emergency and stop controls: A stop control is an "operator control designed to immediately deactivate the clutch control and activate the brake to stop slide motion". These can include belly bars or pressure-sensing mats; if the operator presses against the bar or steps on the mat, the machine will come to a stop. An emergency stop is a device, often a red button, that immediately stops machine operations.

Enabling devices: Enabling devices initiate a safety function when a user either squeezes or releases the handle grip switch. When continuously activated and used in conjunction with a separate actuating control, these devices allow a machine to function in manual operating mode.

Holdout or restraint devices: These mechanisms include attachments for an operator's hands that prevent the operator's hands from entering the point of operation.

Indicator lights and tower lights: Often available in multiple colors, indicator lights can provide a visible indication of machine status, alerting workers when a machine is in use.

Pullout devices and sweep devices: These devices physically move the machine operator's hands out of the way when the machine, such as a die or press, closes.

Safety interlock switches: Interlocks keep a machine from working when the guard is in an open position but allow operation when the guard is closed. If access to a point of operation is required during normal operation, a movable openable barrier guard interlocked with the machine's power source can be a reliable and cost-effective solution.

Safety light curtains: They're also known as presence-sensing devices. A

photoelectric transmitter projects an array of synchronized, parallel infrared light beams to a receiver unit. When an opaque object interrupts one or more beams in the sensing field, the control logic of the light curtain sends a stop signal to the guarded machine.

Two-hand control devices: These devices require concurrent pressure from both of the operators' hands. Similar to the 'two-hand trip,' this device keeps the operators' hands away from the point of operation during the entire machine stroke.

WOKERS MUST KNOW AND DO

- The location of machine guards and points of operation.
- The purpose of color-coded machinery alerting workers to hazards and to help pinpoint missing guards.
- The danger of pinch points and importance of guards on in-running rolls, belts, pulleys, chains, and sprockets.
- Know and follow established lockout/tagout procedures.
- Know when machines have been shut down for maintenance or to clear jams.
- Assure that machines remain off while they are shut down for maintenance.
- Know and observe electrical safety work practices developed by the company.
- Understand the importance of keeping machinery clean to prevent equipment jams.

FINAL WORD

Machine guarding prevents workers from sustaining injuries—like pinches, cuts or even amputations—by keeping them from getting caught in or between moving parts of the machine they're working on.