

# Talks **ZONE**

**Safety Talks  
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TZ0218

## Stay safe at the point of operation

**M**oving machine parts not only have the potential to cause severe workplace injuries, failing to guard those parts properly is among the leading violations of occupational health and safety regulations.

Injuries can occur anywhere moving parts are located, but very often the most dangerous location is where material is positioned, inserted or manipulated, or where work such as shearing, punching, shaping, cutting, boring, forming or assembling is being performed.

That location is referred to as the point of operation.

Milling machines, lathes, jointers, saws, guillotine cutters and shears are all examples of machines that require point of operation guards.

There are four basic types of machine guards:

**Fixed guards** are attached permanently to equipment and can only be removed with considerable effort.

**Interlocked guards** are designed to be removed or opened to allow access to the hazard zone. Once the guard is opened, however, the machine shuts down automatically, eliminating the hazard.

**Adjustable guards** allow a machine to handle a wide variety of material sizes while still protecting the unused portion of the blade or the point of operation. These guards must be adjusted manually.

**Self-adjusting guards**, typically found on saws, are pushed away from the point of operation when material is fed into the machine, but they only open enough to allow the material into the cutting zone,



keeping the remainder of the blade covered.

Besides these physical barriers, there are other safeguarding measures. They include presence-sensing, pullback and safety control devices, feed and ejection methods, awareness barriers and protective shields.

Whichever safeguard or combination of safeguards is chosen, it must:

- Prevent the worker's body or clothing from contacting hazardous moving parts.
- Be firmly secured to machine and not easily removed.
- Not allow falling objects to enter moving parts.
- Create no new hazards such as shear points, jagged edges or unfinished surfaces.
- Create no interference that would prevent a worker from performing the job quickly and comfortably.
- Allow safe lubrication without removing the safeguard.

The following are typical methods of

guarding hazardous points of operation:

**Enclosure or barrier.**

Admits stock but will not admit hands into danger zone because of feed opening size, remote location or unusual shape.

**Gate guard.** Shuts off or disengages power and prevents starting of machine when guard is open.

Prevents opening of guard while machine is under power or coasting.

**Two-hand trip** (mechanical or electrical). Simultaneous pressure of two hands on switch buttons, air control valves, mechanical levers, interlocked hand-foot control or removal of solid blocks or stops permits normal operation of machine.

**Automatic or semi-automatic feed.**

Stock fed by chutes, hoppers, conveyors, movable dies, dial feed rolls, etc. Enclosure will not admit any part of body.

**Hand removal.** Cable-operated attachment on slide connected to operator's hands to pull them back only if they remain in the danger zone.

**Electronic beam.** Activates brake to quickly stop machine or prevent its starting if hands are in the danger zone.

**Limited opening.** Slide travel limited to 6 cm (1/4 inch) or less; fingers cannot enter between two pressure points.

Staying safe at the point of operation requires knowing how the protective devices work, never removing or altering guards, using proper personal protective equipment and immediately reporting faulty safeguards.

## The Quiz

These questions are meant to help you remember what was discussed today — not to test your patience or challenge your intelligence. The answers are at the bottom of the page. Cover them up, and complete the quiz as quickly as you can.

### Hold These Thoughts

A variety of mechanical motions and actions can present hazards to workers. The basic types that must be recognized are:

#### Motions

- Rotating, including in-running nip points. Even smooth, slowly rotating shafts can grip clothing, and through mere skin contact, force an arm or hand into a dangerous position.
- Reciprocating. During back-and-forth or up-and-down motion, a worker can be struck or caught between moving and stationary parts.
- Transverse. Movement in a straight, continuous line creates a hazard because a worker can be struck or caught in a pinch or shear point.

#### Actions

- Cutting. Can involve rotating, reciprocating or transverse motion. The danger of this action is 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.
- Punching. Occurs when power is applied to a ram for the purpose of blanking, drawing, or stamping materials. The danger occurs at the point of operation where material is inserted, held and withdrawn by hand, as may be the case with power or punch presses.
- Shearing. Involves applying power to a ram or knife to trim or shear metal or other materials. A hazard is present at the point of operation where stock is inserted, held and withdrawn.
- Bending. Occurs when power is applied to a ram to draw or stamp metal or other materials. A hazard is present at the point of operation where material is inserted, held and withdrawn.

- Failing to guard moving machine parts properly is among the leading violations of occupational health and safety regulations.  
TRUE \_\_\_\_ FALSE \_\_\_\_
- Can injuries occur only where a machine's point of operation is located?  
YES \_\_\_\_ NO \_\_\_\_
- Which of these is NOT a basic type of machine guard?  
A. Fixed.  
B. Fenced.  
C. Interlocked.  
D. Adjustable.  
E. Self-adjusting.
- Awareness barriers are a form of machine safeguarding.  
TRUE \_\_\_\_ FALSE \_\_\_\_
- Which of these must all safeguarding measures do?  
A. Prevent the worker's body or clothing from contacting hazardous moving parts.  
B. Be clearly marked.  
C. Create no new hazards.  
D. Not allow falling objects to enter moving parts.  
E. All of the above.
- Safeguards must always be removed when a machine is being lubricated.  
TRUE \_\_\_\_ FALSE \_\_\_\_
- Which of these are typical methods of guarding hazardous points of operation?  
A. Enclosure or barrier.  
B. Gate guard.  
C. Two-hand trips.  
D. Automatic or semi-automatic feed.  
E. All of the above.
- Does your workplace have any machine point of operation hazards?  
YES \_\_\_\_ NO \_\_\_\_ DON'T KNOW \_\_\_\_

ANSWERS: 1. True, 2. No, 3. B., 4. True, 5. A., C. and D., 6. False, 7. E., 8. Your answer

## For the Record

Date of Meeting: \_\_\_\_\_

Topic: \_\_\_\_\_

Location: \_\_\_\_\_

Department: \_\_\_\_\_

Start Time: \_\_\_\_\_ Finish Time: \_\_\_\_\_

Meeting Leader: \_\_\_\_\_

In Attendance:


Sample

### It really happened...

A worker was using a hand-held knife to cut a sample from a machine that produces flat rubber sheeting. He was working near the in-running pinch point of the revolving middle and bottom rollers. One hand was pulled into the rollers. Although he pulled that hand free, his other hand and arm were caught and pulled into the rollers before the emergency stop system could be activated. The worker suffered crushing injuries to both hands and one arm.

This incident illustrates the need to follow safe work practices when working near any type of machine with powered rollers. These practices can include:

- Changing or adapting the work process to eliminate the hazard of working close to rotating machine parts.

- Ensuring that machines have adequate and effective safeguards that restrict worker access to a hazardous point of operation.

- If the safeguard initiates the stopping of a machine (such as a bump bar or light curtain), making sure it activates automatically when workers approach a hazardous point of operation and stops the machine before the worker can contact the hazard.

- Ensuring that only appropriate tools, such as long-handled tools, are used near moving rollers. (These tools are not a substitute for safeguarding.)

- Provide written safe work procedures that will allow workers to keep as far from the moving rollers as possible.

**Note: *TalksZone* safety meetings are not intended to take the place of your own safety procedures. Always consult and/or review your procedures before attempting any work.**